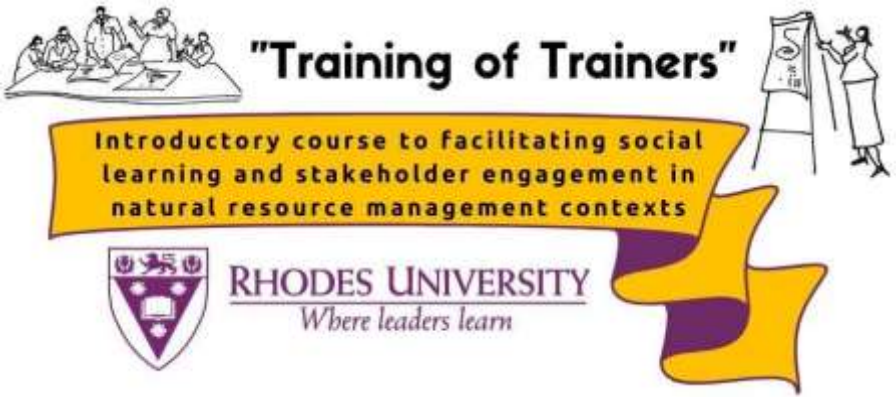

SHORT COURSE LEARNING MATERIALS BUNDLE

Preamble

This document is a compilation of the course handouts (materials) developed and produced for the "Training of Trainers" Short Course – the full title of which is the:
"Introductory course to facilitating social learning and stakeholder engagement in natural resource management contexts".

This course was first facilitated in 2021. It was developed and coordinated by a group of contributors lead by Dr. Matthew Weaver, implemented through the Tsitsa Project, and hosted by the Environmental Learning Research Centre at Rhodes University under the leadership of Professor Eureta Rosenberg. The course team would like to acknowledge xxx and xxx for the illustrations used in the course materials. Additional guest contributors are acknowledged in the text.

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The course materials are compiled to allow for open access and sharing. The course team kindly asks that you acknowledge the team who developed these materials when using them. Please cite this document as follows:

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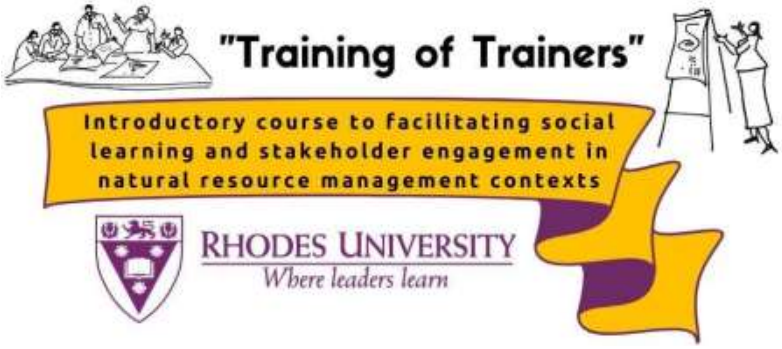
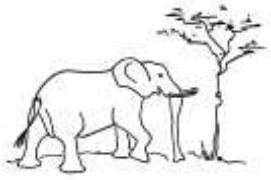


MODULE 1: Educational Contextual Profiling

Topic 1.1: Introduction to Learning Facilitation and Stakeholder Engagement in Natural Resource Management

What is involved in natural resource management?

Many of us are concerned about people and nature; we want to see people taking care of natural resources and while doing so, live a good and healthy life. That is what natural resource management (NRM) is all about: it is about looking after nature in such a way that it can support people's livelihoods and well-being, for this generation and their children's children; but also, the other creatures with which we share the planet.



The resources from nature include the ocean, land, water, and air; the variety of different landscapes and water sources and the wild plants and animals that occur there. In the NRM contexts on which we focus in this course, the most important natural resources are rivers, wetlands and land, which includes the soil and biodiversity, all of which make up landscapes.

People working and volunteering in NRM, and doing this course, find themselves in different organisational contexts such as NGO's, reserves and parks, research institutions, municipalities, provincial or national government, schools, universities, and catchment management agencies. Community activists support community action and development from wherever they can.

The choice of NRM action may be compliance monitoring, enforcement, alien clearing, integrated water resource management, nature conservation, eco-tourism, environmental monitoring, climate smart agriculture, conservation agriculture, agro-ecology, pollution clean-up, and others. We may refer to natural resources as either nature, the environment, ecosystem services, ecological infrastructure, or biodiversity. Beyond English, there are additional terms that can be used for natural resources.

Whatever we do and wherever we do it, if we are interested in working with nature, we are almost always also involved with people. Why? People depend on nature and impact on nature; people use resources and it is mostly people's actions which either damage or sustain nature - although nature itself also plays a part.

Column 1 of Table 2.1 has some examples of contexts, issues and solutions that make up NRM. We will learn more about these issues and their causes in Topic 3. For now, let us identify some of the people involved in each of these NRM contexts. We have already mentioned some of them in the middle column of Table 2.1. These people can be causing problems and people affected by problems. Sometimes there are no problems and we just want people to enjoy and appreciate everything nature has to offer! Sometimes these people are called "stakeholders" because they have a stake, or a right to have a say, in the management of natural resources, they use or abuse natural resources, or they are (actually

or potentially) affected by the use or abuse of natural resources.

Table 1.1: NRM Contexts and Stakeholders

Types of NRM contexts (issues and solutions)	People (Stakeholders) involved in these contexts	WHO has to learn here and WHY?
Threats to wildlife and nature	Conservators, rangers, neighboring communities,poachers, hunters, healers, harvesters, collectors, tourists, …	
Eco-Tourism	Tourists, conservation agencies, communities, business owners, artists, entrepreneurs, …	
Invasive alien plants andanimals invading natural vegetation and water sources	Clearing teams, monitoring teams, restoration teams, farmers, landowners, municipalities, …	
Pollution of rivers andwetlands by mining	Mining companies, farmers, community based environmental monitors, affected community members, journalists, activists…	
Sewage spills into rivers and on land	…	
Soil degradation due to construction, road building, mining and farming	Construction companies, engineers, project leaders, supervisors, farmers, mine managers, environmental managers, …	
Overgrazing	Farmers, extension workers, …	
Integrated Water ResourceManagement	Industry bosses, commercial and communal farmers, municipalities, community leaders, paying residents, water user forums, CMAs, DWS national and provincial, …	
Rivers and wetlands drying updue to over-extraction of surface and groundwater	Farmers, industry owners and managers, mine owners and managers, municipalities, …	
Climate change causing more floods and droughts	Farmers, municipalities, environmental monitors, CMAs, …	
Add your own: ……		

Activity 1.1: Identify NRM Stakeholders

Study Table 2.1 and then add to the stakeholders in NRM contexts, in the middle column of the table. You can do this on your own, or in discussion with others.

We engage people as learners or as other kinds of stakeholders, because:

- Their actions, inactions or decisions may cause NRM problems
- They may in future be affected by NRM related issues

- They may already be affected by the problem
- They could help to solve the problem; their participation is needed for successful NRM
- We need to learn from them in order to better understand NRM issues and/or solutions (this is often the motivation for stakeholder engagement, e.g. by researchers or project managers).

In this course we are especially interested in people interactions that involve learning. We propose that if any engagement with people is going to lead to successful natural resource management, learning isgoing to be involved.

As scientists, activists, authorities, educators and facilitators, we often assume that *the other person* has to learn. Go through the same table again, and think about what the educator, facilitator, activist, government official or scientist has to learn in each of these situations.

In NRM, there has been an increasing recognition that all parties need to learn from each other and from available new information, if there is going to be better NRM as a result. The rest of this topic is going to explore this idea. [In Module 2, we will focus on *how* to support learning.]

Activity 1.2: Identify the Learners in NRM Contexts

In Table 2.1, look at each situation and decide: Who has to learn, what and why? On your own or in discussion with others, now fill in the third column in Table 2.1, for as many examples as you can. If you are struggling or short on time, you need not complete the entire table.



What is involved in learning, education, training and facilitation?

Learning takes place when we gain *new* knowledge, new understandings, new insights, and/or new skills. Learning also takes place when we *unlearn* certain things that *used to be* true, or helpful, or that we *thought* were true or helpful, but were actually not. We learn from our own experience, from books, or research, or nature, from the older generations and from each other. In Module 2 we will explore different ways in which to help facilitate people's learning, according to context and purpose. Learning takes place in formal places like schools and universities, but also out in the field and in the workplace. We can refer to learning as formal (planned and resulting in qualifications), non-formal (planned but not resulting in qualifications), and informal (not really planned).

Education is usually associated with formal institutions like schools and universities that support formal learning of a more general and professional kind, that usually results in qualifications, either a university degree, diploma or a school qualification. The educators

in these situations often find themselves teaching lessons or lecturing on particular topics or bodies of knowledge.

Training is a term often used for a more informal form of education that imparts quite specific skills (as opposed to a more general education); it may or may not result in a certificate of some kind, but usually not a degree. In training we can have trainers or learning facilitators, depending how structured or open ended the training is. One would train someone how to operate a chainsaw; this is not an open-ended activity, because there is only one way to do it right.

Facilitation refers to more open-ended learning opportunities, where the participants are learning about things for which there are more than one way in which to do something. One would facilitate the learning of participants learning how to facilitate, because there is more than one way in which to facilitate! Facilitation supports people to learn from each other and from activities and experiences. Facilitation is more open-ended than lecturing, teaching and technical training.

Box 1.1: Some examples of learning and the facilitation of learning

- Teachers teach children Mathematics in the classroom
- Teachers facilitate children's learning about nature through hands-on activities
- Adult literacy facilitators teach adults how to read
- Lecturers lecture to students about climate change
- Lecturers teach students how to conduct research
- Extension officers teach farmers about new fertilizers
- Farmers teach extension officers about the effects of the next fertilizer on their crops
- Conservation officers teach communities about the impacts of poaching
- Interpretation officers demonstrate the impact of feeding wild animals to park visitors
- Community educators facilitate shared learning about climate change adaptation
- Researchers facilitate co-construction of new knowledge for NRM

The purpose & processes of facilitating learning can and should differ according to the context.

In many NRM engagements with people, we use a combination of teaching, lecturing, demonstration, interpretation, training and facilitation. We will explore this again when we look at the different methods or strategies for engaging with people (Module 2). In Module 2 we will learn about the active learning cycle; learning by doing; social and expansive learning. Social learning extends beyond the individual person's learning, and becomes embedded in social contexts like organisations, where people start thinking and doing things differently (see Topic 6). Expansive learning is especially important in those NRM contexts where it is not clear what the solution to the problem(s) may be, and where people still have to work out these situations. There we can facilitate processes through which people, including the facilitators themselves, can figure out the best way(s) forward. The learning scientist Yrjo Engeström used the term expansive learning as "learning what is not yet there". It is especially useful in complex activity systems such as those we will learn about in Topic 3.



Knowledge and Information

As mentioned earlier, learning involves deepening, extending or changing our existing knowledge.What do we need in order to do that? We almost always need new information. We also need practice, experience, opportunity to think, discuss, evaluate, reflect, and so on. But information and knowledge are also very important, and for that reason, in Assignment 1 and 2, you will explore the sources of information that people can draw on, for better NRM.

In Topic 4 we identify possible sources of information, consider what we regard as useful sources of information, and reflect on how we use that information. Over time, environment and sustainability educators have recognised the need to broaden the sources of information we use for NRM related learning. It can be tempting to think that scientific knowledge or the information provided by government are the only or the most important sources of information.

Why would that be a mistake?
Researchers themselves are the first to realise that scientific knowledge is always partial or incomplete. A scientist will find that, while we gain new insights from our research, there is always more to discover and learn. Researchers working in different disciplines also know that other disciplines can teach them more about the same topic. For example, to understand NRM well, we need knowledge from the earth sciences, water sciences, ecological sciences, economics and socialsciences, psychology and education studies, to name a few.

But what about other forms of knowledge? Other ways of knowing about and understanding nature and natural resources, the associated issues and responses, that are not discipline-based, academic, or based on formal scientific research?

In the postcolonial literature (e.g. the writing of the Portuguese philosopher-activist De Sousa Santos, 2016), we are encouraged to think of 'modern western science' as only one, incomplete way of understanding the world. Santos explains how valuing this one way of knowing the world *above all other forms* of knowing has marginalised other ways of knowing, in the process leaving humanity impoverished in our collective ability to tackle difficult problems such as those we encounter in NRM.

Most people would agree that modern western science is a valuable way of understanding the world, and that it provides much useful information for planning actions in the world, but Santos and others argue that it (like other knowledge forms) can always only be partial (incomplete) knowledge of the world. This is not because we do not yet have enough modern western science, but because science is based on underlying assumptions and methods that create some blind spots. The German sociologist Ulrich Beck (1992) even

argued that the modern western way of planning and acting in the world has created some big problems, even while it has also brought about some great improvements.

Activity 1.3: Explore Modern Western Science Advantages and Limitations

Can you identify some advantages of modern western-based science? Can you think about problems caused by this science? What can be done about the problems, so that we do not lose the benefits?

Other forms of knowledge include …

- experiential knowledge (people's lived experience, for example the deep knowledge a person develops from caring for a child with disabilities)
- traditional and indigenous (African, Eastern or Western) knowledge
- local and situated knowledge (from living or farming in a particular place over years or generations)
- tacit knowledge (e.g., about doing a particular job, that one has learnt over a long time about doing the job but may struggle to explain to another person how to do it).
- Some say that new insights come to them in dreams or spiritual experiences, from a deeper source of wisdom which others may call intuition or ancestral knowledge.

These forms of knowing, too, may have certain limitations and in one situation versus another situation, some forms of knowledge may be more important than others. In NRM situations any form of knowledge is likely to be partial or incomplete, which is why there are often calls for trans-disciplinarity: drawing on many different knowledge traditions or disciplines, and also transcending the disciplines to draw on local, traditional, indigenous, and tacit knowledge from outside the formal disciplines, and also developing new knowledge in the very process of trying to address NRM issues. There has therefore been a strong movement to extend the kinds of knowledge and information sources which are regarded as valuable and valid for NRM purposes.

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Santos, B.DS. (2016). *Epistemologies of the South. Justice against epistemicide*. Routledge, London.

Topic 1.2: Introduction to Context: why it is important and how to do an educational contextual profile

In this topic we will think about the **context** in which natural resource management (NRM) and learning activities take place. This builds on what you learnt in Topic 2 about **education, knowing and sources of information:** the context of an NRM initiative or program will influence education, knowing and the kinds of information that are important. We will start off by looking into *what context is* and *why it is important*. We will then go on to look at some *tools and approaches that can help us to think about and analyse* or study our context. Finally, we will look more specifically at *what an educational contextual profile is*, and how we can build one for the module assignment.

Information for ASSIGNMENT 1 (Module 1)

- Using the structure provided, write 2-4 pages or present a talk on **the social, economic and bio-physical issues in your context**, and where you gather **your information and insights** onthese topics *[i.e. conduct a brief CONTEXTUAL PROFILE]*;
- Using the instructions, **interview** one other person on the social, economic and BP issues intheir context, and where they gather their information and insights on these topics. **Describe** how you have conducted the interview using the given template.
- **Reflect** on what you have learnt, in relation to the principles provided on the course.
- **Record and share** your findings in a written / visual presentation.

What is context and why is it important?

Context is the surrounding environment or situation which influences the NRM or learning process weare focused on. The context is ever-changing. Understanding the context can help us to better understand what is happening in NRM or learning activities, and why things happen the way they do. The word 'context' can be more easily understood if we think about it as a **container** in which NRM and learning and engagement takes place. The container shapes the NRM and learning processes, just as a container shapes the water we pour into it. For example, I have a cup of water but it matters whether I pour it into a clean glass, into a healthy wetland, into a huge dam, down the drain, into an ice-cube tray in the fridge, or into a calabash. The water is my NRM or learning program or initiative. The container is the context which will shape my NRM or learning program.

Another way to think about context is that it is like a **situation or social gathering** which influences use as humans. For example, the way we act, behave and interact with one another will be very different at a wedding, or at a funeral, or at a formal business meeting. Each of these three social gatherings are a different situation or context, and will influence the social processes that take place. Conducting a contextual profile helps us to *situate* (place) NRM, learning and educational activities and processes within the given context.

The importance of "placing social and cultural phenomena in context" has a long history for example in social anthropology studies (Dilley, 1998), where social and cultural – and in our case also educational and environmental phenomena – are interpreted *with reference to context*. The context sheds light on and helps us to make sense of the way in

which we experience environmental challenges and the way in which stakeholders respond to them.

Context can also be understood as a particular bounded place and space. Similar terms or synonyms to "context" include "surrounding environment", "situation", "focal system" or "system of interest". Each context is unique, and it is important to appreciate the complexities, dynamics and multi-level nature of context and how this can influence NRM processes and outcomes. Contextual complexities should be considered at **multiple levels**, i.e., at the macro (international and national), meso (provincial), and micro (local) levels (Schudel et al., 2008), whilst also considering the interactions across levels. This means we look at context across various **spatial scales**. We also need to continue **various time scales**: looking not at the present moment only, but also the past and the future.

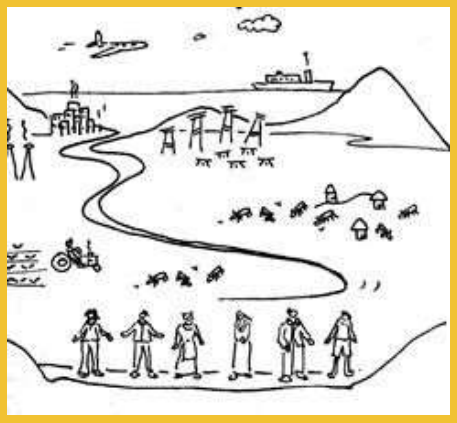
We realise therefore, that context is *complex, and that it is made up of different dimensions which interact with one another* and influence the environment, NRM and learning processes. For example, the context can be made up of the land, the river, the animals, and the people who live in a catchment (see Example 1 below). All these different parts of the context are interconnected and interact with one another. They all influence the way in which natural resources are managed and will also influence the way in which different people learn about and respond to environmental challenges. This means we understand that NRM and learning take place within complex systems, and that multiple dimensions of the environment (or the system) influence NRM and learning processes.

Activity 1.4: Examples of different contexts.

Let's look at some examples to learn more about context.

Look at these two examples and ask yourself some questions: How would I describe what is going on here? How would I paint a picture of this situation, and what is happening here, and explain it tosomeone else? What are the different parts of this context (of the container or situation) that might influence NRM activities? And how might these different things influence learning and educational activities? How would you go about learning more about the context, i.e., what sources of information would you want to use, who would you speak to?

Context Example 1: River Catchment. Key stakeholders who have interests in multiple natural resources in the catchment in a learning process about how to better manage the water resources.



Context Example 2: Sugarcane farm. A sugarcane farmer, researchers and an extension officer in a learning process on a sugarcane farm to discuss how to maximise the productivity of the sugarcane farm while managing natural resources sustainably.

How do we think about context?

Thinking about context can feel overwhelming: where do we start if we want to paint a picture of a place and time, in all its complexity? One way to start to organise our thoughts around context is to think about the **different dimensions of the environment** in which our NRM activities are taking place. The diagram below is a useful guide to doing this (Figure 3.1). Using this diagram, we can lookat a particular place, at a particular time, and ask questions about the different dimensions of the environment. For example: Social: Who are the people who live and work here? Economic: What are the ways in which people make

money here? Biophysical: What are the main natural resources? What are the environmental changes taking place that influence this place and the NRM activities taking place here? Then, we also need to ask questions about how these different dimensions of the environment interact with one another and affect one another, for example: How does climate change (biophysical) influence farming activities (economic)? How does conflict in the community (social) influence the way in which water resources (biophysical) are managed?

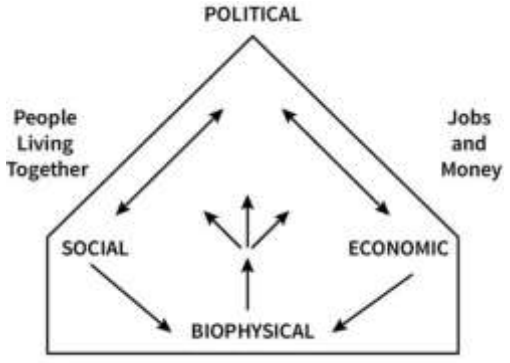


Figure 1.1: Different dimensions of the environment: a tool to help us think about context and the way in which the different dimensions of the environment interact with one another to influence NRM activities, learning and education. This tool helps us to apply systems thinking tomake sense of complex systems (O'Donoghue, 1993).

What we are doing when we analyse the context and the environment using this diagram is identifyingthe different components of the context (or system) and the interactions or relationships betweenthem. This is **systems thinking**, and it is a way to analyse and make sense of **complex systems**. Let's pause here for a moment to define these terms:

Systems thinking: this is a way of thinking about the world around us as an interconnected set of components that interact with one another to produce outcomes or as: "a set of elements that is coherently organized and interconnected in a pattern or structure that produces a characteristic set of behaviors" (This is from Donella Meadows book 'Thinking in Systems', p. 188). This means we understand that 'things are more than just the sum of their parts', and we think about the 'bigger picture'. Systems thinking is about thinking about the relationships between things, and about how things interact in complex ways to produce unexpected outcomes. Who would have thought, for example, that producing cars for human transportation could have had an influence on the planet's climate?

Complex systems: all systems are, by their very nature, complex. But we add this word to emphasise some of the most challenging characteristics of systems. Complex systems are difficult for us to understand, and difficult to manage. This is because they have specific features or characteristics (Box1.1) (Preiser, 2018). Examples of complex systems include the stock market, the global climate, the brain and business organisations. We also see many examples of complex systems in natural resource management: river systems, agricultural systems, marine social-ecological systems, etc. It is useful to distinguish between **simple, complicated and complex systems and problems**: e.g., making a cup of tea is a simple system; making a wedding feast for 300 people is a complicated system, farming livestock is a complex system. Or: fixing a wheelbarrow is a simple system; fixing a car is a complicated system; fixing broken trust between diverse stakeholders in a rural landscape is a complex system.

Box 1.2: Some features of complex systems which make it difficult to understand and manage them (Preiser, 2018)

- They contain ***adaptive components*** which allow systems to change and evolve over time in response to changes in the environment (they can also be referred to as 'complex adaptive systems'). For example, farmers adapt the kinds of crops they grow in response to climate change.
- The components of the system - e.g., people, animals, climate, etc. - are ***interconnected*** and therefore their ***actions and interactions can have surprising and unexpected results***. For example, if people stop relying on the river for water because it is now being delivered by the municipality, they might start dumping their waste in the river.
- The way the system behaves as a whole is different from the behavior of the individual parts, and so it can have ***emergent properties***, that is, characteristics or properties that are unexpectedly different from its component parts. For example, a termite colony is the emergent outcome of the interactions between thousands of individual termites, and the soil, water and food they use as resources for building the mound. The characteristics of the termite colony as a whole are different from the behavior and characteristics of these individual components.
- Systems are ***open and connected to other systems***, and the ***context*** of a system influences it. For example, a local community living in a rural area is influenced by the global COVID-19 pandemic. They cannot isolate themselves from the effects of the virus. The virus is part of the overall context of that community, as we understand context to be multi-scale from the local to the global scale.

A termite mound, like this one in Namibia, is an example of a complex system (National Geographic, 2014).

Although we have spoken here about describing context as 'a place and time', it is important to also pay attention to the historical context of a place and the activities taking place. For this it is useful to include a **historical analysis** as part of a contextual profile. A historical analysis looks at what happened in this place before the current moment, and how that may be influencing current events and activities.

For example, let's think about the history of the sugarcane farmer above in Context Example 2. Let's call him Mr. T. Mr T was born in this community, and his family have been farming vegetables and maize for many generations. This means he knows the soil, he understands the weather and knows that the climate is changing, and he has a good knowledge of how to grow crops. He is, however, the first in the family to start farming sugarcane. Mr T. did not complete his schooling since access to educational opportunities for his community was limited during the Apartheid era. This has made it difficult for him to learn the business and financial management skills needed for commercial sugarcane farming. He is therefore very reliant on advice from extension officers.

From Mr. T's example, we can see how the history of a place and its people will influence current natural resource management activities, and how it will influence the way in which people interact with one another. Part of understanding and mapping out the history of a place is also understanding what kind of environmental changes have taken place historically, e.g., how climate and land use patterns have changed over time. Therefore, as part of painting a picture of a place, i.e., of understanding the context, we need to get a basic understanding of the history, and of environmental change, by conducting a brief historical analysis.

One of the most useful tools for conducting a historical analysis is to construct a **historical timeline** with the relevant stakeholders (for an example of a historical timeline, see *Contextual Profile Example 2: Langkloof Case Study* below). This can be done in a participatory way to capture the multi-generational knowledge of a community, for example, by drawing this on a piece of flipchart paper on the ground and giving everyone pens to contribute to the timeline. Older people are often the keepers of historical knowledge in a community, and you might like to take special care to make this activity accessible for them. Consider including a historical timeline in your assignment, based on interviewing a local person.

What is an educational contextual profile and how do we build one?

What is educational contextual profiling? Educational contextual profiling is a process through which *contextual factors and complexities* that have a bearing or an influence on learning and educational processes are identified and utilised to inform how learning and educational processes are designed and implemented (Lotz-Sisitka & Janse van Rensburg, 2000). A contextual profile helps us to think about the *surrounding environment* in which a learning process is situated, and about how that surrounding environment, which is ever-changing, influences the learning process.
For the purposes of learning in the context of NRM, we need to describe the context in terms of two main aspects which are interconnected:

- Context of NRM, environment, sustainability challenges, etc.
- Context of learning, educational and change process, and stakeholder engagement.

The methods used to conduct contextual profiles can vary. These are four common approaches tocollecting information and knowledge to construct a contextual profile:

1. Face-to-face interactions with actors in the context (e.g., through interviews, story-telling,survey questionnaires or focus group discussions);
2. Participant observation and field notes when we have opportunities to participate in activitiesand events in the context;
3. Desktop research of existing documentation, statistical data (e.g,. Census data), published research or information about the context and policy documents (e.g. web searches, literaturereview, document analysis, use of existing statistical data)
4. Participatory research approaches used in development work like 'Participatory Rural Appraisal' or 'Participatory Learning and Action'. These include more specific tools like historical timelines, participatory mapping, transect walks, problem trees, and participatory scoring matrices which focus on visually engaging participants in generating knowledge about their context (Chambers, 1994; Pretty et al, 1995).

Compiling a 'case description' or a 'contextual profile' based on a variety of data sources requires an integrative approach to data analysis where we combine the different sources of information to draw apicture and tell a story about a place and time.

You will learn more about *sources of information* and *research methods* in Topic 4 and 5 of this module which will help you to build your contextual profile for your Module 1 assignment.

Examples of contextual profiles from NRM and learning programs

We will briefly look at two examples of contextual profiles (these are available as downloadable resources on the course website under Module 1, Topic 3 - under 'core readings and resources'). Please download them and take a look at them before continuing with this handout):

- **Contextual Profile Example 1:** *Overview of the Olifants Catchment* (AWARD, 2014).
- **Contextual Profile Example 2:** *Collaborative stewardship in multifunctional landscapes: toward relational, pluralistic approaches: The Langkloof Case Study* (Cockburn et al. 2019).

You will notice from looking at the two examples that they are quite different: the Olifants example isa long document, and goes into a lot of details, as its purpose is to inform the implementation of a large catchment management program. The Langkloof example (only focus on the section of the paper called 'the Langkloof Case Study') is much shorter, and is used as a case study description, i.e. as background for an academic research project. The contextual profiles you will be building for your Module 1 course assignment will be different again. It is important to note that the purpose of a contextual profile will determine how detailed it is, and what kind of focus it has.

Activity 1.5: A quick contextual profile of a river clean-up initiative

Look at this series of photographs about a local community-based river clean-up activity in Makhanda. Answer the questions about it below to help you to develop a basic contextual profile ofthis place and time. While you are answering the questions, think about the different sources of knowledge and information you could draw on to develop this contextual profile.

A: Before river clean-up activity. B: During river clean-up. C: After river clean-up.

Questions: *(Note: these are based on the 'Different Dimensions of the Environment' diagram in Figure 1)*

1. Who is involved in the river clean-up activity? Who organised it, and who volunteered theirtime to help? Who is responsible for taking care of this river? (Social)
2. Which government department is responsible for managing this river catchment area?

Which government department is responsible for solid waste management? Which local lobby groups could be involved in addressing this pollution challenge? (Politics)

3. Is anyone employed to clean up the river? Who benefits financially from a clean river? Who benefits financially from dumping waste in the river? (Economics)
4. What is the condition of the water in the river? What is the state of biodiversity around the river? (Biophysical)
5. Whose health is affected by the pollution in the river? (Social-Biophysical interaction).
6. Whose livelihoods might be affected by the pollution in the river? (Economic-Biophysical interaction)
7. How could climate change affect the ecological state of the river? (Biophysical-Biophysical interaction)
8. What is the history of this community, and how has it influenced the relationship they have to the river? What environmental changes have taken place over the last 50-100 years? (Social-Biophysical-Historical)
9. What are the learning and educational opportunities which this river clean-up activity opened up? (Educational)

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Topic 1.3: Information: sourcing, accessing, sharing of information

Nature is a complex system that involves interactions between the various elements of the environment including humans. Our focus is to learn more about how to work together in our efforts to use our environment and to keep it intact for the next generations. Doing so requires that we broaden our way of knowing and sources of information. Sustainable development and good stewardship of the environment requires that we broaden our sources of knowing and information. We, therefore, must think and use information beyond what we would consider "normal science", to include indigenous ways of knowing and knowledge. Inclusivity is one of the important cornerstones of sustainable development. Acknowledging diversity in how knowledge is constructed (Botha, 2012), preserved, and used is important, especially within a localized context. Often the issues and problems we seek to address are localized and thus local people's perspectives on issues are important too. We need to use all sources of information available to usto facilitate learning and make appropriate decisions.

Why do we put emphasis on finding information?

As the course participant, you need to know how to find information and what sources of information can help you do that. You will need information for the following reasons:

1) For the assignment / to produce a contextual profile NOW.
2) In future, you will need information to inform contextual profiles or general planning for other learning programs you will develop, so it is generally useful for learning and engagement facilitators to think about information sources and their credibility.
3) And at another level, in the project and community you will be working with, learners (communitiesand other learners) also need and use information sources, and part of this particular contextual profile is to learn about those information sources, as part of understanding learners and their contexts.

Gathering information and finding out what is already known is, therefore, a crucial part of learning,especially in addressing NRM problems, as the following diagram shows:

There are various sources from which we can collect information in support of learning and understanding context. The next section deals with these sources of information.

Sources of information and ways of knowing

Ways of knowing

Inclusive approaches to ways of knowing and doing are necessary to mitigate risks in environmental degradation (Mukute & Lotz-Sisitka, 2012) and are now championed all over the world. These approachesare both inclusive of formal and informal education. Such an inclusive approach augurs well for sustainablenatural resource management. In the facilitation of social learning and stakeholder engagement this understanding is critical. The best way of doing this is to understand the strength in the use of hybrid knowledge – the use of both scientific and local or indigenous and traditional ecological knowledge. The **2019 issue of the South African Journal of Environmental Education** (SAJEE) provides useful papers on indigenous knowledge systems within the context of learning.

Our world is complex, and we need to use all available information and ways of knowing to understand it.We use multiple sources of knowledge to develop and enriched understanding and plan better in the use and management of natural resources. The complexity of nature requires that we acknowledge and acceptthat there are various ways of knowing (de Sousa Santos *et al.*, 2008) as one or two forms of knowing cannot fully account for nature's complexity.

Scientific knowledge is always contested. Knowledge is ever evolving as we find better ways of doing things, better equipment to collect data, quicker ways to validate and so on. The universality of what is scientific knowledge is itself contested as it is mainly based on cultural and social norms of the west (Breidlid, 2012). Current debates have focused on the fallacy of western science as the answer to all our problems. The mainproblem is that knowledge is a value-based system that can reflect dominant ideologies. For instance, science in the western world is conceptualised within the western thought. At some point in history this thought dominated the world and all other ways of thought were subjugated under it. Over the years there has been an assumption that western science possesses the power to solve all problems and everywhere in the world (universality and hegemony of western thought). This thought dominated the colonial and apartheid era.

In South Africa and elsewhere (e.g. Latin America, Asia, other African countries, etc), indigenous or traditional ecological knowledge were disregarded in favour of western scientific knowledge and ways of knowing - the latter deemed superior. Meanwhile, indigenous ways of knowing and knowledge were ignored as they were regarded as primitive and thus inferior. This had a huge impact on policy development for the rest of the

population (75%). The policies that were developed tended to fail at an alarming rate as they were rejected by the African population. Ignoring indigenous knowledge systems has been cited as the cause of failure for many developmental projects (Tripathi & Bhattarya, 2004).

In South Africa, the Betterment Scheme provides a good example of a policy that failed to take local knowledge and views into consideration. It was a policy developed to rehabilitate the degraded communal areas. Since it was a top-down approach and based on shallow understanding of local culture and ways of doing things, it failed to keep momentum (de Wet, 1995). It was only implemented using coercion through local chiefs. The policies largely were ignorant of African thought and ways of doing things. This has had a huge impact on the environment as people tend to respond negatively from instructions. The policies are now largely considered to have fuelled the degradation in the communal areas (Hoffman & Ashwell, 2001) – e.g., through laws that forced Africans to work on farms, mines, and industries.

The foregoing paragraphs, therefore, demonstrate that the use of both scientific and indigenous knowledge systems is critical for sustainable environmental management and learning. We must be cognisant of this fact when we approach the various sources of information. It is tempting to focus on what we know best – the scientific knowledge, however, doing so may deprive us of other useful insights.

Sources of information

Collecting information from various sources is important in the learning process. We must be able to identify different sources of information and evaluate their credibility. Information is used to support arguments and demonstrate what you say is well thought through and can be verified.

In the modern era various sources of information and knowledge are readily accessible or available (Parker & Turley, 2013). Most importantly the digital age has made available vast amounts of information on the internet on various platforms. Not every information sourced from the internet is true. Acquiring the skills to identify credible information (information literacy) is important. Often the information can be so deceptive and needs scrutiny to confirm credibility or lack thereof.

Your sources of information, to support you in learning and completing your assignments, may be a combination of the following:

Box 1.3: Examples of information sources

- Media - radio, newspapers, TV, etc
- Social media - Facebook, WhatsApp groups, Twitter, etc
- Word of mouth, meetings, social groups, etc
- Authorities: Church, government - traditional and otherwise
- Workplaces, employers
- Our own experiences, observations, and daily collection of information as we go about doing our work
- Historical and traditional knowledge
- Scientific publications

Scholarly works

These are articles (journals) and manuscripts (books) that are written by experts in their field and the articlesare subjected to scrutiny by other experts in the fields (referred to as peer review). These materials are often published in accredited journals and in books published by established publishers. It is easy to validatethe authenticity and reliability of such articles as the individuals, their affiliations and journals can be easilytraced.

Books offer a deep expansion of events, a topic or a collection of topics. Books can be written to providehistorical accounts, to talk about the life of a person (autobiography), as a guide (self-help), a review, cover a topic and many more topics. Books often take years to write and publish (this refers to both fiction and non-fiction). This means that the information contained in a book normally reflects information from an earlier time than when it was published. It is important to consider this when using books to know the type of information you are looking for and the type of books to refer to.

Mass media and social media

All sources of information **that have been verified** are regarded as useful as they can be relied on. For instance, in journal articles scholars must do literature review of the topic or related topics to understand what other scholars or experts have said about the topic and how they differ with what was said. This provides ways of tracking the validity of their claims. In this regard, books and journals are regarded as relatively reliable sources of information. On the other hand, **media news or single source information** lack that credibility as it may be based on just one person's opinion. The information may be reliable for events and that the person has first-hand experience of the event as a participant or observer. Think of what is generally called as fake news, mainly in social media. This often results from one person making a falseclaim, deliberately or not and it spreads out quickly. We must be able to verify this kind of information and**it is not reliable**.

There are other sources of information beyond scholarly work and the examples are mentioned in Box 1.3.

The Worldwide Web (internet)

The **internet** is a global network of computers and electronic devices. It is this connection or network thatis shared amongst these computers that makes it easier for you to gain access to various forms of information. The web or **worldwide web** is then a collection of websites that can be accessed using the internet. These websites can range from online newspapers, online journals, a site for housing television shows, to blogs, online businesses etc. In other words, the purpose of a website can be anything- because anyone can develop their own website. **Social media** platforms are internet-based applications that are usedto, **not only share information, but create content and knowledge** that takes its own form. With this understanding in mind, it is important to evaluate websites carefully for credible information.

Indigenous or traditional local knowledge

There are also other sources of information that tend to vary from location to location. These are **local or traditional knowledge**. The knowledge is based on lived experiences, cultural beliefs and connections to the land that are transmitted, often through word-of-mouth from generation to generation. The knowledge may reside with specific individuals within the community, or community of practice - for instance in culture of *amaXhosa* there are *iingcibi* (traditional surgeons), *amaxhwele (*herbalist - the equivalent of a pharmacist

in modern societies) and *amagqirha* (foreseers or spiritual practitioners).

Understanding these sources of information and knowledge may also support your learning to understand the local dynamics. For instance, in the Cacadu area a constellation of villages is in an area dominated by the Clarens sandstone formation. This community is called Machubeni in *isiXhosa* to signify that it is located where the geological structure is an **erodible rock material** (brittle sandstone). Often the villages may bear names that are descriptive of the area or the history of the area – e.g,. *kwa-Ndlambe* which is whereChief Ndlambe Great Place was located. Often such information sources do need triangulation to confirm reliability.

Historical information sources

This kind of information sources include historical documents that may be housed in national and provincial archives. Such historical documents may also be in special collections sections of libraries - for example the Cory Library at Rhodes University has a huge collection of old historical documents. Similarly, the University of Fort Hare in Alice has a huge collection that can help you understand the history of the ANC, if that is what your contextual profile requires. Other universities such as Oxford and Cambridge Universityhave similar collections about the early encounters of the west with Africa.

Traditional and historical sources of information often do need **triangulation** to confirm validity and reliability.

Triangulation

Triangulation refers to a process where you cross reference information by using multiple methods or sources of information or data. When used in research, it is used when one method may not have produced reliable and credible information. It is when more than one method, or sources of information are used to arrive at a certain conclusion (Heale & Forbes, 2013). This requires critical evaluation of the sources of information and the methods used. For example, a historical account offers a story according to the viewpoint of the writer or persons interviewed. Another person who was present may offer a different account of the same story. So, in triangulation you bring together all the sources to develop a version that integrates them all or is consistent.

Dealing with complicated information (e.g., on climate change)

Science communication has been established as a way of making complex subjects accessible in everyday language. It demystifies science. It unpacks complicated scientific writing to common use language without losing the original meaning. Usually, journalists trained in the sciences are used to convert the writing in collaboration with the original authors of the work. In South Africa articles that appear in The Conversationand the Daily Maverick are an example of such articles. These articles emphasise the use of simple languagethat everyone can understand (Parker & Turley, 2013).

Local communities and farmers are exceptionally good at picking up changes in the environment. Since they work with the land, they are very attuned to the changes as they impact on their livelihood directly. For example, you can take older members of the village on a **transect walk** of the landscape to stimulate discussion and memory of the changes. Sitting down in a group they can discuss and give useful information, identifying critical events and what year they occurred. This information can be triangulated later with climatic data.

Validation of sources of information

All information that is used must be valid and reliable. Information sources must provide you with the answers or evidence to support your (research) question. You cannot take the source of information for granted – that is – the information is credible and reliable. You need to evaluate the sources of information before reviewing the actual articles (e.g., methods of data collection and analysis).

The proliferation of the internet and social media meant that everyone could write and post their opinions to be accessible to everyone one with a device. This has put a lot of pressure on scholarly work – i.e., to validate sources before use. For example, in academia the use of Wikipedia is discouraged as it is an open knowledge source that can be updated by anyone.

Journal articles and manuscripts are still more reliable than most sources of information for they have been peer reviewed. By design these sources of information (articles) are open to new ideas that use similar rigour to test new theories and application of knowledge. Knowledge goes beyond circumstantial evidence. It must be able to be proven scientifically – that is methodically such that a different person may come to the same conclusion given the same circumstances and using the same methods.

However, there has been a rise in pirate journals whose peer review mechanisms are suspect. In such journals, the author pays a stipulated amount to publish his or her article. It is quicker to publish in such journals as the main motive is to make money.

How do we validate information sources?

Lowry (n.d.) of Brock University Library provides the following guidelines:

a) **Understand the purpose** of the source (e.g., to provide information, persuade or to sell a product?); and its target audience – is it the focus for knowledge generators such as educators or academia, general public or school going ages?
b) The **authority and credibility** – is it from authentic authors with credible (what are their qualifications) and verifiable affiliation or institutions (e.g. government, academic and training institutions)? It is also important to look at the publisher for books, websites, and journals – they are easily verifiable when they are authentic.
c) Look for the **accuracy and reliability** of the information provided. It should have standard structure with references to support claims made, are methods used valid and reliable and are sources of data verifiable.
d) **Is the information up to date** (current)? – the date of the publication must be verifiable. This however depends on the type of information you are looking for. For e.g., historical facts are still useful although they were written decades ago, while research on cancer has been ongoing and the most recent work is more reliable.
e) Assess the **objectivity or bias** of the information provided – is it opinions or facts and what is the objective of the publication. Are there references to other similar work or what do other writers say about the subject matter? It is always better to have more than one side to a story or argument to reduce chances of bias created by a one-sided story.

Activity 1.6: Learning activity

South Africa is a multicultural society. Can you reflect on whether this could be an advantage or disadvantage in finding solutions to environmental issues (e.g. land degradation, land and water pollution, etc? Think about your project in a communal rural setting, addressing some of these issues, and discuss how you will go about searching relevant information for your contextual profile assignment. Clearly indicate the potential sources of information, reflect on why you chose them and some key considerations in your approach.

Topic 5 will deal with the different ways of collecting data. When we collect data, we need to do that in a systematic may that corroborate our results and conclusions. There are well established ways of collecting information or data. These methods are often designed to produce validity and reliability – measure what needs to be measured accurately and if used by a different person they must produce similar results. In human sciences this might be a little bit more complicated, but it is an important scientific principle.
IF PEOPLE THEMSELVES HOLD VALUABLE KNOWLEDGE AND INFORMATION, HOW DO WE ACCESS AND MOBILISE THAT? Module 5 tells us more about that.

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Topic 1.4: Research methods to research learning-related needs

Introduction

In Topic 4, we learned about searching and using different sources of information to prepare our contextual profile. You should also refer to the next topic (Topic 6) to learn more about how to engage with stakeholders. This topic explores the important principle of working in respectful, reciprocal and non-extractive ways when gathering information from people.

In this topic, we are learning how to gather information from stakeholders to prepare to produce a contextual profile (You learnt about contextual profiles in Topic 3) for our NRM learning activities (We learned about this in Topic 2). Context is very important and to understand context, and NRM issues, we need information from multiple sources which we learned about in Topic 4. In this topic we will learn about how we access and mobilise that information.

When we access and mobilise information for our contextual profile, it is important that we do that in a non-extractive way. For that to happen, we use co-creative research methods and approaches. Non-extractive research methods focus on co-creation and co-learning. This is when knowledge is shared and co-produced and the focus is on creating solutions with participants to NRM issues. Collecting information for our contextual profiles is, therefore, done in an ethical, respectful and fair way. This approach allows us to access information and knowledge, and mobilise it such that you bring out the information in such a way that it can be used for learning - including that of the person who is sharing the information. This approach is focused on solutions and cultivating change.

These research approaches are participatory in nature. They create an environment to co-create knowledge with research participants and promote ownership of the process. They are not extractive, where the main objective is to collect data, usually considering only the needs of the researcher. Thesemethods are geared towards the stimulation of agency (the power to act) towards changing the existing social conditions and challenge existing power relations or dynamics. These are methods that respond to community problems. The researcher **collaborates** with the community to seek truth (research) around **environmental problems and together find solutions** (action) to overcome them.

These methods are, therefore, suitable when we want to influence change in how people interact with the environment. We want people to understand that natural resources are finite and their lifespan can be extended by how we manage them. We want to promote a way of thinking and acting among people that considers future generations that will rely on the ecosystem services that sustain life on earth. We want to learn from people from the grassroots ways they have used successfully to manage the environment and sustain their livelihoods of over centuries. We want to learn together in better and more inclusive ways about learning from and caring for our environment.

When collecting our information for our contextual profiles we must do it in a way that respects the participants and we must always be ethical. For instance, if we are interviewing participants we must explain the intention of our research and what it will be used for. Sharing the outcomes of our research with our participants is one way that fosters co-learning. Sharing how the information has been analysed and the participants giving feedback how such information can be adapted to be of use to their setting.

In this course we focus on research methods that foster learning and co-creation of knowledge and therefore, learning together. Such research methods not only focus on extracting information, but are geared towards co-creating and sharing knowledge collaboratively.

In order to do a contextual profile, you will need to do some simple research.
But first, what is research and can anyone learn to do it?

Have you ever wondered why people build a dam in certain areas or what crops grow best in different areas? In the case of the dam, they might have asked questions such as: How much rain falls in this area? Will such rainfall provide enough water to fill the dam? What is the spread of this rainfall? To answer these questions, they need to do basic and systematic research to inform or support the decision they will take - to invest lots of money into building a dam or not. The research process manifests daily in our lives. For example, after buying a car you ask yourself: How do I register this car in my name? What documents will be required by the municipality's traffic department for a successful registration? How much will that cost me? To answer these questions, you may ask a relative or anyone who has registered his or her car before, check the information on a relevant government website or you may call and ask the officials about the process and costs. This information will help you register your car, and in a nutshell, you will have completed research that has helped you overcome your problem about legally owning your car.

Research is a systematic (step-by-step, see Box 1.4) process of finding out new information or collecting new data (facts, characteristics and statistics) about a specific topic. As you come to understand your topic through the research process you broaden your own horizons and grow your knowledge. Research is rarely done alone but is rather done by groups of people, so it is a learning and sharing process.

Research is often called for when trying to understand and overcome problems faced by people and nature. In fact, most problems faced by humanity relate to both people and nature (they are social-ecological problems). By doing research into problems, we can better understand them and come up with well-informed actions to overcome them. People often call for solutions to problems, however, many problems are complex and have not one solution. They are always changing and one solution might create even more problems, we call these kinds of problems wicked problems. Natural resource management is all about managing and coming up with actions to overcome or deal with wicked problems (See Topic 3 for more information about complex problems).

We can identify seven main steps of a typical research process. Let us look at Box 1.4 to get a better idea of these steps.

Box 1.4: Typical stages of a research process and how they would relate to your assignment of developing your educational contextual profile

1. **Explore your subject** - What is the general area that you are interested in? (Social learning and/or stakeholder engagement in your chosen natural resource, identify and focus management context).
2. **Identify and focus on a specific topic within your subject.** Focus is important - you do not want to go too big, your research needs to be manageable. For this Module, you want to understand the context (biophysical, social, economic, political, historical factors) of the environment in which you will conduct your learning and/or stakeholder engagement process.
3. **Come up with specific research questions** - What are the contextual factors that will influence the design and running of my learning and/or stakeholder engagement process? Understanding the nature of the NRM issues in your area will help you decide what type of learning and/or stakeholder engagement intervention to run.
4. **Gather information and data -** You can find information from materials that people have already developed such as books, papers, reports, websites and videos (secondary data sources). You can also produce new information by collecting data (primary data sources). Data are facts, information and statistics about your topic. Data can be quantitative (numbers) or qualitative (words, stories, interviews, recorded conversations). Remember to make notes in your own words. Using bullet points can be easier than writing whole sentences. Use quotation marks when copying or writing down an exact quote and record all your sources and include them in a bibliography (reference list).
5. **Create something new from your notes and data** - how will you share your research findings? You could create a presentation, write a paper or story or even develop a video. (Here you are creating your educational contextual profile, on which you will base your learning and/or stakeholder engagement process).
6. **Tell the story of your project with others** - Share your contextual profile with your tutors, your peers in your tutor group, work colleagues or anyone else interested in your topic to get feedback. Make changes to your project based on the feedback you received.
7. **Reflect** - What was easy, what was hard, what did you learn, what worked and what didn't, how could you do it better next time or improve your research project?

Researchers typically define a research question to guide their investigation into their research topic. For this course, you will need to develop a contextual profile of the environment in which you plan to run a learning and/or stakeholder engagement process. In Topic 3, you learnt about some of the questions you would need to ask to conduct a contextual profile - see Box 1.5 below.

Box 1.5: Some examples of the questions you ask to conduct a contextual profile

1. How would I describe what is going on here?
2. How would I paint a picture of this situation, and what is happening here, and explain it to someone else?
3. What are the different parts of this picture, or context, that might influence NRM activities?
4. And how might these different things influence learning and educational activities?
5. How would you go about learning more about the context, i.e. what sources of information would you want to use, who would you speak to?

Now that you know a bit more about research and that you are in fact, a researcher, let us learn about some basic research methods that you will need to use to complete your educational contextual profile and design and implement your learning and/or stakeholder engagement process.

Research methods

In this course, we are interested in research methods used in the social sciences. Examples of qualitative research methods that you could use for your contextual profile include interviews, questionnaires, document analysis, and observations.

Interviews

Broadly, an interview is a data collection method that takes the form of a conversation, with a set purpose, between two or more people. The one who initiates the interview is the **interviewer** (the person who asks the questions) and the one being interviewed is the **interviewee** or **respondent** (gives the answers).

Interviews can be conducted as one-on-one (face-to-face) in person or via the phone or over the internet. The questions that are asked may be **structured (closed)**, **semi-structured** or **unstructured (open-ended)**. Structured and semi-structured interview questions are often used in surveys.

In structured interviews, the interviewer only asks the questions on an **interview protocol** (a set of questions related to your main research question). There is little opportunity to explore or expand on topics. This style is good for collecting information about specific experiences or phenomena (e.g., interviewing a water manager of a municipality about where their water comes from and its distribution). Questions can also consist of a set of possible answers to choose from (pre-determined), with some provision to include "other"; "I don't know" or "specify".

Semi-structured interviews are a guided conversation between the interviewer and the interviewee. They are typically guided by an **interview protocol** but with some leeway for expanding the conversation by **probing** (following up and digging deeper by asking more questions) for additional details.

An unstructured interview has few or even no pre-set questions. It takes the form of a conversation about your research topic and helps the researcher build a rapport (good relationship) with the participant. This interview style is effective when discussing sensitive topics. Refocusing the discussion back onto your topic (participants' stories

sometimes go off track) and **probing** are both important skills to use when conducting unstructured interviews.

We can, also, collect primary data from a group of people in one sitting. This form of interview is called a **focus group discussion**. It can consist of between 4-8 people (fewer people when they know a lot about the topic, more people if they know a little about a topic). In this form of an interview, the interviewer is more of a **facilitator** of a discussion, allowing a dialogue between the participants. Focus group discussion works well for exploratory work (open-ended questions asking "why", "what"and "how" questions). You should avoid questions that are personal, make people feel socially awkward or controversial as these can make people close up, feel embarrassed, angry or argumentative. It is important for the facilitator to have a set of well prepared and focused questions to guide the discussion in a focus group, otherwise, the discussion can go off-topic and be difficult to manage.

Who and what composition of people you include in your focus group needs careful consideration. Focus groups would be effective if you want to understand the historical use of landscape or perceptions of smallholder farmers. However, you might want to group people according to age and sometimes, in the rural context, according to gender groups. This gives them the confidence to speak in a group and sometimes help each other along regarding the memory of events and for confirmation.

It is important to lay down the rules during focus group discussions for them to produce meaningful data. For instance, one participant at a time must speak whilst allowing others to speak once they interject. Open-ended questions or discussion points (topics) are the most appropriate for this kind of enquiry. In focus group discussions **probing** for more detail is very important.

The purpose of the research and the methodology determines the kind of questions to be asked. For example, in quantitative research structured and semi-structured interviews are often used whereas, unstructured (open-ended) questions characterise qualitative research and elicit deeper motives of the interviewee and thus more insight.

When we need to collect large amounts of rich (detailed information about something) data, **interviews or questionnaires** are ideal. Interviews largely depend on cooperation and openness of respondents and are challenging to conduct when they are not interested, or skeptical. **Focus group discussions** are often used when exploring a topic, as part of a multi-method data collection or when you want to supplement data by gaining in-depth information. They produce a concentration of data and allow the interaction or exchange of ideas between participants. It can be costly to organise and conduct focus groups. The method requires a skilled facilitator to manage the discussion, keep it focused and ensure the participants feel comfortable.

Ultimately our research questions determine what form of data collection method to use. For example, if you want to know how a resource is used you conduct a face-to-face interview with respondents, or a focus group discussion to explore a topic of common interest among the respondents.

Guidelines on how to conduct interviews and focus groups

The following guidelines (de Vos et al., 2005; Mouton and Babbie, 2001) will help us when we conduct our interviews. They include key considerations for a successful interview process such as being ethical, courteous, accountable and transparent.

- Introduce yourself and the institution you represent, the purpose of the research and how it will be used.
- Always ask your participants for permission to interview and record (audio or video) them
- Remind participants of their rights - e.g., let them know that participation is voluntary and theycan opt-out at any time, and have a right not to answer questions that they deem personal, violate their dignity, etc.
- Allow the respondent/participant to tell his/her story (as the interviewer, ask questions, pay attention and probe where necessary).
- If possible, always consider asking questions in the language that the interviewee prefers
- Your questions should be simple, short, and clear.
- Start your questions from general to specific.
- Make sure you ask behavioral or experience questions before opinion (perceptions) questions.
- Reflect as a technique to ask for more information (probe).
- Don't ask leading questions (e.g., Is the water in the river dirty? Rather ask: What is the quality of the water in the river?).
- Ask sensitive questions towards the end of the interview when your respondent is more comfortable with you.
- Time your interview - survey questionnaire must be between 20-30 minutes and focus group discussions must not exceed 90 minutes.

How many people to interview?

We can use **two principles** to guide us to determine how many people to interview. The first is **sufficiency** - are there enough numbers of respondents to cover a range of participants and sites. In quantitative studies, consideration is given to the **requirements of the statistical analysis** to be used (in this instance, as a general rule of thumb, we need at least 50 respondents to make a viable statistical comparison). In qualitative studies (e.g. developing a contextual profile), fewer interviews are often needed. You have enough when you have reached a **saturation** of information (the second principle) - when you no longer hear new information from additional interviews and start to hear the same information over and over. **Remember, we do not expect you to conduct many interviews foryour Contextual profile assignment, keep it simple and only interview 1-3 people!**

Box 1.6: Points to remember when conducting an interview

- **Practice** -- prepare a list of interview questions in advance. Rehearse, try lines, mock-interview friends. Memorise your questions. Plan ahead – think of ways to make theenvironment more comfortable.
- **Small-talk** -- never begin an interview cold. Try to put your interviewee at ease andestablish rapport.
- **Be natural** -- even if you rehearsed your interview time and time again and have all your questions memorized, make it sound and feel like you're coming up with them right there.
- **Look sharp** -- dress appropriately for the setting. What would be appropriate for interviewsin villages? Arrive on time if you are conducting the interview in person.
- **Listen** -- look awake, aware and interested. If your interviewee says something funny, smile. If it's something sad, look sad. React to what you hear.
- **Keep your goals in mind** -- remember that what you want is to obtain information. Keep the interview on track, don't go off track too much. Keep the conversation focused on yourquestions. Be considerate of your interviewee's limited time.
- **Don't take "yes/no" answers** -- these don't offer much information. Ask for an elaboration, probe, ask why. Silence may also bring information. Ask the interviewee toclarify anything you do not understand
- **Respect** -- make interviewees feel like their answers are very important to you (they are supposed to be!) and be respectful for the time they are donating to help you.

Observations as a research method

What is the observation method?

Observation as a research method is the process of using all your senses to watch carefully, particularly your sight, in order to understand something that you are interested in. Understand what, you might ask? To understand what is happening, why it is happening, who is involved and how does what you are seeing relate to your topic and research question? To remember your observations, you would write down detailed notes (field notes), take photographs, audio recordings and videos of relevant things you see. Remember to ask permission before taking photographs, audio recordings or video.

There are different stances of the observer including, participant observer (insider and participant but also observing, observer status is known), complete participant (insider with a primary role as a participantbut also observing, observer status is unknown) and complete observer (outsider observing in, without the research subjects knowing) and observer participant (outsider observing but also contributing to the process as a participant, observer status is known).

Participant observation is a particularly effective research method when you are researching something about a process that you are already part of. Take, for example, a training manager on a project that clears alien invasive plants from a river catchment. The trainer would like to know how toimprove the efficiency of the clearing process. They would go out with the clearing teams and watch how they go about their work, how many are there, where are they clearing, what tools do they use, what challenges do they talk about etc. The trainer is part of the clearing project so is an insider and "participant" of the team. Here are some points on participant observation:

- The researcher plays a double role in observing ongoing behaviour of research participants and actively participates in what the participants are doing (their activities and processes e.g., ameeting, livelihoods practice such as farming etc.).
- The researcher needs to gain entry and fit into (embed themselves) into the participants' environment and take (objective) notes at the same time. It helps to establish a good relationship (rapport) with the people (research participants) under investigation.
- The researcher conducts participant observation during informal conversations (e.g., in the canteen before the meeting starts or conversations in a vehicle on route to a work site) and formal activities (e.g., meetings and workshops).
- Participant observation should include a detailed record of the process, encounters and decisions related to information that you (your work, your constituents (community members)) are interested in – you do not need to record everything.
- Enough time should be spent with participants in the environment to get enough information (data) for your purpose (research study, report for your supervisor etc.).

When is the observation method appropriate, when is it not - strengths and weaknesses

Strengths

- The observer can obtain a depth of knowledge about their subjects (experiences, perspectives and knowledge)
- Can obtain data across different demographics
- Can obtain data about working habits and people's behaviour (you can get a feel of people's emotional response to issues – body language, tone of their voice etc.)
- All information collected is potentially useful
- First-hand (primary), reliable and validated insight

Weaknesses

- Time-consuming – human resource-intensive
- Observer bias - you might read the situation you are observing incorrectly
- Role conflict (it may be difficult to separate your participant and your observer role)
- Too much data - overwhelming
- Ethical issues (being open about your intentions as an observer – if people know that you are observing them for research purposes they may change their behaviour, this is known as the Hawthorne Effect

Research instruments

Questionnaires

Questionnaires are data collection tools that help the interviewer to gather data in a systematic way. They include the itemised structured questions and some open-ended questions as may be necessary. They are mainly used when conducting **surveys**.

For a purely qualitative study, the "questionnaire" is appropriately referred to as a **discussion guide or interview protocol**. It serves to guide the discussion rather than to ask closed questions. Participants are given an opportunity to express their experiences, opinions, feelings, and knowledge. This kind of data provides an in-depth and wealth of data for analysis.

These research instruments are appropriate when collecting primary data. For instance, you may use a survey questionnaire to collect **baseline data** (information about how things are before your study intervention) at the beginning of your project. The project may be the introduction of land rehabilitation measures to improve grazing (i.e., to allow grasses to grow back again where they have been continually grazed). The baseline data may include people's perceptions of these interventions and what they have been using and also the biophysical data about the status of resource use in the area. After the implementation phase, you may go back and do, both the perception and biophysical study. This approach will illuminate insights into whether the intervention works or not and whether people have internalized the learning.

Recording

Before recording (voice or video-recording) any interview, ask for permission and state why you wantto record. However, place the recorder such that it does not distract the interviewee. In focus group discussions you may need external microphones to capture the voices from all directions. However, such gadgets tend to be expensive and if well placed and the participants are well-controlled ordinary recorders and voice-recording enabled smartphones should work.

Some people may agree to be voice-recorded but may decline to be video-recorded. Respect that choice and if you have brought along only your video-recorder explain that you will face it away fromthe respondent and only record the voice. Take detailed process notes when you have not been able to record the interview verbatim (word-for-word) (de Vos *et al.*, 2005). In this case elaborate and clarify the notes on the same day whilst they are still fresh in your mind.

Document analysis

Document analysis is defined by Bowen (2009) as a "systematic procedure for reviewing or evaluating documents - both printed and electronic (computer-based and Internet-transmitted) material" p 27. As a researcher analysing documents, you are an outsider that was not involved in the recording of the text and images. Documents are important in your research as they have been used to share, in an organised way, facts or social facts. These documents may include personal documents (e.g., letters), official documents or reports, archival material, and newspapers. There are many documents that have been produced for and by the government at all levels that you will come across and

use as sources of information. These may include: meeting minutes, attendance registers, meeting agendas, programs, letters, institutional reports and manuals to name a few. You can find many of these documents on the internet, or in libraries, archives, information, and data repositories in institutions.

Document analysis is often used in **triangulation** (see Topic 4) and as part of qualitative research methods. This means that it can be used to support and validate other sources of information. The essence of document analysis, according to (Bowen, 2009), lies in "finding, selecting, appraising (making sense of), and synthesising data contained in documents" p.28. Thus, from the documents, a researcher may organise the data as "excerpts, quotations, or entire passages" (Labuschagne, 2003: p.101). The data extracted from the documents can then be categorized and analysed thematically to identify meaningful patterns.

Document analysis is appropriate when you require background knowledge of the topic under research. When we do research, we operate from King Solomon's injunction that "there is nothing new under the sun". This is the reason why we do a literature review for any topic that we want to research. There is always a chance that some information, somewhere, may help us understand or give context to the problem or issue at hand. Historical documents in national and departmental archives can play this role.

When using document analysis, we must be very aware of the dates of the documents. Often some of the useful documents may be dated (old) and written in a language that may be offensive but reflective of the times in which it was written (that in itself is a good finding). For instance, if you are working with historical documents in South Africa dating from the 18th and 19th centuries, you are likely going to encounter offensive language. You must, therefore, engage the text and reflect critically on it without changing it.

Key ethical considerations when doing any research

These research methods discussed in this handout complement the learning methods that are discussed in Topic 6 of this course. They are also based on the principle of meaningful participation of stakeholders in the learning process to cater for their different learning styles (and ways of knowing, see Topic 2). Some people are good at absorbing information and some learn better by doing. A good learning environment (see Figure 1.2) can therefore accommodate a situation where learners can learn by touching, talking to others, and finding time to reflect on their experience (Rosenberg *et al.*, 2008).

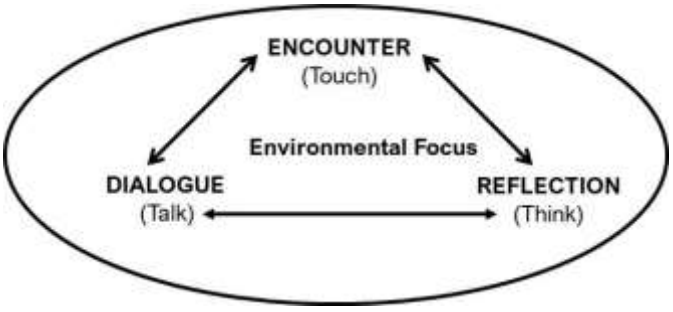

Figure 1.2: Active learning involving encore, dialogue and reflection (Rosenberg *et al.*, 2008)

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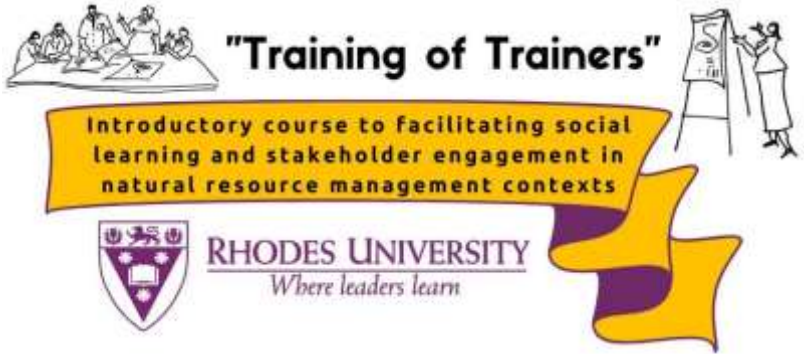


Module 2:
Stakeholder Engagement

Purpose, Processes, Principles and Practicalities

Introduction

Overview of Module 2: What can you expect to learn in this module?

This Module provides a baseline understanding of the 'four Ps' of stakeholder engagement, namely, the PURPOSE, PROCESSES, PRINCIPLES and PRACTICALITIES of stakeholder engagement in the context of learning processes for Natural Resource Management (Figure 2.1). There is a topic for each of the four P's, which together form the content for Module 2:

- **PURPOSE**: Why are we exploring stakeholder engagement on this course? Sometimeswe (course participants) work with (other) scientists, managers, developers or government officials in a process that engages stakeholders and we need to support them in that; and sometimes stakeholder engagement is the precursor for a deeperlearning process that we will be facilitating. For both these reasons, we need to know the basics of stakeholder engagement.
- **PROCESSES:** How we do stakeholder engagement. What are some of the different **processes, methods and tools** that can be used for **stakeholder engagement** in natural resource management contexts?
- **PRINCIPLES:** Regardless of the methods or processes we use, there are some **key principles of stakeholder engagement** (that, therefore, apply to all of the above).In this topic, we will discuss the principles of *respect, reciprocity, truthfulness andtransparency and reflexivity* where they are evident, what challenges relate to them and how we can overcome them.
- **PRACTICALITIES:** What are the **practical considerations that we should take note of when designing and implementing a stakeholder engagement process?** In this topic we will discuss considerations such as the role of the facilitator, knowing yourparticipants, responding to group dynamics, the set-up of the room, building trust, enabling full participation, designing suitable activities, managing energy levels and closing the process.

Figure 2.1: The four Ps of stakeholder engagement.

The "4Ps" framework for stakeholder engagement avoids "methodologizing" and "technic-king". What does this mean? Much as one may want a foolproof recipe for working with stakeholders, there are not just one or two or even 50 specific methods for stakeholder engagement. Rather think of methods within broader processes, that is, apply the basic principles in a process that makes sense for that context, rather than to follow a method like a recipe. Also, instead of "techniques" there are practicalities that always have to be considered, e.g., how you set up a room or energise participants, etc., that you will need toapply with sensitivity to the context, rather than just following gimmicks or fads that mightnot be applicable across contexts.

Topic 2.1: Purpose of Stakeholder Engagement

Why are we exploring stakeholder engagement on the course, and how does it relate to social learning?

Why do we do stakeholder engagement work? Sometimes we work with (other) scientists, managers, developers or government in a process that engages stakeholders and we need to support that process; and sometimes stakeholder engagement is the start of a deeper learning process that we will be facilitating. The extent to which learning will arise from stakeholder engagement cannot be predicted beforehand, and these two broad themes of our course form a continuum, as demonstrated in Figure 2.1. The example in Box 2.1 is an example of this continuum in one organisation (SANParks, 2018).

While in this course a distinction is drawn between stakeholder engagement and social learning (refer back to Module 1, Topic 1.6), there is certainly some overlap between the two concepts (or processes), and one can look at them as lying along a continuum (Figure 2.2). Stakeholder engagement for Natural Resource Management (NRM) more broadly (left ofthe diagram) involves a wider range of purposes, benefits and processes of engaging stakeholders which relate to *NRM quite broadly*. However, social learning, or environmental learning (the focus of Module 3), involves a more specific set of purposes, benefits and processes which relate *specifically to learning and education*, in the broader context of NRM (right hand side of the diagram). Of course, there is often overlap in these processes, and that is why we work at the interface of stakeholder engagement and social learning.

In Box 2.1 you can read about an example in which stakeholder engagement (for the purposes of consultation) can, over time, shift into a social learning process. The example also shows the *different purposes of stakeholder engagement*, which we discuss below and are also shown in the diagram in Figure 2.2.

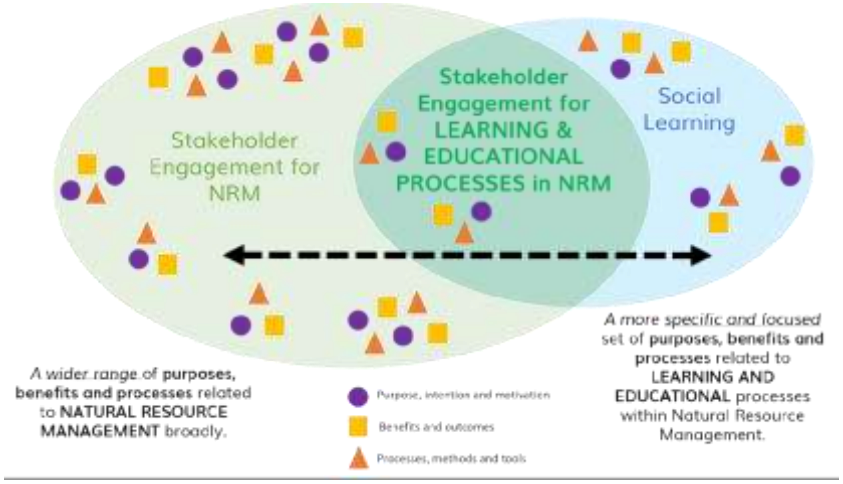


Figure 2.2: **The stakeholder engagement and social learning continuum:** these two concepts and processes are related to one another, and on a continuum. They are overlapping.

Note that there are **many other fields of work, concepts and processes which are similar and related to stakeholder engagement and social learning.** Figure 2.3 presents these concepts and practices as a patchwork landscape. Much of what is discussed on this course, is also of relevance and value to the work covered by these other related concepts. We will address some of these as examples of stakeholder engagement PROCESSES in Topic 2.2. Also, refer to Cockburn et al. (2018) for a discussion of the various types of collaborative natural resource management or stewardship, and to the 'Additional readings and resources' list below for further references.

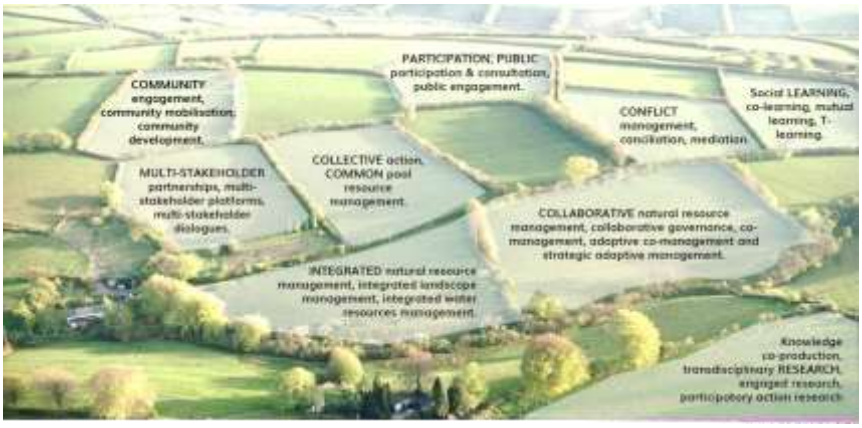


Figure 2.3: A patchwork landscape of related fields, concepts and processes of stakeholder engagement (Photo adapted from Sam Abell, National Geographic: https://www.nationalgeographic.org/article/hedging-biodiversity/)

Box 2.1 SANParks Stakeholder Engagement and Social Learning Continuum: example from the Garden Route National Park

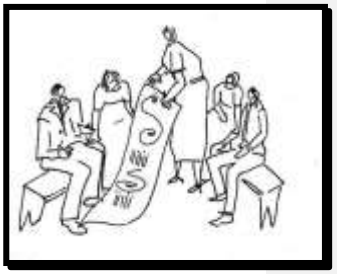
The Ebb & Flow Rest Camp seen from the Kingfisher Hiking trail in the Garden Route National Park Photo from the George Herald:
https://www.georgeherald.com/News/Article/General/visitors-flock-to-garden-route-national-park-20171003

South African Law (National Environmental Management: Protected Areas Act, 2003) requires formal conservation areas to have a management plan approved by the Minister, and *developed through stakeholder consultation*. South African National Parks (SANParks)therefore bring stakeholders together to develop a shared vision for the Park in their midst, and consider their values in the broad goals for Park management (see SANParks (2018)). Stakeholders might then say they think people should be allowed to cycle in thePark, or harvest grass or bait, but not to fish, hunt or mine, or that both Park and neighbours should maintain and safeguard the fences between them. In the years that follow, the Park Management Plan is implemented, usually without much further involvement from its stakeholders.

However, if issues arise, stakeholders might once again be called together (Parks are alsorequired to have representative Park Management Forums through which Park managers and staff can engage stakeholders like neighbouring farmers or residents, local government, tourism and other businesses, land claimants, and user groups such as boating or mountain biking associations). Sometimes the issues they face are contentious or difficult to resolve, and then the stakeholder engagement might require a social learning process, in which both SANParks and a relevant range of stakeholders tackle an issue together to solve it, by confronting their differences, finding common ground, gathering more information, perhaps doing joint research, trying out new management actions and collectively reflecting on the outcomes of these actions.

For example, in the Garden Route National Park residents along the lower reaches of theTouw River want SANParks to bulldoze open the river mouth to the sea, otherwise their properties are flooded when the river rises with rain. When SANParks does artificially open the river mouth, it means that wetlands in the upper reaches of the river lose theiryear-round water, and become overgrown. This results in a loss of habitats for wildlife that need the water, and it increases the chances of a downstream flood when the next heavy rains come, because wetlands would buffer against extreme floods, but only if theyare not overgrown. Learning about how this ecosystem works, and how to manage it for conservation purposes and residents' needs, would require social learning on both sides (Example developed by Eureta Rosenberg based on the Garden Route Research Interface Meeting, 2019).

What is the purpose of stakeholder engagement?



Stakeholder engagement is necessary in many aspects ofnatural resource management. Therefore, there are multiple purposes of stakeholder engagement. In the next section, we unpack some of these different purposes.

Multiple purposes

Stakeholder engagement is multi-purpose and flexible, so it is important for you to clearly define the purpose of stakeholder engagement in a particular context, based on the situation.

What do we mean by purpose? The purpose is about the NRM relatedgoals you have in mind. *Why do you want to work with these people? What motivates you or your organisation to engage stakeholders in NRM in this particular instance?*

The purpose of stakeholder engagement is often driven by the intended outcomes and potential benefits of the process. The outcomes and benefits in NRM processes are, however, often unpredictable, unexpected and don't necessarily work out as planned. They also usually take a long time to come to fruition. Clarifying the purpose of a stakeholder engagement process upfront will inform how you set about it: what kind of process you design and facilitate (Topic 2.2), which of the principles are relevant to your process (Topic 2.3), and which practicalities, methods and tools (Topic 2.4) you may need to consider in the facilitation of stakeholder engagement. There are four broad, overlapping categories of stakeholder engagement purposes, with various (overlapping) examples within each (see Figure 4, and for further reading, see Newton & Elliot (2016), and Reed et al. (2018)). In brackets we've identified some of the characteristics of each of the 'purposes.'

1. *Information generation, learning and knowledge co-production (informative, generative)*
- Identifying who the role players are for NRM issue resolution
- Gathering information from stakeholders (e.g., for a contextual profile)
- Do a joint evaluation with them - i.e. get their opinion on the worth of a programme

2. *Decision-making for collaborative management and governance (utilitarian, egalitarian)*
- "Buy-in" - acceptance of outcomes, reducing the chance of conflicts
- Do a joint evaluation - i.e. gather opinions on whether a program should continue
- To get their input on something such as a co-management agreement

3. *Communication and consultation for legislative or policy requirements (informative, legislative)*
- Legislative policy requirement (e.g., Environmental Impact Assessments or Park Management Plans, as in Box 2.1)
- "Buy-in" - acceptance of outcomes, reducing the chance of conflicts
- To get their input on something such as a co-management agreement

4 *Activism, social justice, equitable participation and advocacy (normative, activist)*
- Empower people to participate in NRM and governance
- Give marginalised groups a voice and a place at the table
- Raise concerns about contentious issues

Learning and educational processes can play an important role in stakeholder engagement of all purposes, and there are strong overlaps between the multiple purposes identified here.

Figure 2.4: Four purposes of stakeholder engagement in natural resource management contexts.

Activity 2.1: Reflecting on the purpose of stakeholder engagement fromyour own experience.

Think about your own experiences in stakeholder engagement. Do this in two parts:

1. ***Think back to a particular event where you were invited to participate as a stakeholder.***

Now, look at the diagram of the four purposes of stakeholder engagement: which of thesefour purposes of stakeholder engagement aligns with this event you participated in? Is it very clearly one of these? Or maybe more than one? Was the purpose of the event made clear to you as a stakeholder?

2. ***Now, think back to a particular event where you were involved in facilitating stakeholder engagement (i.e., you were one of the organisers).***

Again, look at the diagram of the four purposes of stakeholder engagement: which of these four purposes of stakeholder engagement aligns with this event you helped to organise? Is it very clearly one of these? Or maybe more than one? Did you make the purpose of the event clear to the stakeholders? If you had thought about the purpose of the event moreclearly, how might you have done things differently?

The words we use to talk about stakeholders… and who counts as a stakeholder?

The term 'stakeholder' is not accepted by everyone. There is a lot of on-going discussion about whether the term is inclusive enough of the wide range of people and interests involved in NRM, and whether it maybe sets up a power gradient between those who decide who the stakeholders are, and the stakeholders themselves. There are also lots of alternative words which are used to talk about stakeholders and other important people in NRM contexts (similar to and used in the many related fields shown in Figure 2.3). For those who are interested, we discuss this in a little more detail in Box 2.2.

Box 2.2: Defining stakeholders: a contentious process which requires careful reflection

The word **'stakeholder'** comes from the management and organisational sciences (Freeman, 1984). In the context of natural resource management (NRM) a stakeholder is widely defined as *a person, organisation or group with an interest or an influence on the natural environment, or who is influenced or affected by activities and management decisions in the environment* (Newton & Elliot, 2016; Shackleton et al. 2018).

Other similar terms which are used to discuss stakeholders include: **actors, social actors, interested parties or interested and affected parties (IAPs), partners, participants, roleplayers, etc.** *[Note: LISTEN to the audio clip 'Stakeholder words we use' by Maletje (William) Mponwana on AWARD's the words we use to talk about stakeholders - it's in the additional resources folder for Topic 2.1 (AWARD, 2018 a & b)].*

However, there has been some critique of the term stakeholder. There are at least three issues which people raise about this term:

- It can position persons or groups as bystanders with a stake in someone else's initiative, i.e., it sets up a power dynamic between those who are organising a process, and those who are invited into it (while the term 'actor' might position them as individuals or groupswith their own agency).
- It can 'de-humanise' the process, taking the emphasis away from seeing those involvedas whole people with emotions, needs, families etc. and seeing them as a 'box to be ticked' in an engagement process.
- *Who* is defined and invited as a stakeholder is not a neutral process: it raises questions about representation and power, even before a process starts, and so participatory context analysis (Topic 2.2.1) and a careful stakeholder analysis and mapping (Topic 2.2.2) are important.

Importantly, how we define stakeholders in multi-party processes can often unintentionally serve the more powerful stakeholders and silence or exclude marginalized or disadvantaged people even further (Brandt et al, 2018; Edwards & Wollenberg, 2001). It is important to acknowledge that stakeholder processes are not neutral, and they are not apolitical. For example, you might find a farmer, a government official, a conservationist, a farm worker, a local village resident and a scientist all participating in a field trip to discuss new sustainable agriculture projects in the catchment (see picture below). While they have all been invited because they have a 'stake' (or an interest) in the topic of sustainable agriculture (for example), they don't all have the *same stake*, they don't all have *equal stakes*, and *some of them are more powerful than others* (for detailed discussion of this kind of example, see Brandt et al (2018).

The final outcome ofthe process might be of benefit to those with the most power and voice (e.g., the farmer and the government official), but not to those more marginalised (e.g., the local villager).So, it is important to acknowledge that 'not all stakeholders are equal' and that power relations among stakeholder groups have a strong influence on stakeholder engagement and social learning processes. We will discuss some of the practical implications of this under Topic 2.4: PRACTICALITIES of stakeholder engagement.

For more about the **critical perspectives on stakeholder engagement**, see Brandt et al (2018) and Edwards & Wollenberg (2001) - find details in the 'Additional Readings andResources list' below.

Now that we have considered the PURPOSE of stakeholder engagement, and things which can influence the way in which we define the purpose, we will move on to the PROCESSES by which we can implement and facilitate stakeholder engagement… things will get more practical as we move through Module 2.

Core Readings & Resources

We encourage those who would like to deepen their learning for Topic 2.1 to select at least one reading (from either core or additional readings). All of the readings are available on the course website under Topic 2.1, and many of them are also available online (we have provided links where content is available via 'open access').

AWARD (Association for Water and Rural Development), 2018a. Networks for Collaborative,Systemic Action in the Middle Olifants River Catchment. Project Summary. Association for Water and Rural Development, Hoedspruit. Available online: http://award.org.za/wp/wp-content/uploads/2020/05/AWARD-BROCHURE-RHODES-Networks-Collaborative-Systemic- Action-in-Middle-Olifants-2020-v1.pdf

Walton, A., Gomei, M. and Di Carlo, G. 2013. Stakeholder Engagement: Participatory Approaches for the Planning and Development of Marine Protected Areas. World-Wide Fund for Nature and NOAA—National Marine Sanctuary Program. Available online: http://awsas-sets.panda.org/downloads/stakeholder_engagement.pdf

Additional Readings & Resources

The additional readings are organised into two categories: 1) practice-oriented and 2) research-oriented readings.

Practice-oriented readings: You are not required to read the readings provided below

AWARD (Association for Water and Rural Development), 2018a. Networks for Collaborative,

Systemic Action in the Middle Olifants River Catchment. Project Summary. Association for Water and Rural Development, Hoedspruit. Available online: http://award.org.za/wp/wp-content/uploads/2020/05/AWARD-BROCHURE-RHODES-Networks-Collaborative-Systemic- Action-in-Middle-Olifants-2020-v1.pdf

AWARD (Association for Water and Rural Development), 2018b. Community Participation inMeetings and Engaging with Government. Association for Water and Rural Development, Hoedspruit. Available online: http://award.org.za/wp/wp-content/uploads/2020/05/AWARD-GUIDELINE-Supporting-community-participation-2018-v1.pdf

Palmer, C.G., Rogers, K., Holleman, H. & Wolff, M. 2018 How to … use Strategic Adaptive Management (SAM) and the Adaptive Planning Process (APP) to build a shared catchment future. How to Handbook No. 8 in: Palmer, C.G. and Munnik, V. 2018. Practising Adaptive IWRM. Integrated Water Resources Management (IWRM) in South Africa: Towards Practisinga New Paradigm. Project K5/2248. Water Research Commission, Gezina. Available online: http://www.wrc.org.za/wp-content/uploads/mdocs/SP%20123-18%20web.pdf

Walton, A., Gomei, M. and Di Carlo, G. 2013. Stakeholder Engagement: Participatory Approaches for the Planning and Development of Marine Protected Areas. World Wide Fund for Nature and NOAA—National Marine Sanctuary Program. Available online: http://awsas-sets.panda.org/downloads/stakeholder_engagement.pdf

SANParks (South African National Parks) 2018. Kruger National Park Stakeholder Report. SANParks, Pretoria. Available online: https://www.sanparks.org/assets/docs/conservation/park_man/knp/knp-stakeholder-report.pdf

Research-oriented readings: You are not required to read all the readings provided in the topics of this handout

Brandt, F., J. Josefsson, and M. Spierenburg. 2018. Power and politics in stakeholder engagement: farm dweller (in)visibility and conversions to game farming in South Africa. *Ecology and Society* 23(3):32. Available online: https://doi.org/10.5751/ES-10265-230332

Cockburn, J., Cundill, G., Shackleton, S. and Rouget, M., 2018. Towards place-based research to support social-ecological stewardship. *Sustainability* 10(5): 1434. Available online: https://www.mdpi.com/2071-1050/10/5/1434/pdf

Cockburn, J., Rosenberg, E., Copteros, A., Cornelius, S.F.A., Libala, N., Metcalfe, L. and van der Waal, B., 2020. A relational approach to landscape stewardship: Towards a new perspective for multi-actor collaboration. *Land* 9(7): 224. Available online: https://www.mdpi.com/2073-445X/9/7/224/pdf

Edmunds, D. and Wollenberg, E., 2001. A strategic approach to multistakeholder negotia- tions. *Development and Change* 32(2): 231-253. Available online: https://onlineli- brary.wiley.com/doi/pdf/10.1111/1467-7660.00204?casa_token=ijAHFZp-OtYAAAAA:g-3JA2jCMVAdyDS9vS5S0Cly8YTPX6Q9xgRlWoYf4chL8oPKU6eYMPo7eTcX1QpXlmKY9bZ_Xxn4A w

Freeman, R.E. 1984. *Strategic Management: a Stakeholder Approach*. Basic Books, New York

Newton, A. and Elliott, M., 2016. A typology of stakeholders and guidelines for engagement in transdisciplinary, participatory processes. *Frontiers in Marine Science* 3:230.

Ratner, B., Burnley, C., Mugisha, S., Madzudzo, E., Oeur, I., Mam, K., Rüttinger, L., Chilu-fya, L. and Adriázola, P., 2017. Facilitating multi-stakeholder dialogue to manage natural resource competition: A synthesis of lessons from Uganda, Zambia, and Cambodia. *Inter- national Journal of the Commons* 11(2). Available online: https://www.thecommonsjour-nal.org/article/10.18352/ijc.748/

Reed, M.S., Vella, S., Challies, E., de Vente, J., Frewer, L., Hohenwallner-Ries, D., Huber,T., Neumann, R.K., Oughton, E.A., Sidoli del Ceno, J. and van Delden, H., 2018. A theory of participation: what makes stakeholder and public engagement in environmental man- agement work? *Restoration Ecology* 26: S7-S17. https://onlineli-brary.wiley.com/doi/pdf/10.1111/rec.12541?casa_token=JFBHZXRX8BIAAAAA:PY-hzceYEV1tjJTnN2GGC7viAlipbJ1MfqxIzBQEOtEu1BehFvv47B0rkWaLFWYix3rrZrtaxv2IwWQ

Shackleton, R.T., Adriaens, T., Brundu, G., Dehnen-Schmutz, K., Estévez, R.A., Fried, J., Larson, B.M., Liu, S., Marchante, E., Marchante, H. and Moshobane, M.C., 2019. Stakeholderengagement in the study and management of invasive alien species. *Journal of Environmen-tal Management* 229: 88-101.

Talley, J. L., J. Schneider, and E. Lindquist. 2016. A simplified approach to stakeholder engagement in natural resource management: the Five-Feature Framework. *Ecology and Society* 21(4):38. https://doi.org/10.5751/ES-08830-210438

Topic 2.2: Processes of Stakeholder Engagement

Introduction

While we focused on the question of WHY we engage stakeholders in Topic 1 of this module, we now ask the question HOW? How do we do stakeholder engagement? What kinds of PROCESSES can we design and facilitate to bring NRM stakeholders together for the various purposes outlined in 2.1? For example, if we are developing a landscape restoration plan and we have committed to doing so in a participatory way, where do we start with engaging stakeholders in the process? Or if a mining company wants to start a new mine to extract minerals from sand dunes, and we want to support them in facilitating a stakeholder engagement process that ensures all voices are heard, where do we start?

The word PROCESS is an overarching term to talk about all the different ways in which we engage stakeholders. A process is a flow of actions. So, we are also talking here about different approaches, methods, and tools. The difference between processes and practicalities (which are the focus of Topic 2.4) is that processes are the broad flow of activities and events in stakeholder engagement. Practicalities are the detailed bits and pieces within each of these steps or actions (things like logistics, transport, catering, setting up the room, selecting the presenters, developing a facilitation plan, managing the meeting). Thinking about the processes means thinking about HOW best we can engage people towards achieving the purpose.

There is a wide range of approaches to stakeholder engagement, and many different processes from which we can draw inspiration. Just as we noted in Topic 2.1 that there are multiple PURPOSES for stakeholder engagement, so there are also a variety of PROCESSES for facilitating stakeholder engagement. How do we decide on which processes to select? **We go back to what we learnt in Module 1 about CONTEXT:** understanding the context ofthe natural resource management work will help us to clarify not only the purpose but will also help us to set up a suitable process for engaging stakeholders.

Each of the following subtopics within Topic 2.2 is an **example of a stakeholder engagement process** which has been developed in a particular context, for a particular broad purpose, after which it is named (Figure 2.4). The diverse reasons for engaging stakeholders (introduced in 2.1) will appear again in the following process examples. Read through all the examples, then choose a few (**at least two**) to study in more depth. This means you will have to: read the handout notes; watch the accompanying videos where they are provided, and perhaps read some of the additional resources about them. Consider how these processes could be used in your own work context. Also start to think about the *underlying assumptions and principles* reflected in these processes, with reference ahead to section 2.3. *What are the principles that we should apply whenever we engage stakeholders? How do purpose and principles influence the choice of process and how it is used?*

N.B. THEN: Think about your assignment: *which of these processes could you draw on to deepen your contextual profile?*

2.2.1. CONTEXT ANALYSIS as a process of stakeholder engagement (e.g., VSTEEP)

2.2.2 STAKEHOLDER MAPPING AND ANALYSIS as a process of stakeholder engagement

2.2.3. PARTICIPATORY RESEARCH as a process of stakeholder engagement

2.2.4. ART AND THEATRE as a process of stakeholder engagement (e.g., Empatheatre)

2.2.5 PARTICIPATORY "FILMMAKING" OR JOURNALISM as a process of stakeholder engagement

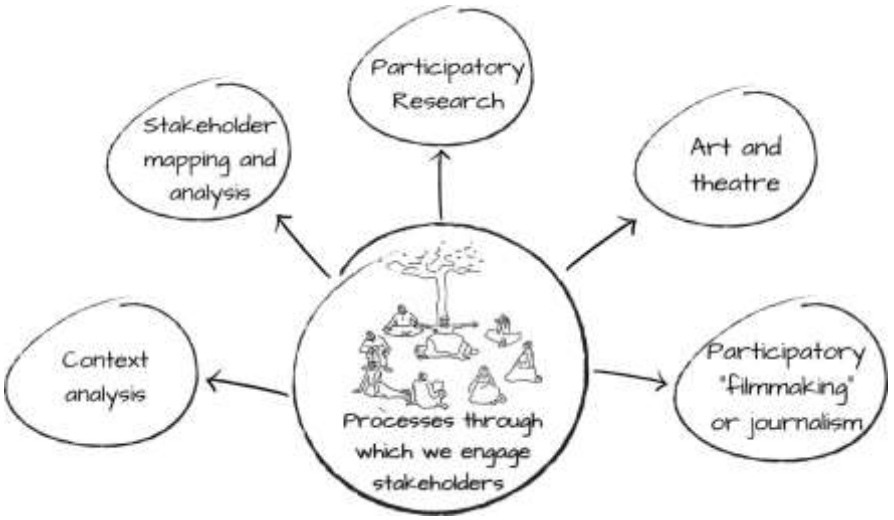


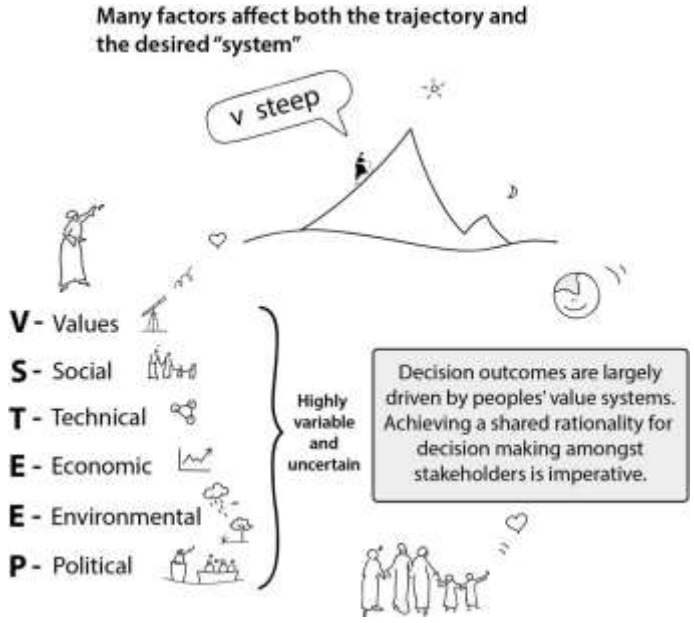
Figure 2.4: Five of the many processes through which stakeholders can be engaged

2.2.1 Context analysis as a process of stakeholder engagement

What is V-STEEP as a context analysis method about? An example by Harry Biggs

V-STEEP stands for: "**v**alues" and **s**ocial; **t**echnological; **e**nvironmental; **e**conomic; and **p**olitico-legal factors) It is a method (actually a method inside a broader one called the adaptive planning process (Palmer et al. 2018)) which is, with some practice, relatively easy to facilitate. The Adaptive Planning Process forms part of a broader management approach called Strategic Adaptive Management.

V-STEEP is designed to *broaden a group's collective view* of a specified situation, to *allow everyone to make inputs*, and to *promote empathy for other viewpoints* which need consideration or inclusion. Coupled with other steps in an adaptive planning process, it canresult in a broadly acceptable collectively constructed overall vision and objectives servingthat vision, for the specified situation. These can then act as a basis for sufficient consensusto build a particular plan, such as a catchment management plan.



How does a V-STEEP process practically work?

As for all engagement processes, thought should have been given to seating and atmosphere for constructive participation. Where possible, a circle might be favored. Appropriate introductions must be made, and usual ground rules for healthy engagement (e.g. seek first to listen) laid out.

Agreed-on specification of the problem or situation is a necessary prerequisite to entering VSTEEP, and this too obviously requires the group's sufficient agreement. Example: the group may have got together to, as far as people understood, deal with water problems in their community. Step one is therefore to try to better articulate this, or agree that it is fine as stated. There will be some history to the meeting, for instance, an invitation may have gone out stating there will be a meeting to discuss water problems. Depending on the amount of detail with which this purpose was stated, and on the extent to which the idea statement carries legitimacy, it will invariably anyway be worthwhile to revisit this specification first up, even if it is quickly agreed on. If the facilitator or organisers feel there are flaws or shortcomings in the statement that will cause unnecessary disagreements later, they should feel free to raise this for discussion, but without over-guiding the collective process.

The facilitator may need, in more tricky cases of wording, to get the meeting to spend up to a maximum of (say) an hour attempting to agree on this starting statement, which can then usually simply be seen as the purpose of the meeting. Once agreement is reached or confirmed, that this is indeed the central statement/question, it can be writtenup on a chart or projected on the wall, for everyone to see throughout that this is what themeeting is about. (If agreement cannot be reached, which is unlikely, it is an indication thatthe V-STEEP exercise cannot be started meaningfully now). It can be in the form of a statement, perhaps something like "the quantity and quality of water our town is receiving is unacceptable and we need to understand why that is the case, what effect it has on

livelihoods, and what possible actions we can take to improve it". Else it can be turned around, if folk are more comfortable, into a question/s like "How would we ...?" etc.

The V-STEEP part can now begin, always starting with "V" as discussed below.

Process tips from here on:

Input contributions from participants (the first person may for instance offer "Transparency" as a central value, and talk a little about what they mean, see below)can be taken as they are freely volunteered, and though this usually results in a shorter meeting, it often leaves quieter people without having spoken. Another tactic is therefore to "go around the circle" at least once but do allow folk to skip if they want. Later rounds of the circle still dealing with "V" often have so many skips that one can switch to volunteering.

Another approach is to give everyone 5 minutes to write down their top threecontributions on their own sticky note/paper. Once time is up, go around the circle or ask for volunteers to share their top point. If it has already been shared ask them to choose their next top one that has not been mentioned. These contributions are all written up on whiteboard, flipchart or projected computer screen so that they remain visible to all as the list grows. As they are being written, it is good to check with the originator that the written articulation is a good reflection of what they mean.

It soon happens that new contributions overlap with ones already made, and this should be dealt with sensitively, usually either bythe person making the contribution agreeing that it is the same as another (perhaps addingtheir particular wording next to the existing one) or by other suitable addition or modification. The *golden rules* are to give everyone a chance to speak, to not controvert /disagree with them, but to listen, only perhaps asking questions of clarification or at the most "explain your reason for suggesting that". This results in assembling a diverse listing of different views and statements, each of which is important to at least someone.

Values can be explained as any deeply held beliefs or principles thought by that contributor to be important when discussing the central statement agreed on. The facilitator should beas flexible as possible in allowing contributions and not worry too much about what exactlyis meant by "value".

For instance, "Agreeing on what corruption is and on principles to minimise it" should be provisionally allowed, rather than excluding it as too practical to bea value, even if the actual principle is reframed now or later as "Zero/low tolerance for corruption" and the "agreeing" part becomes an objective in subsequent steps in the planning process. One list of typical values in one case can be looked at if the reader here would like to get a feel. Normally if roughly three hours is allocated to the full V-STEEP process after the central question, at least 30 mins (even double that if really necessary) can go into values compilation, as these are very influential.

STEEP (social, technological, environmental, economic, politico-legal) represents the rest of the factors and can be done in any order after "values", although the default order is fine especially because the last three are usually a bit easier to formulate even if participants are getting a little tired.

Again, the facilitator should not make too much of a fuss about whether "social grants" comes up as an important factor according to someone, under "social" rather than under the "economic" heading. It is immaterial as the idea is simply to scan factors as widely as possible. The guidance that can be given to participants may include (don't give too many examples, as it funnels free thought):

- Social includes factors like societal willingness, trained capacity, drug abuse, high criminality etc.

- Technological includes factors like developed road network, poor telecommunications, no dams etc.
- Environmental could include high biodiversity, squalid urban environment, high run-off due relief etc.
- Economic could include good banking facilities, no loans available for dam construction, high Gini etc.
- Politico-legal might include oppressive local government, strong national laws not implemented etc.

It usually works better to do S, T, E, E, P one by one (say allowing each 15—40 mins, depending on group size, topic complexity etc.).

Once the process of collaboratively listing all the V-STEEP factors is done, it is usually time for tea or lunch. A useful **initial step towards consolidation** is to ask for one or two volunteers per each of the six V-STEEP lists (you can join two, for instance Social and Economic, if they look short and similar) to work over tea or lunch on bundling similar topics in that list, marking which ones seem obviously the most dominant, deleting any that are perhaps covered better elsewhere etc.).

If the facilitator or volunteers want assistance, especially in the form of a balancing opinion (perhaps the volunteer is a conservationist and may need a willing farmer to complement them) try to arrange this. After tea or lunch each "consolidator" reports back to everyone in 5 mins each (possibly with 5 mins discussion) about the shorter, more structured and meaningful list, which can still be updated or further cross-linked as the other subgroups are heard.

By now participants are starting to share, albeit still a bit messily**, a partly manageable synthesis** of a great deal of information representing multiple opinions and views. Participants are possibly starting to draw some of their own conclusions about what is common to everyone, which outlier ideas seem useful, and to realise if and where there are deal-breakers, or where key opportunities lie.

Even taking the process (i.e., the V-STEEP part) just this far thus has benefits, *especially if participants are reassured that a smaller group (which they should help constitute or at least approve of) will take these conclusions further into, say, an action plan that they will again interact with.* OR (alternatively) the first very influential next steps can be taken by this same assembled group – these steps are the next parts of an Adaptive Planning Process.

Learn more about V-STEEP from Dr Harry Biggs, a wizened facilitator of many years.

(This interview between Dr Jessica Cockburn and Dr Harry Biggs is available on the Course Website)

How V-STEEP fits into the Adaptive Planning Process

It is important to note that, although V-STEEP is an effective stakeholder engagement method to analyse and build a rich understanding of context, the method is usually used asone step in an Adaptive Planning Process. The Adaptive Planning Process is a key early step in practicing Strategic Adaptive Management (a good management approach for complex issues common in NRM contexts). If you would like to know more about how to conduct V- STEEP, the Adaptive Planning Process and Strategic Adaptive Management read the How to…use Strategic Adaptive Management (SAM) and the Adaptive Planning Process (APP) to builda shared catchment future.

References and additional resources

Palmer, C.G., Rogers, K., Holleman, H. & Wolff, M. 2018 How to… use Strategic Adaptive Management (SAM) and the Adaptive Planning Process (APP) to build a shared catchment future. How to handbook No. 8 in: Palmer, C.G. and Munnik, V. 2018. Practising Adaptive IWRM. Integrated Water Resources Management (IWRM) in South Africa: Towards Practisinga New Paradigm. Project K5/2248. Water Research Commission, Gezina. Available online: http://www.wrc.org.za/wp-content/uploads/mdocs/SP%20123-18%20web.pdf

2.2.2. Stakeholder mapping and analysis as a process of stakeholder engagement by Anthony Fry

What is stakeholder mapping?

Stakeholder mapping is a useful tool for engaging with information about stakeholders. Stakeholder mapping is done as part of a broader stakeholder analysis. A typical stakeholder analysis involves identifying stakeholders and gaining an understanding of their connections, interests, and goals related to your project. Stakeholder mapping can be done at the beginning of a stakeholder analysis to decide who to engage with or at the end of an analysis to visually represent analysis outcomes. Stakeholder mapping can also be used during a specific workshop as a facilitation tool to co-create a stakeholder map.

Where does stakeholder mapping come from?

Stakeholder mapping tools have arisen out of the need to analyse stakeholder networks in complex and dynamic contexts. The various methods for stakeholder mapping have arisen from a variety of fields and theories, from studying connectivity through systems thinking and social network analysis to studying social relations in anthropology.

How does it practically work?

There are many ways to use stakeholder mapping, for example: to map formal stakeholders using documentation available; to understand local social networks in a focus group; or it could be necessary to conduct individual stakeholder mapping interviews if working with a sensitive issue which would be difficult to talk about as a group.

Stakeholder maps can present both descriptive information and numerical data about stakeholders to enable rich insights into the problem situation. This handout gives an example of a stakeholder mapping method which is the guided by the net-map toolbox (Schiffer, 2007), an adaptable stakeholder mapping process which combines qualitative and quantitative information to create useful stakeholder maps.

In preparing your mapping process you will need to decide on the question you are trying to answer, for example, "who are the most important people for us to engage with for my project?"

You need to decide on the information you want to collect about the stakeholders and links. To prepare for this you should decide on:

- Categories for the types of links and assign different colours to the links (e.g., providing employment = green link or giving information = blue link)
- Categories for the types of stakeholders (e.g., development or environmental protection)

And don't forget to get all of the materials you would need for the process, such as: large sheet of paper, colour pens, coloured sticky note, round tokens for ranking, actor figurines to represent actors.

The process is described in linear steps, but you can expect disruption and moving back and forth between steps.

Step 1: Introduce / explain the question you are trying to answer to your interviewee or group of participants.

Step 2: Identify and categorise actors by asking "who can influence our project?" As stakeholders arise, you write the names on pieces of card and distribute them on the paper.

Step 3: Drawing links by asking "who is linked to whom?" Go through the types of links one by one (e.g., "who employs whom?" and "who gives information to whom?"). Use the appropriate colour to draw arrows between actor cards. If two stakeholders exchange something (e.g., both give each other information) draw arrows on both ends. If actors exchange more than one thing, add differently coloured arrow heads to existing links as shown in figure 2.5.

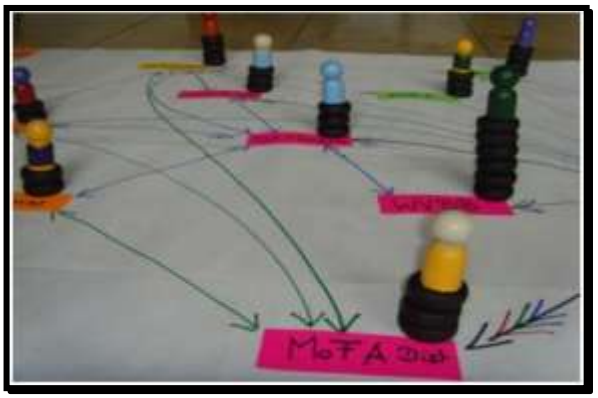


Figure 2.5. Net-map actor network in development (Schiffer, 2007)

Step 4: Assign actor categories by going through the stakeholder categories asking: "which actors have a developmental focus?" and "which actors have an environmental protection focus?" You can use an abbreviation on the stakeholder card to record the categorisations.

Step 5: Assign actor influence by going through the stakeholders asking, "how strongly can actors influence our project?" Make sure to agree on a definition of influence before starting this step. Use the flat tokens to describe the actor influence, the more tokens, the higher the influence.

Step 6: Verbalise and reflect the map back to the participants by describing the map as itis and allow time for any final adjustments. For example, "I notice that stakeholder 1 is the most influential stakeholder, and stakeholder 2 is well connected…"

Step 7: Discuss what the implication of the map by asking questions such as "who has the most influence over the success of the project?" and "who are the important people to engage with?"

What are the strengths and limitations?

Stakeholder mapping has some limitations, for example: if you are trying to represent a complex and messy situation in a few diagrams or tables then the information can easily become distorted or bias. Stakeholder situations are constantly changing, and any mapping processes will only give a snapshot that will need to be updated to keep track of important changes.

Stakeholder mapping is adaptable and can be used in a way that suits your context and is agood way of getting an overview of the stakeholders in your project in order to make decisions and ensure you do not forget any important stakeholders. These maps can also be a useful tool for communication. Figure 2.6 shows three ways that stakeholders can be mapped: on a grid, in a table or in a diagram using programs such as Gephi (gephi.org) or Kumu (kumu.io).

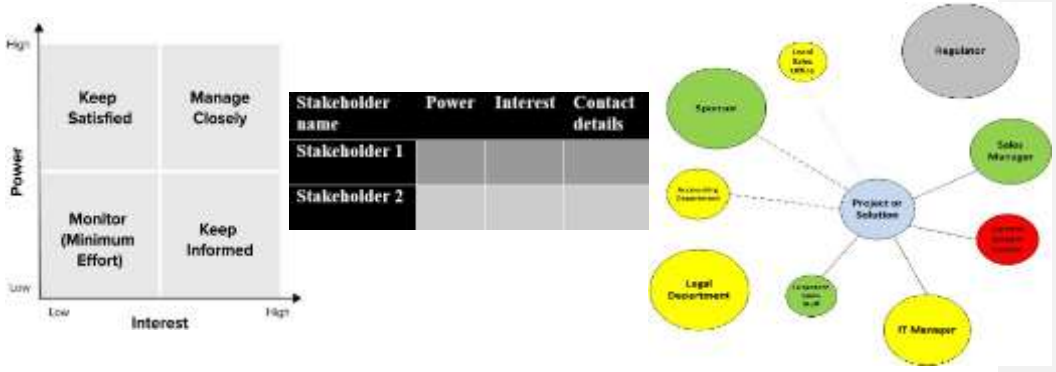


Figure 2.6. Three different tools to map stakeholders. From left to right: A grid (source: mindtools.com); a table; or a diagram (source: bawiki.com).

How has stakeholder mapping been used?

Hauck et al. (2016) used mixed method social network analysis to identify key stakeholders in land-use decisions at multiple governance levels. Their analysis was useful for highlighting the importance of information flow and social pressure on decision making.

Mayers & Vermeulen (2005)'s method for influence mapping places less focus on the links between stakeholders and instead uses distance and circle size to represent influence and size of stakeholder group.

Some stakeholder mapping exercises focus on the connections between the social and ecological factors, such as Sayles et al. (2019)'s social-ecological network analysis or Raum (2018)'s qualitative stakeholder analysis framework to systematically maps stakeholders aswell as eco-system services using a single framework.

Suggested additional resources and readings

Please note these are not compulsory readings. They are just provided in case you would like to read more widely about the topic covered.

Mayers, J., & Vermeulen, S. (2005). *Stakeholder influence mapping*. *March*. Website link:https://policy-powertools.org/Tools/Understanding/docs/stakeholder_influence_mapping_tool_english.p df

Schiffer, E. (2007). *Net-Map toolbox manual*. Intl Food Policy Res Inst (IFPRI). Website link:https://netmap.wordpress.com/about/

Other references cited

Please note these are references used to developthe topic. You are not required to read these.

Hauck, J., Schmidt, J., & Werner, A. (2016). Using social network analysis to identify key stakeholders in agricultural biodiversity governance and related land-use decisions at regional and local level. *Ecology and Society*, *21*(2). https://doi.org/10.5751/ES-08596-210249

Raum, S. (2018). A framework for integrating systematic stakeholder analysis in ecosystemservices research: Stakeholder mapping for forest ecosystem services in the UK. *EcosystemServices*, *29*, 170–184. https://doi.org/10.1016/j.ecoser.2018.01.001

Sayles, J. S., Mancilla Garcia, M., Hamilton, M., Alexander, S. M., Baggio, J. A., Fischer, A.P., Ingold, K., Meredith, G. R., & Pittman, J. (2019). Social-ecological network analysis forsustainability sciences: A systematic review and innovative research agenda for the future.*Environmental Research Letters*, *14*(9). https://doi.org/10.1088/1748-9326/ab2619

2.2.3. Participatory research as a process of stakeholder engagement by Matthew Weaver and Monde Duma

What is participatory research about?

The field of participatory or co-engaged research focuses on *research with stakeholders* rather than *on stakeholders*. Problems affecting our natural resources and the people who depend upon them are complex and are best addressed by bringing together knowledge and perspectives from different stakeholders (communities, civil society, researchers and government). By enabling meaningful participation of stakeholders who are directly affected by the NRM issue, the research process is more likely to be:

- **Relevant** - focused on real problems identified by stakeholders and not what the
- 'outsiders' think is important,
- **Impactful** - produce outcomes that directly benefit the stakeholders involved,
- **Empowering** - build on existing knowledge and agency of stakeholders to take ownership of the research process and its outcomes.

Knowledge created through participatory research approaches is co-produced between the researchers and stakeholders - knowledge is enriched by the bringing together of scientific knowledge and experiences brought by the researcher (facilitator) and the contextual, experiential, tacit and indigenous knowledge brought by the stakeholders (See Topic 1.2 in Module 1 for more information about different forms of knowing and knowledge types). Participatory research uses stakeholder engagement methods to make opportunities for stakeholders and research facilitators to share, reflect, learn, plan and act drawing on their collective knowledge and experiences on a shared topic of interest (for this course this topic would relate to an NRM issue of concern).

Of the participatory research methods, we will describe Participatory Action Research (PAR) and Participatory Rural Appraisal (or Assessment) as well as provide short examples of methods used within these, namely: Participatory Learning Actions and Participatory Mapping.

Participatory action research (PAR) is characterised by the involvement and participation of all role players or stakeholders in the research process (de Vos et al., 2005). The research process and co-creation of solutions to the issue of concern happen at the same time. Ideally, the researcher and participants participate as equals in the research process (although difficult to achieve in reality). PAR is typically used in contexts of social and ecological injustice (poverty and experiences of oppression) and therefore has an emancipatory agenda. PAR, therefore, seeks to empower participants and bring about some form of social change. The needs of the community or the stakeholders are the driver of the research process. Data collection used in PAR can include community forums, workshops,

focus groups, storytelling, and drama.

PAR cultivates the process of action that is necessaryfor social change that empowers all stakeholders to mobilize and act on issues of their interest. In the context of natural resource management (NRM) the involvement of stakeholders on key issues is important. For instance, where water shortage is a problem the communities, municipalities at different levels (local and district), business sector, provincial and responsible national government departments may need to be mobilized to address this single issue. The outcome of the engagement process must be actionable and owned by those who were involved. The learning and motivational power in PAR comes fromgrowing common effort (collective agency) with stakeholders or the community in a specificcontext.

Participatory Rural Appraisal is an umbrella of approaches and methods that help people to share, analyse and enhance their knowledge of their livelihoods, local conditions and context to enable them to plan and act for positive change (Chambers, 1994). It is influenced by various disciplines such as applied anthropology, agroecosystem analysis, participatory research and Rapid Rural Appraisal. Knowledge generated through a PRA is shared and owned by local people (Chambers, 1994). PRA covers methods such as participatory mapping and modelling, participatory learning actions (PLAs), transect walks, trend and change analysis among others. These are methods that are useful when co-creating knowledge on contextual issues with stakeholders.

Where does participatory research come from?

Participatory research claims its origins from the Third World, where development projects were implemented and failed and continue to fail. The major reason for failure was that projects were imposed on communities (top-down approach) without taking into consideration the needs, interest and context in which the projects were being implemented. In other words, the lack of ownership by local communities was seen as the driver of these failures. The solutions were imposed by outsiders who often made assumptions based on their own context (often from a First World context).

PAR has its roots in self-determination and self-consciousness of the poor and oppressed toalleviate their situation - the oppressed become active agents of transforming in their environment. There is a strong emphasis on balancing power relations between the researcher and participant. As a research methodology PAR was launched in 1977 at the Cartagena World Symposium (Mouton & Babbie, 2001) and has since undergone a remarkable refinement. In PAR the academic goals should not overshadow the societal goals - the researcher becomes a researcher-participant walking shoulder to shoulder with the community or stakeholders, including government. This approach views research and engagement as a key driver of transformation (Swantz, 2008).

Since PAR is concerned with the emancipation and empowerment of participants, it advocates for their participation in knowledge creation and policy development and governance processes (e.g., Natural Resource Management). In South Africa, policy development must include stakeholder participation. This serves to counteract the dominance of the interests of the powerful (often in minority) and ensure that common interest of those most affected (often the oppressed majority) are served. Fairness and legitimacy of decision making is undermined if the voice of people is absent. Participation in research is part of a more open and democratic process of knowledge production (Brock and McGee 2002).

Underlying theory or concepts/family of theory that participatory research relates to

PAR owes its origins from the liberation struggles of the Third World that sought self-determination and break free from colonialism. It is an emancipatory paradigm that advocates for transformation or social and economic change. It cultivates self-consciousness in the poor and oppressed people of the world and sees the distribution of power as a critical complement of transformation.

PAR reflects the convergence of theoretical and practical traditions from various fields such as community development, agriculture, education, health, etc. It was developed with an explicitly political goal and commitment to empower and liberate those being studied (Mouton & Babbie, 2001). Implicit within PAR is the concept of sustainability - if people are involved in finding solutions to issues that matter to them there is a high chance there will be broad buy-in. This means people will likely participate and contribute by being active agents.

Strengths of participatory research

- Emphasises the **distribution of power** and **co-creation of knowledge**.
- Emphasises **democratic participation** and **self-determination**.
- *Encourages working with the poor and marginalized to plan and action resolutionsto address issues.*
- Guides and **stimulates change and cultivates a self-generating and self-sustaining process of agency and action** that may continue long after the completion of research and stakeholder engagement.
- Both the **researcher and community gain knowledge** - the researcher-participant gains first-hand information of the real issues of the community and the community gains a deeper understanding of their own issues. Often the two sides benefit from the sharing and exchange of knowledge that may occur from different knowledge systems - e.g., local and scientific knowledge.
- Provides a **multidisciplinary approach to solving problems** bringing different disciplines together to co-develop adaptive solutions to pertinent issues identified by participants.
- **Bridges the gap between research and practice** - by not only focusing on knowledgeco-creation but also on research-informed action.

Limitation of participatory research

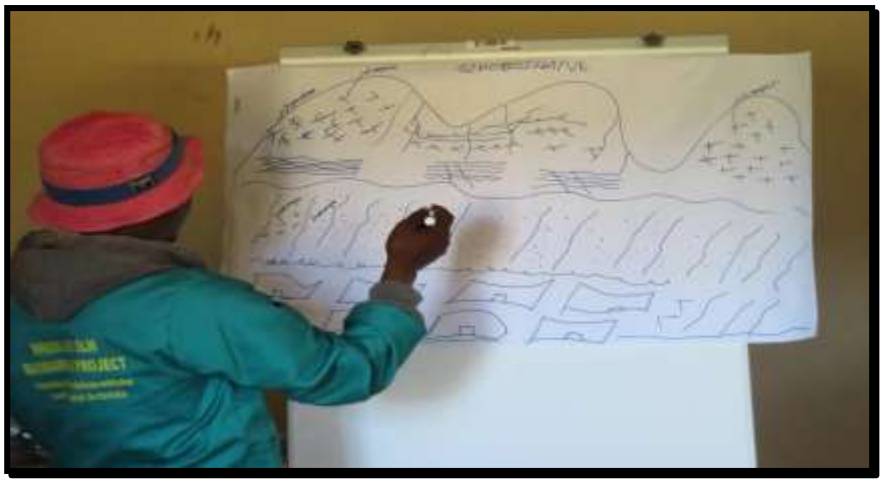
- **Conflict and misunderstandings -** diverse perspectives, values, interests and goals that come from including multiple stakeholders can be difficult to accommodate and
- make progress. Different disciplines (community, researchers, government and private sector) and educational backgrounds can lead to a gap or different level in understanding between participants.
- **Power differences and imbalances** - due to differences in educational background, socio-economic status, socio-political influence. Less powerful stakeholders (typically communities affected most by an issue) may not be equipped or enabled to participate and contribute meaningfully (language, capacity, opportunity etc.).
- **Outsider acceptance** - Often differences (power, social, economic, culture etc.) between the 'outsiders' (researchers/facilitators driving the process) and the community

or stakeholders (those experiencing the issue of concern) make it difficult to build trust and healthy working relationships.

- **Cost in time and human resources** - bringing multiple stakeholders together, building trust, designing and running participatory processes that meaningfully address issues of concern takes a large investment of time and effort.

Who has used it, how and with what results?

Box 2.3 Machubeni Example



In the degraded landscape of Machubeni, participatory research methods were used to understand the drivers of land degradation and how the landscape could be rehabilitated. Participatory Learning Actions included groups of people working together to identify thecurrent situation of their environment, discussing whether they are satisfied with the situation, how they envisage the future, and why and what changes they would like to see. Participatory mapping was used as a method to visually describe key parts of the environment (image above).

Each group reported back to the larger group facilitated by the researcher-participant. This platform created a discussion forum where each group could question and seek clarity on issues presented thus generating rich information fromthe discussions. For example, some of the solutions pointed to methods of land rehabilitation that they were exposed to, such as the use of gabions (rocks packed into wire cages to curb erosion) which are expensive.

This provided the researcher- participant/facilitator with the opportunity to introduce other potential land rehabilitation techniques more feasible to the Machubeni context. A video of simple low-cost land rehabilitation techniques used in Kenya was played and participants were giventime to discuss and explore the relevance and feasibility of these interventions for their context.

As mentioned in the above Machubeni example, participatory mapping is another effective participatory research method and an excellent way of bringing multiple stakeholders together to collectively identify key resources, impacts and sites for management interventions. This method was also used effectively in the Tsitsa Project in the Eastern

Cape of South Africa (refer to Weyer et al., 2019 in the additional readings section below).

Suggested additional resources and readings

Please note these are not compulsory readings. They are just provided in case you would like to read morewidely about the topic covered.

Pade-Khene, C., R. Luton, T. Jordaan, S. Hildbrand, C. Gerwel Proches, A. Sitshaluza, J. Dominy, W. Ntshinga, and N. Moloto. 2013. Complexity of stakeholder interaction in applied research. Ecology and Society 18(2): 13. http://dx.doi.org/10.5751/ES-05405-180213

Weyer, D., Bezerra J.C. and De Vos, A. (2019). Participatory Mapping in a Developing Country Context: Lessons from South Africa. Land 2019, 8(9), 134; https://doi.org/10.3390/land8090134.

Website link: https://www.mdpi.com/2073-445X/8/9/134/htm

Other references cited

Please note these are references used to developthe topic. You are not required to read these.

Chambers, R. (1983). Rural development: Putting the last first. Routledge. Chambers, R. (1994). The origins and practice of participatory rural appraisal. WorldDevelopment, 22(7), 953–969. https://doi.org/10.1016/0305-750X(94)90141-4

de Vos, A. S., Strydom, H., Fouché, C. B., & Delport, C. S. (2005). Research at grass roots:For the social sciences and human service professions. van Schaik Pretoria. Mouton, J., & Babbie, E. (2001). The practice of social research. Cape Town: Wadsworth Publishing Company, 674.

Swantz, M. L. (2008). Participatory action research as practice. The Sage Handbook of Action Research: Participative Inquiry and Practice, 31–48.

2.2.4. Arts and theatre as a process of stakeholder engagement: Empatheatre as an Example by Eureta Rosenberg, drawing on Dylan McGarry and Taryn Perreira-Kaplan

How it works

Empatheatre is a process for engaging stakeholders in social dialogue on a contentious issue by means of a dramatic play (theatre). Different kinds of arts, like music or dance; visual arts like paintings or murals; animations, film, poetry or stories, can be used to engage stakeholders in natural resource management (NRM), and theatre or drama, is one of the performing arts. Empatheatre is one particular kind of theatre used for stakeholder engagement. So how does it work?

Long before the play is performed, the Empatheatre researchers (actors and playmakers) engage with stakeholders who have already identified an issue that is important to them, that is contentious and complex, and needs more members of society to get involved. Say the issue is overfishing and the use of quotas to control catch sizes. The actors would extensively research the issue *with* a diverse range of stakeholders, by talking to people and reading up about the issue to deeply understand all aspects of and viewpoints on it.

The stakeholders in this case could be big fishing companies, small-scale fishers, recreational fishers, sustainability researchers, activists, officials responsible for licensing. The Empatheatre researchers then put together a script which they share with stakeholders to make sure it represents the different aspects of the issue well. Like the research part, thisprocess of checking the facts and interpretation is already a form of stakeholder engagement. The company performs the play to an invited audience, in such a way that all the complexity, contestation and conflicting viewpoints are clearly demonstrated. They maydress up and use props.

The stage is not in a special drama theatre, it is just the centre of a circle of audience members and can be inside or outside. The audience watches while the play is played out in the middle of the circle. Afterwards, a facilitator engages the audience and asks them to comment, ask questions. The playmakers then engage with the audience. In this way, the social dialogue that started with the making of the play, is continued, now with a wider range of stakeholders.

Where does this method come from? Underlying theory and related concepts

Empatheatre was developed in South Africa to create platforms for social dialogue on difficult issues, as a means to enhance participatory justice in decision-making (McGarry, https://www.empatheatre.com/)

There are a variety of theoretical roots for using the performing arts to engage stakeholders in processes of change and confronting difficult issues. One of them is Theatre of the Oppressed, a form of community-engagement that uses theatre as a tool for social change. It is inspired by the work of Brazilian theatre visionary, Augusto Boal (1931-2009), who worked with peasants and workers in Latin America. Theatre for the Oppressed methods are now used around the world for social and political activism, conflict resolution, community building, therapy, and stakeholder engagement on policy and legislation.

It is used by community organizers, activists, teachers, social workers, cultural animators, and more. Inspired by the vision of Paulo Freire and his work on critical and popular adult education, this process invites critical thinking. It is about analyzing rather than accepting, questioningrather than giving answers. It is also about taking action — "acting" rather than just talking.The audience is treated not as passive spectators but instead become active "spect-actors" invited on stage to further explore the issue and possible solutions. (http://www.mandalaforchange.com/site/applied-theatre/ theatre-of-the-oppressed/)

An alternative format is to first discuss an issue, and then invite the stakeholders themselves to put a play together. Another related method is forum theatre, a problem-solving technique in which an unresolved issue, e.g. a scene in which a poor man is arrested for stealing rhino horn on behalf of his employer, is played out for the audience. It is then played a second time, but this time the audience is invited to stop the action, replace a character they feel is oppressed, struggling, or lacking power, and improvise and act out alternative solutions. This format can be used to explore past and current situations, or as a "rehearsal for the future".

What are the strengths of processes like Empatheatre?

Art is a powerful medium for engaging stakeholders. Art is different to the ordinary or everyday; therefore, it grabs our attention and excites us both emotionally and intellectually. Art taps into a universal human language that can overcome cultural and language barriers between us. It can level power differentials between different stakeholders.

In the case of a carefully planned and scripted roleplay like Empatheatre, the artists not only command the attention of the audience, they are also able to present different aspects of complex NRM issues, through different characters. To do this, they had to thoroughly research the issue from the point of view of each of the stakeholders, in a participatory, transdisciplinary research process that already starts the stakeholder engagement. (This is described in https://www.empatheatre.com/).

By means of skilful, dramatic rendition, the audience is then drawn into the shoes of the different characters and encouraged to see theNRM issue from new angles. They are invited to have empathy for that point of view, even if it is not one they share; to eventually find common ground for a way forward. The emotional nature of the drama encourages those audience members who did not really thinkmuch about the issue before, to become invested in it - to CARE. This is because art touches our emotions - engaging us in a way that facts on their own seldom do. Have you noticed how we often associate facts with being bored, and with learning something that has no value outside the walls of the classroom?

What are the limitations of processes like Empatheatre?

Although the arts can overcome barriers between different stakeholders, or between researchers and stakeholders, some will feel uncomfortable about being 'put on the spot' into a context that engages their emotions and asks them to respond in front of others, in the way that Empatheatre does, so it is important that they are adequately prepared for it, e.g., through an explanation of what the process is about. People may feel pressured to adopt a particular view. Empatheatre is careful to present a variety of views and to generateempathy for all of them, rather than to suggest that the audience should be converted to one point of view.

At the same time, the audience is confronted with very serious and oftenlong-standing issues such as historical injustices, and deep emotions may be unleashed, sadness or anger or guilt, requiring a facilitated debriefing afterwards. This method also takes a lot of preparation time - as noted, it actually starts long before the play is presentedto the audience, and is, therefore, resource-intensive. Other theatre formats can overcomethese limits, for example by being more limited in their intention and depth.

Who has used it, how and with what results?

Rhodes University Environmental Learning Research Centre together with the University of Strathclyde and other partners, including local fishing communities, engage in a programme

called the One Ocean Hub. The One Ocean Hub team have been using Empatheatre for social dialogues about the often-hidden issues of the ocean, for conducting participatory research with the users of ocean resources, and for sharing the findings of such research. Dylan McGarry and colleagues have used Empatheatre to encourage social dialogue and shared decision-making including policy development, on difficult topics like land, evictions, and mining in protected areas.

To see and hear more about Empatheatre, go to https://www.empatheatre.com/ or https://www.youtube.com/watch?v=vioKkGqnL8Q&ab_channel=Empatheatre

Suggested additional resources and readings

Please note these are not compulsory readings. They are just provided in case you would like to read more widely about the topic covered.

http://www.mandalaforchange.com/site/applied-theatre/theatre-of-the-oppressed/

Boal, A. (1995). *The rainbow of desire: The Boal method of theatre and therapy*. London: Routledge.

Burt, J. (1999). Dramatic learning. Unpublished M.Ed thesis. Rhodes University Departmentof Education: Grahamstown, South Africa.

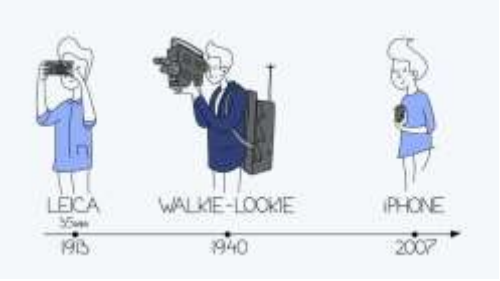
Being Brave: Writing Environmental Education Research Texts. Available from: **https://www.researchgate.net/publication/274554675_Being_Brave_Writing_Environmental_Education_Research_Texts** [accessed Oct 30 2020].

SUSPLACE Toolkit Arts-based Methods: Pearson, K.R., Backman, M., Grenni, S., Moriggi, A., Pisters, S., Vrieze de, A. (2018). *Arts-Based Methods for Transformative Engagement: A Toolkit*.Wageningen: SUSPLACE. https://doi.org/10.18174/441523

2.2.5. Participatory "filmmaking" or Mobile Journalism as a process for stakeholder engagement By William Mponwana

How it works

One of the most popular ways that most cultures have used for centuries to talk about anything has been through stories. Stories have the power to convey a message in a simple and unique way over and above other ways of communication. Stories are extremely useful in that they engage a person's mental faculties or imagination which is a key component tolearning. When told coherently, stories can simplify complex issues, concepts and even phenomena. In today's world, we use many ways to explain, convey a message or tell a story



(such as art, see 2.2.4) and all these take up form on digital platforms. Here we will focus on one example: **Mobile Journalism (MoJo).**

MoJo is a new-age form of journalism that is fast becoming popular with the innovations around smartphones and technology. Mobile journalism is simply a way of collecting pieces of **audio, video recordings** and **pictures** to produce a story in the form of a video to share with the world. Nowadays many journalists use smartphones tocover news, or a story, whichmeans they can share the content across social media platforms of their choice quicker.

In Journalism, MoJo users are professionals in their field and are trained to be able to capture multiple angles, put the pieces together (using editing software to make it appealing) and share the product in a short space of time. Journalists may move from one place to another without interacting with the exact same people each time.

The situation may be a little different in the case in an NRM context where one may be working regularly with the same groups of people and may have already developed a working relationship over a longer period of time. In addition, your work may not be about producing news materials. However, as part of your work with NRM participants, you may have to develop communication materials to share with decision-makers or the wider community, and visual materials may be one of the most useful and powerful ways to do so. By virtue ofowning a smartphone, you can also be a mobile journalist. If you have submitted a video (on contextual profile) for your first assignment, then you have begun to use one aspect of MoJo for communicating your work in a creative way.

A Participatory process of stakeholder engagement

Every participant in this course is situated in a particular context where you are working with people directly or indirectly to address an environmental issue or manage a resource. Both parties are important where (you and the people you work with) either have a "stake" as an interested or affected party in your work. In some cases, it is clear to both parties what the issues are, how the issues affect the people and environment, and a way of working together towards the desired outcome is already in place. In some cases, it is not clear how to work together and there are challenges in the process of working together. You may have been through a process of back and forth in meetings and workshops trying to better understand the issue together with people.

Participatory filmmaking is one way to work together with people who have a stake in a particular issue and offers both parties, (you and the people), an opportunity to take ownership of the process and give voice to your and theirviews, feelings and stories. In so doing, some people develop a better sense of the issue as communicated in this way. Your role in the process of engagement is not merely to observe but to engage with "stakeholders" and provide aprocess and medium through which to capture and tell their story.

Journalism is built on a foundation of ethics, integrity, accuracy, and truth. In participatory filming, the same applies. Without the proper support and care, you may find yourself breaking the trust of those you work with. As a collaborator in telling a story, active listening and observation are important in the process of developing a story. When you are able to listen, relate and allow people to speak or represent people in the way they would want, you are building another aspect of a positive working relationship and should strive to be as accurate so as possible to avoid misrepresentation.

Why mobile journalism?

- Participatory film-making offers us a wonderful opportunity to **develop our own stories in the first person** - Who better to tell our story than us. We know our contextand community. We are therefore, well placed to expand our understanding about our environmental issues, how they affect us and communicate and learn together amongst ourselves and communities.
- It is an inexpensive method to develop stories without needing to buy expensive filming equipment, all you need is a smartphone.
- It is a useful method to mediate discussions around relevant issues or topics.
- It is a useful way to reflect on people's experiences and empower them to some extent.
- It is an effective tool to communicate your story more widely to influence or mobilise action.

To be able to carry out a process of developing content together with stakeholders you will need:

1. A storyline or idea of what you will be covering
2. An understanding of working ethically with people
3. People's consent to participate, plan and work together on the film
4. A Smartphone with a camera of at least 5MP [editing software will be needed for enhancements]
5. Free Video editing app downloadable from Play store (such as Filmora, Kinemaster, Filmigo)
6. Free Sound enhancement app downloadable from Play store
7. Irrespective of context, the four main purposes around stakeholder engagement apply. The use of mobile journalism may be an attempt to address any one of the four.

An example of a participatory film

Below is a link to a film titled "*Xibejana xa hina*" which was produced by some of the participants in this course from Kruger2Canyons. This film is an example of participatory

film developed through engaging stakeholders and partners to educate and communicate various elements around a complex issue of rhino poaching. This video has been uploaded on YouTube and its availability at any time is beneficial to anyone who wishes to access it.

Xibejana xa hina (Our Rhino: A participatory film):

Suggested additional resources and readings

Please note these are not compulsory readings. They are just provided in case you would like to read morewidely about the topic covered.

Short Intro to participatory video making for
https://www.youtube.com/watch?v=P0trJloR56Q&t=24s

Longer video: https://www.youtube.com/watch?v=pDVFpUIfMYY&t=911s

Other references cited

Please note these are references used to developthe topic. You are not required to read these.

Lunch, C. & Lunch, N. 2006. *Insights into Participatory. A Handbook for the field.* Videohttps://sgp.undp.org/images/Insights%20into%20Participatory%20Video%20-%20A%20Handbook%20for%20the%20Field%20English1.pdf

Participate.(no date). *Participatory Video (PV)* Online resource: https://participatesdgs.org/methods/participatory-video-pv/

Topic 2.3 Principles of Stakeholder Engagement

Regardless of the process we undertake when we engage stakeholders, there are some key principles of stakeholder engagement that we should consider, and that apply to all the processes introduced in Topic 2.2.

Principles of ethical stakeholder engagement include (you may want to add others):

- *Respect*
- **Reciprocity**
- *Transparency*
- **Reflexivity**

What do these principles involve?

Respect goes hand in hand with dignity and value. Respecting others means that we do notlook down upon them, no matter what income, education or cultural background they haveor how much their values differ from ours. *How* one shows respect for each other can differbetween contexts and cultures. In some places, it is respectful to walk straight up to the leader of a group, look them in the eye and shake hands. In other cultures that may be regarded as highly disrespectful, as one might need to be invited and it might be consideredrude to stare.

In some contexts, it is disrespectful to be even 15 minutes late for a meeting,while in other contexts, where distances are long and transport unreliable, arriving after agiven time is seen as part of life rather than disrespectful. Starting a meeting with an "ice-breaker" in which participants dance the Jerusalema may work well for the product developers in a technology company, but a more respectful 'tuning-in' activity may be needed for a mixed rural group including traditional leaders.

University research ethics protocols sometimes require researchers to obtain informed consent from people they work with, to voluntarily participate, but the way the consent form is worded as "*optional* participation", could give offence in contexts where invitations to an event or process should be unreserved: "We *really want you* to join us". It is obviously important to know what rules apply in the context you plan to engage stakeholders. As Nosi Mtati of the Tsitsa Project says: "Context matters - make sure you know yours".

In stakeholder engagement, respect also means that we value what all participants have tooffer, and we go out of our way to make sure that everyone, no matter what their status orcircumstances, have an opportunity to have their voice heard. This is of course not only a matter of courtesy; as we saw in Module 1, a range of knowledges and insights are in fact needed if we are to successfully address NRM matters - no one set of views is adequate on its own. But it is also a matter of respect, which in turn encourages people who

experiencethat their views matter, to more fully participate in NRM processes. Paddy Gordon, former Park Manager at the Knysna National Park, said he respected the contributions of all the members of the Park Management Forum, from the wealthy retired residents to the poorerlocals who collect bait for subsistence fishing. Paddy could not condone illegal bait collecting, but his respect for the poorer local's inputs motivated him to make sure that Park-stakeholder meetings were held in venues and at times that people who lived in the township and had to hustle for a livelihood during the day could attend as well - when the default was to hold consultations in the town centre during office hours because retirees could easily attend those. The Namaqua National Park staff made sure they arranged transport for those who can otherwise not attend meetings. Besides the choice of time andvenue, another sign of respect for people is to conduct meetings in everyone's home languages.

Activity 2.2:

Watch the video on Empatheatre. Listen to the description of the stakeholder engagement processes involved in researching, producing, performing and discussing the play. List all the ways in which the theatre company shows respect to stakeholders. Have you or how could you show respect in stakeholder engagements in which you are involved?

AND/OR

Read the short hand-out about stakeholder mapping (2.2.2). List all the ways in which the facilitator producing a stakeholder map would need to show respect, and how that could be done?

For the next principle for stakeholder engagement we look at is reciprocity.

Reciprocity means treating each other fairly and not exploiting our stakeholders, similarly not allowing them to exploit us. When we engage stakeholders because we want something - say information or goodwill - from them, it is only fair to think about what they get out ofthe process. If they have to incur expenses to meet with us, like transport costs or a day's loss of income, it is fair to compensate them. But money is not the only way in which we can show gratitude and reciprocate. What are the local customs? If it is customary to bring a gift when we visit people, or offer people refreshments when they spend time with us, then that is a good way to reciprocate.

When stakeholders engage with environmental scientists and university students, they value the opportunity to earn money, but also a range of other things, that we should consider in each context. Research in the Tsitsa Project(Mtati, 2020) showed that people also value respectful interactions, the opportunity to be part of a project that gives more meaning to their daily activity and learning something stimulating and new. A profound way to give something in return to people who contributeinformation to research projects is to offer them an opportunity for formal studies and accreditation, that could open career paths for them. Of course, when stakeholders actuallyinitiated the engagement, because they themselves want something to be done about an NRM issue, then the facilitator and the group may share a common goal and reciprocity is easier to achieve.

Activity 2.3:

Do you have some innovative examples of reciprocating the goodwill of stakeholders who offer their time and information? Do you know of cases where stakeholderswere badly exploited? How could those cases have been avoided?

AND/OR

In the interview you conducted for assignment 1, how did you deal with the need to reciprocate? Did it come up? Should you have considered it? How could you have considered it, if you have not?

Now also consider, *how* did you introduce the interview to the person you approached? To what extent did you manage to convey the reason why you wanted the interview?

Transparency is the third principle to consider. This means being honest about our motives when we engage with stakeholders, being clear about *why* we are doing this (our purpose), and what stakeholders can expect from the process. If people are not going to benefit financially or get jobs from a process, it is best to be open and clear about that. Fortunately, as mentioned earlier, money is not the only motivator for people wanting to be part of well-designed NRM processes, with the proviso that the processes should not financially exploit them either.

If an organization or individual engaging stakeholders already has a proposal or plan for which they ideally want the stakeholders' support, it is best to be transparent about this proposal or plan, but also to indicate to what degree there is room for stakeholders to reject or modify the plan. There can then be a thorough engagement around the details of the plan and often large parts of the original plan are kept intact, or improved, and then supported by the stakeholders, because they had the chance to do such a robust engagement.

It is dishonest to make people go through so-called consultations as if their opinions matter, and at the end of the day, pull out the original plan and present it as an improvement on what was discussed, without having even mentioned it before. It is not always possible to make changes to plans and, in such cases, and if the engagement is simply a presentation to gather support for the given plan, this should be made clear upfront to stakeholders.

Often it is also difficult to say whether a stakeholder engagement process will eventually be of benefit to people, because the processes can be very drawn out, and the outcomes are always uncertain. However, if one is open and honest about the possibilities and the uncertainties, when there is a relationship of trust, stakeholders are often willing to take the chance. The kind of trust required, however, can take a long time to develop, and quick "fly-in-fly-out" engagements usually come with too little trust and understanding both ways. *Trust is earned, and we earn it by being honest*. This can be very hard when we facilitate processes on behalf of third parties who do hide or require us to hide some of their motives or information that should actually have been made known to the stakeholders.

Activity 2.4:
What are some of the challenges you have encountered with regards to honest and transparent engagements with stakeholders? Do you have examples of such challenges beingsuccessfully addressed?

AND/OR

In the interview you conducted for assignment 1, how did you deal with the need to be honest and transparent? How did you describe the purpose of the interview? How will you describe it for assignment 2, if you want to change your approach?

Reflexivity is about being able to step back from the nitty-gritty, day-to-day of our stakeholder engagement work to reflect carefully and critically on what is going on, and consider adapting the way we do things to be responsive to the ever-changing context. The idea of reflexivity builds on reflection (reflective practice was briefly introduced in Module 1). (See Bolton (2010) as a key reading on reflection and reflexivity). Reflexivity is an important principle in stakeholder engagement as it ensures that we are open-minded, able to question what we are doing and how we are doing it, and able to responsively adjust and adapt as we go, i.e., it helps us take a 'learning-by-doing' approach.

We can think about **reflection** *as looking into a mirror*: we can hold up a mirror to look at what we are doing, what is going on in the context, how things are going, what is working, what is not working, and so on (Figure 8) The mirror helps us to step back, pause, and get a'birds' eye view' of the work we are doing, to describe what happened, and to evaluate thiscritically. We can then think about **reflexivity** *as looking through the mirror:* we see what is reflected back from the mirror, but we also look at what is going on beyond or behind the mirror.

What are the underlying values and assumptions that are driving how we are doing our work? What are the underlying societal structures (e.g., economic and political drivers) that are influencing what is going on? How should we adapt the way we are doing things based on these underlying issues? Reflexivity, therefore, builds on reflection, and is about being able to act on what we see when we reflect, that is: to respond and adapt the way we do things.

For example, if you were in a stakeholder engagement event where a disagreement arose and one of the participants unexpectedly left the meeting. You and your team might reflect on the experience, and practice the principle of reflexivity, as follows: Reflection - look into the mirror: What happened? (describe the event) Why did this participant leave the meeting? Was there a conflict that caused this? Reflexivity - looking through the mirror: What underlying assumptions did we have about stakeholders that might explain what happened? What underlying structures or patterns in society might explain why the participants felt uncomfortable and had to leave?

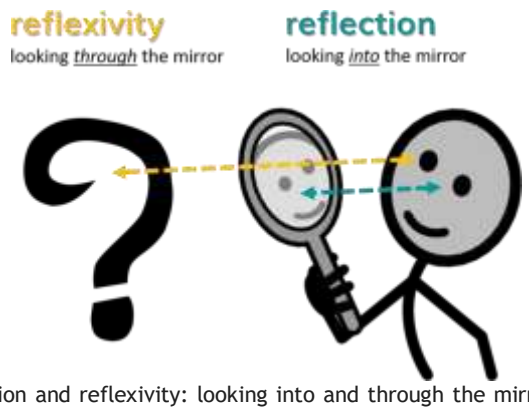


Figure 2.7. Reflection and reflexivity: looking into and through the mirror (after Bolton (2010))

Activity 2.5:

Think about a specific, memorable stakeholder engagement experience you have had, e.g. where a significant moment happened that seemed to have an impact on the project as a whole.

1. Start with a reflection on the event, using these questions as a guide: *What happened (describe)? Who did what, when, where and how? Why did things happen the way they did?*

2. Then, ask yourself a more reflexive set of questions:

- *What underlying assumptions did we have about stakeholders that might explain what happened?*
- *What underlying structuresor patterns in society might explain why this happened? What should we do differently in future? e.g. How should we engage differently in future?*
- *How might we in general relate differently to stakeholders?*

Suggested additional resources and readings

Please note these are not compulsory readings. They are just provided in case you would like to read morewidely about the topic covered.

Bolton, G., 2010. Reflection and reflexivity: What and why. Reflective practice: Writing andprofessional development, pp.1-24. SAGE Publications, London.

Topic 2.4 Practicalities of Stakeholder Engagement

Orientation - How to think about facilitation techniques

Now let us look at some of the practical considerations when engaging stakeholders. There are no secret techniques to master, that will always work. A skilled facilitator is not that person with a bag of tricks and activities that they whip out and apply no matter what the situation. A skilled facilitator is someone who carefully considers each context, each process and its purposes, and the ever-present principles, and works out the best way in which to facilitate the process in this particular context, with this particular purpose and these participants. That is, they are responsive to purpose and context including emergence (unforeseen outcomes, good or bad, that arise from the process).

Facilitators often have to change the planned activities during a stakeholder engagement process, to respond to what is coming up in the process, or even happening outside of it. Having said that, there are some basics we must consider and we can always improve our ability to handle these practical considerations. For example, the facilitator has to know who the participants are,and must either find out beforehand, or use the first part of the event, to find out. Similarly,when the facilitator finds her or himself in the middle of an activity that is going horribly wrong, it helps to have some options to consider. This topic is about these options and considerations, not a bag of tricks.

BOX 2.4. A skilled facilitator is not a franchise cook

Some like Nando's, some like KFC. Have you ever watched the cooks at a grilled chicken outlet while you wait? Their skill in basting, turning and at exactly the right moment removing the chicken from the heat is so impressive. Their equipment, temperature and flavour mixes are always exactly the same, and so is their technique. They never veer off from the franchise's 'standard operating procedure' for getting that chicken cooked exactly the same way every time.

Compare that to the ladies who cook for family and community gatherings. They adjust their plans including recipes according to the ingredients and the utensils they have on the day, the number of people who will be eating (which can change at short notice), any special needs (Sister used to like spices, but now she is pregnant and queasy), whether a wedding feast is needed or a simple meal towards the end of the month when savings are important. They often use other people's stoves which have their own quirks and if they cook on an open fire, the weather becomes a consideration as well.

Real-life facilitation of stakeholder processes is more like the family cook, and less like a franchise employee with a standard recipe and techniques (see Box 2.4.). But all cooks have some basics they must consider - like making sure everyone has enough to eat, for example - and so it is with the facilitator of stakeholder engagements. Below are some of the basics to consider no matter what process you have in mind.

2.4.1. The Basics

1. Understand your role and the purpose of the engagement
2. Get to know the context and participants

3. Anticipate and respond to group dynamics
4. Manage the physical set-up
5. Allow people to trust you, each other, and the process
6. Enable everyone's participation
7. Design activities that are fit for purpose
8. Keep up the energy levels
9. Provide a satisfying closing of the process.

1. Understand your role and the purpose of the engagement

Within the overall stakeholder engagement purpose, the purpose of facilitating group processes is to hold and steer a process such that the group produces an outcome (a decision, plan or new idea) that is better than anything that each individual could come up with. The underlying assumption of group work is that humans when considering something together, have a power to be creative, forward-thinking and (eventually, if not at first) solutions-oriented. The general point of facilitation is to encourage and enable this productive, generative and co-engaged emergence of group processes.
Importantly, it is not possible to determine the exact outcomes beforehand.

If your role is to steer people towards a certain predetermined outcome, then the process is not facilitation, but something more like communications, lobbying or advocacy, and for such apurpose there will be other guidelines, different to the *facilitation* guidelines discussed here. *A key role of any facilitator, and one of the main reasons why there are facilitators in stakeholder engagements, is to allow everyone to participate and contribute optimally.*But contribute to what? The purpose of the engagement will guide your choice and design of activities. Be very clear on the purpose of the process, even if it has to be decided with participants at the start or refined throughout.

For different purposes, there are processes, and both process and purpose should be explained so people know or can decide how best to contribute. There must be some containment or structure; not too rigid, but also not soopen that participants do not know from one moment to the next what is going on. When confused, people can no longer participate.
Clarify your own role too, bearing in mind you can play more than one role and your roles can change over time.

Is your role to facilitate a process in which you yourself have no stake? What is your own interest in the outcome? How does that influence your role? It can be difficult to participate as a stakeholder contributing to the outcomes of a process, and at the same time you are t*he facilitator who needs to hold and steer the process to allow everyone else to contribute*. If you have multiple roles, find one or more co-facilitators so you can take turns to hold the process, and to make inputs. A facilitator who dominates the group with their own opinions, information, or knowledge, will soon find that either people start to fight to have their own voices heard, or simply stop participating - leaving facilitators high and dry with nothing more than their own opinions. Of course, some 'facilitators' might prefer their own ideas, but such an unequal, one-way process is unlikely to create much support for those ideas, or to improve upon them.

2. Get to know the context and participants

Understanding the context will let the facilitator know how to show respect and reciprocate, those key principles of stakeholder engagement noted earlier, but also what individual group members may be concerned about or have to offer to the process. The work of getting to

know the context and participants should be done before engagements start, if possible. Ifyou will be facilitating an event, find out beforehand what the venue and equipment if anywill be like, what activities will be possible or not, how refreshments can be served, how far people will travel before they arrive, etc. Also, do your homework on the expected participants; which organisations are they from, how much do they already know about the NRM issue of the day, and to what extent have they already been engaged in it?

Don't make any assumptions without checking: They might have been dwelling on this issue for many years and then your process will be very different to one in which participants are joining the conversation for the first time, and a mixed group requires special methods to bring everyone to a shared understanding of purpose. In what languages will they most comfortably participate? What social - institutional and cultural - norms will they have and how can your process respond to those?
Be prepared for surprises when you arrive at the venue and to adapt accordingly. Remember, you are not a franchise cook! At the start of the engagement, make time to check who the participants present are, and if others arrive during the course of the engagement, create a suitable opportunity to find out who they are, as well.

3. Anticipate and respond to group dynamics

Doing your homework as outlined above will help you anticipate dynamics and plan for them.One of the best things a facilitator can do to support a productive engagement process, is to carefully identify and invite relevant participants. Whom you invite and encourage to attend an event, is often one of the most important ways in which you can steer a process towards a worthwhile outcome, even if you cannot and would not want to predetermine that outcome. Avoid a situation where half-way through a meeting, participants complain that key stakeholders are absent. Try to bring them to the event, and/or to arrange other events where they can participate, if this one is not suitable for them.

With many NRM issues, there will be a variety of stakeholders (refer back to Module 1) with different values and perspectives, and often they have a history with each other or with your organisation, that leads to animosity and fractious relationships. Histories of educational and economic inequalities that continue to today mean that in many groups some will feel they have the right to speak more and with more authority than others, whereas others (e.g., women, rural people or those not fluent in English), will feel more reluctant to speak. Even among equal peers, some are more inclined to contribute in big groups than others. *A key role of the facilitator, and one of the main reasons why there are facilitators during stakeholder engagements, is to allow everyone to participate and contribute optimally.*

Reduce the chance of conflict and exclusion e.g., by agreeing on a code of conduct beforehand and make the code visible for everyone to see throughout the process; give everyone time to speak and manage the amount of time each speaker gets; agree that we would also listen to understand others, as much as we will endeavor to make our own constructive inputs. It can be counter-productive to call on quieter people to speak up in abig meeting, but small group discussions that are not dominated by strong voices, can give them the courage to later report their views. Do not overlook the setting up and managingof small groups which is also important; depending on their composition, small groups can replicate unequal power relations especially when they take place without a facilitator's support.

Group processes are also complicated in situations that have taboos that cannot be raised e.g., corruption or other criminal activities, organisational undercurrents or disruptive

rolesplayed by certain personalities, racism or sexual harassment. Facilitators need to be or become aware of such dynamics that may prevent a good group process and interfere withreaching an outcome. At times group facilitation is not the answer, in which case it should be abandoned and other processes proposed. To persist with 'surface' group processes whenthere are underlying currents or issues that cannot be addressed in the group process, can be frustrating and a waste of time.

The facilitator should signal that this may be what is going on, and contract with the group on what they want to do: just deal with superficial matters towards a limited outcome, or tackle the deeper issues? Neither the facilitator northe group may be willing or able to deal with the deeper processes (or it may not be safe todo so) in which case the facilitator should suggest alternatives. Watch as Professor Tally Palmer shares some facilitation experiences (The recording is housed on the Course Website).

4. Manage the physical set-up

The choice of venue is important. Practically, can all the stakeholders easily reach it? Symbolically, what does it mean? Meeting in the company's board room can be uncomfortable and even dangerous for activists opposing the company's activities; meeting in the backyard of the poorest members of the group can put them on the spot but it can also affirm their importance to the group - depending on how the process is planned and executed.

The venue can be indoors or outdoors and need not have lots of furniture and equipment, but it must be comfortable enough for people to spend time there and set up in such a way that participants can all see each other. Since the group process is important, the members should be able to interact with each other. If they face away from each other, all the time facing the facilitator, then it becomes a presentation. On the other hand, some short presentations may be necessary, and flexible seating arrangements are best, so people canmove their chairs (or walk around) according to the particular activity. Walls are good for putting up the outcomes of sessions, or instructions and codes of conduct, while the outdoors is energising and encourages creativity provided the weather is fine. A mix of inside and outside can work well.

Activity 2.6:
Study the photograph above (courtesy of the Tsitsa Project, Rhodes University). What does the set-up and equipment of this venue allow? Is there anything important that it does not allow?

5. Allow people to trust you, each other, and the process

Trust is an important basis for a good group process. Building trust usually takes time but is likely to build naturally if you design and facilitate group processes in ways that embody the principles of *respect*, *reciprocity* and *transparency* discussed in Topic 2.3.

It is often important that everyone should know who else is in the room (whether this be a Zoom room (online) or a real room or a gathering under the trees. You should create spacesand take time for people to get to know you and one another.

Box 2.5 The Turkish Way

In Turkey, when people are convened to discuss a matter of concern, or start a new venture, and they are strangers who have not met before, there is a practice to begin by each person informally talking to the person sitting next to them and to not stop talking, until they have identified at least *one* person whom they both know! Then and only then will they proceed with the actual business of the meeting. This may prolong the start of the meeting considerably, as you can imagine, so why do it? The thinking underlying this cultural practice is that people find it easier to trust strangers when they have identified a connection between them, no matter how distant.

Activities can be used both as energisers and as ways for you and the participants to get toknow one another. Showing a little vulnerability by sharing something personal about yourself can also help the trust-building process. Participants can see the real, authentic, you outside of your role as their facilitator.

Figure 2.8: The "Ball Game" was played in a capacity development process in the Tsitsa Project as a way for participants to get to know one another and share something personal about themselves. You would catch the ball, share your name and the story behind your name before passing the ball to someone else.

Key to building trust is being honest and transparent about: the intention of the process, your expectations and motivations behind it, your role and responsibilities as well as those envisioned for your participants. If participants understand how everyone fits into the process and what the collective goal is, they will be better placed to contribute meaningfully, adapt, enrich, own, and see the process through.

Part of being an authentic facilitator is building your participants' confidence in you - if participants know that you know what you about, have experience and are prepared they are more likely to trust you and the process. If you have little experience, being honest about this, asking for help and not claiming to know all the answers will bring your participants to your side.

6. Enable everyone's participation

There have already been some suggestions on how we can enable everyone to participate. Firstly, we should respect all contributions; not only will it enrich and strengthen the process and outcomes, but because the experience of being properly heard is valued by all people and is likely to strengthen their commitment to the process, both now and in future. Respecting contributions means listening carefully and actively; clarifying and capturing contributions as they are offered (check before you rephrase them that the contributor is happy with the re-phrasing); and ensuring that these contributions all help to shape the eventual outcomes of the process.

Of course, not every contribution is useful right there and then, and some inputs can be very disruptive - too long, off the point, harmful to others or the process. These need to bemanaged accordingly. When people constantly disrupt a process, they often have an underlying issue or agenda which must be surfaced, if things are to move forward. When the underlying issue is identified, it might mean that this participant is best dealt with in another process, outside this event, or it might mean that the group should deal with the issue (the proverbial "elephant in the room").

We have considered some suggestions for working with group dynamics earlier. One aspect not yet addressed, is how to work with multiple languages, and how a facilitator can engage with people without (fully) being able to follow their language. This may require interpretation and translation, which is discussed in the interview by Dr Jessica Cockburn with Mr Monde Ntshudu (this interview will be made available on the course website).

7. Design activities that are fit for purpose

Two of the many reasons for group processes are idea generation and decision-making. These two are described here to demonstrate how *purpose determines process*.

For **idea generation**, a common activity is brainstorming. A group of stakeholders in a co-management project might want to generate ideas for how to develop a new eco-tourism resort. Explain to participants that brainstorming is about identifying as many ideas as possible and especially to encourage new possibilities that the group might not have thought of before. A simple brainstorming exercise is just to give everyone an opportunity to say what their idea is, then to encourage them to come up with more and more ideas until there are a lot of ideas on table, or on the flip chart or chalkboard, whatever space there is to record these ideas as they are being put forward. Continuing past the point where the common ideas dry up, can lead to some very interesting contributions. What is not so simple, is to refrain from judging ideas as they are being put forward, no matter how silly they may seem. *Brainstorming is not about judging the quality or suitability of the idea, that comes later* (in decision-making). Criticism is the enemy of creativity, and as soon as judgements are introduced, ideas quickly run out.

Sometimes ideas are not forthcoming from the start, and then ice-breakers or encouragements for creative thinking could be used. For example, facilitators like to encourage unusual comparisons, such as: “If our eco-tourism resort is like a famous person, what famous person would it be?” For one person the resort should be like Trevor Noah - fun; for another it should be like Ronaldo: serious about excellence. Helping participants tofeel free to venture off the usual paths of thinking, making new associations, and in the process coming up with a new idea, is the purpose here.

Decision-making (e.g., choosing one of the eco-tourism resort ideas for further development) is a different process, which usually follows on from the ideation (brainstorming). Start by reminding or telling participants what the options are. Allow them to discuss the pros and cons of each option. Participants will need to generate or be given criteria for deciding on pros and cons. For example, is cost important, should environmental sustainability be a consideration? Facilitators can use rating or voting systems: e.g,. every person gets three votes which they can allocate to the options/proposals as they see fit.

You may need to assist participants to apply the agreed-upon criteria in the decision-making, if they are inclined to just go through the motions, or if they struggle to decide. For example, allocatea person to be the 'advocate' for a proposal (not their own), and allow all the advocates todefend the various proposals, while the rest try to point out weaknesses. When a proposal has been thoroughly judged, allow for another brainstorming process to see how those weaknesses could be addressed (see e.g., the Ritual Dissent activity). A proposal that has gone through such a thorough process is often not only strong, but also strongly supported,even by those who were at first against it.

BOX 2.6: Ritual Dissent - How it works

Ritual Dissent is a workshop technique designed by Dave Snowden (the systems theorist who owns the company *Cognitive Edge*) to test and enhance proposals or ideas by subjectingthem to ritualised dissent (challenges) or assent (positive alternatives). It is designed to overcome taboos against publicly critiquing ideas so that one can hear candid, useful feedback and strengthen an idea; in the process it can also expand support for the idea.

During the workshop, the presenter shares the idea with a group that listens silently throughout the presentation; no dialogue or questions are allowed at this point. This process of intensive, uninterrupted listening is a very important practice to allow the idea to be presented in full. Knowing that they won't be interrupted, the presenter is able to fully share what they have - but also to hear some of the weaknesses themselves. Then, the presenter turns their back to the listeners, symbolizing having "left the room" and listens inwhile the group discusses either what they didn't like (ritual dissent) or what they liked (ritual assent) about the idea.

Still in the workshop, the proposer goes back to the drawingboard (often to their group who helped develop the proposal in the first place) to figure outhow to address the criticisms and build on the strengths. The presenter (or another memberof their group) then goes back into the room and presents an improved version of the proposal. The process is repeated until the number of positives raised start to outweigh the negatives; at this point the idea is strong and many if not all participants actually support it.

8. Keep up the energy levels

Learn to judge the energy in the group. When there is a lot of chatting, shrieks of laughter and fights about to break out, it is time to bring people's attention to one point, help them to focus and settle down. Turn off the music, dim the lights, tap a glass and start speaking in a quiet voice. After some solid focused work, energy levels will start dropping, and it is time for a break - usually every 45-90 minutes, depending on the groupand the kind of activity you are busy with. Keep energy levels up with light in the room, comfort breaks and suitable refreshments. Heavy starchy meals create the so-called "graveyard shift" after lunch. Lots of PowerPoint presentations in darkened rooms can have a similar effect. Mix sessions in which people have to listen and absorb, with opportunities for them to engage and interact.

9. Enable a satisfying closing to the process, including next steps.

At the end of every group process there should be time for people to debrief, reflect on what they have achieved as a group, and what should happen next. A single meeting or

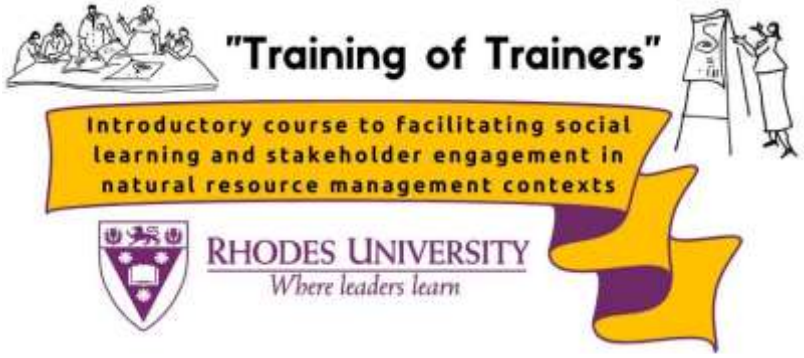
workshop is usually part of a longer process, and participants should be clear on what comes next, and if and how they can participate in the next steps.

Keeping registers of events is important for process and participation purposes: Invite people to add their names and contact details to the registers and to indicate whether they would like to be invited again, to be part of further processes. Registers can also be used for auditing and reporting purposes (to prove that money spent on an event was actually used for the event) and to obtain consent if you wish to use photographs from the meeting in your reports, or to use data for research purposes. This latter use of meeting outcomes and processes should also be discussed with the group participants.

Reporting is a valuable part of stakeholder engagement processes, provided it is done meaningfully and not just to satisfy auditors! This usually means reporting as soon as possible after the stakeholder engagement event, documenting what happened, who participated and how, what the outcomes were, and what the agreed-upon next steps are. Sharing this report with the participants can be a useful way to keep them engaged and to keep up the momentum on decisions taken; reporting can also be shared among stakeholders.

Box 2.7: Back-to-Office Reports

AWARD, the Association for Water and Rural Development, hosted a programme forbuilding resilience in the Limpopo-Olifants Basin (RESILIM-O) that involved many field activities. AWARD had to report to its funder, USAID, but programme staff alsowanted to report internally to each other, so that everyone could know what was happening in the field, to guide the next engagements with stakeholders, and to know whether programme activities were starting to bear fruit (evaluation purposes). A simple template was used to document the purpose and nature of the event, the register of participants and any photographs taken, the outcomes and planned next steps, but also any interesting insights and questions that came up, that might potentially affect how the programme should be proceeding. These are reflections of a deeper nature, which start to encourage learning beyond the practicalities of stakeholder engagement, towards improving our NRM processes themselves. Such reflections can be done by one person, or in groups. AWARD stafffound it was valuable for those who facilitated the field engagement to discuss the event in the car, and then to sit down together at a restaurant on their way back, to quickly write up their report and reflections. These ‘back-to-office’ or field reports were then used when they compiled their monthly reports, and the insightswere shared in quarterly ‘learning events’, where a day was set aside to look back on these reflections and plan the way forward with the benefit of deeper insights.



MODULE 3:
Introduction to Social Learning

Topic 3.1: Types of learning theory and why they matter[1]

Ways of thinking about learning

What is learning? Learning is a word that we use often, and it can mean many different things. I can learn the name of my neighbour's dog, or I can learn a new language, or I can learn not to touch my face with unwashed hands. We can learn *facts* (things we know), or *skills* (things we can do) or even *habits* that we do quitemindlessly.

Can we *learn how to live more sustainably* on planet Earth? Can we learn how to make a good living without destroying nature, and without people going hungry? What kind of learning would be needed to learn to live more sustainably? It may involve learning new names like "biodiversity" and "sustainability". More than that,it may involve understanding what those words mean as concepts, and why they areimportant. Even more than that, when it comes to using natural resources sustainably, it seems we need to learn completely new values and practices. This kind of learning has been coined, among other things, "transformative sociallearning", as a form of environmental learning. This is the kind of learning on whichwe focus in this course. However, to understand what is involved in social learning,and to adequately support it, we will explore a range of learning theories and typesof learning outcomes. They all help us understand social learning better, because social learning may involve aspects of some or all of them.

Let's think about five different metaphors (rich descriptors) for learning:

- Learning as **acquisition** (see Sfard, 1998)
- Learning as **participation** (see Sfard, 1998)
- Learning as **connection** (see Lave and Wenger, 1991)
- Learning as **co creation** (see Paavola and Hakkarainen, 2005)
- Learning as **transformation** (see Lotz-Sisitka et al., 2020)

Learning as acquisition

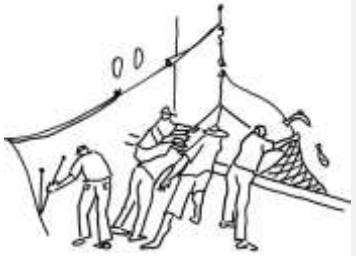
This involves a person getting to know and do what some others already know and do. We acquire new knowledge and skills in a few different ways:

- By memorisation (learning to recite something, e.g., the alphabet or multiplication table)
- Through modeling and practice (e.g., practicing to ride a bicycle or play the guitar)
- Through actively developing concepts (understanding what multiplication actually means)

The third process is called active learning and, in this module, we will explore theories and methods for supporting *active learning* to acquire new knowledge. New knowledge, concepts and awareness is an important part of social learning, but it is not enough.

[1] 1 The content is adapted from Module 3 of the C.A.P.E. / Rhodes University / Gold Fields Certificate Course (2016), titled: Using Educational Theories to Plan Programmes that Respond to Environment and Sustainability Concerns





Learning as participation, connection, and co-creation

By getting actively involved, learners start to participate in their learning, shaping what they learn and how. They get to know how others do things, by participating in various engagements that therefore become learning opportunities. In the process they form collectives who know how to do something, together, or understand something new in a shared way. This affects who and what they identify with. Groups of people in communities or organisations also learn and create new knowledge as they work together to innovate and create something new around a shared focus. The new creation can be a new product or innovation, that does not necessarily change the way in which people live.

What happens if we need to learn to do things completely differently, in ways that have not been practiced before? If the innovations required are social in nature, and amount to social change? Then we need to develop the new knowledge as we learn; an example of this is expansive learning, which is a form of learning as knowledge creation and a form of transformative social learning, noted next, as it changes the way organisations, communities or whole societies do things.

Learning as transformation

Learning to live differently on planet Earth requires transformative learning. For transformative learning, people still need to acquire new knowledge, and participate in learning opportunities, and create new knowledge, but in learning as transformation there is also an intention among learners, to change the status quo, the situation as it is. Social learning is learning that results in a change of practice and/or a change of understanding, that is embedded in a social system (an organisation or a practice such as farming). That is what makes it 'social' and what makes it a profound form of learning, especially when we are dealing with sustainability challenges.

This form of learning can involve individuals, small groups of people, communities or organisations. It can also involve "unlearning" and conscientisation - as we noted in Module 1 and pick up again here in Module 3.

Why bother with learning theory?

> "*Many people we talk to associate learning with teaching or training, reading or searching the web: transmitting what is known from someone who knows to someone who doesn't. But as important as it is to learn what is already*

> *known, this is not the main concern of ourtimes. On its own, this kind of learning is not agile or imaginative enough to deal with thecomplex and fast-changing challenges of today. A learning theory for today should be addressing situations where there is some urgency to engage people who care to make a difference; what needs to be learned about making that difference is not yet known; knowing in practice involves being able to function productively under conditions of uncertainty; and learning depends on paying attention to how things play out*" (Wenger- Trayner and Wenger-Trayner, 2020, p.1).

In Module 1 you were asked to explore issues related to natural resource management (NRM) in your context. You were asked to explore how NRM issues havemany dimensions or sides to them (social, political, economic, perhaps cultural, andbio-physical) that interact with each other. Module 1 further asked you to think about the way the context or situation influences these NRM issues, and how NRM issues can be seen as systemic concerns of a complex nature. NRM issues affect people, often unequally, they can be hard to solve, and they require individual action but also collective action.

These are all important considerations to bear in mind as you get ready to develop a learning process for the NRM context you have been exploring. It is also importantto consider *how* people learn, so that you can plan an educational process that willsupport people to learn, because *learning* is central to successfully tackling complex NRM issues. For that reason, Module 3 delves into learning theory. But is theory not perhaps a waste of one's time, when practical action is needed so much?

Experienced educators or learning facilitators have a lot of know-how that is part theoreticalreflection, part practical skill, part intuitive sense and disposition. Theory can help strengthen this know-how, by giving educatorsthe tools (language, concepts) to articulate(explain) why they think that some educational strategies will work, and why others don't work. This can advance our practical knowledge. It helps us share our knowledge with others, and to receive feedback that can further improve our practice. So, while theory does not always fully explainor direct our practice, it does have a big role to play in improving and growing our practice and the field of environmental learning and the particular kind of environmental learning we are interested in this course, which is social learning.

Some theories seem quite prescriptive about how we should do things, as if there isonly one right way. In other approaches, such as the reflexive approach followed inthis course, theory tends to push us to examine our taken-for-granted assumptions. This can be uncomfortable and leads some practitioners to dismiss learning theory as just theories or speculations.

Sometimes educators (we can also call them 'learning facilitators') have poorly conceived ideas about what will work, and why, or simply give these matters very little consideration. At times, educators simply follow the example of others, with little thought of whether the methods they have adopted are appropriate for what they want to achieve. As a result, there can be a mismatch between the values of what they work towards (for example, ecological sustainability and social justice) and the assumptions underlying the educational approach they inherited from another context.

Topic 3.1 is an overview of different ways in which learning specialists have thoughtabout learning, over time and in different contexts, from schools to workplaces. These

educational theories are lenses to apply to your own practice. Consider whether they provide a good description of what you do and find in your own interactions with and as learners. You may find the language provided by these theories helpful to describe and reflect on your practice, and the practice of the people who taught or trained you. Take your new insights into the development of our own learning processes, including the one you will develop for assignment 3.

In Topic 3.2 the practical application of the theories becomes visible, and you will gain ideas for practical ways to facilitate learning, well-informed by theory.

Activity 3.1

With your tutorial group, recall the range of NRM issues that your group members investigated in Assignments 1 and 2. Then discuss:

Which NRM issues are straightforward and uncontested enough to require a simple educational response, such as sending out a simple message (i.e., 'learning as acquisition')?

Which NRM issues are complex enough to need more than 'message transfer' in order for all the relevant stakeholders to successfully tackle these issues? What else might be needed? (e.g., learning as connection, co-creation, or transformation)

If natural resource management issues are ...

- Complex
- Contested, and
- Contextual,

then they would seem they require educational responses that ...

- Recognise the complexities of the situation rather than reduce or oversimplifythem in ways that do not match people's experience or knowledge about theissues
- Provide learning participants with opportunities to deliberate contested views from a basis of information and experience
- Recognise and are responsive to contextual differences
- Are open-ended and reflexive to respond to existing knowledge, values and context.

With that introduction, let's get to the nitty gritty of learning. Before you get stuckinto the theory, we are going to ask you to do some reflection and to figure out what you already know about learning, using three case scenarios or examples of learning processes. At the end of the module you can tell yourself what kind of learning theory we used to design the module!

How do we learn? Three case scenarios

Scenario 1 - Toddlers and Fires:

Pam is visiting her friend May and the two women are making a fire on the ground to cook. May's 18 month-old toddles towards the fire. He then stops a good distance away,points and says to Pam: "*'Shushu*!". "Clever boy!" Pam smiles at him and adds: "*Umlilo ushushu*!" May grimaces. "He once stepped on a hot coal", she says.

Activity 3.2(a): Answer these questions onyour own and in your group:

- How did this toddler learn to avoid a fire?
- In what other ways can children learn about dangers?

Scenario 2 - The Recycling Reader:

A magazine asked readers: "*What was your wake-up call to save the planet?*" A reader from Cape Town wrote in with her story:

"We lived in Munich, Germany, for two years. The residents were literally recycling everything. Every house is required to sort rubbish into four bins - for plastic, glass, paper and aluminium. The refuse collection agencies were very strict - they would not collect bags that had been incorrectly sorted. When we returned to South Africa, it was so ingrained in me that I carried on recycling. It requires quite a lot of effort [in SA] as you need to drop offthe recycling materials at different sites. Nevertheless, I feel good about my contribution to Mother Earth. I have two young daughters and I hope these actions will teach them to be environmentally aware from a young age".

Activity 3.2(b): Answer these questions on your own and in your group:

- **How did the magazine reader learn to recycle?**
- **How does she think her children will learn to be environmentally aware?**

Scenario 3 - Sweatshop Shoes

A group of teenagers are hanging out at the tuck shop watching the passers-by. A smartly dressed older youthcatches their eye. “Hey, check those Nikes,” says Dan.“They’re the best shoes ever man!” “What are you talking about?” retorts Brenda. “You know that people suffer to make those stupid shoes”. A chorus of boys booher: “Suffer, what suffer!?” Brenda is ready for them. “Siya told us at the Wilderness Camp. You were there when he said Nikes are made in sweatshops in the Phillipines where workers are locked inside these hot factories without even a toilet break, that’s why they’re called sweatshops, and the workers are paid peanuts, but Nike makes a lot of money from selling shoes to stupid guys like you”. “Hey, watch your mouth”, laughs Dan. “Siya this, Siya that, we hear about Siya all the time. Are you in love with this Wilderness guy?”

Activity 3.2(c): Answer these questions on your own and in your group:

- How do you think Dan ‘learned’ his views on Nike shoes? How did Brenda get her views?
- What might be the reasons why the boys did not take the same learning from the Wildnerness camp as Brenda did?

How do we learn? Discussion of case scenarios

Scenario 1 - Toddlers and Fires

It looks like this unfortunate toddler learnt the hard way, by burning his foot. Behaviourist learning theories would explain that form of learning like this: The child’s *behaviour* changed (avoiding fire) in *response*to a *stimulus* - pain. A pain stimulus is fortunately not the only way to learn to avoida fire (or electric sockets, or broken glass, or traffic). Instead of letting a child learnby hurting themselves, or slapping them, an adult might shout “NO” as a deterring stimulus. But children need not experience pain or fright to learn to avoid fire, theycan be taught in other ways. We also do not need to praise them every time they avoid a fire. Humans can also learn in other ways, besides a stick or carrot, stimulus-response reaction. For example, children also learn by observing and copying others,and social behaviourists (like Bandura) emphasise the importance of modeling whatwe do, our habitual behaviours, on others’ behaviours. We can also use verbal andvisual explanations that draw on a child’s growing intellect (thinking abilities) to explain dangers.

Note the role of language and social context in Scenario 1: The toddler was startingto learn the concept ‘hot’ (*kushushu*). He tries out the word, an adult (or older child)repeats it and extends his understanding (and his vocabulary) by linking it to anotherword and concept, *‘umlilo’* (fire). *Interaction* with others *through language* is an important way of learning that is not well explained by behaviourist learning theories.

Symbolic interactionist learning theories built on the importance of modeling as theorised in behaviourism, but emphasised the role of language and interaction in learning

processes. A related set of learning theories are social constructivist theories which draw attention to the features of the social context of the cooking fire that are much subtler than the stimulus of stepping on a hot coal, but also important for learning. By giving positive attention to the toddler, and affirming hisefforts to communicate and learn, auntie Pam contributes to a social context in which the child learns that talking, thinking, taking care and in fact learning itself are positive parts of his life world or 'culture', and worth pursuing.

Research shows that children who are mostly ignored and who have little exposure to *language andsymbolic learnin*g are at a disadvantage when they start school. If May and her familypartied (or worked) all day and took no notice of the child's efforts to talk and learn, his chances of arriving for his first day of school with the necessary vocabulary and a readiness to learn, would be reduced. This scenario of the toddler and the fire therefore introduces behaviourist learning theories, but also emphasises social context for the development of the language and concepts (symbolic learning) whichis necessary for further learning.

Scenario 2 - The Recycling Reader

This real-life example (from a magazine called *Real Simple South Africa*, May 2007, p.23) illustrates a learning process which departs from the common assumption that behaviour change follows changes in attitudes which inturn follows awareness. In this case, a change in attitude followed a change in behaviour!

OR ...?

The recycling reader was motivated by circumstances (living in Germany where a recycling system was already in place and followed by everyone else) to recycle herhousehold waste. She learnt by doing as others did (so, she learned by participation).However, she was not mindlessly modeling her behaviours on her neighbours' actions, and she was not just recycling to avoid punishment or the build-up of rubbish (as a behaviourist learning theory might explain what was happening). We know this,because she carried on recycling when she returned to South Africa, even though here, her neighbours were not recycling and there was no neat system of collectionfrom the front door.

She also explained (reflexively reasoned) that she had started,through the action of recycling, to value this contribution to the planet, so much sothat she changed her lifestyle and acted to keep recycling back in SA where it was harder to do so. She also committed to teaching her children so that they wouldnot just model or copy her recycling behaviour, but also learn why it is important. So, the reader's *values* have been affected by the *experience* of her *participating* inthe German recycling program, and she hopes her children will be *learning by doing*.

Social learning theorists like Jean Lave and Ettiene Wenger (1991) would explain the magazine reader's experience as having been a *participant in a community of practice* (in

this case, the residents and local authority of the city Munich) from whom she learnt to do things in a certain way, with information and explanation nodoubt part of the process, and from actually doing, taking part in the practice. She says of her daughters, "I hope these actions will teach them".

Australian Philip Payne (2005) found that the children of environmentally conscious families grow up assuming that recycling, buying used clothing, vegetarianism and taking an organic lunch to school in a cloth bag, are simply the way to do things. Social learning theory would describe these eco-friendly families as communities ofpractice where the newcomer (newborn baby) becomes a participant in a particularway of doing. As the children get older, and as they are challenged by friends whose families do things differently, their parents use language to explain that they took these lifestyle decisions because they value nature. The children, on the other hand,learn the values through their practice, and learn the language to explain and justifywhat they do, from their parents; possibly also from books, documentaries and othertexts to which they have access, that further explain the importance of what they find themselves doing.

Many of us can recall traditional or indigenous knowledge practices with which we grew up; our parents and grandparents had a way of looking after the household resources, or nature, or others, and you may recall some mother tongue names, expressions or idioms which reflect the importance given to a forest, river or lake, or family, or certain values like hospitality or frugality, with accompanying rules for how to behave accordingly.

Scenario 3 - Sweatshop Shoes

How did Dan come to believethat Nike shoes are "the best"? Most likely, his views are shaped by advertising, and the 'brand loyalty' which companies like Nike have established across the globe. JeannePrinsloo, at the time a Professor of Journalism and Media studies at Rhodes, believed that "Media is not the secondary curriculum for our children, it's the primary curriculum" (Jayes & Mrwebi, 2007, p.44). Advertisers want people to learn to choose their brands above others, without much critical thinking. The concept of brand loyalty is that it makes the decision-making processeasier for consumers, they do not have to think and weigh up options, they just recognise the preferred brand.

Not much critical thinking and deliberation is involved in this kind of learning process, but rather processes like *association* and alearnt sense of *status and identity*. This kind of 'teaching' can be called social marketing, and companies like Nike are marketing a social product (status and identity) rather than a physical pair of shoes. Another form of influencing people's behaviour indirectly but with focussed intent is called nudge theory. The concept of 'nudging' people is from behavioral economics and behavioral sciences and proposes positive reinforcement and indirect suggestions to influence especially the

short-term behavior and decision making of groups or individuals.

Dan's peer Brenda, on the other hand, has been encouraged to do some critical thinking, through information given about hidden practices behind globalised production and consumption. The learning theory associated with critical environmental education suggests that learners should become *conscious* of hiddeninfluences on their thinking, and knowledgeable about the structures that shape thechoices we automatically make (such as the advertising industry or globalised economy). By *becoming conscious* of the inequalities and exploitation behindconsumer goods, Brenda has formed a counter-culture opinion which might influenceher own lifestyle choices; perhaps she has even *unlearned* views she held before. These are all features of *learning through conscientisation* and *critical thinking*.

But why did the *information* about sweatshops influence Brenda's understanding and attitudes, when her peers seem unaffected by the same lesson given at the wilderness camp? Young people are indeed influenced more by role models and thosewith whom they identify. Many environmentalists, for example, can name a role model who influenced their love for nature. Socio-cultural learning theories wouldexplain that various social and cultural features of the contexts in which people are embedded, influence learning situations and outcomes. It could be that the young educator Siya failed to engage the boys in his talk about sweatshops and shoes because their preconceived ideas about consumer goods (or about environmental education) stopped them from paying attention to him. Constructivist learning theories explain that learners are not empty minded when they come to a learning interaction, such as school or a wilderness camp; they have *prior knowledge* and ideas which influence the learning process, and they *actively construct meaning* (or fail to do so) in relation to their prior knowledge and experience.

Communication theories explain this process in a very different way - by saying that these factors *interfered with the message* that Siya wanted to transfer to his audience. However, Siya might say that he does not want to transmit a message to an audience, or sub- consciously nudge them to do the right thing - he rather wants to encourage critical thinking among the young learners so that they make uptheir own minds and make more informedconsumer choices and other lifestyle choices. These are very different ways of explaining learning - even referring to the same scenario!

We now turn to a little more explanation on the learning theories mentioned above.

Learning Theories

Behaviourist learning theories

From the 1950's onwards, educational psychologists drew on experiments involving the training of animals, in an effort to become scientific about human leaning. This was the origin of behaviourist learning theories, which are still prevalent today in various forms, such as nudge theory, mentioned earlier, which additionally draws on behavioural economics. The focus tends to be on the short-term and visible behavior of the learners, and less on the intellect, cognition, values, and critical decision making.

The teaching implications of behaviourist learning theories is to give clear, unambivalent messages to learners and avoid 'mixed messages.' Teachers and trainers using this approach break down the learning outcomes they want learners to achieve, into simple behaviours. They evaluate the learning in the form of facts learnt and behaviour change according to objectives set at the start. This can be a very good way to approach technical training such as training in assembling oroperating machines or tools.

If the desired learning is about more complex NRM issues, however, and how to tackle them, then behaviourist learning theories have some limitations. For example, little or no attention is given to what goes on in learners' heads, their values and what they are likely to do in the long term. The kinds of values society should be espousing is taken for granted (i.e., it is assumed that everyone holds the same values, or that the current values are best), which many not be a sound assumption if we are working towards a new environmental ethic amidst conflicting views of what should be done.

From a values education perspective, behaviourist learning theories are closer to indoctrination than to education. The same critique has been levelled against nudge theory (for a range of criticisms including political partisanship, social engineering and psychological manipulation,as well as failure to bring about longer-term changes, see https://en.wikipedia.org/wiki/Nudge_theory).

American researchers, Hungerford and Volk, developed elaborate models to describe all the different variables which might be involved in the learning process, which they described as:

Knowledge + attitude changes = positive environmental behaviours.

Such behavior change models have been criticized for the reasons outlines above. Ian Robottom, another Australian environmental educator, criticized behaviourist learning theories for being technicist (i.e. having technical views about people, treated them like parts of a machine that can be engineered to change in a pre-determined way, by someone else engineering that change from the outside). However, they are also an inadequate explanation of how people learn and how we change.

Think of all the cases where information and messages did not bring about attitude changes and behaviour change. For example, campaigns to distribute messages like "ABC - Abstain, Be faithful, Condomise" had little effect on the rate of HIV infections in South Africa; and many people keep smoking despite messages that "Smoking kills". Educated people still partied without masks in crowded places despite receivingmessages and information on how theCovid-19 virus spreads. Why? Even if we hear that producing meat uses more water and produces more greenhouse gases than eating a vegetarian diet, most of us still eat meat. Why? The answers to these questions help us to understand thatthere is more to learning and change than information and messages that tell us how important it is to change.

Not all worthwhile educational outcomes are in the form of behaviours; other important learning outcomes include critical thinking skills, or an appreciation of environmental justice. It is not always possible to specify what kind of behavior would be appropriate in relation to a particular NRM issue; the learning process might be to work out what is required, and the learning outcomes must therefore be more open-ended, rather than in the form of tightly specified objectives. Expansive learning theorist Yrjö Engeström calls this **'learning what is not yet there'.**

Many NRM concerns require us as communities, decision-making bodies or societies to change the way we use, share and conserve natural resources. Behaviourist learning theories cannot easily explain the transitions needed for broader social change, especially because the research on which it is based, often takes place in laboratory-like settings, in order to mimic scientific experiments. The social situations in which people learn to shift from one way of doing things to another, are however more complex. The work of sociologist Ulrich Beck, on reflexivity and social change, is helpful here (see Giuvant, 2016).

Constructivist learning theories

Constructivist learning theories give a lot of attention to what goes on in a learner's mind. These theories assume that learners are not passive receivers of messages, but that they come to a workshop or a classroom with existing ideas and understandings, and that when they learn, they use the new material to actively make meaning, and—if they learn something new—to change their prior understandings.

In a successful scenario, the educator would aim to engage learners'prior understandings ('conceptions') and help the learners to actively build on thoseunderstandings. Hence the term constructivism (think of construction being about building). In this approach to education, which guides many mathematics and science education theorists, the meaning that learners make, and the intentional actions that accompany these meanings, are a bigger focus than behaviours as reactions to stimuli.

The teaching implications associated with constructivist learning theories include:

- Find out what the learners already know, at the start of the teaching process.
- Provide learners with activities that will actively engage their minds and encourage them to make meaning of what they encounter.
- Help learners to reflect on what they have learned, and the meaning of it.

The historical roots of constructivist learning theories also go back to the 1950s, e.g., the work of Bloomer and Schultz (on symbolic interactionism), Piaget (1960s) and Russian educational psychologist Vygotsky (1960s-1980s). The emphasis on hands-on activities

which have been promoted by environmental educator Rob O'Donoghue in southern Africa (e.g., water quality studies, building a 'wetland in a bottle' and other models - see the *Hand Prints* Series) build among others on constructivist theorists like Piaget, who studied the way in which children make sense of things, and learn new (particularly scientific) concepts by manipulating objects.

Symbolic interactionists and cultural-historical theorists like Vygotsky placed their emphasis on the *social* aspects of learning, while also using constructivist thinking, giving rise to the field of social constructivism, or socio-constructionism. Some educators may focus on the sense-making in the individual learner's head, and tend to ignore the social aspects of learning; for example, the role of language, and interaction with texts, with the educator and with other learners. These factors play an important role in facilitating learning, in what Vygotsky calls *mediated* learning (i.e., learning through mediation).

According to the concept of mediated learning, the learner uses tools such as language and cultural artifacts to facilitate their learning development and this further stimulates critical thinking and deeper understanding for meaning making. As children are socialised, they learn from hidden clues in their home language and the way in which it is being used in their cultural context. For example, children learning that abody of water is called a "swamp" may relateto a wetland differently (perhaps with less respect) to children knowing the water body as a sacred place named after a creaturerepresenting the ancestors, and these childrenin turn may start to relate to it differently when their teachers call it a "freshwater ecosystem".

Just memorising or rote learning terms does not amount to learning. As Vygotsky stated:

> " ... *direct instruction in concepts is impossible. It is pedagogically fruitless.The teacher who attempts to use this approach achieves nothing but a mindless learning of words ... Under these conditions the child learns not theconcept but the word, and this word is taken over by the child through memory rather than thought. Such knowledge turns out to be inadequate in any meaningful application.*"
> (https://www.marxists.org/archive/vygotsky/works/words/ch06.htm)

While most of us will not be working with children in our NRM learning processes, this point is worth considering, as we may be tempted to stop at teaching people new words. People do need a shared language to make collective meaning, whetherthey are farmers trying to work out the allocation of water from the river, or a municipality wanting to start a recycling system. But to address such challenging NRM related concerns, our learning needs to go beyond learning new terms and evennew constructs. So, what else is involved? Let us explore two more sets of learning theories before putting it all together.

Social learning: socio-cultural learning theories

The social learning theories on which we focus in this NRM related course, also recognize the socio-cultural and historical aspects of learning. Social learning theorists explain that learning is not limited to the classroom or training workshops, but is a part of our everyday lives, and influenced by many factors that are part of society, history, and culture. We can learn through participating in projects, in communities and in organisations. However, for the kind of learning that will help us tackle NRM issues, in such contexts, it is not enough just to hang around, we need to be *active participants in the practices* involved in moving towards sustainability.

Lave and Wenger (1991) studied how learning happens through apprenticeship and came up with the theory of **learning in communities of practice.** They saw a *community of practice* as a collective created over time by the pursuit of a shared enterprise (like recycling, or conservation agriculture). As we pursue different enterprises, we interact with each other and the world, and we adapt our relations to each other and to the world. We learn by doing - through action, interaction, reflection,communication and negotiation - and byinteracting with each other in the doing, in place (this theory is also known as situated learning).

The Finnish researcher Yrö Engeström built on the work of Vygotsky and his colleagues whose interest was in understanding how language and culture (i.e mediation tools) influence meaning-making and learning. He also reasonedthat learning is *situated* in culturally mediated, historically developing practical *activity* (i.e., activity as a set of durable actions with a purpose or intention. e.g., wetland restoration is an activity which involves aset of actions or activities).

Engeström studied how learners' intentions are mediated through the tools and concepts that are available in a particular social context to achieve particular outcomes when they are engaged in activity. His workwith Sannino and others in the cultural-historical activity theory (CHAT) school, highlights the relationship between individuals and their communities in the learningprocess that is mediated by the tools and influenced by the rules embedded in a historically evolving activity (i.e., informal/unwritten rules such as cultural norms that develop and evolve over time). CHAT theorists argue that when engaging in *activity* (like recycling, or water conservation, or sustainable agriculture) the learning outcomes are influenced by:

- The mediating tools and concepts that are available in that social and culturalcontext
- The learners' own purposes or intentions
- The rules (i.e., cultural, organisational, social, etc) that govern that particularpractice and social setting
- Community (i.e., community of practice) values and traditions, and thedivision of labour, i.e. ideas about who should do what.

In our recycling scenario, for example, the reader's learning was shaped by the German municipality's recycling set-up (the rules, tools and concepts), as well as the roles and distribution of labour (citizens and government were both expected toplay their roles). This makes up what CHAT theorists call an *activity system*. Learnersfind themselves in more than one activity system at a time, with different rules, different ideas about who should do what, different types of tools and concepts, and different values and traditions. Within and between these systems, there are contradictions (i.e., these are not just simple problems but they are historically accumulating tensions and complex challenges), and to expose these contradictions,understand where they come from, and address them, can lead to powerful learning-through-doing and reflection, learning what-is-not-yet-known, or what Engeström called 'expansive learning'.

What are some possible contradictions in Scenario 2?

The recycling reader wanted to save the planet, but she drove around in a polluting car to drop off her recyclables. Many South African municipalities are running out of landfill space butare not recycling because they believe it is not 'financially viable'- although recycling

is also known for creating jobs, saving, and even making money. A lot of learning could take place if all the people driving around dropping off recyclables and the municipal managers could come together with recycling companies (role players in the activity system) and start unpacking all the contradictions in a failingrecycling system, thinking together about what needs to change to create a viable recycling system, who would do what, and how.

Tools and concepts from Germanyand other success stories could be shared, but the local actors will also need to work out local solutions for the local context (situated and contextualized learning); that is, a trial-and-error, learning-by-doing and reflecting process. Because of the dynamic and complex nature of activity systems, it is often difficult to plan exactly how an action will take place beforehand. When we are trying to work out how to respond to issues, we need to deliberate (carefully think through) and adapt our ideas for action as we go along. Topic 3.2 has some practical methods for doing just that.

We can contrast the socio-cultural and situated learning theories (which are examples of social learning theories*)* with the behaviourist learning theories like nudging. If a functioning system with agreed-upon values is already in place, perhapsone can influence short-term behaviour to 'nudge' people to (e.g.) sort their recycling, or stick to the paths in the nature reserve, or refrain from feeding wild animals. But if there is no functioning activity system, or only a system full of contradictions (such as we see in many South African municipalities, or in the case of complex NRM issues like poaching or overgrazing) then a behaviourist theory maybe less helpful. For those situations we need to draw on learning theory that will assist learners to actively participate in developing solutions that are not yet in place(learning as participation, co-creation and transformation).

Think back to the NRM issues *you* explored in Assignments 1 and 2, and their multiple dimensions. What kinds of learning would be best to address them? How does one address the issue of poaching, when the poachers' children are going hungry? How does one create viable eco-businesses and green jobs in rural areas when few are prepared to pay for them?

The Dutch environmental educator Arjen Wals argued that social learning theories are useful because the solutions for moving towards sustainability are not easy. He writes:

> "*Moving towards sustainability or sustainable living, inevitably involves diverging norms, values, interests and constructions of reality ... such differences need to beexplicated, rather than concealed .. [then] it becomes possible to analyse and understand their roots, but also to begin a collaborative change process in which shared meanings and joint actions emerge*" (Wals, 2007, p.497).

Wals warned that it is hard to capture social learning in a neat process or cycle, but he identified some activities that might be helpful when trying to design or monitor social learning. These (adapted from Wals, 2007, p.499) are shown in figure 3.1.

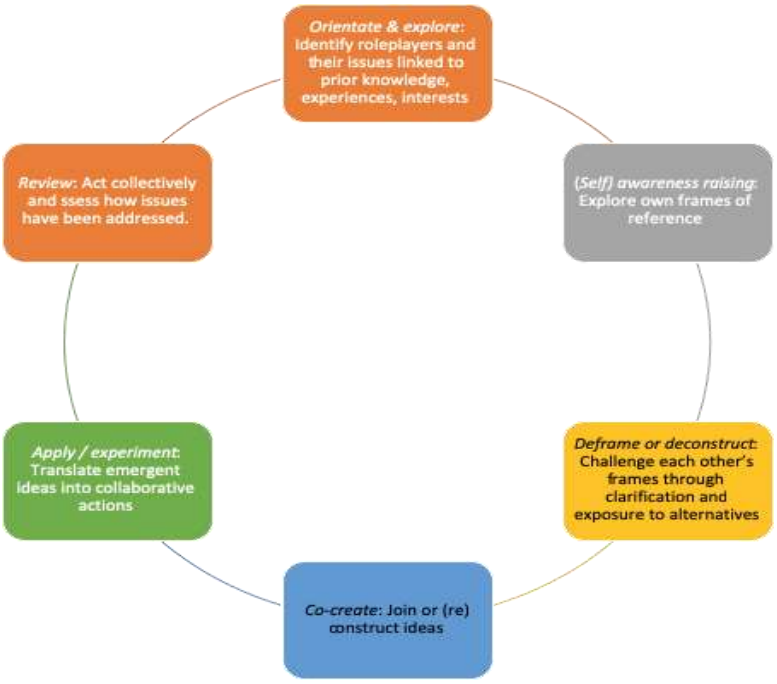


Figure 3.1: Elements of social learning according to Wals (2007)

Some of the challenges in working with social learning theories are:

- It is often difficult to distinguish between ordinary activities and the learning processes associated with the activities, and so it can be difficult to scaffold or support those learning processes;
- Not every community is a community of practice, and learning does not always take place during activity (Wenger-Trayner and Wenger-Trayner in 2020 noted that social learning takes place in a variety of configurations, not just CoPs);
- Social learning processes are not linear; and there are multiple factors at playinfluencing them;
- Social learning processes are often emergent and can seldom be predetermined, which makes it difficult to plan them completely beforehand.Educators need to allow for open processes, and to be flexible to respond when new things happen!
- These learning approaches are difficult to 'fit into' structured time-tables, curriculum and institutional systems or the structures and constraints of formal training programmes. In a non-formal context, they can also be difficult to budget for and funders may find this challenging.

For role players to come together to learn to solve a complex NRM issue, it is necessary to address power relations that may be at play among them. There is power associated with access to resources like water and land; political power; or the power to run a business, make money and employ people.

Critical theories of education

Not everyone sees the same contradictions in systems, or recognises systems, for that matter. Critical theories of education are about *conscientizing* learners aboutsystems; encouraging them through exposure, information, and analysis, to see structures and connections that may not be that obvious, and to consider the hiddenpower and impacts of those structures and connections. In Scenario 3 we met Brenda, a young girl who became conscious of an exploitative global economy (a structure or way the economy is set up) in which poor workers were not empoweredby their jobs, but instead were exploited for producing shoes that were eventually sold at great profit. Could the workers be empowered, if the profits were more equally shared with them?

One of the best-known examples of a critical theory is Karl Marx's theory about the exploitation of workers' labour by capitalist economic structures. The British geography and environmental educator John Huckle drew oncritical theory to argue that educators should conscientize learners about political and economic structures that not only exploit less powerful people but also exploittheir environments. The Brasilian adult educator Paolo Freire, who was introduced in Module 1, became famous worldwide for his "pedagogy of the oppressed" (https://www.freire.org/paulo-freire/concepts-used-by-paulo-freire/) , in whichhe proposed that workers should not only be taught basic skills like literacy, but alsoto understand the social structures and systems which exploit and oppress them andmake them believe that somehow, they deserve to be poor and marginalised. Similarefforts to conscientise learners about the hidden influences on their thinking, were made by South African Steve Biko, among others.

Critical theory is evident in ideas about *empowering* vulnerable members of societythrough education processes which encourage their active *participation* (as opposedto passively receiving information), gives them an opportunity to develop and use their own voice and gain a sense of responsibility and agency through finding out more about issues which concern them, and acting on these issues. These ideas haveinfluenced participatory learning activities throughout the global South and are alsopromoted by the Portuguese philosopher De Sousa Santos, introduced in Module 1. Santos asks educators to think carefully about *whose* knowledge they work with andpromote. He argues that over time, modern western scientific knowledge has beenprivileged as the only valid way to understand and develop the world, and that it is inadequate or insufficient for changing the world towards sustainability.

His point isnot that science is not useful, but that it needs to be at times challenged, and always extended by other forms of knowledge, some of which we may call indigenous, local, experiential and/or situated knowledge. This point is elaborated by African environmental educators Injairu Kulundu, Dylan McGarry and Heila Lotz-Sisitka, in relation to what they call transformative and transgressive learning (2020).

There are some pitfalls associated with critical approaches to education, including:

- A danger of manipulating people to participate and be conscientised in orderto adopt the educators' particular understanding of exploitation and oppression;
- Given the strong focus on underlying structures and systems, it may not be open-ended enough;
- It may result in little more than verbal critique of social structures, unless there are processes for seeking viable alternatives; there is little value in justbecoming critical, if it does not also enable us to change the situation. This could ironically lead to ongoing disempowerment, and constant dissatisfaction, and a 'blaming culture', where everything is seen as the faultof someone or something else.

Social learning and the context of NRM

Which learning theories educators use in the context of NRM is not just a matter ofpersonal preference. Our choice of theories should be informed by contextual factors including the purpose of the learning process. There is a link between the end that the education process is meant to serve, and the means and methods through which it is delivered.

Australian environmental educator John Fien argued that a sustainable future is not achievable if education focuses solely on individual behaviour change (individuals switching off their lights or putting their rubbish in the bin). He argued that environmental problems are "structurally anchored in society" and they continue because of economic and political structures, poverty, and other forms of social injustice. Think of an individual who wants to start a recycling programme for a village, or a poor person being tempted to start poaching. Fien (2001) suggests thatthe goal of education for a more sustainable future should be to support actively engaged, competent and informed citizens who are able to "help build sustainabilityfrom the local level upward" (p.126).

In their comprehensive analysis of a spectrum of approaches to climate change education, Christina Kwauk and Nicola Casey (2021) argue that facilitating learningfor transformative action is about supporting both individual change and systems change, and the ongoing interaction between them.

But what are your views? Complete activity 3.3. on your own, as far as you can, thendiscuss your responses and their responses, with your tutorial group.

Activity 3.3

What should education and learning be about in the context of naturalresources? Complete the table below on your own and discuss with your tutor group.

Table 3.1 Learning Outcomes that may be more or less relevant to NMR Contexts

When it comes to natural resources, education & learning is about ...	**Yes/ No?**	**Examples?**
Getting the facts, knowledge		
Gaining deeper understanding		
Unlearning some existing understandings		
The ability to gather and use new information		
Values and ethics		
Awareness that there are problems		
Becoming conscious of structural causes of problems		
The commitment to take action		
Agency, skills and competence		
Behaviour change		

Social change and transformation		
Transgression of outdated norms		
Problem-solving		
Critical thinking		
Imagining and developing viable alternatives		
Open ended processes with no specific outcome		
Something else ...		

In planning a learning process for an NRM context, it would be important to think about how the learning outcomes in Table 3.1 can enable learners to develop both a deeper understanding and a coherent overall understanding of the issues being considered. Social learning includes engaging with dissonance, conflict and tensions, and requires open-ended solutions, rather than predetermined behavioural objectives. This means we may need to recognize messy social processes as part of a learning process. These are:

- Continuity (recurring opportunities to practice the skills, apply concepts and reflect).
- Sequence and progression (each experience potentially lead to higher or deeper levels of understanding).
- Integration (organize the elements of the learning process in such a way that they allow learners to develop a unified or coherent view of how what they have learnt 'hangs together' or makes sense and, how it can be integrated in their own decision-making).
- Reflexivity (allowing for ongoing reflection, adaptation and change in the learning processes).

Topic 3.3 is an opportunity to think practically about the planning of a learning process, using the considerations outlined here and in perhaps some of the practical methods shared in Topic 3.2, and the examples and inspiration from the video clips in 3.4.

Conclusions

Topic 3.1 has focused our attention on the 'core business' of educators and learning facilitators, namely the learning processes. We considered different ways of thinking about learning, and introduced diverse theories about learning, informed by diverseunderlying theories including behavioural economics, educational psychology and social theory. The module invites you to consider your own observations and experiences relating to how people learn, and to think more deeply and broadly about how to plan processes that support learning in interesting, effective and meaningful ways. This topic also covers some of the dimensions of learning process planning, and how theories about learning and the purpose of education may influence a learning process.

We have set the scene for you to now explore a range of *methods and processes to support change-oriented learning* (Topic 3.2), and to *work with information to contextualise a learning program* (Topic 3.3). The example case studies of social learning processes presented and discussed in Topic 3.4 should bring this all to life in practical, real-world contexts. In Module 4 we will consider different evaluation strategies, as a way of supporting you to evaluate and review the implementation of your environmental learning process.

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Additional Reading

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Topic 3.2: Methods and processes to support social learning

Introduction to facilitating social learning

In this section, we build on Arjen Wals (Dutch environmental educator) who argued that social learning theories are useful because the solutions for moving towards sustainability are not easy. He further pointed out that "moving towards sustainability or sustainable living, inevitably involvesdiverging norms, values, interests and constructions of reality". This change or transformation of ideas, norms, and practices towards sustainability needs to be facilitated and mediated.

This topic offers you an overview on practical methods to support facilitation of a social learning process. In topic 3.1, we provided a broad overview on learning theories, and in 3.2. we focus on the social learning methods and processes best suited for facilitating transformative or change- oriented learning in the natural resource management (NRM) context. We have already pointed out in topic 3.1 that social learning processes are often emergent and can seldom be pre-determined, which makes it difficult to plan them completely beforehand. Furthermore, NRM and broader environmental issues are also becoming more complex as we move into a future of uncertainty and dealing with such complexity requires a combination of different methods and processes (see Box 3.1).

Box 3.1: A reminder - Social learning as a form of environmentallearning: the need for a diversity of learning methods and processes

In topic 3.1, we noted the following:

"Can we learn how to live more sustainably on planet Earth? Can we learn how to make a good living without destroying nature, and without people going hungry? What kind of learning would be needed to learn to live more sustainably? It may involve learning new names like "biodiversity" and "sustainability". More than that, it may involve understanding what those words mean as concepts, and why they are important. Even more than that, when it comes to using natural resources sustainably, it seems we need to learn completely new values and practices. This kind of learning has been coined, among other things, "transformative social learning", as a form of environmental learning. This is the kind of learning on which we focus in this course. However, to understand what is involved in social learning, and to adequately support it, we will explore a range of learning theories and types of learning outcomes. They all help us understand social learning better, because social learning may involve aspects of some or all of them."

From learning theories to social learning methods and processes

Different theories or ways of thinking about education, knowledge and how people learn, shape different approaches to education. They therefore inform the different methods and processes usedby the educators who mediate and facilitate learning.

By methods and processes, we have in mind the strategies and steps that educators or facilitatorsuse when engaging learners or participants. In Topic 3.1. we discussed different learning metaphorsto give participants a broad overview of learning theories. In this topic we further deepen and categorise the learning metaphors into three main categories based on how they relate to and support the practical facilitation of social learning in the NRM context.

The learning metaphors

1. Learning as acquisition
2. Learning as participation, connection, and co-creation
3. Learning as transformation.

We discuss here how the learning metaphors contribute to design and facilitation of a social learningprocess. Let's recap some of the key elements of Social learning in relation to the learning metaphors: Social learning is:

- a process that demonstrates a change in understanding of ideas, meanings, values (*learningas acquisition*)
- A process that demonstrates change in practices or the way we do things at individual, organizational, institutional, social, cultural, systemic level (*learning as transformation*)
- A process that demonstrates that change that has taken place that goes beyond the individual to the collective and becomes situated within wider social units or communities of practice; and has occurred through social interactions and processes between actors within a social network (*learning as participation, connection and co-creation*).

Under the above learning metaphors, we present different methods and processes for supporting facilitation of a learning process, and we draw substantially from the booklet on *Methods and Processes to support Change-Oriented Learning* by Rosenberg, E., O'Donoghue R. and Olvitt, L (2008). We have updated the methods and processes from the 2008 booklet with emphasis on recent methodological developments such as the transformative social learning methods which are now prominent in the field of environmental education and learning facilitation.

We have also includedrecent case study examples from social learning oriented NRM projects (see topic 3.4). These methods and processes are an integral part of planning and implementing social learning processes in the context of NRM, which is the core of Assignment 3.

Reading tips for 3.2. handout:

In Assignment 3 you need to *design a learning process (a programme or activity) for facilitating stakeholder engagement and/or social learning in responding to the NRM issue and context* of yourchoice (see assignment 3 rubric). To do so, you need to identify methods and processes that wouldbe suitable for your context. You then need to explore their underlying ideas (i.e., how they will help you in designing a learning process in your context), their pitfalls (gaps in relation to what your context requires) and also identify complementary methods (how you can enrich the gaps by using additional methods).

Why is it wise to use a range of methods and processes for social learning facilitation?

Over time, environmentalists and educators became concerned about the need to do more than simply raise awareness about issues, or provide learners with fun experiences. They developed andstarted drawing on a broader range of methodological processes to support change-oriented learning. Thus, today we have a richer array of methods and all these methods can be appropriate—*depending on the situation (context), the educational*

purposes we want to achieve (learning outcomes), and how we use them (applicability and relevance). For example, if an educator is interested in expanding new knowledge about wetland management in a community, the educator is likely to develop an awareness raising campaign or a form of information transfer methods (learning as acquisition). But if the same educator wants to teach the community how to restore degraded wetlands, s/he will need to use additional methods to awareness raising, and in this cases/he may need to develop a strong community of practice on wetland restoration and collectively work with the communities on different wetland restoration techniques (learning as participation,connection and co-creation).

Another important reason for using a combination of different methods is that learners have different learning styles. For example, in a group of farmers, or water users, or school children,there will be a diversity of learners and these groups have different learning needs that requiredifferent methods and processes. Some of them will learn better from some processes (such asreading case studies) and others will respond better to other methods (such as hands-on exploration). Using a variety of methods increases the chances of everyone learning. Use of different methods also allows us to address a variety of educational purposes and outcomes. Some of the outcomes of social learning include enabling one to:

- Come to understand other's world better
- Gain the skills and values to live well within it
- Awareness or sensitisation to issues and possibilities for transformation
- Gain information and new insights
- Un-learning certain perspectives
- Recognising and reconstructing the frames through which we look atthe world
- Seeing a growing array of possibilities to act (both individually and collectively)
- Shaping better sustainability practices (socio-ecological justice)
- Action competence, agency, and commitment to ethics care (transformative and relationalagency)
- Gaining a deeper understanding of other participants and the collective interests.

While a particular method can often address more than one learning purpose, a broader rangeof different kinds of methods generally helps us to address a broader spectrum of social learningoutcomes.

How can one plan, design, and facilitate a social-learning process?

It is important and necessary to have a good idea of the intended or expected outcomes of the social learning process from the starting point. These expected outcomes must be collectively shared and re-conceptualized with the groups from the beginning. This sharing and co- conceptualization of learning outcomes forms the basis of rules of engagement and facilitation throughout the social learning process. We share with you below some of the experiences of designing Social Learning for Adaptation from the *Jongphambili Sinethemba* project, in the Eastern Cape (see Cundill, *et al*, 2014, and also the case study

from this work presented by Georgina Cundill in Topic 3.4).

Box 3.2: Facilitating social learning requires:

- That social learning is multi-faceted and multi-directional
- That social learning takes place all the time, in all activities
- That much social learning is subconscious (people are often not aware of learning orsharing knowledge)
- That social learning is inherently a participatory and reflexive process
- That social learning can lead in directions not envisaged
- The on-going seeking of equality between participants in a social learning process
- That social learning should lead to strengthened individual and collective agency
- That social learning is also a process of co-learning, and being willing to move out of one's own comfort

Being:

- Both responsive and guiding
- Willing to learn and change, and be open and receptive to critique and negotiation
- Honest about own views, understandings, strengths, and limitations
- Accepting of others' views, understandings, strengths, and limitations
- Realistic in expectations
- Imaginative in a way that opens up alternatives for the future

Providing:

- Learning, technical and emotional support
- A coherent framework and supportive context for learning
- Own skills, knowledge and experience
- Opportunities for individual and collective growth

  A space in which participants feel comfortable expressing their thoughts and wherethere are no rights and wrongs

Source: Cundill, *et al*, (2014, p5).
Full reference: Cundill, G., Shackleton, S., Sisitka, L., Ntshudu, M., Lotz-Sisitka, H., Kulundu, I., Hamer, N. (2014) Social learning for adaptation: a descriptive handbook for practitioners andaction researchers. IDRC/Rhodes University/Ruliv.

In practical terms, a social learning process requires planning for long-term and sustained relationships between participants and facilitators, purposeful knowledge exchange, and the co-production of knowledge. Furthermore, the learning should flow in all directions, and facilitators must recognise and embrace their personal need to learn as well as to share knowledge. Everyone involved needs to embrace a concept of co-learning: i.e., learning together and from each other.

- Creating a process that allows knowledge exchange both into and out of the core group

of participants;

- Co-developing the learning process with participants;
- Social learning processes must therefore be premised on the idea of learning through 'reflexivity,' meaning the entire process (from inception to closure) must be actively subjected to continuous reflection and review by everyone involved.

Directory of Social Learning Methods and Processes

In the directory section, we discuss the methods and processes for facilitating social learning according to the **three metaphors of learning**. We have reinterpreted the three learning metaphors as explained in topic 3.1 to now refer to them as **social learning metaphors, based on how these metaphors contribute and link to social learning facilitation**. It is also important to note that the methods and processes discussed under the three groups of social learning metaphors are interconnected and overlap across the groups, and the authors are only using the groups for explanatory purposes, to help course participants understand that there are different ways to approach the facilitation of social learning. The images in the box above illustrate possible situations in which the methods within the three social learning metaphors can be used, but we also acknowledge that these learning metaphors can be and have been used in other contexts which don't explicitly involve social learning.

METAPHOR 1:

SOCIAL LEARNING AS ACQUISITION

METAPHOR 2:

SOCIAL LEARNING AS PARTICIPATION CONNECTION & CO-CREATION

METAPHOR 3:

SOCIAL LEARNING AS TRANSFORMATION

Methods and processes in Metaphor 1

Social Learning as Aquisition

This involves a person getting to know and do what some others already know. Under **social learning as acquisition**, the process of learning is mainly through **transmission and instructiveteaching.** A classic example here is a school teacher who transfers already known informationor knowledge (written as curriculum) to the learners through teaching. Neither the teacher northe learners are discovering new information, although the learners are learning something new. In the NRM context, there are different methods and processes that support learning as an acquisition metaphor, and below we have discussed some of them, including:

- **Awareness and social marketing campaigns**
- **Story-telling and verbal-visual communication**
- **Experiential learning methods: learning journeys, learning exchanges and field trips**

Contribution to social learning: Information transfer and sharing is an important step in enacting a social learning process. Through information sharing methods, such as awareness raising campaigns, new understanding is constructed (and deepened), interest is stimulated for people tobe part of engagements, and new information which can be used as a learning tool to further engage other stakeholders on the NRM issues at hand is shared.

However, we want to make it clear that information transfer methods such as awareness campaigns do not equate to a social learning process, as social learning remains an iterative process over time, and is not event based. For the social learning as acquisition metaphor to be effective, we advocate for co-construction of information content and collective participation in design and facilitation of processes when using information transfer methods. For example, an awareness raising programme that is co-designed as a series of iterative engagements and facilitated collaboratively with participants from the target groups.

Social learning can be enhanced, and people can acquire new knowledge and insight, by relating actively with their environment, and doing so together. So, some of the methods here are also focused on experiential learning where people learn together by having significant experiences in the environment together.

Awareness and social marketing campaigns

By this we mean … Campaigns, big or small, to raise awareness among people about particular issues and what can be done about them, by passing on information, often in

'bite-sized' chunks,or as messages. Mass communication media are often used.

Typical examples … Stickers saying, 'Every drop counts' placed next to taps in public toilets; health warnings – 'Smoking Kills!' - on cigarette packets; radio announcements with information and messages by government departments during National Water Week; a social media campaigncalling on the public to 'Stop Rhino Poaching!'; a poster about the dangers of pollution put up bythe Blue Flag programme at beaches during the holiday season.

Underlying ideas … The basic assumption is that people do not know about issues that they shouldknow about, or tend to forget about them, and that by bringing the issues to their attention, people will be moved to act on them. Because this is such a widespread assumption among environmentalists, in government agencies and in NGOs, this is probably the most widely used method to encourage environmental learning and action.

Pitfalls:

- Unfortunately, awareness does not always lead to new actions (note for example the spreadof HIV infections despite greater awareness). Often people are quite aware of an issue, butother factors prevent them from successfully acting on it.
- People may reject messages and messengers for various reasons, e.g., they may not identify with them, or the messages may be too extreme, causing uncomfortable dissonance which in many cases leads people to simply ignore, question, ridicule or dismiss the information.
- People may not know how to act on worrying information, and this can cause anxiety or apathy. Research has found that children who are very aware of environmental issues butfeel hopeless to do something about them, can become depressed.
- The messages about what is wrong and what needs to be done may be too simplistic, or not suitable for all contexts. For example, a South African water conservation awarenesscampaign sent low-flow shower heads to areas where people don't have showers.

Possibilities:

- While it is important to share information widely, it is vital to also engage people in deliberative learning processes to work out what can and needs to be done in particular contexts.
- Follow up awareness campaigns with practical projects, workshop collaborations, phone-in programmes and other opportunities for people to engage and become joint developers of solutions.
- Develop 'messages' and ideas about solutions with affected people, so that they reflect a broader range of realities.

Complementary methods: Experiential methods (like collaborative field work) to develop deeperinsight; arts-based methods like theatre to help participants develop a deeper understanding of issues and understand their role; action research and transformative social learning methods to work out solutions.

Story-telling and verbal-visual communication

Talks and presentations

By this we mean … presenting a body of knowledge or selection of information through a structured verbal and visual presentation.

Typical examples … A conservation officer giving a slide show and talk about biodiversity loss; anindustry trainer giving a PowerPoint presentation about energy-efficient production to managers; a facilitator presenting the latest findings of a collaborative fieldwork project; an extension officer talking to farmers on problem animal control at an open day.

Underlying ideas … Historically, much of the teaching in universities and schools has taken place through the transfer of information in lecturers and lessons. Talks and presentations are also popular in less formal settings such as science fairs, expos, workshops, and symposia. The assumption is that the audience are motivated to learn and have the skills to interpret and later apply what they have learned. It is indeed valuable to hear from someone who is an expert on a particular topic, or at least knows more than us, and who has the ability to provide this informationin an engaging manner, perhaps with pictures, diagrams and demonstrations (see later). It is also recognised that inputs of new information are essential for learning to take place – we seldom learn more by simply expressing what we already know, and often our peers also don't know muchmore than we do. Over time the dominance of the one-way, passive transfer of information has however been questioned (see below).

Possibilities and Pitfalls:

- If well-structured and executed, the presentation of information in verbal and visual format can be very effective. It is particularly useful for sharing relatively simple, factual information, or a particular perspective, to a large group of people in a relatively short space of time.
- Talks and presentation can be useful at the start of a learning process when it may be necessary to provide background information, clarify concepts or introduce a specific focus. On the other hand, children who are often lectured to, or adults who do not fancythemselves being 'back at school', may be 'turned off' by a lengthy, top-down and content-laden introduction.
- People can learn well in focused situations (such as lectures) as there are fewer distractions. This can also mean that people can 'go to sleep' more easily, if the information is not presented in an engaging way, and when there is no opportunity for anaudience to ask questions or otherwise interact with the content presented.
- Talks and presentations are less time consuming than participatory methods, andeasier to manage. They are popular with inexperienced staff.
- One-way communications can cause or reinforce power imbalances as the power is usually with the presenter, particularly if he or she bombards audiences with technical information and negates their own understanding of matters. The audience may be left feeling apathetic or rendered unable to take action, by the 'outside expert'.
- With the recent emphasis on active and social learning, delivery-type methods have cometo be questioned. On their own, these 'passive' methods do not support active learning unless complemented by more interactive and participatory methods. However, one-directional, focussed can be used very effectively in participatory or active learning frameworks when used in conjunction with other methods and tools. It is important to value the input of new knowledge.

Complementary methods: Experiential methods, Guided questioning, Projects, arts-

based and visual methods, co-inquiry methods, communities of practice, inter- and transdisciplinary processes, transformative social learning methods.

Story methods

By this we mean … a variety of methods which use stories (or narratives) to achieve various educational outcomes.

Typical examples and underlying ideas … Storytelling is an ancient educational method. In critical media education and ethics methods, learners must re-write a story, to reflect an alternative environmental ethic. This latter approach has developed in Canada.

Human beings, young and old, love stories! Stories grab the imagination and involve the listener (and the teller) in deep ways; the best stories, modern and old, tap into archetypal images whichhumans, across cultures, carry with them from birth. If a story is engaging, learners find themselves 'in it', experiencing what it is to be a certain character (the brave hunter, the hungry child). Most story-based methods are also used for deliberation. In the story-line method learnersoften work with others to decide how they want a story to end (e.g., We want the sea to be cleanagain), and this could be extended to deliberating what must be done to achieve the desired end(We must stop polluting the sea by …).

When learners re-write stories to imagine alternatives (e.g., tell the story of Red Riding Hood from the wolf's perspective) they encounter the cultural values which shaped the original story, reflect on how such values play out in the way people relate to nature and each other today (wolves are persecuted; little girls are saved by men); andcritically and creatively consider (deliberate) other ways. Socio-cultural and critical theories of knowledge and learning inform this latter approach.

A new form of storytelling called **'digital story-telling'** is also beginning to emerge as a form ofsharing stories via social media - follow this link to learn more about how Rhodes University's Community Engagement team are working with this approach, and see also the link below to a blog article on *digital storytelling for transformation (Gorman, 2014)*.

Possibilities:

- Situating stories – telling or eliciting stories which allow learners to identify with an issue or concern; follow up with investigation of the issue or concern.
- Re-imagine culturally entrenched ways of relating to the environment and others (by re- writing stories which reflect exploitative values, or writing stories of what sustainabilitymight be)
- Sensitisation – once learners have re-written or heard a well-known story from another perspective, they may hear other stories differently, too.
- Values clarification, deliberation, problem-solving and creativity.

Pitfalls:

- Telling stories only from your own viewpoint, and if only one end is possible.
- Assuming that all learners will be familiar with a certain story, while most classic stories exist across cultures. For example, character names may differ.

Complementary methods: Co-inquiry methods (e.g., investigate an issue after reading a situatingstory); arts-based and visual methods like role-play (learners can act out their re-imagined stories); scenario planning; communities of practice.

For more:

Bjerg Hansen, K. & Sguazzin, T. 2000. *Sustainable Stories? Using the Scottish Storyline Approach for Environmental Learning in South African Schools*. Learning for

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Jickling, B. et al. 2006. *Environmental education, ethics and action. A workbook to get started.* UNEP, Nairobi. www.earthprint.com or sharenet@wessa.co.za

Experiential learning methods: learning journeys, learning exchanges and field trips

By this we mean …

An extended trip and a visit to one or more sites of interest, for educational purposes. The learning can be focused on acquiring new knowledge and insights on the social-ecological characteristics of the site itself (e.g., a river catchment, an estuary,a farm implementing sustainable agriculture), or it can be an opportunity for different groupsof stakeholders to exchange learning about their work or projects (i.e., a learning exchange).

Typical examples …

Students tour the site of a new industrial development where they hear fromvarious experts about the potential and actual social, economic, and ecological impacts of the development.

A group of wine farmers visit a cellar where organic wine is produced. Interpretation officers from the Namaqualand National Park visit the Table Mountain National Park to see, among other things, how the visitor centre operates.

Underlying ideas …

There is value in *broadening learners' perspectives*, by exposing them to howothers (particularly those with somewhat similar challenges, and with whom they can identify) approach things in a slightly different context. The way in which field trips or 'sensing journeys' and exchange visits are commonly used for learning among conservationists, farmers and other professional groups, brings to mind the socio-cultural perspective of '*communities of practice*': members of a professional or working community (e.g. wine producers; or Namaqua National Park staff) learn from other members in this or similar, overlapping communities (organic wine producers, or park staff) (see also the entry on 'Communities of Practice').

Possibilities:

- Encouraging learners to see things differently, think outside existing frameworks.
- 'On-the-job' training in fields where basic qualifications do not adequately prepare practitioners for the challenges of a particular workplace (e.g., conservation officers whohave a basic background in ecology and sociology but limited understanding of the issues in the area where they come to work).

Pitfalls:

- Assuming that participants will know what to look for; prepare some focusing frameworks e.g., in a worksheet, or guidelines for reports or case studies that must be written before or during the trip.
- Assuming that participants will ask for and get all the relevant information; plan opportunities for available information to be accessed, for example, presentations at

the site being visited, or written information to read.
- Not enough time to reflect on learning; schedule regular group discussions and/or individual reflections during the trip.

Complementary methods: Arts-based and visual methods; presentations and talks; other experiential methods; co-inquiry methods; various transformative social learning methods; communities of practice.

For more: Presencing Institute - Otto Scharmer. *Tools: Sensing Journeys*: Available online: https://www.presencing.org/files/tools/PI_Tool_SensingJourneys.pdf

Activity 3.4

Carefully working with Acquisition methods within a social learning process

Facilitators should work carefully with methods that enable 'social learning as acquisition' to make sure that they don't just transfer information from their own point of view, but that they enable stakeholders to learn together and make sense of their context and NRM challenges fromtheir individual and shared perspective.

For this activity, select one of the methods introduced above. Make notes on how you might incorporate the method into a social learning process, and what you would do to make sure thatthe method doesn't just transfer information in a one-way stream, but that it enables social learning among participants.

Do this activity on your own first, and then share your ideas with a learning buddy, or with your tutor group

Methods and processes in Metaphor 2

Social Learning as Participation, Connection & Co-creation

When we think about social learning as ***'participation, connection and co-creation'*** we are focusing our attention and actions on the *relational* aspects of the learning process. What do we mean by that? We mean that in using this metaphor for social learning, we are interested in how learning emerges in relationships between people, rather than within individual people. As Sami Paavola and colleagues, educational researchers from Finland, have noted:

> ***"New ideas and innovations emerge BETWEEN rather than within people."***
> (Paavola et al. 2004 - available online)

So, the methods presented below can be used by you, the learning facilitator, to enable people tocome together with one another to learn together, to develop new ideas and innovations, and to co-create new knowledge together. These methods often enable co-investigation or co-inquiry into environmental or natural resource management (NRM) challenges, and they can encourage learning-by-doing. Another way in which the methods captured under this learning metaphor enablesocial learning is through engaging with and through diversity, and bringing together, or connecting, diverse ways of knowing such as arts-based approaches or indigenous knowledge. These methods can be important in

enabling *deliberative* or *dialogic learning*, that is, learning that takes place from people being in conversation or dialogue, exchanging ideas with one another.

Within this metaphor, we will be exploring five kinds of methods and processes for supporting sociallearning (each of which may contain numerous examples):

1. **Communities of practice**
2. **Co-inquiry methods for understanding the environment** (e.g., guided questioning; valuesclarification; participatory learning and research methods; collaborative field work and citizen science)
3. **Exploring different ways of knowing** (e.g., exploring indigenous knowledge; inter- and transdisciplinary processes)
4. **Arts-based methods** (e.g., drama and theatre for development; music, poetry, and visual art; role-play; working with camera)
5. **Social learning through adaptive monitoring, evaluation, and management of NRM programmes** (e.g., in Monitoring, Evaluation & Learning (MEL); and Strategic Adaptive Management (SAM)).

1. Communities of practice (CoPs)

By this we mean …

An approach to facilitating social learning among stakeholders working togetheron a focused activity or domain of interest. CoPs can be seen as an umbrella approach in the set of methods discussed under Metaphor 2, within which many of the other methods can be applied (though it is not suitable for all contexts, see pitfalls below).

One of the most important tasks of a social learning facilitator is often to build networks and newrelationships between different stakeholders, bringing them together in new groups or configurations, based on the specific environmental or NRM challenge at hand. For example, a facilitator may be working on sustainable fisheries management in an estuary which has high biodiversity value and also high economic value for local tourism operators. Managing the fisheriesin that estuary in a sustainable way requires a stakeholder engagement process through which thediverse stakeholders can come together to learn collectively about the estuary and how to manageit. One process through which one can develop this group of stakeholders, and support their learning, is to build a 'community of practice'.

Communities of practice (CoPs) often emerge organically (of their own accord), but they can also be actively facilitated and developed. According to Etienne Wenger-Trayner, one of the originatorsof the idea of communities of practice, CoPs can be defined as "a group of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly".

Typical examples …

In a study by Linda Downsborough (2009), citrus farmers near the Eastern Capetown of Patensie were found to be working together in a community of practice through which they were engaging in social learning processes. Farmers learned mainly through responding to change and uncertainty in their agricultural practices, through forming and drawing on networks and community structures, through intergenerational learning, and through various interactions with each other.

Underlying ideas …

The theory of communities of practice draws on situated and also socio- cultural learning theories (See Topic 3.1 for more on this). The concept of CoP has been applied ina number

of sectors and fields: business, organizational design, government, education, professional associations, development projects, and community or civic life. According to Wenger-Trayner, there are three key characteristics of CoPs which set them apart from other kinds of communities:

(1) **"The domain:** A community of practice is not merely a club of friends or a network of connections between people. It has an identity defined by a shared domain of interest...

(2) **The community**: In pursuing their interest in their domain, members engage in joint activities and discussions, help each other, and share information. They build relationships that enable them to learn from each other…

(3) **The practice**: Members of a community of practice arepractitioners. They develop a shared repertoire of resources: experiences, stories, tools, ways of addressing recurring problems—in short, a shared practice. This takes time and sustained interaction."

Possibilities:

- Communities of practice are a flexible approach to building networks and facilitating social learning around shared practices: they can be applied in a wide range of contexts,and with a wide range of stakeholders and NRM challenges.
- Communities of practice can enable many different learning and engagement processes,and within a CoP, a variety of methods and tools can be employed to develop new knowledge and for stakeholders to work together to address their shared interest.

Pitfalls:

- Communities of practice generally rely on good coordination, often by so-called 'champions' who have energy, passion and resources to help manage and facilitate the network.
- The term CoP is often over-used and misunderstood: not all communities or networks are CoPs, and not all NRM or sustainability issues are well-suited to the development ofCoPs.

Complementary methods: Since CoP is an umbrella approach to setting up networks for learning,almost all other learning methods are suited for use within a CoP. In particular, methods that can enable learning among diverse stakeholders are well-suited, e.g., arts-based and visual methods,exploring different ways of knowing, and experiential learning methods: learning journeys, learning exchanges and field trips/visits. Depending on the domain of interest, transformative learning methods are also well-suited for facilitating learning within CoPs.

For more:

Downsborough, L., 2009. Understanding social learning processes in a citrus farming community ofpractice. Southern African Journal of Environmental Education, pp.167-175. https://www.ajol.info/index.php/sajee/article/view/122819/112359

Wenger-Trayner & Wenger-Trayner, Introduction to communities of practice. Website: https://wenger-trayner.com/introduction-to-communities-of-practice/

Wenger, E.C. and Snyder, W.M., 2000. Communities of practice: The organizational frontier.Harvard business review, 78(1), pp.139-146. http://www.psycholosphere.com/Communities%20of%20Practice%20-%20the%20organizational%20frontier%20by%20Wenger.pdf

2. Co-inquiry methods for understanding the environment

These methods help stakeholders to collectively work together to gain deeper understanding and insight into the CONTEXT of the environmental or NRM challenges they are facing (refer back to what you learnt about the importance of context and contextual profiling in Module 1). Therefore,they enable participatory and collaborative investigation into the environment, and into the ecological, socio-political, socio-economic, and other dimensions of the environment. These collaborative investigations can enable social learning among participants, where they gain a new, collective understanding of the environment or NRM issues which they did not have before. Belowwe discuss a few examples of specific methods that can be used to facilitate co-inquiry towards social learning.

Guided questioning in interviews, focus group discussions or fieldwork

By this we mean …

Using probing and often quite structured questions, for example during interviews, focus group discussions, or field work, to direct learners' thinking about particular aspects of their experience.

Typical examples …

A catchment coordinator takes a group of stakeholders to do some experiential field work to clear alien plants. While they work, she asks specific questions to guidethe learners' thinking and to support them to think more about certain things, about which the coordinator has interesting and relevant information available. She asks questions like: "Can you notice something different about this patch of alien trees compared to the one we started working on?" and "Why do you think this patch seems to be more sparse?" In this way she can prompt andsupport them to learn more about the ecological aspects of clearing alien trees. Similar kinds of guiding questioning can be incorporated into interviews or focus group discussions to make them more engaging and learning-oriented, and not just focused on collecting data for research (see also: 'dialogue interviews', as described by the Presencing Institute, see reference below).

Underlying ideas …

Constructivist theories of learning have had a significant influence on environmental learning and emphasised the way people think and make meaning of what they see.They suggest that learners make sense of their experiences and actively 'construct' meaning by consolidating past experiences, with the information they can access, and the context in which they find themselves. Active learning requires learners to think for themselves and to make connections between what they already know, and what they are presently experiencing and interpreting. Guided questioning is a way of encouraging learners towards making these connections.

Possibilities:

- Learners feel increasingly involved in the process and can develop their confidence and motivation to learn when they are given the chance to think things through for themselvesand suggest answers. This can create a stimulating and more interactive learning experience.
- Guided questioning can add to the sense of fun and active enquiry. They can also enable participants to be more reflective and engaged in the activity at hand, rather than just passively going with the flow.

Pitfalls:

- Asked in the wrong way, questions can make participants feel as if they are being examined.
- If the educator's choice of questions steers the conversations and directs the learners' attention very selectively, he may become too dominant. This does not create much opportunity for learners to pursue their own learning interests. Be sensitive to the group's interests, pick up cues regarding who is interested in what, and encourage participants to ask their own questions as well.
- Assuming that learners have enough prior knowledge and experience to draw on in order to answer the questions. If learners are in a completely new environment (e.g., they are visiting a site for clearing of alien trees for the first time) or they have limited knowledgeto draw on, they may be less able to make the necessary connections, and another method should be chosen.

Complementary methods: Other co-inquiry methods like collaborative fieldwork; Story-telling and visual-verbal methods; values clarification; arts-based and visual methods; participatory learning and research; action research.

For more:

Presencing Institute - Otto Scharmer. *Tools: Dialogue Interviews.* Available online: https://www.presencing.org/resource/tools/dialogue-interview-desc

Vogt, E., Brown, J. & Isaacs, D. and Margulies, N. 2003. The Art Of Powerful Questions: Catalysing Insight, Innovation, and Action. Available online.

Values clarification

By this we mean …

Creating situations in which participants are challenged to think deeply about, and articulate and share the values they hold, and how they relate to their actions and choices.

Note: this method is closely related to the VSTEEP method introduced as a process for stakeholder engagement in Module 2: 2.2.1 "Context analysis as a process of stakeholder engagement".

Typical examples …

After a trip to a wilderness area with high biodiversity, the education officer asks participants to write about what they value most about nature and what they will do differently back at home. … … A trainer provides a group with photos of a fish, insects, a leopard,a dog, a child, etc. Each group member is given the task: Rank these photographs in the order of importance to you. Say you have to rescue them from a burning building – Who or what would yourescue first and last, and why?

Underlying ideas …

The values that people hold (i.e., the things that they uphold as being most important in their lives) influence the ethical actions that they take. Therefore, recognising the values we hold and understanding their influence on how we perceive environment and sustainability issues is an important starting point in deliberative learning processes, in which wemight look for common ground between parties in an environmental dispute, or try to match ouractions better to what we value. Research into values being conducted in sustainability science shows that environmental values can be intrinsic (related to the true value of nature, irrespectiveof our use of it), instrumental (related to how we benefit from

nature through direct use) or relational (related to how we relate to nature, and to one another in relation to nature) (see Chanet al. in the reference list below)

Possibilities:

- We often do things because that is how we were taught, or haven't been exposed to alternatives. Exploring values held by other cultures or communities (e.g., some eat dogs, some eat pigs, some eat no meat) and then considering them in the light of one's own values, can create transformative learning opportunities.
- Open-ended processes in which people are challenged to identify, analyse or even defendtheir values can be a turning point for many people in terms of how they view themselvesin their community and wider environment.

Pitfalls:

- Where power relations don't allow learners enough opportunity to put forward their ownideas, learners might feel pressurised to 'adopt' the values that they see the educator ispushing forward. Where learners are assessed, they might feel even more under pressureto align their responses with those of their assessor!
- It is easy to assume that lack of environmental action means that participants lack the necessary values. Sometimes people's situations don't allow them to act in line with the values they hold. For example, someone may appreciate a litter-free environment but, inthe absence of waste management services in an informal settlement, have limited options to dispose of their waste.

Complementary methods: Dialogic methods; Guided questioning; Solitaire; Music, poetry andvisual art; Scenario planning and backward mapping.

For more:

See the resources in Module 2, Topic 2.2.1, on the VSTEEP methodology.

Jickling, Lotz-Sisitka, O'Donoghue & Oguibwe. 2005. *Environmental Education, Ethics & Action: Aworkbook to get started.* Nairobi: UNEP.

Chan, K.M., Balvanera, P., Benessaiah, K., Chapman, M., Díaz, S., Gómez-Baggethun, E., Gould, R., Hannahs, N., Jax, K., Klain, S. and Luck, G.W., 2016. Opinion: Why protect nature? Rethinking values and the environment. Proceedings of the national academy of sciences, 113(6), pp.1462- 1465. Available online.

Participatory learning and research methods

By this we mean …

A variety of participatory learning activities (PLA) including participatory ruralappraisals (PRA) and rapid rural appraisals (RRA) which are used particularly among people with limited literacy levels and schooling, to help researchers understand their resource use patterns, what role natural resources play in their livelihoods, or to establish their development needs.

Note: these methods were also discussed as a useful process for stakeholder engagement in Module2: 2.2.3 "Participatory research as a process of stakeholder engagement."

Typical examples …

PRA and RRA are often used to prioritise from among a variety of communityneeds, and plan a project to address these needs, e.g., a clinic, a tourist lodge or fencing against animals which ruin crops. The locals may join scientists in a transect walk to survey the land or use small stones as tokens in ranking exercises in which they prioritise their needs.

Underlying ideas …

All learning is 'participatory', as it requires the learner to be involved in the educational process. The term participation is used in a particular way here, however, to refer tothe active, educative involvement in development and research processes, of people who have previously been disregarded in the planning of processes meant to benefit them. These methods have roots in diverse contexts. Among them are: rural development in the South, informed by critical theories and the liberation pedagogy of Paolo Freire, and later, the writing of authors likePetty and Chambers in the field of communal natural resource management. Also, influential has been the idea of people-centred development (from former World Bank advisor David Korten and proponents in the Eastern Cape), which emphasises the need for poor people themselves (rather than donors) to clarify their needs. In the process, people learn more about their own contexts, and within the community those who seldom have a say (e.g., widows) may also get an opportunityto voice their views.

Possibilities:

- With strong links across a range of fields such as development work. sustainable rural livelihoods, sustainable agriculture, and integrated landscape management, these tools areflexible and can be adapted to a variety of contexts.

Pitfalls:

- Assuming that a 'community' is a group of similar people who agree about
- everything, when there may in fact be conflicting interests among them.
- Pseudo-participation – sometimes people are convened for a consultation, with little of the necessary background to enable them to participate meaningfully, and/or little
- intention to act on the outcomes of the participation, other than to see the developers'
- original intention through.

Complementary methods: Co-inquiry methods; action research; arts-based and visual methodslike drama and theatre for development; camera work; inter- and transdisciplinary learning processes; exploring different ways of knowing; communities of practice; collaborative field work and research.

For more:

See resources in Module 2: 2.2.3 "Participatory research as a process of stakeholder engagement."

Chambers, R., 1992. Rural appraisal: rapid, relaxed and participatory. Institute of DevelopmentStudies (UK). Available online.

Price, L. 2006. Joking around in Zimbabwe: Undoing and redoing participation. *Southern AfricanJournal of Environmental Education*. (23). pp. 156-161.

Stringer, L. C., A. J. Dougill, E. Fraser, K. Hubacek, C. Prell, and M. S. Reed. 2006. Unpacking
"participation" in the adaptive management of social–ecological systems: a critical review.Ecology and Society 11(2): 39. [online] URL:
http://www.ecologyandsociety.org/vol11/iss2/art39/

Collaborative field work and citizen science

By this we mean …

Investigations in the 'field', using tools from the social or natural sciences. Fieldwork may be specifically for learning purposes and practising enquiry, rather than finding out something new. Research is about generating new knowledge. Citizen science is commonly used as a way to involve citizens (either as volunteers, or as paid 'citizen technicians') in monitoring the environment.

Note: these methods are similar and can be combined Topic 2.2.3 "Participatory research as a process of stakeholder engagement.", presented in Module 2.

Typical examples …

A door-to-door survey in a township, to find out about living conditions, usingan interview schedule. … Audits to compare the diversity of plant species in two plots, using plant identification sheets. … Observations of different river health indices along a river, using a river health observation sheet and water quality test kits (e.g., miniSASS, available online here). … In Kwazulu-Natal, farmers and forestry workers join the Mondi Wetlands Project trainers in delineating wetlands, that is, fieldwork to determine the boundaries of the wetland, as the basisfor discussing where fields and plantations can be established. The Tsitsa Project is employing local community members to monitor sediment (soil) in rivers (see below: Bannatyne et al).

Underlying ideas …

Field work is valuable because we learn about the area and the issue that westudy and develop science skills and principles (such as accuracy and rigour). In formal education settings, field work has a long history, particularly in association with geography and environmental education, where it has been valued as a form of active and experiential learning involving 'hands-on' activities and developing practical enquiry skills as well as conceptual understanding and broader insight. In collaborative research or citizen science, scientists share the tools of science, allowing others to find out about local places and issues which concern them,but also how to use scientific tools, and to develop an understanding of how scientific knowledge is formulated. If farming communities joined scientists in research about biodiversity loss, forexample, they may be more likely to learn from the findings, and act on them.

Possibilities:

- Involving school learners or local communities in monitoring environmental change, e.g., inthe Limbovane project which collects data on the biodiversity patterns among ants, or in various river monitoring projects where communities living near rivers monitor them using tools like miniSASS.
- Involve learners as well as experts in identifying research questions.

Pitfalls:

- Acting on findings before one is sure of their accuracy.
- Learners usually need much time and guidance to practise with scientific tools.
- Give attention to asking the right questions, or the data might be useless. Interview questions must be piloted before we go out into the field with them.
- Learning is not complete without attention to analysing the data and reflecting on what it means (meaning making and consolidation).
- Not all citizen science is social learning: a citizen science programme needs to be carefully designed to ensure that all participants are involved in learning, as there is often a power gradient between scientists and citizens which results in a one-way flow

ofknowledge.

Complementary methods: Story-telling and visual-verbal methods; action research; co-enquiryapproaches; inter- and transdisciplinary learning processes; participatory learning and researchmethods.

For more:

Bannatyne, L.J., Rowntree, K.M., Van der Waal, B.W. and Nyamela, N., 2017. Design and implementation of a citizen technician-based suspended sediment monitoring network: Lessonsfrom the Tsitsa River catchment, South Africa. Water SA, 43(3), pp.365-377. Available online.

Hulbert, J.M., 2016. Citizen science tools available for ecological research in South Africa.
South African Journal of Science 112(5-6), pp.1-2. Available online.

The Hands-On Series (e.g., Hands-On: Stream and Pond Life, Life around a Waterhole, GrasslandLife, Fynbos Life). Available from Share-Net, Howick. Available online: http://learningthroughnature.co.za/share-net-resources/

miniSASS website: http://www.minisass.org/

3. Exploring different ways of knowing

People working in NRM and sustainability are becoming ever more aware of the importance of diverse forms of knowledge and ways of knowing in engaging stakeholders and learning together about sustainability practices and solutions (remember that we discussed this back in Module 1: Topic 2: "Introduction to Learning Facilitation and Stakeholder Engagement in NRM", where we
discussed different ways of knowing, and the shortcomings of using western science on its own). Different forms of knowledge bring different perspectives and can be woven together to help stakeholders to build a richer and deeper understanding of their context.

They can also enable creative and innovative thinking, which might be stifled when one only draws on very focused formsof knowledge on their own (e.g., only using western science, or only relying on local knowledge). Here we outline two possible methods for exploring different ways of knowing which can be used to enable and facilitate social learning: *exploring indigenous knowledge*, and *inter- and transdisciplinary learning processes*. Note that **arts-based and visual methods** (described below) are also a powerful means of exploring different ways of knowing.

Exploring indigenous knowledge

By this we mean …

Investigating traditional practices and local or indigenous knowledgeto explore options for more sustainable management of natural resources.

Typical examples …

Learners interview elders about how daily practices (such as making bread,or breakfast, or growing crops) are done nowadays compared to in previous generations. Then they study the environmental impacts and risks of traditional ways, and modern ways. … An environmental educator researched what knowledge about vegetable production still

existed inhis declining community, as the basis for starting new food gardens and working towards greater sustainability and pride.

Underlying ideas …

In recent years the conservation, development and educational fields have seen a burgeoning interest in indigenous knowledge systems (IKS). In the natural sciences, there has been much emphasis on collecting indigenous knowledge about nature and natural resources. In environmental education, different educational ways of engaging with IKS have also been explored. One approach is to analyse traditional understandings and practices alongside contemporary understandings and practices to understand why things have changed over the years, what has been lost and gained in the process and the implications for sustainability. Learning is effective when it is situated in time and place and hence has more meaning for learners. Reflecting on (or even just trying to investigate) indigenous ways of knowing enables learners to situate their learning within their cultural context and draw on their prior knowledge and experiences.

Possibilities:

- Indigenous farming practices are often more resilient to climate change, and there is significant potential in implementing these as part of more sustainable landscape management.
- Drawing on indigenous knowledge can be an important way to enrich our understanding of environmental change and can offer inspirational ideas for a more sustainable future.
- Working with indigenous knowledge can be combined with values clarification activities to show the rich perspectives and support deliberative processes about sustainability.

Pitfalls:

- Setting up indigenous/traditional knowledge against modern, scientific knowledge as if they are conflicting opposites. The boundaries between them are in fact blurred and itis more useful to reflect on what each tells us about sustainability.
- There are many regional and cultural variations of indigenous knowledge, names and stories, which may lead to disagreement among learners. Rather than see this as a problem, use the opportunity to open up further deliberation about why such variations exist, what their implications are for contemporary perspectives etc.

Complementary methods: values clarification; action research; inter- and transdisciplinary learning processes; arts-based and visual methods; co-inquiry methods; participatory research and learning.

For more:

Indigenous Knowledge Series: Trees, Goats and Spirits (Umlahlankosi); Beer, Ants and Ancestors(Umqombothi); Sweet Water (Amanzi Amnandi) and Grain Storage: Isangcobe. Share-Net, Howick.Available online: http://learningthroughnature.co.za/share-net-resources/

Matowanyika, J.Z.Z. (ed.). 2000. *Indigenous knowledge systems in environmental educationwithin communities in southern Africa: A Handbook*. SADC Regional EE Programme, Howick.

Tengö, M., Brondizio, E.S., Elmqvist, T., Malmer, P. and Spierenburg, M., 2014. Connectingdiverse knowledge systems for enhanced ecosystem governance: the multiple evidence baseapproach. Ambio, 43(5), pp.579-591. https://link.springer.com/article/10.1007/s13280-014-0501-3

Inter- and trans-disciplinary learning processes

By this we mean …

Co-engaged research and learning processes which draw on knowledge froma wide range of different academic disciplines (i.e., academic knowledge), as well as knowledgefrom beyond academic institutions such as local knowledge, indigenous knowledge, embodied knowledge, etc (i.e., societal knowledge). Through bringing together diverse forms of knowledgeto better understand and address sustainability challenges, stakeholders can learn together through iterative cycles of questioning and knowledge co-production (see Cundill et al. 2015).

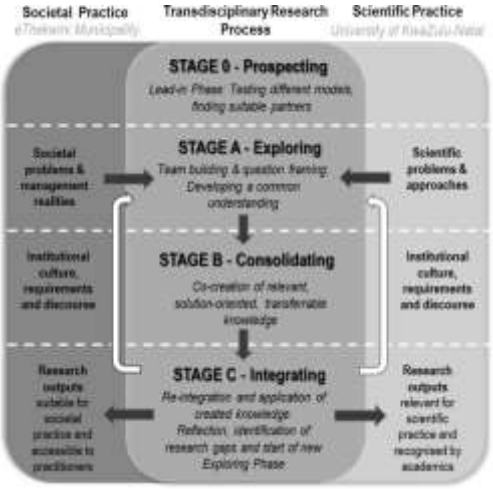
Typical examples …

The University of KwaZulu-Natal and the eThekwini Municipality have established a transdisciplinary research partnership known as 'D'RAP: Durban Research Action Partnership'. The partnership brings together stakeholders from a diversity of disciplines within the university (e.g., geography, development studies, botany, agricultural economics, etc.) with practitioners and policymakers working in the municipality to address biodiversity planning and climate change adaptation challenges in the municipality. The partners are engaging in a transdisciplinary research process (as shown in the diagram below) to develop new knowledge andinspire action and policy development for more sustainable management of urban ecosystems (seeCockburn et al. 2016 for further details).

Underlying ideas …

Interdisciplinarity focuses more on knowledge integration across only academicdisciplines, whereas transdisciplinarity goes beyond to integrate societal knowledge. Both approaches are founded on the idea that complex problems (such as many complex sustainabilityand NRM problems) cannot be solved by one discipline or knowledge type alone, and that understanding systems as interconnected wholes, requires more holistic approaches to generatingknowledge.

There are many different methods and approaches for facilitating interdisciplinary and/or transdisciplinary processes, but here we recommend a phased process of engaging the relevant stakeholders to address a common problem, as shown in the diagram below (Cockburn et al. 2016). The overall approach includes co-designing the research, conducting participatory and collaborative research together, and then re-integrating the outcomes of the research intoacademic and societal practice.



Possibilities:

- These processes are a powerful way of engaging a diversity of researchers and academics, together with societal stakeholders in co-learning and knowledge co-production processes. They are recognised as legitimate approaches to knowledge production in academic institutions and can result in the development of robust knowledge and learning.
- Researchers and academics who are committed to inter- and transdisciplinary approachesare usually more open to acknowledging the value of diverse knowledge forms and this orientation can make it easier to collaborate with them.

Pitfalls:

- Since inter- and transdisciplinary processes are often funded, driven, and facilitated by researchers from universities and other academic institutions, they often have pre-determined agendas and may not always be open to a change in direction or approach needed in different contexts.
- This also often means that the processes still favour academic knowledge over other forms of knowledge, and that the processes have strong power dynamics involved which might marginalise or dismiss non-academic forms of knowledge (even if this is not intentional).

Complementary methods: Inter- and trans-disciplinary approaches are an umbrella term within which a wide range of social learning methods and processes can be applied, e.g., a community of practice could be used as a vehicle for implementing these processes, arts-based and visual methods can be incorporated, exploring different ways of knowing can be used, as well as the methods listed under co-inquiry and transformative social learning.

For more:

Cockburn, J., et al. 2016. How to build science-action partnerships for local land-use planningand management: lessons from Durban, South Africa. *Ecology and Society* 21(1):28. http://dx.doi.org/10.5751/ES-08109-210128

Cundill, G., D. J. Roux, and J. N. Parker. 2015. Nurturing communities of practice for transdisciplinary research. *Ecology and Society* 20(2): 22. http://dx.doi.org/10.5751/ES-07580-200222

Useful blog on interdisciplinary approaches: *Integration and Implementation Insights: A community blog providing research resources for understanding and acting on complex real-world problems* https://i2insights.org/

4. *Arts-based and visual methods*

We introduced arts-based methods, including the specific example of Empatheatre, as useful processes for stakeholder engagement in Module 2 (Topic 2.2.4 "Arts and theatre as a process of stakeholder engagement"). Here we recommend them again, in a slightly different form, as valuable methods and processes for facilitating social learning. By engaging in a range of differentart and visual methods, stakeholders can learn together about their environment, get to know andunderstand each other, identify and grapple with NRM challenges, and be stimulated to envisage and enact alternative futures and creative solutions and ways forward. These methods are particularly appropriate for exploring challenging issues which have multiple perspectives and which might result in conflict - here the idea of 'dissonance' or disagreement among perspectives,as proposed by Arjen Wals, can be fertile ground for deep learning.

Drama and theatre for development

By this we mean ….

Learners developing and performing a dramatic play on an environmental issue,and possibly engaging the audience in considering solutions.

Note: this is similar to the *Empatheatre* example discussed in Module 2, Topic 2.2.4.

Typical examples …

In theatre for development, a group of rural people would develop their ownroles and script (story) for a play, with the help of a development worker or environmental activist, on a contentious local issue, for example a proposed dam which would flood their land.They would invite participation from other villagers to come up with a way forward to respond tothe issue. Theatre for development works best if the audience can recognise themselves and theissue in the play.

Underlying ideas …

Theatre for development was introduced to South African environmental educators in the 1980s and 1990s, along with other participatory and critical methods of engagingpeople in empowering and transformative learning experiences. It draws on the *liberationpedagogy* of Paolo Freire and *critical theories* for adult education and development, more generally. It thus shares roots with *participatory* methods. It aims to give people who have few avenues to express their views, an opportunity to do so, and it encourages people to mobilise themselves, come to a greater understanding of their situation and some agreement about it, andtake control of it. It therefore also shares ideas found in methods for *dialogic* and *social learning*.

Possibilities:

- Drama holds significant potential to support social learning across the metaphors of acquisition, participation, and transformation: it can be used at all stages of a social learning process.

- There is a wide range of approaches, and a lot of tools and resources available, for using
- drama for learning, not only those discussed here (see for example August Boal's 'Theatre of the Oppressed', or Dylan McGarry's Empatheatre: https://www.empatheatre.com/).

Pitfalls:

- Assuming that acting out concerns will motivate or equip learners to take action to address them; this may require additional information and ongoing support.
- The public performance of a play requires a lot of work and some technical knowledge about stage play; learners and teachers can either neglect this aspect to the detriment of the eventual performance, or get so caught up in the production aspects that environmental learning is neglected.
- If the research and deliberation done beforehand is too limited, a play may be too superficial to meaningfully engage either the performers or the audience.

Complementary methods: Co-inquiry methods; storytelling and visual-verbal methods; participatory learning and research methods; action research; various transformative social learning methods.

For more:

See resources recommended in Training of Trainers Module 2: Topic 2.2.4 "Arts and theatre as a process of stakeholder engagement".

Berold, R., Burt, J. and Carklin, M. 2000. *Interactive Drama for EnvironmentalEducators*. Share-Net: Howick. Available online: http://learningthroughnature.co.za/share-net-resources/

Music, poetry and visual art

By this we mean …

Opportunities for people to give creative expression to their ideas and to reflect on and share their experiences and feelings about environmental matters in open-ended and creative ways.

Typical examples …

At the end of a two-day camp or retreat in a nature reserve, participants areasked to write a poem in honour of a special place that they visited or a special creature that they observed. … participants on a field trip to an organic farm are asked to work together to developa poem or a song about their experience as a thank you gift for their host.

Underlying ideas …

People learn differently i.e., they have different styles of learning. There aredifferent ways of accessing and expressing knowledge, and creative forms such as poetry, art and music are some of these. Not everything can be expressed through the same medium; certain experiences, especially more spiritual, intuitive and open-ended experiences, as well as values, are often best expressed through music, art or poetry. These ideas came to be especially dominant in the liberal tradition in education in which individual self-expression was emphasised. The use of creative art expression was also prominent in the values-education and experiential approaches to environmental education that were popular throughout the 1970s and into the 1980s, and which inspired many of the art activities which are still part of many centre- and school-based environmental education programmes today.

Possibilities:

- After producing poetry, music or pieces of art, people usually have a sense of pride and achievement which they are motivated to share with others. Group members who do not do well in formal, logical and abstract activities often shine in creative activities and maycome to be recognised by the rest of the group for what they have to offer, in other respects as well.
- Many art forms are not language-based so they have much potential in contexts where language might be a barrier to learning.
- Music can help bridge barriers between very different people and hence facilitatesocial learning deliberations.

Pitfalls:

- Some people are not comfortable sharing their creative writing or other forms of personal expression with strangers, especially in situations where they feel that their private ideas might not be respected.
- It is important for participants to see the relevance of the creative work. Many people are strongly influenced by the view that art, poetry and music are not 'real' work and arethus of secondary importance. Unless the intentions and relevance of the process are made clear, some participants might feel they are wasting time.

Complementary methods: Story-telling and visual-verbal methods; drama; working with camera; role-play; various transformative social learning methods; methods for exploring different ways ofknowing.

For more:

Wonder and Encourage Creativity. Share-Net: Howick. Available online: http://learningthroughnature.co.za/share-net-resources/

Pearson, K.R., Bickman, M., Grenni, S., Moriggi, A., Pisters, S. and de Vrieze, A., 2018. *Arts-based methods for transformative engagement: A toolkit*. SUSPLACE. https://library.wur.nl/WebQuery/wurpubs/fulltext/441523

Roff, John. (ed.). 2001. *A Sense of Wonderful: Nature Poetry to Inspire a Sense of*

Role-play

By this we mean …

Participants taking on different identities (roles) and acting these out with orfor others, in a scenario depicting some sustainability or NRM issue or event, so that both participants and spectators can empathise (put themselves in the shoes of) others, and understand their experiences and contexts, or issue, better.

Typical examples …

In a project in Namibia to resolve conflicts between field rangers and communal farmers neighbouring a nature reserve, both rangers and farmers are given the identities of various role players including animals, and a specific scenario to act out. With their amazing ability to mimic others, some participants soon have everyone rolling around with laughter, which helps the group deal with the difficult issues around access, trespassing, problem animals and trapping which they have to work through, and which are all raised in the role play.

Underlying ideas …

In role play, participants can put themselves in the shoes of others and see what they must confront. They can also express their own ideas and their views of others, or situations, often more freely than if they had to stand up and make a speech. This can help to raise important but threatening points people might otherwise be reluctant to mention. Power relations can be reversed, during role plays. (See also Drama and Theatre for Development.) Roleplay as a method creates opportunities for participants to 'act out' or 'practise' real-life experiences in a focussed and safe learning environment. Constructivist theories of learning emphasise the importance of *scaffolding* (i.e., putting support structures in place for learners to access and then build on new ideas) and *modelling* (i.e., providing examples to guide learners).

Possibilities:

- When these simulation activities are used to explore conflicting interests, they can be used as the basis for deliberative negotiations towards possible solutions.
- Role-plays are especially useful for engaging with values clarification and for envisagingalternative scenarios of the future.

Pitfalls:

- Learners, young and old alike, may get so caught up in the performance (costumes, accents) that they lose focus on the ideas behind the role play.
- Some groups may feel self-conscious when asked to act in front of an audience.
- Effective role-play requires empathy and insights into someone else's situation. This canbe difficult to achieve if participants have limited life experience or limited access to information about the situation they need to role-play.

Complementary methods: storytelling and visual methods; participatory methods; various transformative social learning methods; Scenario Planning.

For more: Berold, R., Burt, J. and Carklin, M. 2000. *Interactive Drama for Environmental Educators.* Share-Net, Howick. Available online: http://learningthroughnature.co.za/share-net-resources/

Working with a camera

By this we mean …

Using photography as a method of environmental investigation and interpretation, or as a method of representing personal or collective encounters in environment through the medium of photographs.

Note: this method is similar to the 'Mobile Journalism' approach discussed in Module 2: Topic 2.2.5"Participatory "filmmaking" or Mobile Journalism as a process for stakeholder engagement".

Typical examples …

Rural people take photos of their daily lives and the natural resources theyuse. With the visiting educator, the photos are discussed as the starting point for weaving a storyabout natural resource use. The photos and story are later shared with other communities to stimulate discussion about community-based natural resource management (CBNRM). … Farmerstake photos of seasonal wetlands, alien infested and cleared areas, harvested and unharvested stands of proteas, and so on, for comparative purposes and to observe landscape changes over time.

Underlying ideas …

Socio-constructivist theories explain that our understandings of various contexts and our perceptions of places and events are socially constructed. People will choose to represent their sense of place through (i) what they choose to photograph (ii) the way they compose the photograph and (iii) what they *don't* photograph. … Discussing these choices can help us thinkmore deeply about the way we relate to our environment, and how certain views we subconsciouslyhold may prevent us from effecting changes in these environments.

Photos are somewhat more concrete than abstract discussions in that they recall actual places, which may provide a concretebasis from which to explore people's relationship to their environment and help them understandit better. Photos can also provide an objective basis from which to make comparisons and inform land-use and development decisions. This method is similar to a participatory method known as **'photo voice' and 'photo elicitation'** (see Masterson et al. (2018) below).

Possibilities:

- The widespread use of smartphones makes photo-based approaches more usefulthan ever - though some people may not be able to afford a smartphone, and projects may need to provide resources accordingly.
- Photographs are not language-based and can thus be used as starting points acrossmulti-lingual groups with varying levels of functional literacy.
- Young and old enjoy choosing their own photographs and explaining their choices. For many, it is also empowering to learn to use a camera, or to have own ideas and representations of the environment respected when each photograph is discussed.

Pitfalls:

- Although photographs are suitable for learners with low levels of functional literacy, interpreting photos does depend on fairly well-developed levels of *visual literacy* i.e., learners being able to interpret a picture in terms of content and composition.
- Whilst the act of taking the photographs requires no language skills, interpreting themlater with others, does. Learners might need support to develop the skills, concepts and vocabulary needed to interpret the photographs.
- Photography requires access to cameras and facilities to share or print the photographs.

Complementary methods: arts-based and visual methods; experiential methods like field trips; participatory methods; story-telling methods; collaborative fieldwork and citizen science; action research.

For more:

See resources for Module 2: Topic 2.2.5 "Participatory "filmmaking" or Mobile Journalism as a process for stakeholder engagement".

Du Toit, D. & Sguazzin, T. 1999. *Camera & Context*. Learning for SustainabilityProject / Department Education, Pretoria.

Masterson, V.A., Mahajan, S.L. and Tengö, M., 2018. Photovoice for mobilizing insights on human well-being in complex social-ecological systems. Ecology andSociety, 23(3). https://www.ecologyandsociety.org/vol23/iss3/art13/ES-2015-7739.pdf

5. *Social learning through adaptive monitoring, evaluation and management of NRM programmes*

Social learning has become a key focus in adaptive approaches to natural resource management (NRM). Adaptive approaches are often advocated as a solution to understanding and managing complexity in social-ecological systems (for more on this see Fabricius & Cundill (2014), full reference below under SAM). Learning among stakeholders is considered a key way for NRM to be more flexible and adaptable, as it enables people to take a more evolutionary and incremental approach to NRM, to be open to unexpected surprises, and to better navigate the complexities inherent in NRM sustainability challenges.

Below we discuss two specific methods within which social learning has become a central feature: monitoring, evaluation and learning (MEL), and strategic adaptive management (SAM). Both these approaches are gaining traction in a variety of NRM contexts, and they are often used together (see for example the Tsitsa Project: Cockburn et al. (2018), full reference below under SAM). Note: we also briefly introduced SAM as a stakeholder engagement approach in Module 2 (Topic 2.2.1): it sits at the interface of *stakeholder engagement* and *social learning* approaches (see Module 2, Topic 2.1, Figure 2).

Monitoring, evaluation and learning (MEL)

By this we mean …

MEL is an approach to monitoring and evaluation (M&E) in NRM projects and programmes that focuses not only on accountability, but also on learning. The M&E process is specifically designed to enable social learning among participating stakeholders and focuses onfeedback loops of information and communication as a source of learning.

Typical examples …

A MEL system was implemented in the RESILIM-O project implemented by theNGO AWARD in the Olifants river (Limpopo province), they called this MERL: Monitoring, Evaluation, Reporting and Learning. This system enabled not only formal M&E as was required by the funder (USAID), but also enabled the project team and participating stakeholder to adapt and learn throughout the process (See AWARD (2019) for more info). The Tsitsa Project has implemented a similar system, called PMERL: Participatory Monitoring, Evaluation, Reflection and Learning (see Cockburn et al. (2018)).

Underlying ideas …

A MEL framework is an expansion of conventional monitoring and evaluation (M&E) frameworks which not only builds accountability into projects, but also enables collaborative learning and change among participants in a way that acknowledges the complex anduncertain contexts of sustainability initiatives. MEL is often implemented as part of an overall adaptive management (AM) or strategic adaptive management (SAM) approach to NRM.

Possibilities:

- Embedding social learning into MEL enables:
  - On-going adaptation
  - Responding to change, complexity and uncertainty
  - Participation and collaboration
  - Sense-making and collaborative knowledge synthesis
  - Potential for transformative change (e.g., triple-loop learning)

Pitfalls:

- MEL is resource intensive, requiring:
  - investment of time and money across the organisation
  - human resources with specialized skills
  - effective reporting and data management systems

Complementary methods: SAM, communities of practice, various acquisition methods, co-inquirymethods, experiential methods, arts-based methods, and various transformative social learning methods.

For more:

AWARD, 2019. *Harnessing monitoring & evaluation for learning: Experiences from the RESILIM-OProgram*. Association for Water and Rural Development (AWARD), Hoedspruit. Available Online.

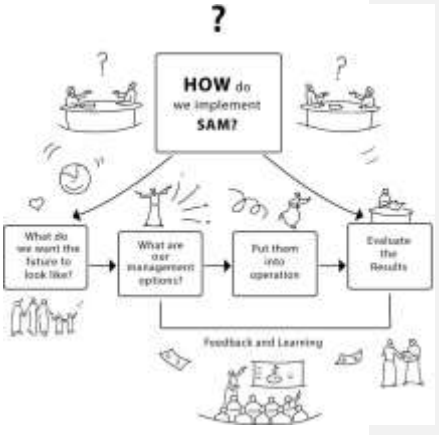
Cockburn, J., Palmer, C.T.G., Biggs, H. and Rosenberg, E., 2018. Navigating multiple tensions forengaged praxis in a complex social-ecological system. *Land* 7(4), p.129. https://www.mdpi.com/2073-445X/7/4/129/pdf

Oswald, K., Taylor, P., 2010. *A Learning Approach to Monitoring and Evaluation*. IDS Bulletin 41,114–120. Available Online.

Woodhill, J. 2007. *M&E as learning: Rethinking the dominant paradigm*, in: de Graaff, J., Cameron, J., Sombatpanit, S., Pieri, C., Woodhill, J. (Eds.), Monitoring and Evaluation of Soil Conservation and Watershed Development Projects. CRC Press, Boca Raton, Florida. Available online.

Strategic adaptive management (SAM)

By this we mean … SAM is an approach to managing natural resources that enables collaboration, adaptation and learning among the different stakeholders involved in NRM. The diagram below shows how SAM can be implemented: it is a stepwise, cyclical process of planning and developingobjectives, identifying management actions, implementing these actions, reflecting on implementation, learning from reflection and revising plans and objectives. Throughout this process there are feedback loops through which information is shared and reflected upon, and through which social learning among stakeholders is enabled.



Typical examples …

SAM has been implemented in the Kruger National Park, where it has enableda meaningful engagement and social learning process between the multiple stakeholders interested in the management of the park (Kingsford & Biggs, 2012). One of the key successes of implementing SAM is that it is context-sensitive and focuses on eliciting the diverse values of stakeholders (through the V-STEEP method, see Topic 2.2.1), which can then be incorporated into

planning andimplementation. Another example of SAM is the Tsitsa Project (Cockburn et al (2018)).

Underlying ideas …

SAM evolved from adaptive management (AM), a widely used approach in environmental management. Once can see SAM as a specialised form of AM, in which there is a much stronger focus on collaborative or social learning, on facilitating meaningful and effective stakeholder engagement, and on working in complex contexts.

Possibilities:

- Implementing a SAM approach to NRM can ensure more effective and socially just stakeholder participation. The focus on values ensures that stakeholder perspectives are incorporated into NRM.
- A SAM approach can also enable more flexible and adaptive NRM, as its stepwise, cyclical framework ensures that stakeholders are open to surprise and uncertainty and can manage the system accordingly (rather than trying to suppress these features of the system).

Pitfalls:

- For SAM to be effective, significant changes can be required in institutional structures,and managers need to be open-minded and willing to change the way they do things.
- Although SAM principles encourage openness to diverse views, values and needs, facilitators still need to pay careful attention to power dynamics and to stakeholderswho might dominate the process.
- SAM is time and resource-intensive, and programme managers need to planaccordingly.

Complementary methods: PMERL, communities of practice, various acquisition methods, co- inquiry methods, experiential methods, arts-based methods, and various transformative social learning methods.

For more:

Fabricius, C., and G. Cundill. 2014. Learning in adaptive management: insights from publishedpractice. *Ecology and Society* 19(1): 29. http://dx.doi.org/10.5751/ES-06263-190129

Cockburn, J., Palmer, C.T.G., Biggs, H. and Rosenberg, E., 2018. Navigating multiple tensions forengaged praxis in a complex social-ecological system. *Land* 7(4), p.129. https://www.mdpi.com/2073-445X/7/4/129/pdf

Kingsford, R.T. and Biggs, H.C., 2012. Strategic adaptive management guidelines for effective conservation of freshwater ecosystems in and around protected areas of the world. IUCN WCPAFreshwater Taskforce, Australian Wetlands and Rivers Centre, Sydney. Available Online.

Palmer, C.G., Rogers, K., Holleman, H. & Wolff, M. 2018 *How to… use Strategic Adaptive Management (SAM) and the Adaptive Planning Process (APP) to build a shared catchment future.How to handbook No. 8* in: Palmer, C.G. and Munnik, V. 2018. Practising Adaptive IWRM. Integrated Water Resources Management (IWRM) in South Africa: Towards Practising a New Paradigm. Project K5/2248. Water Research Commission, Gezina. Available online.

Activity 3.5: Thoughtfully combining 2 – 3 methods within the Participation, Connection and Co-creation metaphor in a multi-stage social learning process

In exploring this large directory of methods and process, it is tempting to want to use many different methods as they all (hopefully!) sound exciting and useful. However, in designing stakeholder engagement or social learning processes, we need to be thoughtful about how wecombine methods, and how we might put them together in a stepwise sequence to reach the learning goals we have in mind for our process or programme.

In this activity, select 2-3 of the methods discussed under this 2nd metaphor. Outline a specificsocial learning outcome, and then write down how you will put your chosen methods together to work towards this intended outcome for the stakeholder group you are working with.

Do this activity on your own first, and then share your ideas with a learning buddy or with yourtutor group.

Methods and processes in Metaphor 3

Social Learning as Transformation

In the NRM context, one of the strengths of using Social Learning is that it supports the emergence of agency (ability to take action and change our practices towards sustainability. And we called this change-oriented metaphor Social learning as Transformation. The key emphasis in this metaphor is ***learning together to change ourNRM practices***. It is important to note here that social Learning as transformation "often" builds on the other two metaphors discussed above and this correlation is critical when facilitating a robust social learning process in the NRM context. And one of the main reasons why as facilitators we need to work across these metaphors is thatbefore we can think of transforming our NRM practices (i.e., changing the way we do things), we need the learning of new ideas (social learning as acquisition), and also learning between and amongst groups of people (social learning as participation, connection, and co-creation).

What are the practical social learning methods for facilitating transformation?

Knowing about how to change NRM practices towards sustainability is very different from taking action (actual changing of practices). Implementing change ortransformation as we call it in this module, *requires agency* as the ability to act. This ability to act or agency

involves having capacities and capabilities (knowledge, skills, and tools to explore alternative options. Below we have discussed practical social learning methods with examples on how to support and enable the development of agency as an ability to act (transform) NRM practices.

The methods discussed below are underpinned by the principle of *deliberate and learning by doing*, which **deliberate methods implies that the facilitators take a transformation stance throughout their social learning process (from conceptualization to implement). Learning by doing implies that the capacities andcapabilities required to transform the NRM issues at hand is not preconceived and its context-based** (i.e., we don't have ready-made solutions as this differs from one NRM context to the other). Within the social learning as transformation metaphor, we explored three kinds of methods and processes for supporting social learning (each of which containing examples):

- **Participatory mapping and modelling** (e.g., scenario planning anddevelopment for envisioning the future)
- **Action research & facilitated learning platforms for community problem- solving** (Course activated learning networks and change projects, Projects and practical actions)
- **Expansive learning** (e.g., Activity System Analysis)

1. Participatory mapping and modelling

Participatory mapping and modelling comes in many forms and goes by many names (including cooperative modelling, collaborative modelling, mediated modelling, and group model-building). These variations upon a theme all emphasise one thing: namely the importance of modelling with stakeholders. Rather than focusing on a model as a product and seeing stakeholders only as modelusers, participatory modelling (and its variants) emphasise the process of model building using a range of tools and approaches. Participatory modelling can be done qualitatively (usually involvingsome form of systems diagram developed in a workshop setting) or it could be used quantitatively in combination with computer models. Whether a computer model is used or not, the general objective of participatory modelling is to co-develop a model that can be used to ask "what if..." questions; to simulate diverse futures and scenarios; and to test different policies, find systems leverage points, and support collaborative, informed decision-making.

Scenario planning and development for envisioning the future.

By this we mean …

Scenario planning is a structured process of thinking about and anticipating the unknown future, without pretence of being able to predict the future or influence the environment in a major way. Related to scenario planning, *backward mapping* begins by asking learners to envisage their desired future scenario. The group then works backwards from this desired endpoint to map out the key decisions or practices required to achieve this vision. The group ends with a clear plan of what needs to be done – starting today – to achieve the desired future.

Typical examples …

In the Resilience in the Olifants (RESILIM-O) project implemented by the AWARD in the Olifants catchment (Mpumalanga and Limpopo province), a participatory modelling was used as a method for understanding of Olifants catchment's vulnerability (i.e., The catchment's ability to adapt to key drivers of change such as ecosystems degradation, land

use change, climate change, etc.) in a process called collaborative risk assessment. In this process, facilitators work collectively with a group of stakeholders in a co-inquiry process using guiding questions to understand the state of ecosystems services such as water provision in the catchment and how drivers of change such as land use change and development, river systems and catchmentdegradation, and climate change may have further impacts on the catchment system.

Typical guiding questions could include: *Which rivers still flow throughout the year? Who has access to these rivers and how? What are the common water use activities/ practices?* When were these activities developed? Do you see any increase in these activities? How do you benefit from these activities? To enrich the co-inquiry exploration mediated via questioning process, facilitators alsobring in additional mediating data based on their knowledge from literature or their own experiences. e.g., using downscaled climate change projections to help participants contextualize the impacts of climate change to their local context.

The end product of the RESLIM-O scenario planning process was a series of risk assessment concept maps that informs catchment stakeholderson which NRM practices are under threat and what interventions can be developed. E.g., the collaborative risk assessment process pointed out that Invasive Alien Plants are a major threat to river systems and biodiversity in the Olifants catchment, and several ecosystem restoration scenarios were developed. These ecosystems restoration scenarios identified which river systems should be prioritized, how and what restoration interventions are feasible, and these were also linked to resource allocation and institutional capabilities in the catchment.

Underlying ideas …

In a social learning process, the scenario planning and development **should be a participatory process** that aims to enhance stakeholder involvement, capacity and legitimacy in decision-making. Scenarios are usually a set of stories (often called narratives), which describe a range of possible alternative futures. Building scenarios together with stakeholders to envisage alternative futures around shared sustainability challenges can enable inclusive dialogue among diverse stakeholders. Scenarios can allow for the integration of diverse stakeholder views and increase the acceptability of planning and decision-making. The complexity of NRM issues often undermines our ability to understand what the future will look like, hence why scenarios are helpful. Through deliberative processes such as those associated with scenario planning or backward mapping, learners are exposed to diverse perspectives, open-ended debates, creative visioning processes and constructive dissonance, thereby becoming better equipped to respond aseffective citizens in an uncertain future.

Possibilities:

- Contemplating how best to respond to a range of possible futures (scenario planning) and working backwards from descriptions of an ideal future (backward mapping), can stimulate much debate and critical understanding of what ‘sustainability’ might *really*mean in their context.
- Futures scenario planning can be well-supported by computer-assisted modelling (projections). Computer software programmes are available that generate future scenarios based on existing data or other variables. Integrating stakeholder-based andcomputer-based scenarios enriches the process and offers even broader alternative options.

Pitfalls:

- Future scenarios are ‘thinking tools’, not realistic guarantees of what will happen or what must be done. It is important for the educator/ facilitators and the learners/ participants to keep this in perspective, especially when computer-assisted models might make the

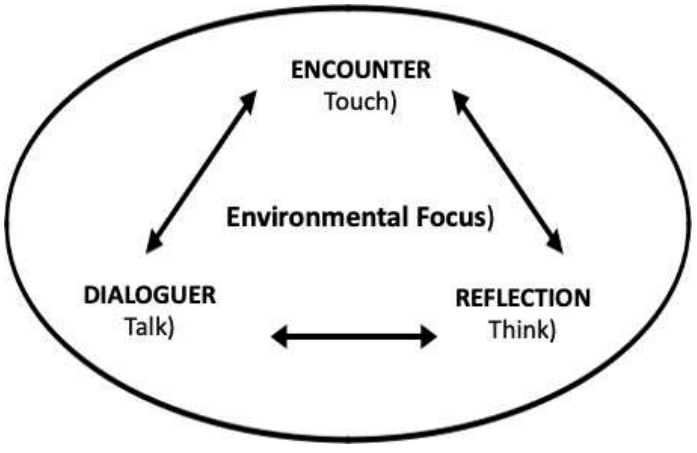
future possibilities look certain.

- Scenario planning and backward mapping presuppose a certain level of knowledge and analytical thinking skills mainly on the part of the educator/ facilitators. Without adequate information and a clear understanding of the purpose of this method, learners can easily slip into a mode of unrealistic fantasising, proposing unachievable future goalsor suggesting inappropriate responses.
- Scenario planning can be a very abstract process and in many fields such as business management, scenarios are normally conducted in a non-participatory manner using a consultant approach and they are mostly aimed for profit making rather than enriching participants through critical thinking for sustainable future alternatives. Therefore, a social learning-oriented scenario development process must be inclusive, collaborative, participatory and should be learning oriented.

Complementary methods: Activity System Analysis; Participatory monitoring evaluation reflection and learning (PMERL); Strategic Adaptive management (SAM); inter- and transdisciplinary learning processes

2. Action research & facilitated learning platforms for community problem-solving

This involves working collectively to address a localized problem, usually as a group of interestedor affected people, using an open-ended but structured action learning process which maximises learning, and applies the learning back into the problem solving. This is similar to action taking, but the process is somewhat more structured and reflective, with regular periods of reflection andplanning. A typical action research cycle has the following, repeated phases: *investigate* (a problem), *plan* (an action), *act*, *check* (the effects of the action), *reflect* (on the outcomes), thenplan a follow-up action-reflection cycle, repeated as many times as is necessary or possible. Action research and community problem-solving can be best explained using the Active Learning cycle (diagram below).



The above diagram presents a model for a coherent educational process developed by South Africanenvironmental educator Rob O'Donoghue, called the "active learning framework (O'Donoghue, 1993)". This model calls on educators/ facilitators to build three processes into their action researchand learning programmes: opportunities for touching (or more generally for experiencing, encountering, or taking action on natural resource management issues); talking about these issues (with both the facilitators and the learners

having an opportunity to express their views, value clarification, ideas, etc,) to better understand what is going on and what can be done; and thinking about how things came to be like this, and what can be done (i.e. what action learning projects can be developed).

The process can start anywhere – with an enquiry, an action or a reflection on something that was learnt previously. The focus of the learning interaction holds the encounter, dialogue and reflection processes together, and this focus may be an issue to which the learners/ participants are being introduced (e.g., global warming) or an action in which they are involved (e.g.,clearing of invasive aliens).

Course activated learning networks and change projects

By this we mean …

This is a process in which learners/ participants are supported individually andcollectively to develop their agency (capacity and capabilities) to explore and take action on NRMissues in their own context through a carefully structured and well facilitated process

Typical examples ...

A perfect example to this is our very own Training of Trainers course on Facilitating Social Learning and Stakeholder Engagement in Natural Resource ManagementContexts. The course is framed on scaffolding and well-facilitated principles (i.e., group engagements and tutor mentoring support), and this provides a collective learning opportunity for participants in what we course activated learning networks. Course participants are not onlylearning new information on the course but also supported to develop their own change project in their own context (this done via assignments in the ToT), and these assignments are framed as a long-term learning process that builds on each other to enrich and deepen the NRM issues and to envision possible transformation through further development of a contextualized social learning process.

Underlying ideas …

The method involves learning by doing in a collective setting through a carefully facilitated process. The course activated learning network enables participants/learners to share learning tools, ideas and experiences while learning new information in the course, and this allows participants to investigate their own situations and issues which may affect them, then decide on what actions to take to address these issues, take action, and learn from the results.

Key ideas, derived inter alia from critical theories, are that we learn from and *through*active participation, and that our daily work (practice) is improved by examining it critically and taking our own steps to improve it - an idea which can be described as praxis (reflection in-and-on action). There is also a strong assumption that investigating real issues which affect us directlywith the guidance (i.e., from course facilitators), and co-learning (peer-learning with other course participants) is a powerful educational experience, which can develop a collective and individual sense of agency.

Possibilities:

- Course activated learning networks are best suited methods when one is trying to establish a community of practice (e.g., through participation in the ToT course, our participants have an exposure to different NRM issues, and they can start engaging collectively on those issues).
- Course activated learning networks can be downscaled or upscaled to work with differentgroup sizes. i.e., The ToT is at a larger scale (nationwide and continental to some extent), but similar processes can be developed at a school level or community youth level, where an educator or facilitator wants to work with a small group of

learning usingthe similar scaffolding principles.

- Course activated learning networks can also be developed informally. i.e., In the ToT wehave a formal curriculum in which participants will get certificates in the end and this is also a paid course. However, a similar process can be developed informally in a process where participants collectively (with facilitators/ educators) envision their learning outcomes to guide a social learning process, and this can be done in any setting includingcommunity education and schools.

Pitfalls:

- The social learning process must be developed based on the issues that are matters of concern to the participants/ learning as opposed to issues that are identified as important by the facilitators/ educator.
- Participants/learners may require a situating story/ support to develop a sense of contextualization to the NRM issue and alternatively tools and methods to investigate and address the issues of concern to the group, and this process requires a lot of experience and prior knowledge form facilitators/ educators in order to support learners through a scaffolding process.
- If action research methods such as course activated learning networks is used for formal assessment in a school or university context (i.e., ToT), it is important to be clear on which aspects of the learning process will be assessed (including reflections) and managethe division of tasks among learners in group activities.
- In summary, action research methods and similar methods usually take much more time than one anticipates and requires experience and additional facilitation support. i.e., very difficult to be implemented by a single facilitator/ educator.

Complementary methods: Community of practice, experiential learning methods

Projects and practical actions

By this we mean …

Local actions to address an environmental issue or a practical developmentor conservation need. Educators/ facilitators can come up with ideas to set up projects and/or use practical actions as a learning opportunity for supporting learners needs but for an effective social learning facilitation, we advise educators/ facilitators to collectively develop the practical projects and actions together with participants.

Typical examples …

In Eco-Schools the school community gets involved in practical action projectsto improve environmental conditions at their school, e.g., they plant a food garden, or start recycling their waste. NGOs and government agencies join with communities in practical environmental projects such as wetland rehabilitation, donga reclamation or tree planting. Children in a cholera-stricken area make hand washing devices from recycled materials, to hang up outside the toilets, and learn that washing hands stops the disease from spreading.

Underlying ideas …

Eco-Schools teachers can draw on the practical school improvement projects to teach classroom lessons, but participants also learn from the actual doing: what it means and what it takes to grow your own food, or to recycle your waste. A sense of citizenship and agency may be among the things learnt. Sustainability is often a matter of a practical local concern which needs to be addressed with urgency. By tackling such issues through practical action, much is learnt by the doers, not only the practical know-how (how to

grow vegetables), but also the underlying knowledge (what vegetables require to grow, and what nutrients they provide), as wellas a sense of agency (we can feed ourselves even if we are unemployed). This relates to experientiallearning and learning by doing (the value of hands-on activities), but also critical learning (sense of agency and responsibility) and community of practice – e.g., a group of women working with anextension officer to become self-sustainable in their food gardens form a community of practice which can soon teach newcomers or other community groups.

Possibilities:

- Practical projects such as food gardens and others can be used as the basis for curriculum learning to support learners/ participants to develop their agency in active learning (encounter the NRM issues, think critically about it, and taking action towards better change).

Pitfalls:

- People are often so busy with the practical action that they do not reflect on what they are learning. A strong learning-oriented process is required as framing for practical action projects.
- Projects can be hamstrung by many challenges, big and small, particularly when they attract big funding or political attention, and these challenges can be learnt from but only up to a point as they can also derail the focus of the projects by raising unrealistic expectations.

Complementary methods: Field trips, excursions, and exchange visits; Demonstrations andexperiments.

For more:

Wilson, J., Munnik, V., Burt, J., Pereira, T., Ngcozela, T., Ndhlovu, D., Lotz-Sisitka, H. James, M. (2016). Citizen Monitoring of the NWRS2. Tshwane: Water Research Commission.
O'Donoghue, R. (1993). Active learning. Southern African Journal of Environmental Education.

3. Expansive learning methods

Expansive learning is a specific form of social learning to focus specifically on supporting development of agency (capacity and capability) to learning news ideas, develop new tools, and implement new actions. In simple terms, expansive learning is about expanding our knowledge by learning what is not yet there (Engestrom, 1987). The big question is how do we learn something that is not yet there? Well, expansive learning methods gives us tools and processes that allows us(participants and facilitators) to work together in a co-inquiry process to both explore the issues, challenges, problems, tensions (i.e., these are called contradictions) in a specific NRM context, andagain collectively envision the pathways towards sustainable solutions.

Activity System Analysis

By this we mean …

Activity System Analysis is a method within the cultural-historical activity theory (CHAT)

school of thought, which argues that:

- learning is situated in cultural traditions of practices (e.g., NRM is a practice within a biggerenvironmental sector)
- Learning happens when we confront contradictions in a historically developing practical activity (i.e., activity as a set of durable actions with a purpose or intention. e.g., wetlandrestoration is an activity which involves a set of actions or activities).
- Learning is mediated by the use of tools (i.e., both conceptual and practical). e.g., ToT course is a tool to mediate social learning in NRM context; language can also be a tool; management plan is a tool to manage a nature reserve, etc.

Therefore, the Activity System Analysis (see diagram below) provides us with a conceptual model that gives facilitators and participants guidance on how to collectively engage with contradictions in NRM context (think critically, identify solutions or alternatives, take action).

Typical examples …

See Box 3.3 below

Underlying ideas …

It is important to note that the Activity System Analysis method is situated within the CHAT to support expansive learning (see Engestrom, 2016). Therefore, a CHAT based expansive learning approach focuses on transforming situations, through understanding and addressing contradictions/ systemic challenges within and between activity systems in order to promote newand alternative solutions (expansion of learnings). As such, using Activity System Analysis in a CHATbased inquiry combines:

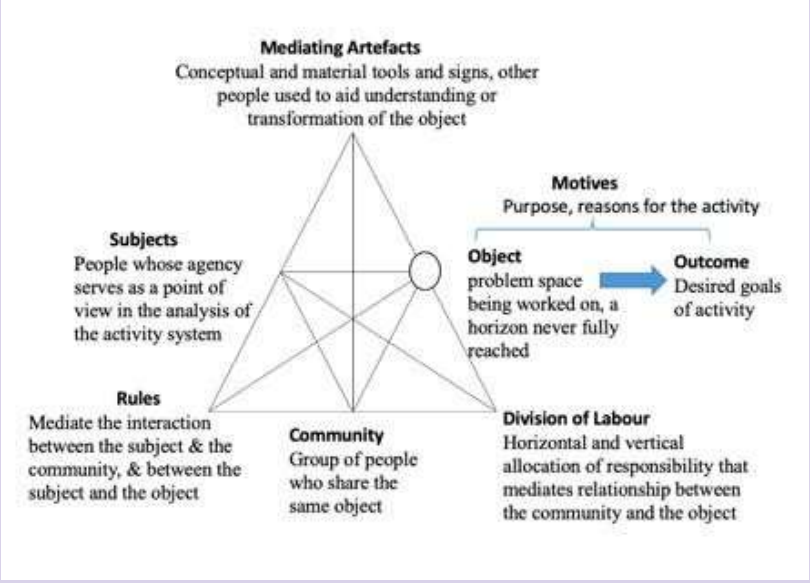
- A systems component – that helps us to construct meanings from situations
- A learning component – a method of learning from those meanings
- A developmental component – that allows us to expand those meanings towards action.

Possibilities:

The Activity System Analysis method gives facilitators and participants a model of investigating their context and practices (e.g., what are the NRM issues in my context?), identifying challenges and understanding historical development (e.g., how did these issues come to be? who isinvolved?), envision new solutions or alternatives (e.g., how can we solve our NRM issues? who else can contribute and how can they support us?).

Commented [A2]: I couldn't change Box 3.3 to match the others due to the white image inside the box.

BOX 3.3: The diagram below is the Activity System Analysis model that shows the relationships onhow the leaner (subject) engage with their problem space or issue under investigation (object), using mediating artefacts (concepts and practical tools), to achieve their desired goals (motives & outcomes) of an activity (e.g., wetland restoration as an activity). This subject-tools-object interaction is mediated by the rules in the activity (formal and informal). For collective action, the subject must identify other stakeholders interested in their problem space (community), and in order to work together the subjects and community must develop a sense of responsibility and commitment to action based on their capacities and capabilities (division of labour).



Source: (Engeström, 1987), 2nd generation CHAT, also known as the Activity System Analysis)

Pitfalls:

- Be mindful of possible discomfort and dissonance thresholds. There is no learning without some dissonance, but also no learning with too much dissonance. i.e., contradictions can be very personal or disruptive.
- Activity System inquiry is a collective process (facilitators & participants), and it is labour intensive process and require a group of facilitators.
- Expansive learning methods are normally a long-term process and require a series of engagements.

Complementary methods: Community of practices, Action research & facilitated learning platforms for community problem-solving; Participatory mapping and modelling.

For more:

Engeström, Y., 2016. Studies in Expansive Learning: Learning What Is Not Yet There.Cambridge University Press, New York

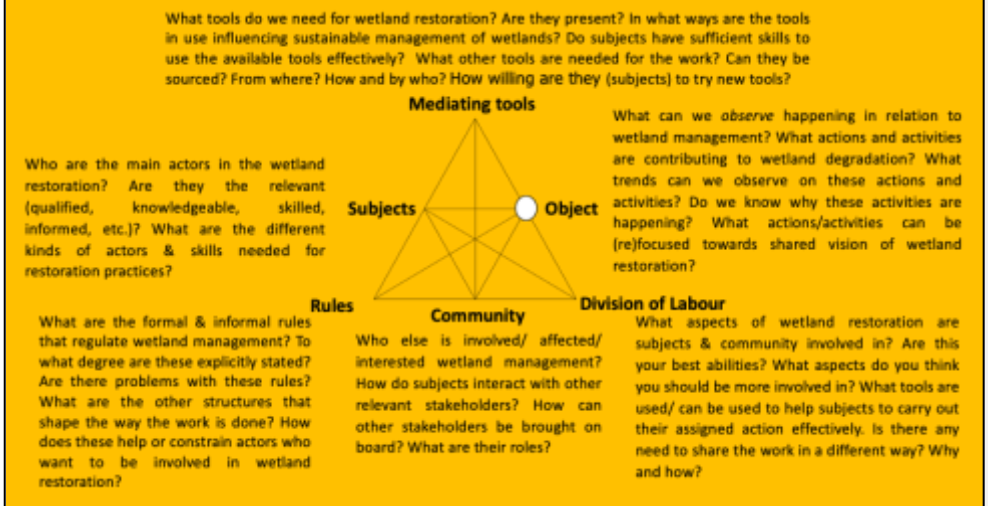
Wals, A. (2007). *Social Learning Towards a Sustainable World*. Wageningen University Press,The Netherlands.

ACTIVITY 3.6: Develop an Activity System Analysis model for the NRM issues you are going to explore in Assignment 3.

NB: We encourage you to build on the same NRM issue you worked with in both assignments 1 & 2.

Study the diagram below, on how to develop an Activity System Analysis using guiding questions. We used the wetland restoration example, but you must use your own context (i.e., the NRM issues for your assignment 3). When facilitating Expansive learning process, these diagnostic questions are supposed to be explored collectively (i.e., facilitators & participants) in a co-inquiry process (i.e., workshop, focus group discussion, etc.). However, for the purpose of this activity, **please develop and explore the activity system diagnostic questions on your own**. The main purpose for this activity is not to provide answers to the questions but **to help you identify areas of gaps, areas of development or contradictions in your NRM issue, and this will help you on planning and designing your learning process for Assignment 3**

Do this activity on your own first, and then share your ideas with a learning buddy or with your tutor group.



NB: An example of how to use the Activity System Analysis model to develop diagnostic questions for mediating a learning process.

Conclusions

The above directory of methods and processes provide a broad spectrum of methodological optionsfor facilitating social learning in different natural resource management contexts. It is important to note that you are not required or expected to use all the methods, but rather select the ones that are relevant to your context and specifically facilitate your social learning process for assignment 3.

It is also important to note that the above methods and processes support social learning facilitation at different levels. In the diagram below, we have shown how the four assignments of this course collectively supports a transformative social learning process. We have highlighted four key stagesof a transformative social learning process based on Wals (2007) approach to social learning, and the stages of expansive learning cycle by Engeström (2001). And we also linked these stages to thecourse modules and also provided some guiding strategic questions to prompt participants on whattype of methods and processes can be suitable in each stage.

- **Stage 1**: Investigate context and practice (i.e., What is happening in NRM in my context?what are the key NRM practices?)
- **Stage 2**: Identify the challenges and contradictions (i.e., How has this context came to be?

  What don't we want our NRM context to look like? Who are the actors?)

  NB: Both stage 1 and 2 of this transformative social learning process were explored in module 1 &2, and the learning actions were captured in assignment 1 & 2 as shown in the figure below.

- **Stage 3**: Identify new possibilities and implementing change to address the challenges andimprove your NRM context (i.e., How can we imagine new possibilities? What learning processes and tools can we use to improve our context?)

  NB: This is the core of module 3, in which you are required to design a social learning process (assignment 3) to support change-oriented learning in response to challenges and issues you have identified in your context.

- **Stage 4**: Reflecting, reviewing & consolidation (i.e., What have we learnt and what do we do next?)

  NB: We will focus on this in module 4.

References:

Engeström, Y. (2001). Expansive learning at work: Towards an activity theoretical re-conceptualisation. *Journal of Education and Work*, 14(1), 133–156.

Wals, A. 2007. (Ed). *Social Learning towards a Sustainable World*. Wageningen, WageningenAcademic Publishers.

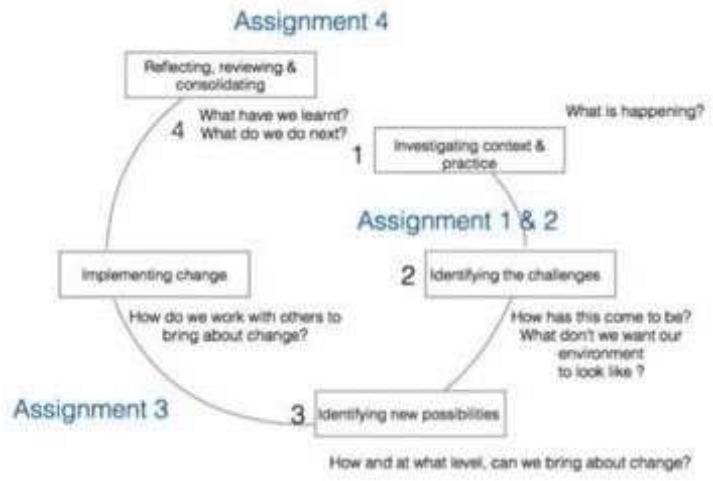


Figure 3.2: An illustration of a transformative social learning process based on Wals (2007) and Engeström (2001).

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Topic 3.4: Case study examples of learning processes and interviews

Introduction

This topic provides a collection of five different learning process case studies that showcase different ways in which learning processes have been designed and implemented. The purpose of this topic is to provide practical examples of how the theory and methods you have been learning about in Topics 3,1, 3,2 and 3,3 have been and can be employed in practice. Most of these case studies were of long-term learning processes that required careful planning and implementation of many smaller learning activities over several months. This does not mean that you will be required to develop and implement a long-term learning process or program. Some of you will be designing longer-term learning processes that extend well beyond this course and be in line with the work that you do while others will be designing once-off learning activities. Rather, these case studies provide examples of how other people have planned and run learning processes in natural resource management contexts.

The five case studies have been uploaded to the ToT Youtube channel, the links of each are provided under each case study description below. Review the case studies and complete the activity at the end of the handout.

Case Study 1:

A learning intervention to improve the functioning of a Catchment Management Forum, a multi-stakeholder participatory water governance platform. This Case Study tells the story of how a learning intervention was facilitated with and for the Makana Water Forum in Makhanda, Eastern Cape, where together, learning facilitators and the management committee of the Forum explored ways in which to overcome challenges
constraining the ability of the Forum to support participatory water governance. The learning process relates strongly with the *learning as transformation* learning metaphor with its use of expansive learning theory to promote change in the Makana Water Forum activity system.

Link to Case Study 1 Video:

Case Study 2:

Taryn will share some reflections on the Changing Practice course run by the ELRC and EMG with community-based activists in the Olifants River catchment in 2017/18. In this project, our role as facilitators was to support participants to describe environmental concerns in their context. Participants then identify their own 'change project'; from these locally developed cases, we work together to develop strategic partnerships to bring about change. The change projects become the focus for the development of the participants' knowledge about their specific context, as well as about broader cause and effect relationships that affect their context, and the development of strong networks and the confidence to take action to bring about change. In such a learning process, the facilitators have to be open to learning with and from the participants who are experts on their local context; and to being open and flexible enough to adapting the course to respond to challenging issues that emerge from the group, such as issues of power dynamics related to gender and race; as well as issues of trauma that many activists carry as a result of their work.

Link to Case Study 2 Video:

Case Study 3:

Social learning to support adaptation to climate change. This case study presents practical insights on social learning from a participatory social learning process that evolved to support individual and community level adaptation to the myriad of stressors affecting rural people. It is based on engagements in two communities in the rural Eastern Cape region of South Africa.

The social learning process was developed as part of a broader scientific research project on vulnerability and adaptation to climate change and other stressors, with a focus on knowledge building, led by a team of researchers and facilitators from Rhodes University (see Cundill et al (2014), full details below, for more information on this project).

The most critical factor emerging through the experience of this social learning process is how facilitators see their roles and their relationships with participants. It is essential to strive for a balance between responsiveness and guidance, achieved through an approach that is open, based on a principle of seeking equality, and one that is fully prepared to follow a path different from the one that may have originally been envisaged. This

adaptive approach embraces the concept of co-learning and was one of the objectives of the social learning processes embarked on in this project.

In this case study, presented via video, Georgina Cundill discusses her experiences of working in this social learning process, followed by a brief interview facilitated by Jessica Cockburn to explore linkages to the social learning approaches which are the focus of the Training of Trainers short course.

Reference:

Cundill, G., Shackleton, S., Sisitka, L., Ntshudu, M., Lotz-Sisitka, H., Kulundu, I., Hamer, N. (2014) Social learning for adaptation: a descriptive handbook for practitioners and action researchers. IDRC/Rhodes University/Ruliv. Available online: https://idl-bnc-idrc.dspacedirect.org/handle/10625/52509

Link to Case Study 3 Video:

Case Study 4:

This is a commentary/podcast-format case study in which three researchers Ms Kim Weaver, Ms Mandilive Matiwane and Dr Luke Metelerkamp reflect on learning processes associated with the Amanzi for Food Project. This Project sought to enable co-learning around different rainwater harvesting and conservation techniques to promote food production. Stakeholders involved in the co-learning processes included farmers, extension services, agricultural education and training institutions and agricultural NGOs and CBOs. This case study touches on some of the learning processes including an agricultural focussed Training of Trainers course, a stakeholder learning network and a particular focus on agricultural demonstration plots. The demonstration plots were designed and used as tools to catalyse learning around rainwater harvesting andconservation practices. This case study is under the final development by the authors and will be uploaded after the 8th of February.

Link to Case Study 4 Video

Case Study 5:

By Maletje Mponwana and Reuben Thifhulufhelwi - Reflections on transformative learning processes for capacity building towards improved transboundary water and biodiversity governance. Please note these are reflections from a large-scale catchment based programme called the RESILIM-O (Resilience in the Limpopo Basin-Olifants), which was a 5-year USAID funded project which was implemented by the Association for Water and Rural Development (AWARD). The main aim of this programme was to work towards building capacity to strengthen the resilience of communities and institutions under different climate change scenarios within the Olifants Catchment. In order to build the resilience, the programme was aimed at reducing the vulnerability of people and ecosystems in the Olifants Catchment specifically, by improving how transboundary natural resources are managed. By understanding the systemic causes of vulnerability, including climate vulnerability, it was promoting new ways of thinking and acting to promote integrated water and biodiversity management. (through the adoption of science-based strategies and systemic and social learning approaches).

The project was structured in two phases: phase 1 (2014-2015) and phase 2 (2015-2017/9). Phase 1 comprised of contextual understanding, synthesis, research, etc. It was intended to aid in understanding the multiple drivers of environmental (climate) change within the Olifants catchment. Some of the insights from the contextual profile were: Unchecked pollution, inappropriate land resource use, weak and poorly enforced policies and regulations and poor protection of habitats and biodiversity are degrading the Olifants at an alarming rate. What's more, the area is however under threat from factors such as mining for heavy metals, inappropriate land management, rural sprawl and unsustainable use of natural resources. This affects the level of goods and services provided by the ecosystem.

The diverse population groups living in the Olifants Catchment all have one thing in common; they rely on the river and the catchment's natural biodiversity for their livelihoods. This reliance can be direct or indirect. Rural communities rely on it for things such as traditional medicine, grazing and browse, fuel, food and housing materials. Some people in river-side communities harvest reeds, collect water from the river for washing and drinking and use it for recreational and spiritual practices. Subsistence farmers in Mozambique rely on the catchment's flood plains. There are also large mines and associated industries, large scale agriculture and the wildlife economy, which all rely on a healthy, functioning river system. Often people forget that what they do upstream affects people downstream, sometimes with dire consequences. Whilst phase 2 comprised innovation, testing, embedding and institutionalizing of new practices for systemic management and governance (taking the outputs from phase 1 into action through testing, reflection, and hence institutionalisation).

The project comprised of four themes (Systemic resilience approach, integration and coherency, support for Integrated Water Resource Management (IWRM), support for Biodiversity (BD) conservation in high priority areas, and support for capacity development through social learning). The different themes were designed to work together towards attaining the overarching RESILIM-O goal. AWARD's way of working in all its projects was attention to processes that foster a 'safe' learning space where people participate with each other to create new ideas or meanings. A number of tools and frameworks were applied as part of the testing and institutionalization of resilience-based practices. A systemic basin-wide approach to natural resources governance was key in the implementation of the project.

For more details see AWARD webpage: http://award.org.za/index.php/projects/usaid-resilm-o/

Link to Case Study 5 Video

Activity 3.7: Analyse the design of any two case studies and note how they might inform the design of your learning process (see Assignment 3)
Listen to each of the case studies. Select two case studies that resonate with you and using the template of questions provided below, analyse the design elements of the casestudy. Note the design elements that might be useful in informing the design of your learning process. Discuss your analysis within a study buddy and your tutor group.

1. What was the learning activity?
2. Who mediated it, for whom?
3. What was the purpose?
4. What was the context in which it took place?
5. What did the learners already know?
6. What did they need to learn?
7. What method(s) were followed/how was learning facilitated, and why?
8. What resources were used?

9. What did you learn about the useful methods and processes / the facilitation oflearning, from the case study that might be useful in the design of your learning process?

Topic 3.5: Working with information to contextualise a learning programme

What information do you need?

We live in the information age. Never before has so much of information been available at the click of one's fingertips (or the click of your mouse). Today we go through the average of 174 newspapers a day taking in all formats from video, social media apps and text. Compare this to a 100 years ago when one newspaper was likely the only information one had for an entire week. Therefore, how one contextualises and makes sense of all this information is vitally important.

More importantly how you tailor-make your information for the needs of your learners is at the heart of deciding what information to use and how to work with it. Together with your contextual profile which you have created in Module 1 and refined further in Module 2 you will now have a clearer indication of whom your learning process is targeted towards.

Activity 3.8: Visualising my learners
Knowing who your learners are provides you with the necessary steps to tailor make the information available to them. For example, you will not be giving a journal article to high school learners or a children's magazine activity to adult learners. So, for this activity we want you to visualise who your leaners are. It will help to know the basics like where they are form, what they studied, etc. but here also try to understand their motivations for being on your learning program. You can do this alone or as a group activity. Build a picture/story of the life of your learner. Think about these questions and morewhich you come up with to paint a picture of your learner.

- Where does she live?
- Describe her family situation.
- What background does she come from?
- Describe the environment she lives in
- What are some of the difficult issues she faces in her life?
- What does she value in life?

Next try and bring your learner's experiences in line with your learning program

- What are their needs, interests and challenges within their context?
- What do they already know about this topic? (influenced by experience, education, media, etc)
- What new knowledge do they seem to need?

A story will emerge out of these questions. Try to create a story that is as realistic as possible.

Responsiveness

"The idea of response invokes the idea of conservation, dialogue, debate and emotional reaction; [it invokes] the sense of a large web of interconnections not only among individuals but among cultures, among natural phenomena, among bio-regions; and between individuals and cultures, between technologies and the life forms they make possible; between language and culture, between culture and schooling. It is this entire complex of interconnected issues that responsive teaching should be alive to…" (Elblaz, 193:190)

While you were working on your contextual profile, investigating the issue from different social, economic, biophysical perspectives and interviewing the various stakeholders that are involved in the issue, you would have come to the realisation that these are complex issues which are particular and diverse with no easy solution. Learning as well takes place in diverse contexts and the implications would seem that we need to deliberate curricula which respond to environmental issues and risks as they arise in diverse contexts, and create learning processes which respond to particular learning situations in different settings.

While curricula of this nature would be responsive to the needs of participants and to the complexity of the socio ecological context, curricula are likely also to be influenced by the context and constraints of the course developers for example a course might be run through formal institutions as part of a formal qualification (such as this Training of Trainers course you bare on). In such a case the course would need to adopt assessment strategies which reflect the procedures of the institution. A range of factors may influence the work of the course developers for example situational or geographical location n or constraints available materials, funding, resources and experience.

In addition, the situations in which adult learners respond are often complex. In describing adult learning processes in the Karimoja Development Programme in theNorth East of Uganda, Munthali (1997) indicates the importance and the complexityof responding to participants in context. He describes the situation in which he developed training programs for the Karimojong communities as follows:

"The socio-economic and political scenario of Karimojong society is very complex. Socially they are highly traditional and independent. Economically they depend mainly on cattle meal, milk and blood. Over the years they have adapted the foodculture of their neighbours. Politically, the Karimojong have maintained their distance from Ugandan government control. Historically their experience of contactwith government has been that of punishment, imprisonment, abandonment,betrayal and military encounter… The main goal of the program was to improve thelives of the Karimojong people... the community development department was assigned the task of mobilising and educating the Karimojong communities… on practical implementation of the development projects… the Karimojong, in particular, exhibit a very patriarchal and dictatorial rule over family, otherwarriors and neighbours. A Karimojong man will not tolerate democratic processessin decision making... [we needed to] gather experiences from the community to develop knowledge on how to work with people."

As one can see from the above example one needs to be very sensitive to the prevailing socio-economic and political aspects of the community, organisation, institutions we are working with. If we attempt for example to create a learning process that does not align with pour participants values then we are inevitably setting ourselves up for failure. At times one is able to assess what the needs and the context of the community one is working with. However, sensitivity and responsiveness are needed at every stage of our learning program and thus we need to be able to adapt and adjust our programs accordingly should the need arise.

These are the hallmarks of a reflexive practitioner and it is a skill that develops with practise as well as with empathy, commitment and the desire to understand the context we are working with. Don't be afraid to try out a new teaching method or learning activity, if your answersto most of the questions above, point you in its direction. It is no coincidence that certain subjects favour certain teaching methods.

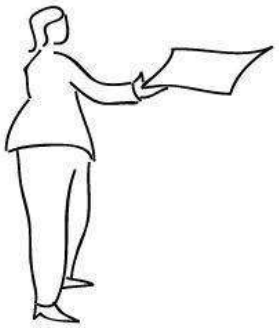
It relates to the purpose of the curriculum, and the potential of the method. For example, over the years, geography teachers have found fieldwork to be a useful method, while English teachers like to use dramas and debates, to get students to use the language and learn to think well. That is not to say that the Geography classcannot also have a debate about a geography topic (such as sustainable development) or that English teachers cannot use the writing of fieldwork reports asa language activity. But always consider the intended learning outcomes (curriculum purposes) when you select methods and activities.

Activity 3.9: Creating a responsive learning process

Looking back at your contextual profile and taking into consideration some of the scenarios and concerns addressed above, how would you go about ensuring that you are creating an inclusive and responsive learning process that suits the context you are working with? Use the questions below to guide your thinking:

- How does your learning process respond to the complex social, environmental and economic issues present within your chosen issue as outlined in your contextual profile?
- How are you working with cultural or social values and beliefs within your chosen context in your learning process?
- How does your learning process address the socio-ecological issues at local level while not neglecting the global context?
- Does your learning process consider different cultural, religious and national beliefs?

Also consider: how do learners learn?



The short answer is: in different ways. For example, young children, busy integrating left and right brain hemispheres, learn to read and spell both through sight (left brain, lumping together) and through phonics (right brain, splitting into bits). So multi-sensory methods are recommended (e.g. let them sound out words and use flash cards). In numeracy, 'work it out' activities are vital to establish concepts. Everyone learns by making connections to what they already know (See Section 3.1) and benefits from experiences that help them to make sense and to remember. The upshot of all this is that we should use a variety of teaching methods. But use and combine these variety of methods appropriately.

Humans are viewed as goal-directed agents who actively seek information. They come to formal education with a range of prior knowledge, skills, beliefs, and concepts that significantly influence what they notice about the environment andhow they organize and interpret it. This, in turn, affects their abilities to remember, reason, solve problems, and acquire new knowledge.

When choosing information and activities for your learning process always ask yourself:

1. What do my learners need to learn?
2. Is this activity the best way for these learners to learn this?
3. Does the activity give them access to new knowledge and/or relevant skills?
4. How does this activity connect with what we have done before?
5. Does it prepare learners for what we will do next?
6. What must we do afterwards, to check and consolidate learning?
7. How long will it take to do this activity well?

What is the aim of the learning process?

Having selected the learning process, you and your learners have decided on, implementing the investigation should involve the learners in planning the sort of investigation you have decided to undertake. Certain aspects are important for success in the learning process:

- Understand the relevance of the investigation and see its worth.
- Negotiate and to understand what will be expected of them, in terms of their responsibilities and roles, whether as part of a group or as individuals.
- Know what outcomes they are expected to achieve and what performance indicators they will be assessed on.
- Understand how to carry out the tasks assigned. For example, if data gathering in their fieldwork task will involve them in an unfamiliar procedure such as a water audit, an interview, or a slope analysis, this will have to be taught and practiced before embarking on the field activity.
- Equally important these materials and information should be presented andexplained to your learners prior to the activity so that learners are prepared for theactivity.

Examples of learning activities you can use in your learning program

Tuning in activities

Tuning in simply means being able to harness what your learners already know about the activity. It is in keeping with the learning theory of constructivism that students are not empty vessels but co-creators of knowledge. This simple activity is one way in which you can accomplish a tuning in activity session.

- On a piece of paper, write down all the keywords that you associate with the subject.
- In small groups, discuss the issue/subject and then report back to the rest of the workshop group on what your group understands around the subject.
- Share an experience around the issue/subject.

When you design and develop activities for your learners you need to consider the following:

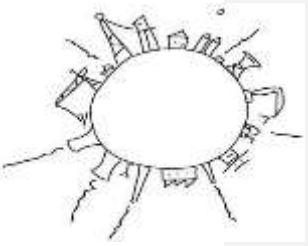
1. Do you have a clear idea of what exactly it is you want you learners to know, that is to understand?
   This means you have to know what concept/s you want your learnersto understand. You have then to think about the learning that you want them to achieve by thinking about the about, the why, the what, the how and the how to, that is part of that learning. In short what do you want your learners to know to beable to say with confidence…. "we know".

2. Then you have to ask yourself what will the best way be for them to achieve this learning? What strategy or approach will be the best way for them to learn?

   - Will I use one activity, or a combination of activities?
   - And most importantly- what must I do and what must they do.
   - Remember activities are not just things the learners do.
   - All our teaching is an 'activity' providing that what we do meets the following criteria:
     - There must be some input either from the teacher, or from the learners or from both the teacher and the learners. For example, the learners compete a questionnaire to assess their prior knowledge of the 'environment'.
     - There must be a response to the initial input either from the learners.
     - There must be an output. Something must be produced, e.g., ask the learners to write down what they understand by the environment based on the discussion.
     - There is feedback. Ensure that the learners have a sense of how well they have done, e.g: discusses their written answers.

3. The third step in developing activities is to consider the logistics:
   - When will I do the activity?
   - Have I set aside enough time?
   - Have I got the right equipment and materials?

- How do I get what I need?
- Do I need to make special arrangement with my colleagues?
- Are the learners prepared for this kind of activity? What do they need to know and to be able to do so that the activity is successful?



By now it must be evident that in order to plan your teaching in a learner-centred manner, the more complex the activity or set of activities the more time you need to spend on making sure that things go well.

Case Study: Adaptive Management and Climate Change

Adaptive management has become an increasingly desirable approach for naturalresource management in general, due to the growing awareness of two critical challenges:

• The reality of ecological complexity and social complexity, and thus of thecomplexity in social-ecological systems; and

• The presence of multiple stakeholders with differing perceptions, values and expectations related to conservation.

To the above two critical issues we can now add the climate change dimension, whichserves as both an enhancer of complexity and in many instances a risk multiplier for existing stressors.

Given the wide range of different stakeholders who live in and around protected areas and TFCAs (Trans Frontier Conservation Areas), as well as those from further afield who nonetheless are key stakeholders (such as researchers and scientists, concerned citizens, and policy makers), it is not surprising to find widely differing views on and expectations for biodiversity management in a park.

These are often based on different world views as well as varying familiarity with and differential valuing of different forms of knowledge. These differing views and expectationsmay also be related to different time horizons and spatial scales.

Case Study continued:

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Such a process would be a move away from targeting an optimal solution for 'the (single) problem', but rather keeping the process of negotiation and developing mutual understanding going. Thishas obvious relevance for integrating climate change adaptation into biodiversity conservation through the vehicle of adaptive management, given the need to bring together indigenous, local and scientific knowledge to develop locally appropriate and scientifically sound adaptation solutions.

An important task of the adaptive management framework in the context of climate changeand conservation management will be to manage and reconcile short-term and long-term goals for vulnerability reduction. This further underlines the need to

bear in mind the systems thinking approach which emphasises viewing the TFCA and its surroundings as comprising a social-ecological system, in which the social cannot be separated from the ecological and vice versa. The social-ecological systems concept recognises the complexityand non-linearity in the real-world systems in which we live and work, with their characteristic uncertainty. Adaptive management fully acknowledges the high levels of uncertainty, and indeed of indeterminacy that are inherent in complex systems.

Reflection Task: *How does your learning process navigate these critical issues in NaturalResource Management, Climate Change and the challenges as outlined in your contextual profile? How do you deal with conflict between the different stakeholders you have to engage with in your learning process? How does this enable you to effect positive change to the issue and in your context? What information/materials/activities can you introduce to the different stakeholders that willl enable this?*

Questions to consider: Defining what information your learners will need

It is useful to consider the following questions when deciding what information and materials might be appropriate in different contexts. These questions will also help you identify what learning theory will be best to use. (See Section 3.1)

The nature of the environmental issue, or topic, and knowledge related to the issue

- How complex is the issue/topic?
- How much consensus is there about (knowledge related to) the issue/topic?
- Is there sufficient knowledge about the issue/topic? Where or from whomcan one get information about the issue/topic?
- What are the different types of knowledge available regarding the issue/topic (scientific, cultural, common sense, traditional, speculative)? Which are seen as more valid or true and why?
- Can the causes of the issue be easily identified? Is the issue an effect of alarger issue or underlying cause?
- Do different role-players have different interests in relation to the issue/topic? How does this shape the way they understand the issue or wantothers to understand it? Which role-players have more power and resourcesto shape how the issue/topic is understood?
- What is the scale of the issue/topic (local, national, global)?

The role of the learners

- Do the learners have any existing knowledge or experiences related to theissue/topic?
- How is the issue/topic related to the learners' lives or work context?
- Do the learners have any influence over structures, activities or behavioursrelated to the issue/topic?
- What are the learners expected to know or do regarding the issue/topic?
- What is the learners' role in the education method/activity?

- Are the learner's children or adults, community members or the general public?
- Where is the learning taking place – in schools, at environmental educationcentres, community projects, business and industry, government departments?

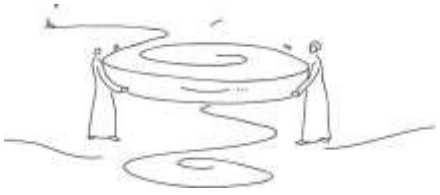
The role of the educators

- What is the role of the educator in the education methods or activities?
- What knowledge does the educatorhave regarding the issue/topic?
- Is the educator aware of his/her ownassumptions, values and beliefs that shape the way he/she understands the issue/topic?
- What role does the educator plan for knowledge/information, values, critical thinking/reflection and action taking in the methods or activities forthis issue/topic?
- How does the educator plan to respond to the needs/context of the learnersduring the education activity?

The role of education materials

- Will the learners be provided with knowledge /information or supported tofind it out themselves?
- Should the materials provide lots of information/knowledge/content about the issue/topic?
- How can the materials stimulate criticalthinking and analytical skills?
- How will the materials be used, or what istheir role, during the learning activities?
- What materials are needed to enable action for change?

An educator who considers these questions and then reflects on the educational orientations is likely to have much deeper insights and understandings of why theychoose to use different approaches and materials in different situations.



Activity 3.10: Working from contextual profiles.

Let's look at an example from a contextual profile of one of our course participants. She chose to use littering as her NRM issue. Here is a brief excerpt:

At a school there are different people that interact with the environment like wehave teachers, learners, and institutional workers. Most learners buy packed food products and fruits from the school tuck-shop and from vendors all over. The packaging waste materials are left anywhere on the ground, resulting in littering the school environment, which affects the health and living of people around the school. Since littering became a Natural resource management issue in schools, teachers have decided to teach learners to sweep classes, and pick up papers around the school after break. Our school has environmental club that is responsible for managing natural resources around the school and educating otherpeers about the importance of natural resources.

As we can see from the above excerpt she clearly identifies the issue and her intended learners, in this case they are learners from her school. The next step nowwill be to craft the information materials. One can use the questions provided in theabove to help one be able to prepare the most relevant materials.

If you were to create learning materials for the environmental club what would you take into consideration and how would you craft the materials. You can do a quick exercisehere to map out what materials you think will be best for her context or you canuse your own contextual profile.

The following contextual considerations will shape decisions (you couldspecifically address these in developing Assignment 3):

- The organisational mandate - what should the educational endeavor achieve from the organisation's point of view?
- Policy or legal frameworks may be shaping this a little or a lot
- The NRM issue which is the current focus (note that educational processes do not always start with an issue - it could be an opportunity such as a rich source of biodiversity or natural heritage site)
- The specific educational purpose derived from the issue, opportunity, policy or mandate
- The intended participants - who will participate in the learning, why arethey the participants, what do they already know, and what would theirintentions or interests be?
- The educational or training needs of learners, e.g. are they workers orcommunity members who need to tackle a particular NRM issue?
- Characteristics of the learners, such as their educational background andlanguage preferences
- Available resources such as venues, props, materials, digital tools, media and connectivity.

Outside formal educational institutions, facilitators of learning need not follow the structure of an academic discipline to help build understanding. The logic that should

guide the educator's planning is here an educational logic, rather than a disciplinary logic. For example, to address a water-related NRM issue, oneneed not start with a description of the water cycle, or the chemical composition ofwater (2 Hydrogens + 1 Oxygen). One might hold the attention and intention of thelearners better if one starts with their concern - why are they interested in a waterissue? Design a coherent educational process from there that considers thelogic of what the educational process should aim to achieve, the logic of how best people learn towards this intended learning outcome, and the logic of the processesthat best support such learning.

Planning learning processes can be done at different levels. For example, in an organisation like the South African National Biodiversity Institute (SANBI), learning processes could be planned at the level of the organisation, based on its mandate and corporate strategy; at the level of a local site, e.g. at one of SANBI's education centres, and at the level of individual groups or communities visiting the centre.

Many environmental educators design learning processes in a participatory manner,that is, where possible and appropriate, the intended learners themselves help to decide on the content and methods used in the process. And in expansive tended social learning processes, much of this unfolds over time.

The following is a set of questions one can ask when planning a learning process (such as a workshop, a lecture, or project) to support social learning in an informal NRM context.

- What is my organisational purpose (role, mandate, strategy)?
- What is the NRM concern or opportunity to address?
- Which aspects of this NRM concern or opportunity are relevant, and how?
- Which learner groups should therefore participate in the process?
- In that case, what is the educational purpose?
- What are the characteristics and needs of these learners?
- Which methods would be suitable for addressing this purpose, with thisgroup?
- What resources are available and not available?
- What are realistic time frames?
- What activities could be offered to the learners?
- What would be a logical or coherent sequence for these activities?
- What educational materials and other tools would be needed?
- How could one evaluate the process, perhaps involving the learners themselves in the process? (In Module 4, we focus on the implementationand evaluation of learning processes.)

Ways of structuring a learning process could be:

- Using a chronological order, perhaps starting with the here and now, then going into the history of how things came to be like this, then looking to thefuture learners want
- Expanding the scope or scale of an activity, perhaps starting small with afew ideas or a small-scale investigation, and then expanding the breadthand range of an activity;
- Expanding the cognitive complexity of an activity, perhaps starting withdescription, followed by analysis and problem-solving;
- Expanding the context of an activity, perhaps starting with the known (findout what learners already know) and extending the activity to include unfamiliar, related information, cases or examples.

Conclusion

These concerns also help shape what information you choose to use and how you will Contextualise it for the benefit of your learners. By no means is this a complete listof questions but it is however a useful tool to use in order for you to get a good senseof what information, materials, media you would want to use. Always keep in mindwhen designing materials and curating information for your learners that simpler isoften better and ease of understanding will help you to achieve your learning goalsfaster. You can find useful material in your course notes and links to valuable websites within this course as well.

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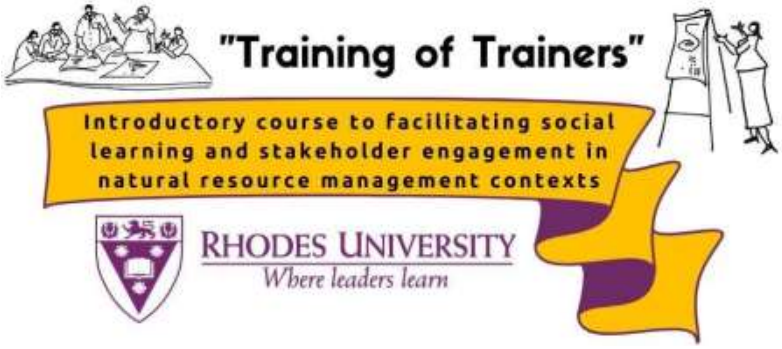

Module 4: Implementing and Evaluating Stakeholder Engagement and Social Learning Processes

Topic 4.1: Reflective Practice as Learning

Introduction

Here we will look at what we have covered in the previous Modules as a quick recap. We are also reflecting back on the different Modules and how they have enabled us to develop our practice. Holding the course together is our online learning website. The website is a complete portal holding all the materials, videos, handouts, quizzes and also serves as place to engage with the materials and assignments.

Figure 4.1: The course website

Module 1 to 3 recap

Recap of Module 1: Contextual Profiling

"Learning takes place when we gain new knowledge, new understandings, new insights, and/or new skills. Learning also takes place when we unlearn certain things that used to be true, or helpful, or that we thought were true or helpful, but were actually not. We learn from our own experience, from books, or research, or nature, from the older generations and from each other."

Module 1 helped us to understand our context from social, economic, biophysical, and political perspectives. We needed to look at the issue through these different lenses in order to fully appreciate the scope of the issue as well as begin to see where the solutions might arise.

In **Module 1** we also looked at how we learn and the different theories that led to these ways of learning and teaching.

The Power of Context

Context is the surrounding environment or situation which influences the NRM or learning process we are focused on, it is ever-changing.

- Understanding the context can help us to better understand what is happening in NRM or learning activities, and why things happen the way they do.
- Context = a CONTAINER or SITUATION (useful metaphors).

Other ways of talking about context: “a particular bounded place and space” “surrounding environment”, “situation”, “focal system” or “system of interest”.

Activity 4.1: How do you learn?

1. Thinking back at this section of the course can you now identify the way thatyou learn? How?
2. Was there a range of difference in how your participants learnt during your learning process?
3. How did you reflectively respond to these matters of learning during and after implementation of your learning process?

The Assignments

The assignments were built on a tiered system which aims to develop deeper understanding into your contextual issue and creating and evaluating a learning process. These were sequential and built upon the previous assignments to provide depth and more engagementwith stakeholders.

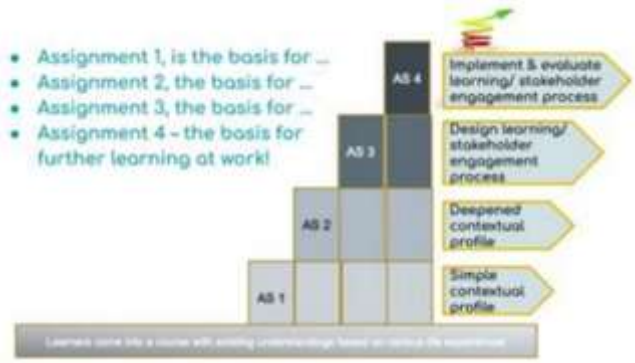

Figure 4.2: how the assignment for each module builds upon one another

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Recap Module 2: Stakeholder Engagement

This module provided a baseline understanding of the "four Ps" of stakeholder engagement, namely the PURPOSE, PROCESSES, PRINCIPLES and PRACTICALITIES of stakeholder engagement in the context of learning processes for Natural Resources Management.

PURPOSE: Why are we exploring stakeholder engagement on this course? Sometimes we (course participants) work with (other) scientists, managers, developers or government officials in a process that engages stakeholders and we need to support them in that; and sometimes stakeholder engagement is the precursor for a deeper learning process that we will be facilitating. For both these reasons, we need to know the basics of stakeholder engagement.

PROCESSES: How we do stakeholder engagement. What are some of the different processes,methods and tools that can be used for stakeholder engagement in natural resource management contexts?

PRINCIPLES: Regardless of the methods or processes we use, there are some key principles of stakeholder engagement (that, therefore, apply to all of the above). In this topic, we discussed the principles of respect, reciprocity, truthfulness and transparency and reflexivity where they are evident, what challenges relate to them and how we can overcome them.

PRACTICALITIES: What are the practical considerations that we should take note of when designing and implementing a stakeholder engagement process? In this topic we discussed considerations such as the role of the facilitator, knowing your participants, responding to group dynamics, the set-up of the room, building trust, enabling full participation, designing suitable activities, managing energy levels, and closing the process.

Figure 4.3: Four purposes of stakeholder engagement in natural resource management

Activity 4.2: Reflecting on the purposes of stakeholder engagement from your own experiences.

Think about your own experiences in stakeholder engagement where you were facilitating (as part of your assignment).

Look at the diagram of the four purposes of stakeholder engagement above: which of these four purposes aligned with your event. Is it very clearly one of the purposes, or a combination of more than one? Looking back reflexively on what you have learnt, would you change your designed process? If so how?

Recap Module 3: Introduction to Social learning

The purpose of Module 3 was to provide you with an introduction to learning theory, methods and processes to enable you to design activities for learning and implementation of programmes in a Natural Resource Management context.

This Module comprised of four topics and aimed to build on what you learnt in Module 1 (and some of Module 2) on social learning by providing more depth into social learning and other types of learning theory, their importance and how these theories are applied in different contexts.

We also learnt to think about five different metaphors (rich descriptors) for learning:

- Learning as acquisition (see Sfard, 1998)
- Learning as participation (see Sfard, 1998)
- Learning as connection (see Lave and Wenger)
- Learning as co-creation (see Paavola and Hakkarainen, 2005)
- Learning as transformation (see Lotz-Sisitka et al., 2020)

We looked at how social learning doesn't always fall into neat processes or boxes, but how some activities might be helpful when trying to design or monitor social learning. It is always good to explore these different metaphors and the methods associated to them in order to develop a robust and responsive learning process.

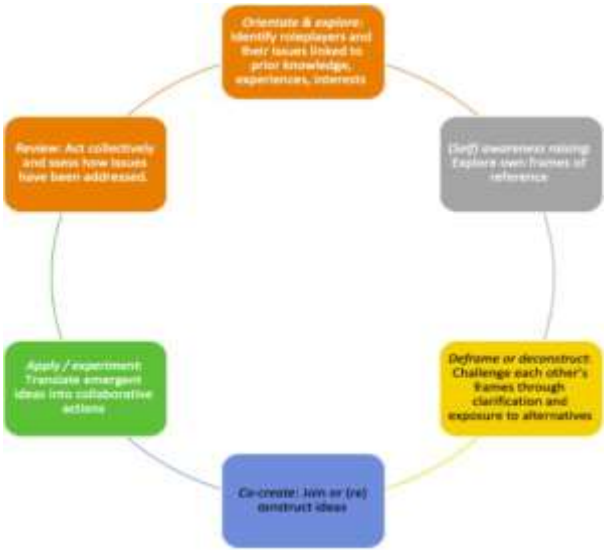
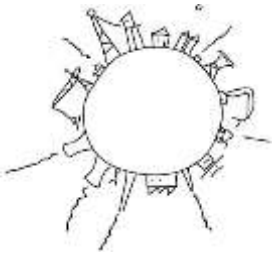


Figure 4.4: Elements of the social learning process

We also did an overview of practical methods to support the facilitation of a social learning process. In Topic 3.1, we covered a broad overview of learning theories, and in 3.2, the focus was on the social learning methods and processes best suited for facilitating transformative or change-oriented learning in the natural resource management (NRM) context.

Social learning processes are often emergent and can seldom be pre-determined, which makes it difficult to plan them completely beforehand. Furthermore, NRM and broader environmental issues are also becoming more complex as we move into a future of uncertainty and dealing with such complexity requires a combination of different methods and processes.



Box 4.1: Facilitating social learning requires:

- That social learning is multi-faceted and multi-directional
- That social learning takes place all the time, in all activities
- That much social learning is subconscious (people are often not aware of learning orsharing knowledge)
- That social learning is inherently a participatory and reflexive process
- That social learning can lead in directions not envisaged
- The on-going seeking of equality between participants in a social learning process
- That social learning should lead to strengthened individual and collective agency
- That social learning is also a process of co-learning, and being willing to move out of one's own comfort

Being:

- Both responsive and guiding
- Willing to learn and change, and be open and receptive to critique and negotiation
- Honest about own views, understandings, strengths, and limitations
- Accepting of others' views, understandings, strengths, and limitations
- Realistic in expectations
- Imaginative in a way that opens up alternatives for the future

Providing:

- Learning, technical, and emotional support
- A coherent framework and supportive context for learning
- Own skills, knowledge, and experience
- Opportunities for individual and collective growth

  A space in which participants feel comfortable expressing their thoughts and where there are no rights and wrongs

In Topic 3.3 you learnt more about designing learning activities that are more responsive tocontext. To do this a number of questions are necessary to consider: What information do you need to design activities? Who are the people involved in the learning? What are their needs, interests and challenges? What do these people already know about this topic? (Influenced by experience, education, media, etc); what new knowledge do participants seem to need?

Topic 3.4 provided you with a collection of five different learning process case studies that showcased different ways in which learning processes have been designed and implemented.The purpose of the topic was to provide practical examples of how the theory and methodsyou have been learning about in Topics 3,1, 3,2 and 3,3 have been and can be employed in practice.

ACTIVITY 4.3: Reflecting on the case studies

- Which case study did you find the most interesting? Why?
- Which case study closely resembles your learning process? Why? In what ways does it differ?
- One of the ways of sharing your work beyond this course is to write up your learning process as a case study. You should try to make interesting and informative that anyone can read. Try to think of it as article for a newspaper or a blog online.
- Looking back at the activity below. Reflect on how it was useful to compare twocase studies.

Most of these case studies were of long-term learning processes that required careful planning and implementation of many smaller learning activities over several months. The case studies provided examples of how other people have planned and run learning processes in natural resource management contexts.

Conclusion

This course was designed with the goal of helping you to become a better NRM facilitator and trainer, who is reflexive and responsive to your community and organisational needs. We covered a range of topics from educational contextual profiling, stakeholder engagement, working with information, research methods, social learning, and reflexive praxis, to types of learning theories and methods and processes that support social learning. It is by no means an exhaustive collection of resources and we hope that this has sparked your interest to dive deeper into these theories and topics should you so choose. The additional readings are always a great place to start.

ACTIVITY 4.4: Reflections of a reflexive practitioner

Looking back now at your journey being on this course, please reflect on the following questions below. You can write the answers down in your learning journalor discuss it with a friend or peer.

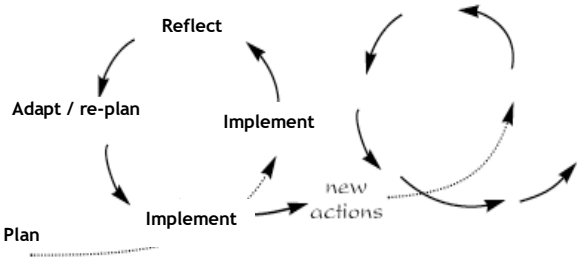
- In what ways do you find you have become a more reflective practitioner?
- What are the key things that you have learnt from this course that allows youto become a more reflexive in your work?
- How do you ensure that you are responsive to the needs of your participantsin your learning process?

Topic 4.2: Practicalities of implementation

Introduction

The actual practice of education is how to **facilitate good learning** using appropriate methods of teaching and learning – according to context and the needs of the learners.
Now you will integrate (combine) your knowledge and experience to **implement** a successful learning process in your workplace / community.
In order for you to do this, this section aims to develop your skills and competencies in **managing and facilitating learning**. In previous sections you have looked at teaching and social learning theory and methods. This Module aims to assist you in ensuring the effective mediation of your learning process by looking at the more general skill of managing and facilitating the learning situation in a well-structured way (also refer back to **Topic 2.4** – Practicalities of Stakeholder Engagement).

In this theme we are primarily concerned with the implementation and evaluation of an environmental learning programme: how to facilitate good learning through the use of appropriate approaches to teaching and learning according to context and the needs of the learners



Plan, implement and reflect

Figure 4.5: Planning, implementation, and reflection cycle of a learning process

Practical considerations when developing a learning process

We have carefully been through every step of creating your unique learning process from contextual profiling, to stakeholder engagement, to working with information to inform your design. Now that you have considered all these aspects of your learning process, we need to look at the practical considerations that one needs to take into account when implementing a learning process.

- **Consideration of learning styles:** Making sure to teach for a variety of learning stylesis important to the development and implementation of effective learning processes.
- **Audience:** Who will be part of this learning process? Do you have a mix of participants, such as students, municipal workers, and community members? How many participants will be in your learning process?
- **Delivery mode:** What is the best way to get your message across? Is web-based training more appropriate, or should mentoring be used? Where will the training be based? Can a training venue be used for a portion of the training and field excursionsrun for the practical aspects of your learning process? Some learning processes will include a variety of delivery methods.

- **Budget:** How much money do you have to spend on this learning process? Are there other sources of funding that could supplement your budget (from your work, NGOs,who else?)? Do not overshoot your budget!
- **Timelines:** What needs to be taught? How long will it take to develop the training materials? How will you sequence the information? Is there a deadline for training tobe completed? How long is your learning process? Have you created a schedule for the learning process?

Consideration of learning styles

You have been through Module 2 and 3 which talk in depth about different methods and processes guided by learning theory and consideration of the contextual profile of your NRM issue. You now have a powerful platform from which to truly uncover the best method and learning style for your learning process.

ACTIVITY 4.5: Your teaching style

Think back to the past Modules and answer these questions. You can answer them for yourself or you can discuss it with a peer:

- What learning theory really appealed to you or makes sense in your learningprocess?
- How does your current understanding of the issue lead you to choose whichteaching method will be best?
- How have you effectively catered to your participants learning needs andabilities with your choice of learning activities?
- Why are these the best activities you can use for this context?

Audience

Briefly, what do you know about your participants? Whether you are a manager running this session in-house or an independent facilitator running an open session, it is worth spending a few minutes thinking about your potential audience. In **Topic 3.3** you were given many leading questions to help you understand your participants/stakeholders and what they may require from your learning process. Revisit these questions to make sure that you understand your audience.

Another important consideration when looking at our participants is to know how many will be attending. The number of participants expected should influence the design of your learning process and the methods and tools you will use in order to make the biggest impact.

Number	Design implications
6 or fewer	Not really a 'workshop' or similar; the style would be even more informal than a workshop, with the facilitator probably sitting mostly with the group – best suited to group coaching if you're running it
7 to 16ish	This number is perfect for most workshops and allows one-to-one contact with everyone during the session to ensure they're 'getting it'; facilitator up front and with group during exercises
17 to 30ish (large workshop/ seminar)	Acceptable as a large workshop if there is more than one facilitator, lots of space and very well structured and not essential to have one-to-one contact with all in each session – for example, a longer programme or a knowledge- rather than skills-based subject; facilitator would need to be up front in order to reach the group clearly, but still working among the group during exercises
31 to 60ish (seminar)	Though many seminars have smaller groups, interactivity may be reduced at this size compared with a workshop. Seminar if individual contact time is not important in the session; facilitator up front mostly
60 upwards (large seminar/ lecture or conference)	Again, lectures can of course be given to smaller numbers, but at this size interactivity is usually even less than a seminar and very little individual attention given. Clever combinations of up-front explanations and interactive audience exercises can help this

Figure 4.6: The effect of group size and design implications

Delivery mode

Whether a boardroom with an immovable table, a lecture theatre or a converted warehouse, the venue (particularly if outside your control) can have ramifications on your design; therefore, it's one of the earliest things to get sorted out.

The ideal room: An ideal room would comprise the following:

- Natural lighting – almost essential for sessions longer than a couple of hours. Lots offloor space – ideally as much floor space again as there is occupied by seated areas (including tables).
- Ability to move tables around (some are fixed, too heavy or too large to offer positioning flexibility).
- Proximity to outdoors, public space (e.g., large hotel lobby) or breakout rooms. Youwill need access to the room at least an hour before the session (more if it's a particularly complex set-up).

Solutions to non-ideal rooms: If for whatever reason you get landed with a non-ideal room, here are some workarounds to the commonest issues.

No natural lighting:

- Use break-out rooms or other outside space if it's a long session.
- Incorporate 'walkabout' energizing exercises that get people out and into natural light for short bursts.
- Keep each section short (no more than 30–40 minutes) with plenty of out-of-room

energy or ‘natural’ breaks.

No or very little floor space or opportunities for movement:

- Get people to swap seats for various exercises.
- Get them out of the room on walkabouts.
- Move chairs around into small groups for certain exercises (dependent on space).

ACTIVITY 4.6: What materials/resources will you use?

1. Look at the list below of useful things to have in a learning process. Tick which ones you will use. Why are you using them?
2. Tick the ones that you would like to use but don’t have? Why do you need them? Can you acquire them? What creative ways can you use to substitute this resource?

- ▫ Projector screen/overhead projector screen
- ▫ Flipchart stand
- ▫ Posters
- ▫ Handouts
- ▫ Wallcharts/flowcharts
- ▫ Glasses/bottles on the tables
- ▫ Table decorations/toys
- ▫ Long brown paper wallcharts depicting information and/or timelines
- ▫ Color-coded areas or areas marked off on the floor to help people change into a different ‘frame of mind’
- ▫ Coloured shapes stuck under people’s chairs ready for review energizers
- ▫ Floor charts, games or maps leading people to different activities such as treasure hunts and floor noughts and crosses
- ▫ Areas of the room dedicated to different activities or skills, to help people get into the right frame of mind.

What other resources might be useful? Make a list of the resources you might need to implement your learning process.

Timeline

One common temptation when planning your first learning process is to cram too much intothem, therefore depriving your participants of the opportunity to dip out of work or life andreally get on board some useful concepts and/or skills.

Never underestimate the value of simply giving people the time away from their day-to-dayresponsibilities in order to take time out to consider their life or work; the space you create within the workshop and the opportunities you give your group to apply what you are sharingwith them may sometimes be the only chance they get in the near future to use the material.

It might be of more value and contribution if you offer a number of shorter sessions than ifyou offer only one or two. For example, or you could divide a one-day learning into four, evening, breakfast or lunchtime events that are not only

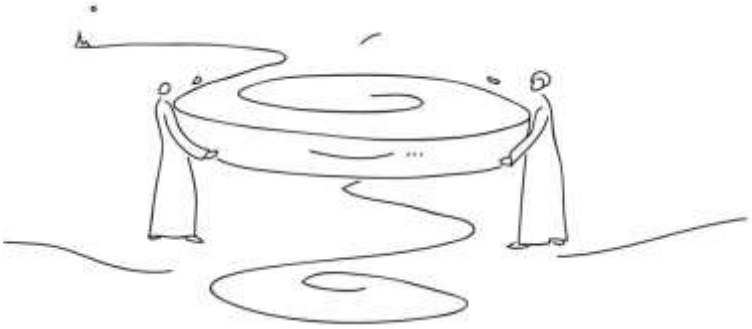
easier to slot into a busy week but also spread the learning over a longer time, giving each person more chances to try out the learning for themselves and build on it bit by bit.

Also do try to keep to the times as you have set them out in the program. Many facilitatorsdo not get particularly worried if they have to move the break by twenty minutes or so because they have overrun in a session. It happens, but I would issue a note of warning here. You will not necessarily know whether there is anyone in the room with underlying conditions e.g., someone who has diabetes, or some other condition which means going overthe breaks makes things difficult for them. Do not just dismiss this and assume that as theparticipants are adults, they can look after themselves. It is all part of being a good and caring facilitator to be considerate of all your participants needs. Try to have a short breakevery 90 minutes or so and a longer break for lunch if you are having a full day learning process.

Conclusion

These are very broadly some of the practicalities you might encounter on your learning process pilot. Good preparation and planning will always ensure that the day goes smoothly.Since you have spent the previous Modules finely crafting your learning process by contextually profiling, engaging with stakeholders and designing the learning materials, younow only have to implement and evaluate the process you have so carefully designed. In ournext and final section of this course we work with how to best evaluate your learning process

in order to improve its future design and delivery. Remember that this is your pilot so sometimes there will be a few mistakes. Do not count these as failures. Rather, they are part and parcel of the process that is putting you on the road to becoming a great facilitator andNRM trainer. Always note down what went wrong and how it can be improved. Also note what went well and congratulate yourself. Running a learning process that you have designed and implemented by yourself is a great accomplishment and it is part of your journey to becoming a reflexive practitioner.



Topic 4.3: Methods for Evaluating Stakeholder Engagement and Social Learning

Section A

Why and when to evaluate

Evaluation as an approach and a process should be integral to stakeholder facilitation and social learning: social learning in NRM contexts is an evaluative undertaking, as learners and facilitators together interrogate an NRM issue, and ask if and how it needs to change. They would also surely be interested to know whether any actions they take, are making things better or worse. This too, requires evaluation. So, a first point to consider, is that evaluation in some ways takes place *throughout* a stakeholder engagement or social learning process - when it is being designed, while it is happening, and when it is done. Evaluation should not only be reserved for the post-completion stage. This is evident when we look at the multiple roles that evaluation can play (Figure 4.3).

From time to time, there is a need to more formally gather information about stakeholder engagement and social learning processes and to interpret that information with others, so as to gain more distanced perspectives (zooming out). Funders and institutions may want a formal account of what has been achieved through budget allocations and activities, and facilitators themselves may want to use a formal evaluation report for communications purposes, fund raising purposes, and motivational purposes.

Figure 4.7: Multi-Purpose Evaluation

Formal evaluations can be undertaken by the facilitators and learners themselves, or external evaluators can assist. In both cases, there is an expectation and need to use an evaluation design that is recognised as legitimate. But even this formal method should be appropriate for the purpose of evaluating, specifically, *stakeholder engagement and social learning processes*. We therefore need to ask ourselves whether a particular evaluation method is in line with the principles of stakeholder engagement and social learning outlined in this course.

This module takes that intention into account and helps evaluators to choose or adapt a formally recognised method that can also be fit for purpose and for the practitioners' chosen principles.

Wenger-Trayner and Wenger-Trayner (2020) argue that learning to make a difference (forexample a difference to NRM) is a form of social learning, in which people engage with each other in collectives, develop a sense of what change they want to bring about, develop the understanding needed to make that difference, and pay attention to new information arising from their learning and change actions. The four connected modes of social learning are: creating value, translating thatvalue into something useful, evaluating the value, and framing the value. Their view of social learning is one of many theories about learning, education, and development, that includes an explicit focus on evaluation as integral to learning (of individuals and collectives, such as organisations). This makes the evaluation of learning a specialcase of evaluation: it has to evaluate an inherently evaluative activity,and in itself, the evaluation itself also has to be a source and a processof learning! (See Figure 4.4).

Figure 4.8: The special case of evaluating learning in ways that support more learning

What and how to evaluate

Evaluating learning in schools

What evaluation takes place in schools, and how is it done? We have all experienced tests and examinations. What learners know and understand (cognition) is evaluated using these cognitive tests of memory, recall, understanding and application. Learners' cognitive development and abilities can also be evaluated (assessed) through practical tasks like oral

presentations, written essays and projects that combined a range of skills. Teachers use diagnostic assessments like tests to see whether the learners have an adequate grasp of the work so that they can move on to the next topic, and summative assessments like examinations at the end of the year.

Schools should be interested in the holistic development of children, not just their cognition. It is for this reason that they would offer extra-mural activities like music, dancing, and drama as well as sports. Here more informal evaluations are done through observation, as the lead singer in the choir is chosen, or the captain of the netball team. Teachers use their professional judgement developed over many years to evaluate learners' other skills, besides cognition. For example, "Is this child skilled enough to play for the first team?" "Does he sing well enough to be in the choir?" They also evaluate personality factors and attitudes: "Is he confident enough to sing a solo?" "Does she have good inter-personal relations and leadership potential to captain the netball team?" and so on. Evaluation also comes into decisions about discipline and punishment. Does an outbreak of bullying behavior suggest an absence of values like compassion and kindness? Do the boys' negative comments about girls warrant a talk about values like gender equality? These are all forms of evaluation teachers make and which in the schools' contexts is focused on SKAV's - Skills, Knowledge, Attitudes and Values. But the best known and most frequently used, are knowledge and skills tests.

In our post-school NRM contexts, it is unlikely that the forms of evaluation used in school would be appropriate, but we are sometimes tempted to use them because they are what we know best! What should we then rather use in post-school contexts?

Evaluating learning in training contexts

Next, we look at training contexts outside of school. Recall from Module 1 that training is usually rather structured "How To ..." programmes for teaching youth and adults a specific skill, "how to" do something. Examples from the NRM context may be training people how to clear alien trees, how to maintain their equipment, how to replant a cleared area, how to take water quality samples, how to share data and how to analyse it. Another form of training might be how to be a mentor for newcomers.

So how would one evaluate such training programmes? A model for evaluating training that has stood the test of time was developed by Donald Kirkpatrick[1] as far back as 1959 and refined over time. Its basic form is shown in Figure 4.5.

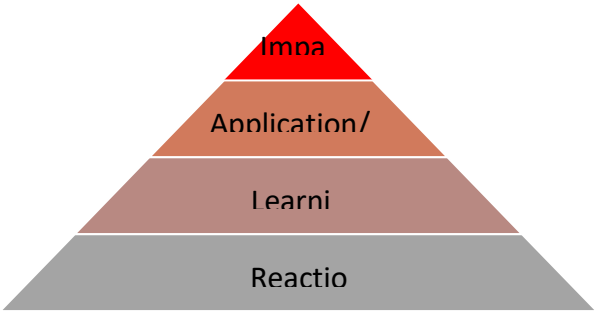


Figure 4.9: Kirkpatrick's 4-level model for evaluation training

[1] https://www.skillshub.com/the-kirkpatrick-evaluation-model-explained/ is one ofthe many websites which further explain the model and provide references.

Whereas in schools we encourage learning for its own sake, in training situations the employers, funders and managers are usually keen to whether the training is going to make a difference "on the job", not just for the trainees, but also for the organisation or the NRMsetting where they work or live. So, for example, the training of alien clearing teams couldbe evaluated as in Figure 4.6, which shows just some of the questions which could be asked at each level of the pyramid.

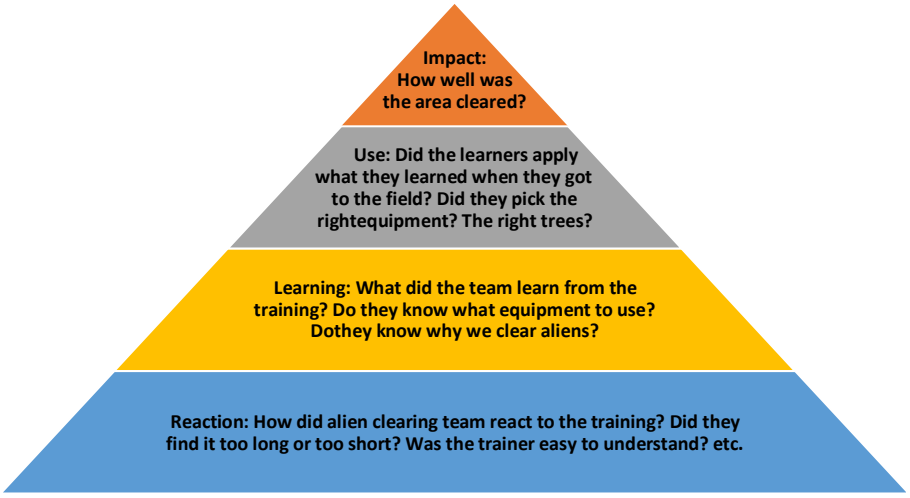


Figure 4.10: Questions that could be asked to evaluate training in alien clearing

The answers to such questions could be found by testing the trainees on their knowledge; interviewing them and their managers; observing their actions in the field; and observing the field after they finished.

How would you evaluate the training of mentors who are meant to start mentoring in NRM organisations, after their training? See Figure 4.7, which shows just some of the questions which could be asked at each level to understand whether mentor training was effective. Evaluators could answer these questions by setting tests or tasks for the trainee-mentors, interviewing them or giving them a questionnaire to complete, and observing them in action back at work. After a while one could interview their managers and mentees to see whether they have been applying what they have learnt, and how. Eventually, after many mentoring training sessions and other interventions to support mentors, one could do a general survey in the organisations, to see whether there has been an overall improvement in mentoring and whether this has had a positive impact on the organisation.

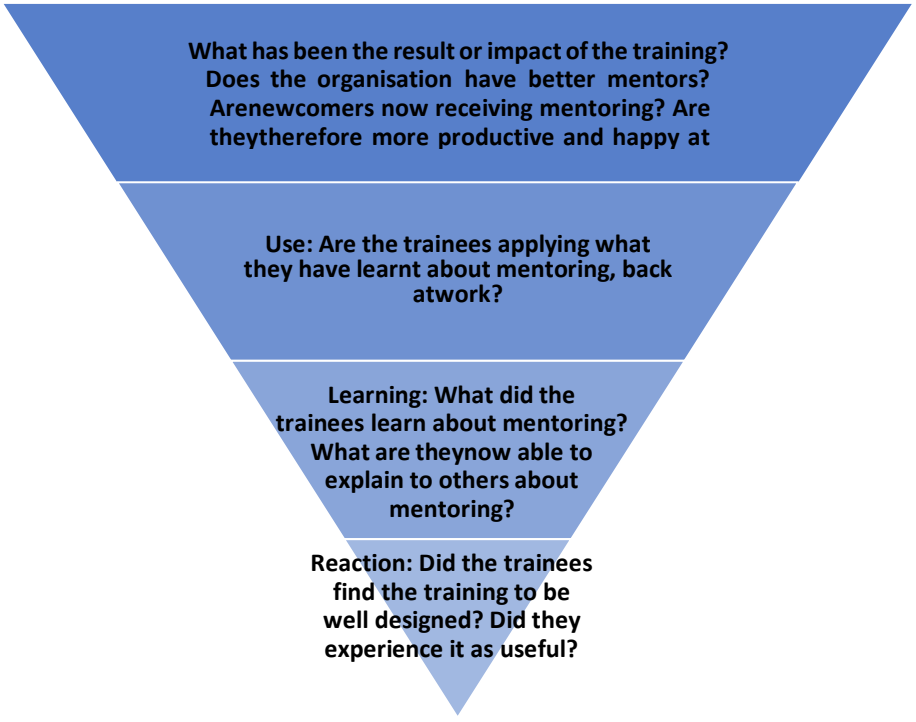


Figure 4.11: Questions that could be asked to evaluate training in mentoring

Let's say you are a learning facilitator in an NRM context and you are providing training in mentoring, or in water quality monitoring, or in co-management processes. It often takes along time before the overall impacts of such learning processes can be observed. Also, we know that it takes more than training to make a difference; there may also need to be biggerbudgets, equipment, agreements with authorities, etc. How would you track and evaluate the impact of the training, among other things, even in the shorter term?

One evaluation method you could consider, is the 'most significant change' methodology explained in Section B. It allows you to pick up important changes observed and experienced 'on the ground' and in the organisation, and it also provides a participatory process whereby many different stakeholders can make an input and perhaps come together to give direction about changes that are worth supporting and amplifying. Participatory methods in general can also be valuable, e.g., mentors, mentees and managers can work together to evaluate the impacts of the mentors' training.

Commented [A6]: I have changed renamed all mention of Section C to Section B, as there was no Section B, just A and C

The reflective practice is a special form of evaluationwhere the mentor would be asking themselves some key questions, e.g., not only whether they are doing things right as a mentor, but whether they are doing the right things - sometimes one has to 'unlearn' and develop completely different assumptions about something like mentoring, to become better at it. Evaluation helps such learning and professional development by providing incisive questions for the practitioners to askthemselves, most usefully in the company of

others who are willing to give them feedback.

(See Section B on Participatory Evaluation Methods and Reflective Practitioner Approachesto Evaluation).

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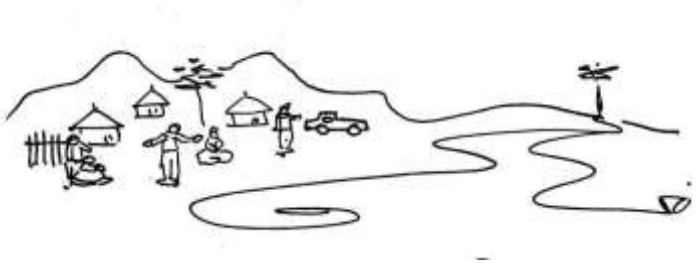
Evaluating social learning in NRM contexts



The third context in which we will explore an evaluation strategy in Section A, is an NRM context that is not formal education or formal training, but a more informal social learning context. Here the intended outcomes are harder to specify beforehand, but usually the people involved know, or come to know through the learning process, what kinds of changes they would like to see happening in this NRM context. They may want to have a more reliable water or energy supply; or better waste management; or to restore a wetland to its former glory and bring back the birds and safe swimming spots for the children. They may want stakeholders to start working together to deliver on all these wonderful water, energy, biodiversity, and social outcomes.

Often it can take a long time before these worthy goals are achieved. Evaluation must be able to track progress along the way, to keep up people's spirit and momentum and to point out where there is not improvement, so that a different plan of action[2] can be devised.

Wenger-Trayner and Wenger-Trayner[3] (2020) argue that learning to make a difference (for example a difference to NRM) is a form of social learning, in which people engage with each other in collectives, develop a sense of what change they want to bring about, develop the understanding needed to make that difference, and pay attention to new information arising from their learning and change actions. The four connected modes of social learning are: creating value, translating that value into something useful, evaluating the value, and framing the value.

This reminds one a little of Kirkpatrick's pyramid model: reacting to what is being experienced in the learning; learning, which holds the potential of value, and translating that learning into actual value, and then evaluating the value in terms of the impact. The

[2] The plan of action is often based on a so-called 'theory of change', and it can be helpful to produce a theory of change if you have a longer term programme in mind, or if you want to design an evaluationfor a big programme that has already been going for some time but has not been effectively evaluatedas yet. Section C has some pointers on how to design a theory of change.

[3] Wenger-Trayner, E. and Wenger-Trayner, B. 2020. Learning to make a difference: Value creation insocial learning spaces. Cambridge University Press.

Wenger-Trayner partnership produced a version of this for evaluation purposes, which theycall a 'value-creation framework' for evaluating the value created through learning and specifically, through social learning. The VCF model is described in detail in Section C andthere are some nice videos and other resources online. In summary, the evaluator would look for evidence that the social learning or stakeholder engagement process has resulted in.

Box 4.1: An introduction to what is evaluated in the Wenger-Trayner value-creation framework

- Immediate value: participants enjoyed the process, found it stimulating and report they would like to come again
- Potential value: participants gained information, knowledge, and made new contacts that they could use in future
- Applied value: participants report they have used their new knowledge or contacts, perhaps plan to clean up the local wetland
- Realised value: by using their new knowledge and contacts, a useful outcome was achieved, e.g., work on rehabilitating the wetland has started, resulting in cleaner water
- Reframing value: through the actions taken and outcomes, participants may gain an even better understanding of the NRM issue and how to address it, e.g., they may realise that more role-players need to be involved if the benefits they achieved are going to be sustained. While this may feel like 'going back to the drawing board' it is nonetheless something gained – the participants in the social learning process are now clearer on what needs to be done to achieve their goals.

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Other forms of value that can be recognised are strategic value and enabling value. Read more about them, and how to use them, in the next section, where references to further readings are also provided.

Section B

Evaluation Methods

1. Empiricist Approaches

This section introduces two very commonly used methods for evaluation in the social and

trans- disciplinary sciences, namely experiments and surveys. We discuss them as examples of empiricist approaches to evaluation. As outlined in the next section, these are approaches that *privilege measurement*, in the form of quantitative data that can be statistically manipulated, *to the exclusion* of all other forms of information. The two methods introduced here can be usefully combined with other approaches, but then the empiricist underpinnings - that only that which canbe measured, actually exists - would have to be discarded. (In a critique of the empiricism of logical-positivist approaches to research, Arjen Wals argues that "What you can't measure still exists" and can be extremely important for evaluating stakeholder engagement and social learning).

Experimental Methods

Evaluations based on experimental designs, are often referred to as the 'gold standard', becausefrom the empiricist (measurement-driven) approach, they are the ideal way to evaluate the effectiveness of educational and development programmes. Why is this the case, when this method has serious shortcomings?

In fields like physics, engineering, forestry and agriculture, it is possible to do experiments and draw strong conclusions from them. For example, farmers can experiment with farming methods:They can divide their maize field in two, and treat the one field with organic fertilizer, and theother with inorganic fertilizer and then measure, based on the tons of maizeproduced, which treatment (fertilizer)was the most effective for growing maize under the prevailing conditions. They cando so with some certainty if they are ableto control all the variables that foreseeably influence maize yield: the same seed, soil, amount of water,temperature, and other conditions, forthe two experimental plots.

Can evaluators of stakeholder engagement and social learning do the same? Can we evaluate which of our stakeholder engagement and social learning processes are more effective for producing knowledge, agency, participation, and other desired outcomes? This is the intention when evaluators design baseline tests or surveys, introduce a learning programme or activity, and then repeat the test or survey afterwards to see if there is a change (in what is known as a pre-test, post-test or quasi- experimental design; if there is not a comparable group that do not get the programme, which would be a true experimental design).

Unlike the farmer, the facilitator does not have a relatively[4] closed system with relatively few variables that are reasonably easy to manipulate. Unlike maize plants from the same seed, human beings as stakeholders and learners vary tremendously, because they bring a variety of personal traits and social circumstances, educational and cultural backgrounds and life histories,into the situation. So some participants in a stakeholder engagement and social learning processmay respond very positively to the activities on offer (the 'treatment') and others may respondvery negatively to the same activities; think of Republicans and Democrats attending the same programme on climate change, for example.

[4]As parts of modified ecosystems, a field of maize is of course not an entirely closed system, it is open to the weather, atmosphere, passing pathogens, insects, and possibly covert maize harvesters, among other unpredictable variables.

For both of these groups there could be significantchanges, but when we add it all up to measure the effectiveness of the programme as a whole,the positive and negative change cancel each other out and they might have to report, “no change” on average, which would obviously not be that helpful if we would like to know, why did some experience a positive change and others a negative change?

Furthermore, experimental designs are often unsuitable for evaluating the effectiveness or valueof stakeholder engagement and social learning processes because there are numerous ‘interfering’ variables that make it difficult to attribute any observed change to the programmethat is being evaluated. Evaluators cannot eliminate the many real-life influences. (Can you thinkof some?) The learning facilitator is also very much part of the system; one lecturer, for example,will present the same NRM course differently from another lecturer, depending on their personality, preferences, and nuanced differences in skills; and the same lecturer will do it differently from day to day, or year to year, depending on, say, how they relate to the particulargroup of students or what else they have on the go at the time. The multitude of variables influencing how social learning processes are presented and experienced, are typical of the complex open systems that make up social learning settings. If one tries to reduce this complexity so as to do an experiment (such as a pre-test, post-test design) then it becomes questionable asto whether the conclusions from such a study, would actually apply in the real world, given thatthe latter is much more ‘messy’ (see Complexity-sensitive approaches).

Another challenge with (quasi) experimental evaluation designs, is the extent to which one canprecisely measure outcomes of stakeholder engagement and social learning programmes, in thesame way that one can weigh the amount of maize produced in an experimental field. What givesrise to this challenge?

We *can* to *some* extent measure what people have learned in a stakeholder engagement or sociallearning process, in terms of new facts and insights. But would knowledge be the sum total of what we want to see come out of the social learning process? How would one precisely measureother desired outcomes? And, to what extent is it possible to predetermine intended outcomes of social learning? In some situations, the nature of the desired outcomes may need to emerge from the programme, and then it is not possible to do a pre-test to determine a baseline of thoserelated variables.

But the problem with using an experimental design to evaluate stakeholder engagement and social learning is not just a practical one, which can foreseeably be addressed through more precise instruments to measure changes in knowledge or behaviours. There is also a problem with the assumption that social learning is a discrete intervention that brings about a discrete change in a particular space of time. Referring back to Modules 1 -3 will suggest reasons why thisassumption is flawed.

Does that then mean that experiments have no role in evaluating social learning? On the contrary!In some situations, experiments can be very useful in stakeholder engagement and social learningprogrammes, not to evaluate the programmes, but to actually roll them out, in an evaluative manner.

Facilitators can work with farmers to help them test eco-friendly and climate-smart farming practices, by using experiments. If farmers have not used experiments before, the basic principles of controlling variables, carefully measuring, recording and then comparing results, should be explained, and this will improve farmers’ adaptive capacity to mitigate climate changeimpacts like droughts, for example. The strength of the

experiment in simple systems where it can be applied, is the systematic approach to testing. When farmers can do such reliable experiments themselves, or in collectives, they are not dependent on commercial companies who may have only a short-term incentive to sell whatever products they have, rather than to attend to what farmers or the environment need. In an ideal scenario, farmers and agri-businesswould work together to experiment with new (and sometimes old) varieties to make farming and food production more sustainable.

In a university situation, NRM lecturers could experiment with different ways in which to engage students in NRM content, andthey could invite students to be part of the experimentation. A pre-course questionnaire could be used not only to establish what learners already know, but also to adjust the course content (e.g., perhaps putting more emphasis on what is not yetknown, while building on what is already known). Instead of a comparative post-test questionnaire at the end of the course, students could be asked to give evaluative feedback throughoutthe course, which would help lecturers to adjust, but if well designed, the feedback activities could also help students to become reflexive about their own role and learning in the course, and, if they are education students, about course design as well.

Later in this module, the design of realist evaluations for evaluating what works for whom, underwhat circumstances, and why, is discussed. This is an example of how evaluators *can* use the power of the scientific method, like experiments, in complex social systems, but with differentassumptions to the empiricism that underpins the 'gold standard' approach.

References

Wals, A.E.J. 1993. What you can't measure still exists. In Mrazek, R. (Ed.), *Alternative paradigms in environmental education research*. Troy, Ohio: The North American Association for Environmental Education (NAEE), pp.297–298.

Survey Method

Surveys are frequently used to gather data for evaluations, for example to canvas opinions on whether intended outcomes have been met, or to establish a baseline for later comparison. A description of this method will be added to future iterations of the course materials. In the meantime, many research methodology texts have good guidelines on the design of surveys, surveytools (questionnaires), analysis methods and software packages for large samples, and the interpretation of the data for evaluation purposes. An example is "Fundamentals of survey research methodology", a guideline prepared by Glasgow, P.A. (2005) for Mitre, Washington C3 Centre, Mclean, Virginia (https://www.mitre.org/sites/default/files/pdf/05_0638.pdf).

2. *Constructivist Approaches to Evaluation*

The next section introduces two evaluation methods that are not based on empiricist

assumptions,but rather on constructivist assumptions. In constructivist approaches, human and social constructions, like opinions, perceptions, interpretations, cultural values and institutional norms,are also valuable data in helping evaluators understand what is going on, and whether it is worthwhile or not.

Most Significant Change (Story) Method

Introduction

The Most Significant Change (MSC) evaluation method is both constructivist and participatory in nature. It also exemplifies a process-based approach, and is most often used for evaluative monitoring, but can also be used for evaluation. Since its development in a complex rural development programme in Bangladesh by Davies (1996), and further development with Dart andothers, it has been used and modified widely around the world. Other names for it include non- indicator based M&E, the 'story approach', impact monitoring, and evolutionary approach to organisational learning. This summary is based on a comprehensive guide by the main proponentsof the method, responsible for its initial development, Davies and Dart (2005).

How it Works

In essence, the method involves sourcing, selecting and learning from what a hierarchy of stakeholders regard as the most significant changes that have taken place as a result of an intervention. Field staff source stories from intended programme beneficiaries, who then get together to select the top stories from among them, to share with seniors in the programme or organisations. These stories are not fictions, but narrative, experience-based accounts of what the beneficiaries, on careful reflection, regard as the most significant change that has come aboutthrough the programme so far. Some evaluators prefer to call them accounts, rather than stories,if there is a risk that participants will think they need to 'make up' an illustration of what successwould look like. The narrative accounts take the form of what was done or happened, who was involved/who did it, why was it done/did it happen, and why is it significant. They may be sharedverbally, but they are, importantly, also written up.

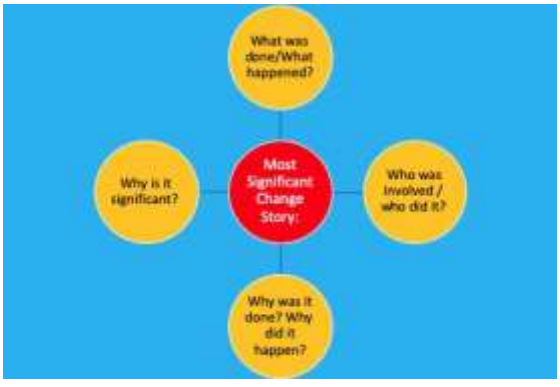

Figure 4.12: Questions structuring the most significant change story/account (Davies and Dart, 2005)

Once each participant has provided their story, it is discussed among fellow beneficiaries, and field staff as a collective. The discussion is aimed at identifying which of these stories

are the most important, and results in choosing an agreed number, say seven. The criteria used for choosing, are articulated and recorded. The selection and the reasons for the selection are then shared 'upwards', e.g., to programme managers. The managers then repeat the selection process,by choosing even fewer stories (say three of the initial seven) that they regard, after due deliberation, as representing most significant changes that have come about in the life of this programme. The managers in turn share their selection and the reasons for the selection with thetop structure, e.g., the funders or government department within which the organisation or programme functions. This top structure then repeats the process to come up with just one story (out of the three they received) that reflects the most significant change the programme has brought about.

An important aspect of the process is to communicate back to the lower levels in the hierarchy, what the next level up has decided, i.e., what their selection was, and why. The reactions to the next layers' selection can be discussed, and the gist of this discussion can also be fed back up to the next layer, creating an interactive dialogic process.

The MSC method is not prescriptive, but there are a few key principles and guidelines. For example, it should be used *repeatedly* over the life of the programme being evaluated; the storiesshould be *verified*; and the *change domains* and reporting period should be defined. Secondary analysis (from time to time) and meta-monitoring (ongoing) add rigour and depth to the MSC method. For how to do this, how to undertake the analyses, and other practical hints, see "Overview of implementation steps" (Davies and Dart, 2005, p.10) and Chapter 2 of thatGuideline.

NRM Example

Say a funder teams up with a national department of higher education, to start a comprehensivesustainability programme in universities. Each university receives a grant and an open remit to promote environmental sustainability at their institution over a five year period. After a year, lecturers collect stories from senior students as to the MSC they have seen at the university this year, with regards to sustainability. They deliberate these accounts with the students and each other, and select the top 5 stories that best represent the kinds of changes they regard as significant (negative or positive). These could be accounts of:

- a brand new e-waste reduction project started
- revival of a dormant paper recycling project
- introduction of sustainability in the form of a lecture during the first years' induction week
- re-routing of a portion of research funding to sustainability topics
- introduction of a prize for best sustainability champion.

Along with the reasons for these choices (why they value these) this selection is then shared withthe university senior management. Senior management then choose 2 of these stories as the mostimportant and communicate these up to the programme steering committee consisting of funderand government representatives. Say in this case, they do not support prizes for champions that much, because they believe sustainability should be a collective effort and have intrinsicmotivation, so #5 would not be selected. They also don't think a once off lecture will make that much of a difference, so #3 is also not selected.

The steering committee now receives stories 1, 2 and 4. After much deliberation they choose thenew e-waste programme, with revival of a dormant recycling programme being a close second, because they also think that sustainability of initiatives are important. They like the e-waste initiative because it is cutting-edge, is a show-stopper example of

innovation, has potential for research opportunities and further innovation, and e-waste is a particularly big new concern for universities, that they should be best placed to address (as centres of innovation). They do worrythat there is not a strong curriculum change story yet and indicate that they look forward to thiscoming up in the next round, at the end of year 2.

Communicating all these decisions up and down the hierarchy helps all the roleplayers understandwhat is collectively valued. Lecturers might well start on a more comprehensive curriculum change programme, perhaps linked to innovations like e-waste, and senior management might also take note that students value the extra push that comes with a financial incentive and recognition.

Value of the MSC Story Method

The value of this deliberative and participatory approach includes:

- It monitors (intermediate) outcomes and impacts, rather than just activities and outputs.
- Many stakeholders get to share what they regard as important, what change is desirable, and what is happening in the programme that should be noted by all.
- Being explicitly open-ended, it picks up changes that could not have been foreseen beforehand, therefore overcoming the limits of M&E where only pre-specified indicators are being monitored, and where unintended consequences and impacts might be missed.
- It allows for progressive focussing and consensus building, which is valuable when there isdisagreement or lack of clarity as to what a programme is or should be doing.
- The process of coming up with stories and selecting among a diversity of stories, focusses all participants' minds towards impact, and can therefore steer programme activities in that direction.
- It can prevent misdirected activities and mission drift if stakeholders hold each other accountable; if the selected stories are very far off from the initial starting points of the programme, then stakeholders have an opportunity to discuss whether this is a good thingor not, i.e. were the initial starting points inappropriate, or is there an inappropriate deviation from what stakeholders value.
- Therefore, the method combines open endedness and flexibility well with focus.
- Combining process-based, participatory, constructivist, dialogic approaches.
- Programme sponsors can decide, based on what accounts are available and selected, whether this is the kind of programme (and organisation) that they want to continue investing in, because the available stories present what is actually happening, and the selections present what the participants value.
- Providing volumes of text-based material that can be used further for evaluation processesand for communication purposes; evaluation reports with actual stories of change are idealfor sharing what a programme is about, with a range of audiences.
- The method fosters organisational learning at multiple levels, but also accountability - change stories must be verified, and if there are no or few significant change stories to share, it indicates that the programme is not doing well.

Underlying theory

The constructivist theory of evaluation implies that what people value, or regard as important, isan important source of information or knowledge in evaluation (Guba and Lincoln, 1989). To knowwhat people value and whether they think that some value has or has not been achieved, is a keyknowledge consideration in programmes that are designed to benefit people. However, participants may knowingly or unknowingly give a narrative

account of a change ('construct' a change) which has not actually happened. For example, I might say that the top management of my university has adopted sustainability as a focus, when there is no other evidence for this, or even contradictory evidence. In the MSC method, the stories provided must be verified, by otherparticipants and/or other forms of evidence (e.g., in this case, a sustainability policy document endorsed by the top management, or a significant budget allocation for sustainability at my university). MSC insists that not all of reality is socially constructed (i.e., whether a budget has been allocated or not, is not a construction) and at the same time, that people's perceptions (e.g.,whether the budget was a significant shift to sustainability or not) comprise valuable information.That is, the MSC uses a constructivist epistemology, and a realist ontology.

The MSC is also underpinned by organisational learning theory. Davies drew on a learning theory called evolutionary epistemology. Learning is seen as the selective retention of information. The evolutionary learning process is seen to involve the reiteration of variation, selection and retention processes. The sourcing of accounts of change from across programmes provide the variation; the MSC process of choosing the stories regarded as most important involves the selection, and the adoption of one story above others, encourages the retention of the knowledge of what is happening and valued in a programme. In this regard it also draws on Bateson's first and second order learning (in the first order we learn what is happening and what we and othersvalue; and in the second order we learn that we might need to revise what we have regarded as important, because there are new and even more important considerations that shape what we value - this is often framed as a revision of fundamental goals). The organisation (programme) becomes more conscious about what it values (the selected story presents the 'best fit' with organisational values) and opportunities are opened up for changing practices to better achieve more of what is valued, as represented by the chosen story or stories.

Limitations and complementary methods

The MSC method has some limitations. Verifying stories of change can be very difficult, for example. The process of selecting and celebrating one story only, could fail to portray or affirm avariety of valuable processes in complex programmes. The MSC method can only be used in programmes where social change is desirable, and in some programmes, consolidation or conservation rather than change, might be the desired outcome. Another limitation relates to thedesign which requires hierarchical structures. Although many organisations and programmes function well as hierarchies, these are limiting if there are no good opportunities for dialogic communication and mutual respect across the levels in the programme or organisation. Many programmes consist of multiple organisations networked together, rather than clear cut hierarchical relationships to each other. For this reason the MSC method has been adapted to multi-partner, non-hierarchical situations.

Other limitations can be addressed by complementing the MSC method with other methods. For example, it can be complemented with biophysical monitoring, with theory of change development, and with the use of predetermined indicators based on logic models.

Reference and Resource

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Appreciative Enquiry Method

What is it about?

Appreciative enquiry is an approach to evaluation (Preskill & Catsambas, 2006, Preskill & Coghlan,2004) that is also an approach to organisational development (Cooperrider et al., 1995; Cooperrider, Whitney, Stravos, 2002). Appreciative enquiry has similarities with outcomes harvesting, and the Most Significant Change method, in that what is to be observed by the evaluation, is not tightly specified beforehand.

As the name suggests, appreciative enquiry chooses to focus on identifying strengths and then developing plans to build on these strengths, where other evaluation and organisational development approaches might focus on identifying problems and gaps.The process is often structured (according to Funnel and Rogers, 2011) around what is known as the 4-D model consisting of:

1. *Discovering* - when the organisation is at its best. This is identified through peoplein the organisation talking to each other, often in structured interviews, and describing these situations as richly as possible.
2. *Dreaming* - this phase is often run in a large group where organisation members come together in a 'conference' type session where they are encouraged to picture(envision) the organisation as if the peak moments identified in the discovery phase,are the norm, rather than the exception.
3. *Designing* - a small team is then mandated to go away and design ways of creatingthe organisation as designed in the big group conference, and finally,
4. *Destiny* - is the phase where the changes are to be implemented.

The appreciative enquiry method has also been adapted to community capacity development, using a Seven D method, in which the participants work systematically through seven iterative cycles involving the following seven components:

1. *Developing relationships* - to assist the community in their endeavours
2. *Discovering* the community's strengths and needs
3. *Dreaming* the future they want to see
4. *Directions* - strengthening their ability to analyse their potential and challenges, to reach consensual decisions on collective action - leading into the next step -
5. *Designing* the actions to take
6. *Delivery* - taking these actions, perhaps with partners
7. *Documentation* - this includes recording the process and decisions made as well as reflecting on the outcomes (see Dhamoratan, 2009:

When is it used and what is its value?

An appreciative enquiry can be used in the early stages of a programme or organisation's life, andduring times when there might be quite a few problems and a need to lift morale and energy to build on what strengths there are. It is based on the assumption that that which we focus on, willgrow, so that it is better not to focus on the problems in a time when there is a strong need to build on and expand the strengths. It assumes that the problems are already well known. Appreciative enquiries are developmental in nature, that is, they help to shape and (re)direct programmes and organisations in desirable directions. Many aspects of the 4-D and 7-D processesare participatory in nature. They would ideally be used iteratively throughout the life of a programme or organisation, for ongoing learning.

ESD examples

A fictional ESD (Education for Sustainable Development) example could be a vocational college that is struggling to bring ESD into its curriculum, due to a number of systemic factors that almostseem insurmountable to overcome. Morale among the lecturers who believe that ESD is very important, is low and they feel their problems are so many that they do not know where to start.They are unclear on how exactly to bring about curriculum change, they do have clear ideas for greening their campus but they lack the financial resources to buy the green technology they want, like water tanks and solar panels, and they have little support from top management who prioritize marketing of the college and does not think that ESD is a priority.

An appreciative enquiry evaluation works with the lecturers to focus on what they do have: enthusiastic studentswho are active on social media; clear ideas for greening the campus; and good partnerships with a local development agency. Building on these strengths, they design a plan to raise funds for thegreen technology through their existing partnership; to install the water tanks and solar panels, invite senior management to launch the new facilities, and give the event exposure through theirenthusiastic students' media campaign; then to build on this success by inviting curriculum expertsto assist them in a curriculum design process around the new technology, and once again, invitingsenior management to participate in the activity and demonstrate its value for marketing the college as responding to societal needs and demonstrating new technology through ESD.

Rob O'Donoghue used an appreciative enquiry method to evaluate the Regional Centre of Excellence (RCE) in Makhana (see case study, Module 2).

What are the limitations and how can these be overcome?

Appreciative enquiries will not provide insights into the nature of the problem being addressed, and from time to time (including right at the start of a programme) it would be necessary to try and unpack the causes and consequences of the issue(s) being addressed. Therefore, appreciative enquiry is well complemented by problem tree analyses, and/or a situational or contextual driveranalysis, and similar processes. These might be indicated when, for example, the planned designinterventions do not yield the intended outcomes. For example, if the lecturers in our example are not able to raise funding through their partnership, it could be helpful to analyse why this is the case: do they lack budgeting skills, are they focussing on the wrong funding sources, or is the current climate such that donors are unlikely to fund colleges, and other greening avenues that do not require donor funding, would be more likely to succeed?

Appreciative enquiry is also well complemented (followed up or interspersed) with evaluations that use indicators to look for specific outcomes, based on the earlier appreciative enquiry phase: Have we raised the money? (If not, why not?) Have we put up the water tanks and solar panels? (If not, why not?) Have we engaged our students and senior management effectively in the process? (If not, why not?) Have we done something else instead and has that also/better met our intention, of introducing ESD at the college?

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Approach: Process-based evaluations

Value-creation Framework

What is it about?

Social learning processes create different types of value that each contribute, singly but often incombination, to the achievement of desired outcomes. This method aims to evaluate social learning processes by identifying these different kinds of value through the use of a practice-basedframework or template, while at the same time (as the value-creation stories are elicited and shared) also fostering such social learning processes. The method was originated by Wenger, Trayner and De Laat (2011) for evaluation of learning in networks and communities of practice and has been applied in and later extended to broader social learning spaces (Wenger-Trayner andWenger-Trayner, 2020).

The value-creation framework identifies and describes the following types of value that arises from social learning:

- *immediate* value - not necessarily immediate in terms of time, but directly emerging fromthe social learning process being evaluated
- *potential* value - what participants take away with them from the social learning process,that could be used to further create value
- *applied* value - arising from using what was potentially useful, or arising from applicationof learning in practical change-oriented activities
- *realised* value - aspects of the desired change are being achieved
- *reframing* value - the problem being addressed, or the way in which to achieve the desiredchange, is being differently (better) understood and framed in such a way that it can be addressed with greater success.

The above each constitute a cycle of learning and value creation and are seldom instantly achieved. They are interactive, and more than just single steps. Additional value is created, towards the achievement of the desired change, through a flow from one type of value creation (cycle) to another. There can also be feedback loops back to earlier cycles, with additional valuegeneration then further becoming possible.

Furthermore, the framework also involves *orienting*, *enabling*, *strategic* and *framing* value. This will be illustrated in the ESD example.

NRM Example

In this fictional example, university lecturers from South Africa, Mexico, India and Germany cometogether in Mexico with some expert mentors, to exchange experiences. Their aim is to learn fromeach other and the expert mentors, how best to improve NRM at their respective workplaces. Thereafter they return home and try to introduce NRM at their institutions. Six months later theyare interviewed to establish what value, if any, had been generated through the learning exchange.

Some participants narrate how they related very easily to the others on the exchange and foundthe experts to be both friendly and knowledgeable. They felt that the exchange was highly relevant to their aims, well planned and very energising (*immediate value*). They left the event feeling inspired, with lots of new knowledge and new contacts (*potential value)*. Most followed up on these contacts and they kept touch with each other, which led to further inspiration and more information, on how to practically use the knowledge to set up new NRM programmes (*applied value*). Some learning participants used all the preceding value examples, to start new NRM programmes (*realised value*) - their aims were achieved.

They also realised that they needed to bring their university structures on board, and drew on the experts to help them motivate and bring on board the universities' senior management; this is anexample of *strategic value*, because it will allow them to expand and continue these programmes(e.g., introduce them to other departments and campus management).

As the lecturers worked with their new programmes, they became quite knowledgeable themselves and started revising what they had learnt on the exchange, and also feeding that backinto the original network (both re*framing and framing value*).

In the evaluation report there was also a record of the *orienting value* of the many years of experience of the experts who joined and hosted the event, and the *enabling value* created by the funder who made the exchange possible in the first place.

How it works

There are a number of different ways in which facilitators and participants can be convened to reflect on the social learning process(es) being evaluated, and decide what value was generated,positive or negative, or not generated. Evaluators (who are often also learning facilitators) work with and alongside participants in the social learning process that is to be evaluated. Participantsalso do the evaluation themselves, if they are familiar with the framework.

Value-creation 'stories' (not fictions, but experience-based accounts of what actually happened)are elicited from participants, with or without using the given framework. These narratives are then analysed to identify instances of value created, which are plotted on to the framework, withassociated evidence. The framework gives possible examples of each of the value types, whetherpositive or negative. For instance, participants would be prompted to ask if any knowledge has been introduced into the social learning space being evaluated. Participants could have examplesof positive value being created with regards to knowledge, e.g. relevant information was well presented and inspired them to make changes in their workplace. A negative value created couldbe that there was too much new knowledge which overwhelmed them so that they left the programme; or relevant knowledge was poorly presented and left them unclear on how to continue. An example

of zero value created could be that there was no relevant information available at all. The facilitator would log “knowledge” as an example of “potential value” that was either a positive value created, or a negative value created, or no value created at all.

Cycles of value created, flows of value across the various cycles, and loops of value-creation back into the value chain, or even value branches into adjacent social learning spaces, can be identified through further analysis. This presents a picture, either simple or elaborate, of different kinds of value created, which can then be shared with sponsors, facilitators, participants and other stakeholders, to inform further social learning processes.

Value of the method

The value-creation method is specifically designed to evaluate *processes* of learning, often throughout extended periods, and so it addresses the fact that the outcomes of change-oriented social learning processes are not only not always immediate, their benefits often only materialize in the long-term. Desirable outcomes of learning processes are also not always easy to tightly specify beforehand. The framework allows for unexpected positive value as well as unexpected negative value created by the process, to be reported. Hence this is a useful method to use when process-oriented and complexity-sensitive evaluations are required. It allows for high degrees of uncertainty, while at the same time providing a clear picture of value that has emerged in the process (thus far).

This picture of value created can be visually presented using the given framework of cycles, flows and loops, and therefore it can also be quite easily communicated visually, with accompanying text, and complementary examples of value-creation stories. It provides for a good blend of qualitative and semi-quantified findings.

This is also a participatory evaluation process, in which what counts as ‘value’ or meaningful change, is deliberated among participants. However, it is not a case of random subjectivity or ‘anything goes’, as decisions about and evidence for value created, are based on clear guidelines and indicators which have also been deliberated among participants.

Underlying theory

The value-creation method is informed by a range of fields, from business studies and economics, which originated the idea of a value chain (Potter); to the roots of international development theory, in political economy, anthropology, development theory and social theory. Philosophically, it has humanistic roots and also aligns most closely with an interpretivist paradigm and constructivism (Wenger-Trayner and Wenger-Trayner, 2020, p.53). From social theory it draws on activity theory, and from development theory, it draws on the capabilities theory of Amartya Sen, Martha Nussbaum and Robeyns.

Limitations and complementary methods

One limitation of the value-creation method is ironically that it can be readily understood; to any facilitator of learning processes, the categories of immediate and potential value, applied and realised value readily make sense. The danger is that they can be interpreted in a somewhat superficial, everyday sense of the words, whereas there is a sophisticated theory and methodology behind how the categories should be defined, interpreted and used. This limitation can be overcome by working closely with the many accessible descriptions of the method, the most comprehensive possibly being Wenger-Trayner and Wenger-Trayner (2020).

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Developmental Evaluation

See Complexity-sensitive Approaches.

Theory-driven approaches

As introduced in Section B, theory-driven approaches are aimed at evaluating societal and institutional intervention programmes, such as the introduction of a new EE policy for schools, oran intervention to better resource ESD at all universities, or the implementation of a programmeto strengthen farmers' ability to use new sustainable agriculture practices.

Surely all programme designers have on theories of how the change they want to see in the world,will come about through this programme? That is indeed so, but in practice, few are explicit about what exactly this theory is, which makes it difficult to evaluate the programme, unless of course,the evaluation is actually aimed at identifying the theory. In theory-driven approaches toevaluation one may therefore start by surfacing and articulating the programme theory, then designing the evaluation from there. Or, one can intentionally undertake an evaluation (often a meta-evaluation) to develop theory.

The interest in the theoretical underpinnings of interventions is not new, although it is enjoying aparticularly popular moment at this time. In their very practical handbook, *Purposeful Program Theory: Effective use of theories of change and logic models*, Funnel and Rogers (2011) traced the history of theory-driven approaches all the way back to Kirkpatrick who, in the 1960s, used four domains of change for evaluating training.

In more recent times theory-driven evaluations have become popular where programme developers recognised complexity in the situations they were trying to change, to the extent thatthere is now talk of it representing a fifth generation of evaluation theory (Brouselle & Buregeya,2018)

Programme evaluation with theories of change

A programme theory is an explicit theory or model of how a change will occur and how an intervention will produce these causal processes (Funnel and Rogers, 2011, p.13) or put in programme language, how an intervention contributes to a set of specific outcomes through a series of intermediate results (ibid, p.31).

Programme theory consists of two connected components, the theory about how the

desired change will come about, and the implementation or action theory (Weiss, 1997) which explains how the programme or other intervention is constructed to activate the theory of change i.e., it explains the implementation activities. Other terms for programme theory are theories of changeor change theory, programme logic, and intervention logic. The ToC is part of the programme theory but refers specifically to the central mechanism by which change comes about, for individuals, groups and communities.

As you can imagine, it is not always easy to precisely and comprehensively describe the desired change and how it is going to come about, and some evaluations are in fact aimed at developing the theory. When program theories are used to design programme evaluations, this is known specifically as a theory-driven evaluation.

Our theory-driven evaluation method example is on how to construct a theory of change (ToC) inone programme, and how to then design an evaluation for that programme, based on the ToC.

Value of the Programme Theory Method

Programme theory methods have gained popularity in the past 30 years. They can be used for programme or intervention design, implementation, evaluation and ongoing learning and adaptation or revision of the programme. The benefits include being able to design an evaluation that focuses on what the programme designers, sponsors, implementers, and other stakeholders really want to focus on, as the crux ofthe change theory, as opposed to what is easy or conventional to evaluate.

By involving programme funders, designers, implementers and even beneficiaries[2] in articulating the programme theory (what is the change we want to see, how is it going to happen, and how isour programme going to make that happen) the method can help to develop agreement among the stakeholders about they are trying to do, why and how; it can also help to improve plans by highlighting gaps and opportunities for collaboration; it can help to set realistic objectives; and guide the choice of meaningful indicators to track progress and identify successes. Importantly, in the case of realist approaches to programme theory, the method can also identify where and *why* programmes are failing; similarly it goes beyond evaluating whether programmes have worked as planned, to identifying *how* and *why* they have worked (identifying the underlying mechanisms of change that were triggered by the programme - what exactly it is that makes the programme work) so that it can then be introduced elsewhere as well, with some confidence that the underlying mechanisms will again be triggered, even in a different context.

Programme theory unpacks the closed box that contains the mechanisms that makes programmes work, to the extent that they do, for some people and in some circumstances. This allows us to further build education and development theory and inform future programme designs.

[2] Hanli Human conducted an evaluation research study in which she involved stakeholders in helping to identifyprogramme indicators and theories of change, for the Tsitsa Programme (https://www.ru.ac.za/elrc/projects/thetsitsaproject/)

How the Method is Used

Say we want to evaluate a national programme aimed at encouraging more school principals to introduce ESD in their schools. There is funding for one workshop in each district, so principals will have an opportunity to attend one workshop. In the workshop the inputs are lectures and resources by ESD experts; talks by education officials; and opportunity to engage informally withother principals. Nine months after the workshops, evaluators ask the participating principals to share any examples of how they have implemented a whole-school approach to ESD in their schools.

Any number of outcomes are possible:

A. Fewer than 10% of principals have introduced ESD - the programme has failed
B. Some 90% of principals introduced ESD at their schools - a programme success!
C. About half of the principals introduced ESD and the other half did not - a mixed result

In order to decide if the programme should be repeated the next year, or whether changes are needed, the evaluation should really explain *why* the particular results were achieved. In the caseof a failure (A) a redesign is needed, but it would help to know why the programme failed. In thecase of a resounding success (B), if the programme is to be rolled out in other countries, then weneed to know what it was about the programme that made it work so well in this context, so thatthe same elements can be retained in the outscaling or upscaling of the programme into other contexts. For example, if the underlying mechanism was that the programme provided knowledgethat principals did not have before, then the programme might not be as successful in other contexts where school principals already have a lot of knowledge about ESD.

On the other hand, if the programme was a success because the principals had an opportunity to meet with fellow educational leaders, with whom they kept in touch afterwards to share ideas on how to make ESDwork in their schools, then it would be important not to cut the opportunity to interact from theworkshop programme - which one might be tempted to do, if one assumes that the change comesabout because a lack of knowledge is being addressed, as the basis for the change.

In the case of the mixed result (C) further investigation might show that the principals who did not introduce ESD were quite motivated to do so, but due to lack of internet connectivity at theseschools they could not keep the connection with each other or find additional implementation resources online, while those principals who did introduce ESD, did.

Through in-depth interviews with principals and observations at schools, the evaluators could construct a theory of change looking like this:

access to new knowledge + motivation to meet national guidelines + collegial connections + aspiration to keep up with trends + access to implementation resources ⇨ introduction of ESD atschools under leadership of principals

In practice, the various elements of this 'outcomes logic' would interact with each other; for example, as ESD is introduced at the school, this may lead to new knowledge, more resources (e.g., attracting funding), further aspirations as praise starts to follow, and attracting more colleagues who want to learn from this initiative. Therefore, the process is often not linear but circular, or mutually reinforcing (and negative outcomes may also be based on feedbacks).

Realist programme evaluations were first developed by Pawson and Tilley (1997) and encouragesevaluators to look for the underlying mechanisms that 'fire' in successful programmes. What wasit about the workshop based programmes that worked? Was it the information shared, the speeches, or the formation of networks? If the speech from the government officials turns out tohave been a significant feature of the programme, what was it about the speech? What did it elicitamong the participants? Fear of not following policy? Inspiration? Aspiration to be a stand-out principal? Ambition to do well and become an official oneself? If the opportunity to network was the most significant driver of change for others, what was the underlying mechanism? Again, ambition to be a leader among leaders? Inspiration that social good can be done when working together, i.e., solidarity?

When many such evaluations are done, one may eventually identify mechanisms that drive changeamong school principals in particular contexts, and this knowledge - theory - can be used to designand plan new programmes, including ones that are not based on workshops, but still fire the underlying mechanisms. For example, if it appears that ambition is a driving factor, university certificate courses combined with national awards could be a powerful programme. If a desire forsocial solidarity is a driving factor, a course-activating learning network and shared change projects could be very powerful.

Some years later, an Education Faculty at a university then draws on this theory to design a course-activated ESD learning network for school principals. They are now in a position to explicitly articulate that they want to build a sense of community among the participants, and they designan evaluation that includes indicators of solidarity into the evaluation.

How to develop a theory of change

There are broadly three ways in which to develop a programme theory and the theory of change component of it. These are:

1. articulating the programme stakeholders' mental models
2. deducing the ToC from programme documentation, and
3. inductive reasoning based on observations of programme implementation.

In practice one often uses a combination of these three.

Articulating the stakeholders' mental models involves interviewing them or bringing them togetherin focus group discussions or workshops. There are a number of ways in which stakeholders can surface and articulate their mental models of the programme and why it will bring about the desired change. Keystone IPAL Guides 1 and 2 (2009) are among the many resources (another beingFunnel and Rogers, 2011) that describe a good process for developing a ToC with stakeholders or programme participants. These processes often start, if there is enough time, with a problem analysis or a reminder of the underlying causes and consequences of the problem(s) that are beingaddressed by the programme. It also needs to include a consideration of other agencies involved in addressing this issue, and programme partners, and what they do. It is very helpful to bound the theory of change, that is, to indicate what is relevant but NOT being addressed by this programme.

For illustration purposes, a series of questions for drawing out theories of change, based on Funneland Rogers (ibid) could be:

- Can you give us an example of where this programme is working really well? Why did

you choose that example? What do you think is making it work well? (the *why* or underlying mechanisms)
- How would life be better for participants or intended beneficiaries of this programme worked well?
- What are the current barriers to a good life for programme participants, and how do you see this programme overcoming those barriers? What is it about how the programme operates that would or could make it produce the desired results or impacts?
- What else needs to happen? Who else needs to be involved?

The ToC needs to focus on explaining *how* the programme's activities contribute to the results, not just a list of activities followed by results.

How is the theory of change then used to design an evaluation?

1. Identify all the stakeholders in the evaluation
2. Identify how these stakeholders see the purpose and scope of the evaluation, and agree ona realistic purpose and scope (that is, to not try to do too much)
3. Translate the purpose in one or more evaluation questions
4. Identify what data is needed to answer the questions
5. Identify the data sources and methods that can be used to obtain the data

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Realist meta-evaluation/synthesis

What is it about?

Realist synthesis or meta-evaluation is a systematic evidence review approach for drawing conclusions about what works, for whom and why, in complex social intervention. That is, they provide an explanatory analysis of the role of contextual factors and 'firing mechanisms' to the success or failure of an intervention. At the heart of it is the "programme theory", that is an assumption of how a programme is expected to work. Evidence is systematically gathered to testand refine the programme theory (Pawson, et al., 2004).

At its core, a meta-review strives to shed light on a topic that is characterised by diverse philosophies and that is explored from varying angles. It does this by showing areas of divergenceand convergence in how researchers explored the topic or related topics (Wong, et al,.2013). As such, in this design, the research team reviews hundreds or at least dozens of studies that hypothesize about how a desired social change comes about, and then

construct a meta-level theory about it. In realist meta-evaluations (also known as realist synthesis) the proposed theory is in the form of: what works, for whom, why and under what conditions? These questions emergefrom the understanding that the same programme may be replicated in multiple contexts and willproduce varying outcomes as a result of contextual variations (Pawson, et al., 2004). Thus, the implementation of a programme in multiple contexts with strict adherence to the terms of reference does not guarantee identical outcomes. However, this does not then restrict researchersto the confines of one intervention or context with the same geographical location, culture, or language without a good reason. Alderson, Green, and Higgins (2004) note that restrictions can only be done for a good reason. As asserted by Westhorp (2014), it is therefore important that evaluators have an in-depth understanding of how the chosen interventions work for different groups and the outcome (or impact) data is disaggregated according to different groups (e.g. men, women, youth, older people, different castes).

When is it used and what is its value?

Realist evaluation is primarily concerned about *explaining* the reasons behind the performance or non-performance of programmes in different contexts. It is strongly interested in the causal relationships among project components and understanding how they work together to produce results (Westhorp, 2014). Stern (2015) provides conditions under which realist evaluation would be an approach of choice:

- when evaluating new initiatives, pilot or innovative projects or programmes, or any otherintervention where there is evidence that the project or programme works, but it is not yet understood how, why or for whom.
- when evaluating development interventions that are intended to be expanded, replicated,scaled-up or mainstreamed (in effect, any intervention that may need to be adapted to new contexts); and
- when evaluating projects or programmes that have previously had mixed results, in orderto better understand why results have been inconsistent.

By asking the questions, *"what works for whom, in what contexts, in what respects and how"* realist evaluation takes the evaluation process a step further by recognizing the variabilities in personal, and socioeconomic contexts. It explores the subjective dispositions that influence how people interact with the mechanisms of an intervention at a personal and at a group level, whichultimately determine programme outcomes. These insights are useful for stakeholders in developing targeted interventions and in redirecting existing interventions. However, the insightsare not quick to come by, they are products of iterative and cumulative processes of learning thatgo beyond a single intervention to informing other programmes.

CCE example

The following hypothetical Climate Change Education (CCE) example of how to adopt a realist synthesis/meta evaluation is guided by Pawson et al. (2004) and Rycroft-Malone et al. (2013). Theexample will detail all the steps to be taken and the justification for each decision for potential users to replicate the process. It is imperative to mention that there is no one size fits all approachto realist reviews nor a dictated set of arbitrary standards (Alderson, Green & Higgins, 2004). Thefollowing stages only show the principles that should guide chosen approaches. Rycroft-Malone etal. (2013) recommends that whatever the choice the reviewer prefers, they should remain sympathetic to the philosophy of realism.

- **Clarify the scope of review**

Like all other review approaches, realist synthesis starts with conceptual framing and focusing and production of the research protocol. This involves understanding the phenomenon under studyand the desired outcomes and having a clear and in this case detailed outline of how the review will be undertaken. Thereafter, questions that would guide the process to the desired outcome will be deliberated on and approved by stakeholders. This is the most painstaking and contentious part of the review, where evaluators and stakeholders have to go through an iterative process offocusing questions.

In a hypothetical example of the state of CCE in tertiary institutions, stakeholders come togetherto discuss how CCE may be mainstreamed across all disciplines in all universities. A meta-review would involve determining "what works" based on what other evaluators have found and publishedin evaluation reports, which then become the data sources of the meta-evaluation or synthesis of the available knowledge. To commence the review, stakeholders will develop operational clarityon what counts as CCE and tertiary institutions and how wide the geographic scope of studies should be; also what kinds of studies would be regarded as credible enough to include in the review. Pawson et al (2004) advise that all the decisions that are made at this stage should be detailed in a study protocol that shows the review process from the conception stage to finalization. The protocol kickstarts the programme and is a publication in its own right.

- **Refine purpose of review**

This stage involves the articulation of the various themes that will guide the review. Pawson, et al (2004) outline four "cuts" of this stage, *reviewing for programme theory integrity, reviewing to adjudicate between rival programme theories, reviewing the same theory in comparative settings, reviewing official expectations against actual practice*. These divisions are not independent of each other, in fact they inform one another and in some instances, they are original versions and upgrades of each other. Following these divisions, in our hypothetical example of CCE, the first division would involve going through the history of CCE and identifyingthe misgivings of the past interventions and the challenges that caused them.

The second division,relying on evidence, will involve further exploration and adjudication of the various approaches implemented in CCE, understanding how they work, and the motivations behind them. This stageis what drives realist reviews and sets it apart from other reviews. The third cut involves uncovering many studies of the CCE interventions in different contexts and mapping out patterns of the success and or failures of the interventions. This is done cognizant of the varying contexts and how they influenced the outcome with a special focus on the intended beneficiaries and howthey relate to the programme indicators. The fourth cut is about the application of the aspects ofthe second division.

This stage is characterised by various contentions that may include disagreements between policy and practice oriented stakeholders on the best way to implement the programme. As was the case in the second division the contestations between theories is alsopart of this stage, these will be resolved by empirical adjudication. The consensus will be achieved through agreeing on the existing intervention/policy/theory to be used as the benchmark.

For this stage, Pawson et al (2004, p.15-16) conclude that, "although it is essential to clarify at some stage which of these approaches will drive the review, it may not be possible to make a finaldecision until the review is well underway. Certainly, we counsel strongly

against the pre- publication of realist review 'protocols' in which both the review question and the purpose of thereview must be set in stone before the real work begins."

- **Articulate key theories to be explored**

For this stage Rycroft-Malone, et al. (2013, p.3) note that reviewers search for the relevant theories in the literature, outline, group and categorise or synthesise programme theories, designa theoretically based evaluative framework to be 'populated' with evidence and develop bespokedata extraction forms.

- **Search for and appraise evidence**

This stage involves deciding and defining the purposive sampling procedure to be adopted. It is atthis stage that the reviewers define search sources based on factors such as accessibility, convenience and cost. The search terms and methods to be used (including cited reference searching) will be considered at this stage. It is vital that reviewers consider various terms that are used in reference to the phenomenon under study. In our hypothetical example of CCE, one would find that scholars use a mix of terms to refer to climate change, these may include climatevariability, global warming, climate fluctuation etc. The search terms do not appear from nowhere, they are suggested based on reviewers' background knowledge of the phenomenon to be studied (Alderson, Green, and Higgins, 2004). Reviewers will pick the most common terms to use in their search protocol. Finally, reviewers will decide on how they will reach searching saturation. This stage also includes the piloting of the search protocol to gauge its rigour and itsrelevance to the theory under test.

- **Extract and synthesise findings**

This stage involves the extraction of data to populate the evaluative framework with evidence. Italso involves comparing and contrasting findings from different studies. The reviewers seek both confirmatory and contradictory findings. The programme theories are then refined in the light ofthe findings from the analysis of study data (Rycroft-Malone et al. 2013, p.3).

- **Develop narratives**

This final stage involves the coming together of the evaluators and other decision makers in the review of findings. Upon satisfaction, they will disseminate the review with findings, conclusionsand recommendations. The objectives of the review will guide how the report will be disseminated (See also Module 5 on Communicating ESD Evaluation Findings). Academic findings will be published in academic journals, while practice-based reviews will be disseminated to practitioners for them to frame and reframe their programmes accordingly. Pawson et al (2004), however, noted that the aim of realist evaluation is not necessarily an instrumental one, that the review should lead to an immediate change in a given programme. Though that happens sometimes, a realist review is more inclined towards helping policy makers and practitioners 'make sense' of the way they understand and interpret the situations they encounter and the interventions they deploy.

What are the limitations and how these can be overcome?

In theory, realist evaluations can be carried out in many different circumstances, and alongside other types of evaluation. However, practically the method cannot be conducted by one person and it requires skills and knowledge of both the process and the type of intervention being evaluated (Higgins & Green, 2006). Thus, a realist evaluation should

not be conducted because the project has the attributes that are best evaluated by realist evaluation, without considering the human and material resources required for a meaningful evaluation. Westhorp (2014) outlines various circumstances where realist evaluations are not the ideal approach to evaluation:

- A realist evaluation is not needed if an organisation already understands how, when and where a particular type of programme works. Realist evaluation is not particularly well suited for tried and trusted modes of delivery such as delivering nutrition programmes.
- A realist evaluation is only appropriate when stakeholders want to understand *how and why* an intervention worked, not when they are simply interested in knowing the project outcomes. In such a situation, results-based alternatives should be used.
- If a realist evaluation is to be credible and useful it requires good data on outcomes (or impact). This is because a realist evaluation seeks to generate a better understanding of what works and what doesn't work in different circumstances. This means it is essential that the intended outcomes (or impact) of the intervention being evaluated are properly specified. It also means it is important that these outcomes (or impacts) have either been assessed beforehand or can be assessed during the evaluation.

Underlying theory

Realist evaluation is grounded in the philosophy of realism (Bhaskar, 2010). It also draws on systems theory. (For social programmes involving humans, as well as bio-physical realities, a particular kind of systems theory, called complexity theory, is often useful). Westhorp (2003, p.3) explains that the assumption is that everything in this world is organised in systems, which in turnare embedded in larger systems and connected to other levels. Social systems are open: elementscan move in and out of the system. For example, family members can leave, others can marry intothe family.

Everything is embedded into other levels and all the systems interact with each other.As a result, any event has many causes, and at the same time may have many consequences. Thisalso means that every outcome of a programme is a result of multiple causes; and that every program may have many different outcomes. A realist approach allows us to identify demi- regularities in the underlying generative mechanisms that contribute to observable outcomes in social-ecological spaces (see Bhaskar, 2010 and Pawson et al., 2004).

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Theory-driven approaches

Participatory Evaluation

What is it about?

Participatory monitoring and evaluation (PM&E) involves the full participation of all stakeholders from the onset of the programme to the end (Guijt and Gaventa, 1998). These stakeholders couldinclude, among others, intended beneficiaries, development agencies implementing the programme, policy makers and funders deciding together how progress should be measured and monitored, results communicated and acted upon, and then proceeding to do the evaluation together, as well. Participatory M&E offers new pathways of understanding and affecting inclusivechange with the intended beneficiaries being at the centre of the learning process. Besides its inclusivity, participatory M&E also aims to ensure accountability but not just to funders - to all stakeholders.

Guijt and Gaventa (1998) outline four broad principles at the heart of PM&E:

- 'Participation' - this means opening up the design of the process to include those most directly affected, and agreeing to contribute to data gathering and do the analyse together;
- Inclusiveness - this requires 'negotiation' to reach agreement about what will be monitoredor evaluated, how and when data will be collected and analysed, what the data actually means, and how findings will be shared, and action taken;
- Learning - is a key goal of PM&E and result of the above two processes; this shared learning then becomes the basis for subsequent improvement and corrective action;
- Flexibility - is essential, since the number, role, and skills of stakeholders, the external environment, and other factors change over time.

When is it used and what is its value?

Campilan (2000) noted that participatory evaluation is not a universally appropriate

approach. It can only take place within the broader framework of a participatory development program. It is incompatible with linear, top-down research or development approaches because they operate under different assumptions and principles (see Module 4, for example, on criteria for validity). The exclusive use of external evaluators in a participatory development programme, for example,would be a gross contradiction.

For Campilan (2000), by involving all stakeholders (e.g. local people, collaborating organizations,programme field staff), participatory evaluation attains the following:

- A more well-rounded perspective of the programme being evaluated
- Support from a broader base of stakeholders and access to their knowledge, expertise andresources.
- Wider ownership and sharing of responsibility
- By allowing intended programme beneficiaries the space to represent their ideas and values, and have these recognised as significant, participatory evaluation promotes self determination and agency amongst stakeholders.
- Validity of evaluation is enhanced through the multiple sources being tapped.
- Evaluation becomes ethically sound since it involves those who are most directly affected by its outcomes.

The epistemological argument for participatory processes of knowledge creation has been introduced in Module 3A, with reference to Santos (2018), who argued that we are living in a 'cognitive empire' in which only certain (modern Western scientific) knowledge forms are regarded as credible. According to Santos, this leaves everyone impoverished, because all knowledge is partial, and a much wider range of ways of knowing (including modern Western science) is needed to understand (for example) sustainability problems and how to respond to them. Participatory research and evaluation methodologies can help to expand the range of knowledge forms ESD practitioners and stakeholders have access to (establishing rich 'knowledge ecologies' that compensate for their partial natures), provided the evaluation methodology allowsfor the recognition of these 'other ways of knowing'. Of course, they are not guaranteed to do that, e.g., if all participants share the same understanding or perspective, the participatory process may not contribute to knowledge ecologies.

NRM example

The following hypothetical example of participatory evaluation is based on the guidelines provided by Aubel (2004) and Estrella & Gaventa (1998). The example involves farmers learning more aboutenvironmental degradation so as to improve their preparedness in addressing various existing andpotential farming and livelihood challenges. How could such a learning process be evaluated in aparticipatory manner?

Stage I: Planning the PM&E process and determining the objectives and indicators

This stage involves the identification of stakeholders. Besides the farmers this could include their families and other community members, extension officers, development agencies, policy makersand funders. The objectives and each participant's role in the M&E process are discussed. Through a lengthy process of negotiations, contestations and compromises, indicators will be identified, along with the reasons for their inclusion and how and when they will be measured and by whom. The indicators may include food security, community knowledge, evidence of soil erosion, dam water levels, diversification of income streams, etc. Depending on stakeholders' interests, a common set of indicators are developed, however, where there are varying concerns and objectives, different sets

of indicators should also be developed by different stakeholder groups (i.e., a mix of common and contextual indicators).

Stage 2: Data gathering

This stage involves the collection of all relevant data, which can be both qualitative andquantitative. Questions that should guide the conduct of
data collection at this stage:

- What would be the source of data?
- Which tools will be used?
- Who should do data collection and when?

Quantitative data collections methods can include:
community surveys; intercept interviews; and observationsof the environment based on the chosen indicators. Qualitative methods can include various participatory learning methods using visual, interviewing and group toolsand exercises.

Stage 3: Data analysis

Traditionally, data analysis is reserved for experts, however, under PM&E all stakeholders are involved at all levels. The farmers will therefore also be involved in drawing conclusions and in suggesting recommendations for best practices. Data analysis techniques to be used will depend on the data collection tools used and the type of data obtained in the previous stage (Estrella & Gaventa, 1998).

Stage 4: Documentation, sharing information and deciding on the way-forward

In as much as the preceding stages can strive to attain full participation of all stakeholders, this is not always feasible. This stage involves the sharing of insights and outcomes including with stakeholders who may not have taken part in preceding activities. Further discussions will be conducted on the actions to be taken to address emergent concerns and recommendations will beput forward. This stage requires great communication skills that include clarity, simplicity, accessibility, consideration of intended audience, precise messaging, and often also the use of non-verbal communication aides such as charts, images, and maps (Estrella & Gaventa, 1998). Finally, stakeholders will pick the recommendations according to their priority and feasibility.

What are the limitations and how can these be overcome?

According to Campilan (2000), the following are common limitations that are associated with participatory evaluations and how they can be addressed:

- There is no consensus amongst evaluation practitioners on what a “true” participatory evaluation should look like.
- Participatory evaluation has the potential to disrupt existing power relations amongst stakeholders and if not addressed well, this can create more challenges than solutions. Participatory evaluation leads to contestations on various evaluation aspects such as objectives, criteria, measures, and methods. Program managers and supporters may disapprove of a participatory approach because of the perceived threat to their power andauthority once they share with local people the control over the evaluation process and outcomes.

- Participatory M&E is often a challenging process for all concerned since it can require participants to examine their assumptions about what constitutes progress, and to face upto the contradictions and conflicts that can emerge.
- While a participatory approach seems ideal, in many instances intended beneficiaries maychoose not to participate. This could be because they do not see the results as having direct and practical use for them. Deliberate efforts are needed to ensure that evaluation has concrete value for the stakeholders. Otherwise, participatory evaluation can be experienced as an unnecessary burden, and/or a token gesture by researchers in the name of participatory development.
- Evaluation is often experienced as an add-on responsibility by already busy programme staff. Hence the evaluation processes should be carefully designed to support their participation. For more on this, see developmental evaluations (Patton, 2011) and a summary of a participatory evaluation designed and implemented by AWARD (2018).
- Evaluation practitioners may struggle with participatory evaluations if it has not formed part of their training or prior experience. The method requires combined capacities in evaluation and in participatory approaches (see AWARD, 2018 and Rosenberg and Kotschy,2020).
- Evaluation, participatory or otherwise, is a costly process in terms of money, effort, and time. Yet these costs of evaluation are often not factored into programme planning and budgeting.

Underlying theory

Kemmis and McTaggart (2005) note that there have been four generations of participatory evaluation and the extensive history of the methodology cuts across many fields of social practice.The first generation began with the work of social psychologist Kurt Lewin (on action research). Participatory research is driven by the values of social and environmental justice. It gives priorityand a voice to the most disenfranchised members of the society. These may include the "victims"of injustices who may not have the capacity to bring scientific evidence of the problems that bedevil their communities as a result of insufficient influence and resources (Cargo & Mercer, 2008, p.329).

The postcolonial literature provides an important argument for participatory approaches to knowledge creation, as evident in the work of Santos (2018) quoted in this module, among many others, in recognition of the epistemic injustices incurred when only certain kinds of knowledgewere recognised as useful for addressing societal problems.

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Reflective practice as an evaluation method

What is it about?

Reflective practice has been one of the most popular professional development and organisational learning theories that dissects the nexus between professional practice and continuing education programmes and can also be recognised for evaluation purposes. For Kinsella (2010), the theory is concerned with understanding professional knowledge. It seeks to answer the question:

- What does it mean to know in professional life?
- How might we conceive of professional knowledge for the good of the practitioner, the learner (if the practitioner is an NRM social learning facilitator), the professions and the field (of, in this case, NRM), and society more broadly?

Tay and Jain (2019) explain that practitioners like educators encounter unexpected challenges and novel phenomena in their daily work, and without well calculated interventions, artistry andskills, their work may be impossible. Schön (1993) puts forward an explanation on how practitioners consciously seek to understand these challenges and the reasons a routine intervention may suddenly not be working anymore. The process he described is termed‘reflection-in-action’, through which practitioners progressively devise new ways of addressingunanticipated challenges (Cameron, 2009).

When is it used and what is its value?

Over the years, reflective practice has been integrated into professional induction programmes, continuing education programmes, and by professional bodies of varying professions that include health and social care (Kinsella, 2010). Depending on the profession and ideological backgroundthat informs the reflective practice to be used, McLaughlin (1999, p.11), notes that there are two questions that should asked before one jumps on the “bandwagon”:

- How ‘reflection’ is to be understood. These include queries about the nature of reflection(e.g. how explicit and systematic it is or should be, and how it is related to action) and ab,out its scope and objects (e.g. the matters on which teachers are invited to reflect about).
- Second, questions about the value of reflection, include whether ‘reflection’ is an outcomeon its own or a means to an outcome. In education, McLaughlin (1999, p.11) asserts that, it is better put in the following form: is reflection valued simply as a process, or in terms of the quality of the judgements—and possibly action—to which it leads?

NRM example

This section will provide a hypothetical NRM example of reflective practice.

Farmers take part in a training workshop on the use of environmentally friendly ways of farming.The knowledge and skills that these farmers get exposed to will be practically relevant to the desired environmental outcomes. The knowledge and skills may include avoiding streambank cultivation, pest control, use of hazardous chemicals and cultivars that may be detrimental to environmental ecosystems, etc. Upon the completion of the training workshops farmers are awarded with certificates and are regarded as knowledgeable on matters to do with environmentalsustainability and it is now their duty to put into practice (in varying contexts) the information that they have acquired.

However, after a couple of seasons with plausible outcomes, disaster strikes. A rampant locust plague that has the potential to wipe away all the crops and a drought with the potential to dry out all their crops. Farmers are now faced with an unprecedented dilemma which they try to understand and solve through *reflective practice*. There is a discrepancy between what they learnt (theory) and what they are experiencing (practice). Tay and Jain (2019), labeled these two distant fronts as “sloppiness" (theoretical and common problems) and “hard zones” (unpredictability of practice). Behind these two fronts, is the clash between professional values, goals, purposes of their knowledge and skills and the new realitythat was at least not part of their training and at most condemned in their training.

In the case of the locusts, farmers may use chemicals that will control the locust but will have long-term environmental effects. In the case of drought, farmers may choose to sink more boreholes to improve their water supply, however this may threaten their local aquifers. To maneuver around this dilemma, farmers go through an evaluative introspective process of asking themselves questions like:

- What does it mean to be a farmer today and in the future?
- What would be intended and unintended consequences oftheir prefered interventions?

This continuous process will require time, objectivity, and the understanding of one’s self in relation to their positionality in their new farming realities and in other future possible realities.

The limitations and how these can be overcome

Though reflective practice has gained much recognition and has been widely adopted, there remains are concerns about the lack of conceptual clarity surrounding the term

reflective practice and the notion of reflection itself. Kinsella (2010). The notion of reflection has become paradoxical and now has subjective meanings such that it is sometimes used on concepts that have nothing to do with reflexivity and the term reflective practitioner is in some cases used loosely without proper bases for its use. McLaughlin (1999) explains that the term has become fashionable because of its political and educational convenience, especially in opposing emergingtrends and reforms in the education sector. To put this into perspective, McLaughlin asks:

- Who, after all, would want to champion the unreflective practitioner?

This question exposes the fluidity of reflective practice. One reason this is so, is because Schön'stheory of reflective practice is open to such a wide range of interpretations is related to the broad nature of the epistemological assumptions that underlie it (Kinsella, 2010).

To address these dilemmas McLaughlin (1999) proposes two solutions:

- First, there is a need for a shift from sloganeering about the reflective practitioner and giving a proper definition to the concept. This is achievable through exploring the conceptin detail to find out what it means and what it involves as well as the extent of its influencein both training and training of the trainers.
- Second, there is a need for a shift from the concept in its traditional form towards acknowledging its shortcomings. Thereafter, it should be strengthened and be strategicallypositioned in a well-defined and reliable context that would ensure a universal descriptionof what it means.

Underlying theory

Reflective practice is a continual learning strategy that is rooted in the philosophy of constructivism. Central to both constructivism and reflective practice is that knowledge and beliefs are formed subjectively within learners and cannot be transmitted without the active involvement of the learner. The continued development of knowledge (learning) builds on prior knowledge and grows out of experience, and specifically problematic experience, reflective practice expands on constructivism, with its distinction between two types or levels of cognitive activity: the theory-in-use and the espoused theory (Osterman, 1998). In the same way that reflective practice recognizes prior learning or preconceived ideas, constructivism recognizes how an individual incorporates the new experience/insights into the existing knowledge withoutdiscarding it. Thus, newly acquired knowledge simultaneously exists in one's mental framework (Adom, Yeboah & Kusi Ankrah, 2016).

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Complexity-sensitive approaches

Developmental Evaluation

What is it about?

Developmental evaluation is built into the DNA of an innovative programme; its role is to track what emerges under conditions of complexity, documenting and interpreting the dynamics, interactions, and interdependencies that occur as the programme unfolds, and working with the implementers to make sense of what emerges. In this method for evaluating educational or development programmes, the evaluation process also adapts as the programme adapts to contextual changes and new insights.

At different stages of the programme cycle, the evaluation plays different roles. It helps to identifywhat the programme goals and objectives (and possibly the theory of change) are, and keeps track of how they may change over time, as in complexity-sensitive programmes and evaluations, there is an understanding that greater specificity about goals and objectives will develop over time, andthat the theory of change may not only become clearer during implementation, but may even change due to contextual changes, or changes in understanding based on feedbacks during implementation, or both. Evaluation is central in providing the feedbacks through ongoing monitoring. The evaluation team's understanding of what is to be monitored, also changes over time.

Developmental evaluation is suitable for programmes whose implementers are social innovators and change agents and who, (with the support of their funders and other stakeholders) keen to collaborate with the evaluator(s) to conceptualise, design, and test new approaches in a long- term, on-going process of development, adaptation, and intentional change. The evaluator or evaluation team has an integral role in the programme, which includes elucidating team discussions with evaluative data and logic, and to facilitate data-based decision making in the developmental process as the programme unfolds (Smith, 1994b, p.220)

How does it work?

Developmental evaluation is in some ways a general approach to evaluation, and various other methods could be described as developmental as well. However, as a specific method for evaluation, the evaluator joins a programme team very early on in the process, to also help withprogramme design, with a built-in evaluation dimension. One or more members of the evaluationteam is usually stationed within the programme and work alongside programme implementers to monitor agreed-upon aspects of the programme, gather additional information from time to time,share findings, and convene programme implementers to reflect on findings and consider what they mean.

As the programme adapts to changing circumstances and/or insights, so the evaluation itself alsoneeds to be open to adaptation. Over the life cycle of the programme, the evaluation also needsto adjust to the programme's changing nature and needs. At the start, for example, when the implementers are very busy getting implementation activities off the ground, they may be less amenable to spending long hours in reflection meetings.

When is it used and what is its value?

Developmental evaluation is useful in innovative settings where goals are emergent and changingrather than predetermined and fixed, time frames are fluid (e.g., in longer term programmes) andthe purposes are innovation, change, and learning rather than (or in addition to) external accountability (Patton, 2011, p.viii). Accountability is first and foremost to the implementers themselves, as opposed to external parties like funders, as it is assumed that the implementers driving the programme, as social innovators and change agents, have very high stakes in their programme achieving what they broadly set out to do.

Developmental evaluation is suitable for complex contexts because it is sensitive to the context,and it helps to track contextual changes and reflect on their implications for the programme's theory of change and implementation plans. Responsiveness and adaptation, both to the context and to the life cycle of the programme, are key features of developmental evaluation. It is especially appropriate for situations of high uncertainty where what may and does emerge is relatively unpredictable and uncontrollable. A recent example of such a situation is the Covid-19 pandemic; others may be innovations such as new approaches to community development, or experiments with green economy initiatives.

Programmes using adaptive cycles or strategic adaptive management, find developmental evaluation most aligned to their way of work. The evaluators need to be comfortable with "uncertain beginnings, muddled middles and unpredictable endings that ripple on and on withoutend" (Patton, 2011, p.9) and to understand these as unavoidable features of innovative change-oriented projects in complex social systems.

NRM example

In a partnership between USAID and AWARD (the Association for Water and Rural Development) in South Africa, the evaluators were brought in to help with programme and evaluation design earlyon. The five-year programme (eventually extended to 7 years) was seen as an innovation to buildresilience to climate change and other stressors in the coupled social-ecological systems in a largelandscape, the Olifants River catchment. The project involved multiple water and land user groups, from isolated rural villagers and subsistence farmers to game farms, conservation areas, commercial farmers, mining companies and the government agencies responsible for providing services and protecting natural resources in the face of devastating droughts, deep social and economic inequality, good governance risks and other challenges.

As AWARD rolled out its programme of diverse capacity building and support initiatives, starting with a deep contextual analysis and stakeholder engagement, the evaluation team worked alongside them to decide on suitable indicators, map out broad and specific theories of change, and adapt reporting formats to suit the stage in the life of the programme, as well as its changing feedback and learning needs.Implementers were closely supported by the evaluators, who helped to convene reflection meetings, analyse field reports, and co-author quarterly and annual reports. Extensive data was needed for ongoing strategic adaptive decision-making and ranged from case studies using most

significant change stories (in the early stages of the programme) to value-creation evaluation methods and indicator-based quantitative monitoring in the middle and later stages of the project.(For more on this project see http://award.org.za/).

Underlying theory

Developmental evaluation as described by Patton (2011) is informed by systems theory and complexity theory in general, and in particular by the theory of complex adaptive systems (CAS).Principles for operating in complex adaptive systems therefore inform the practice of developmental evaluation. Characteristics of complex adaptive systems, to which this kind of evaluation aims to respond, summarised by Patton (ibid) are:

- nonlinearity
- emergence (see Module 3A)
- dynamical
- adaptive
- uncertainty (see Value creation method), and
- coevolutionary.

While CAS theory is well known in the fields of ecology, natural resource management and sustainability sciences, in organisational contexts it has been extensively developed by Stacey (2001), which influenced the developmental evaluation design promoted by Patton (2011) described here. Patton's description of developmental evaluation also draws on the learning theories developed by Argyris and Schön (1978), on single and double loop learning and reflectivepractice (see Reflective Practice in this Module). In single loop learning, implementers compare the difference between what they aimed to achieve and what they achieved and adjust their actions to better reach their target. In double loop learning, implementers go further and interrogate the system that led to the problem in the first place and aim to make system changesso that the cause of the problem can be addressed, and to embed the solution in a changed system (Patton, 2011, p.11).

Limitations and how they can be overcome

Developmental evaluations work best where there is an individual or preferably, a group of peoplein the organisation or setting being evaluated, who care about the evaluation and the findings it generates. Under these circumstances, there is optimal participation and findings are used. However, programme implementers often regard evaluation as an intrusion into their busy implementation schedules, and or a judgement on their performance. It takes time to and patience to build trusting relationships with all members of the implementation team, numerous orientation sessions, and a sensitivity to and willingness to adapt to the implementers' needs, tobuild a strong team consisting of both evaluators and implementers, all keen and interested in what the evaluation processes can offer the implementation processes.

Another limitation is of course that stakeholders want to see evaluation results in recognisable formats, often quite early on in the life of a long term programme, and developmental evaluationscan use any of the other methods described in the module to share a mix of quantitative and qualitative findings as they become available, with the caveat that they represent feedbacks rather than final findings.

(See in particular Process-oriented approaches: Value-creation method).

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Activity system-based analysis

In time, this section will be expanded with an additional method for more complexity-sensitive evaluation, namely activity system analysis. A method introduced above, namely value creation evaluation, is a further example of complexity-sensitive approaches to evaluation.

Concluding Section B

There are a few more formal evaluation methods that could have been included here. There isalso more nuance and detail about each method that should be known by anyone wanting to use them to practically design and undertake an evaluation. The Module is neither comprehensive inits coverage of all formally recognised evaluation methods, nor offering a detailed handbook onhow to conduct evaluations using the methods covered. It is aimed midway between introducing a useful spectrum of methods and associated approaches and giving enough information about them to help course participants decide which to explore further. References are provided for such further exploration. The Module provides some important practical pointers, but practical details should be worked out further in a particular context, with reference to any of the resources that are specific to the chosen method, or generic but suitable for the chosen methodand context.

Throughout Topic 4.3 there has been reference to the underlying assumptions that shape particular evaluation methods, or the use of these methods. These are sometimes described as different evaluation or research paradigms, but the field of evaluation is in practice fluid, featuring various links, lineages and overlapping trends, so that it may be difficult or impossibleto capture it in discrete paradigms (on this point, see also Pawson and Tilley, 2007). Course participants may conclude that the chosen methods reflect “qualitative” rather than “quantitative” evaluation and this is to some extent true, if by qualitative we mean “not empiricist”. However qualitative and quantitative are in some ways labels most suitable to referto different types of data.

Most methods introduced in this Module can make use of both qualitative and quantitative data, but with the exception of the experimental design, the different data forms are not used with an empiricist assumption that quantification is the only way in which to really make sense of the findings. For example, in the Most Significant Change method, participants may share quantitative information in their “significant accounts”, e.g., the growing size of the area of land which they replanted with trees, could be a significant change story for them. However, the evaluation conveners would not necessarily be looking for the mostfrequently mentioned change to decide which is the most significant.

Rather than calling them “qualitative methods”, the notable features of the majority of evaluation methods and approaches in Section C are:

- the turn towards inclusivity and participation, and
- valuing diverse knowledge forms;
- designing for complexity, and
- designing for real time learning as part and purpose of evaluation processes.

Topic 4.3 gives participants the language to reflect on the different approaches they may want to explore for their own evaluation designs. In the process of design one encounters the need toconsider how best to ensure that the evaluation findings will be regarded as credible or trustworthy by the stakeholders, ranging from intended beneficiaries, implementers and fundersto broader publics, as well as other ESD practitioners eager to know how to improve their own practices and programmes.

To that end, evaluation design also includes a significant consideration of **validity criteria**, associated with the different approaches to and methodologiesfor evaluation. Thi is not covered in Module 4. Another important consideration, already raisedin this Module, is how the findings of evaluations are to be **communicated**. Communication strategies, too, may differ depending on the underlying approach, method, as well as purpose(s)for a particular evaluation.

Section C

Introduction to Methods and Approaches

As one examines a formally recognised evaluation method, such as a Most Significant Change method or the Value Creation Framework for its suitability for stakeholder engagement and social learning processes, one needs to consider how it will serve a multi-purpose goal: evaluation that is accountable to funders and institutions, that can produce credible evaluation outcomes to communicate to external parties, and at the same time, is a source of learning for all involved.

The same consideration was applied when the next section on Terminology was compiled. How are standard M&E terms applicable in this special context of evaluation of transformative processes, such as stakeholder engagement and social learning in NRM?

Terminology

When engaging with the literature on evaluation, and with other evaluators and evaluation participants, it is helpful to know basic terms so as to plan and implement well-informed evaluation processes with others and to demonstrate their credibility when necessary.

It is also important, at the start of this module, to agree on how some key terms will be used.In the field and in the literature the same term (e.g., outcome) can be used in different ways, and different terms (e.g., method, approach, process) can be used to refer to moreor less the same thing. Some method-specific terms are elaborated in Section C. Here in Section B the focus is on some generic or commonly used terms. The chosen description isadapted to the stakeholder engagement and social learning context.

Methods, approaches, instruments, tools

These terms are very generic and can be used in a variety of ways; here is an explanation of how they are to be used in this module:

- an evaluation method is a set of guidelines and decisions to make on how to design and do a particular type of evaluation, which will unfold differently from anothertype of evaluation. The method (also referred to as the evaluation **design**) involves a coherent set of considerations, that will guide a formal, coherent, and defensible evaluation process to address a certain purpose while meeting certain expectations from the stakeholders. An evaluation method is similar to a research method, where an experimental method for example, is different to a narrative enquiry method. Guidelines for how to design and do a narrative enquiry evaluation and how to design and do an experimental evaluation will differ, each set of guidelines will be coherent and characteristic (albeit with some overlap) and so these are two different methods.
- The term approach is used to mean a broader set of considerations than methods.For example, one may take a broad participatory approach, within which one wouldthen choose one of several possible participatory methods, e.g., a participatory action research, or a participatory appreciative enquiry. A method can also be described as an approach, depending on the level of specificity one has in mind, e.g., one could consider a case study approach (broadly referring to assumptions about using cases rather than other units such as whole populations) or a case studymethod, which would refer to more specific guidelines on how to go about evaluating a case.
- To conduct an evaluation process, with its characteristic approach and method, one may require the use of some tools, activities, or instruments. For example, the method of 'most significant change (stories)' uses a narrative approach, as well as a participatory approach, in which activities like story solicitation and tools like story selection templates could be used. Tools, activities and instruments are terms often used interchangeably, with the difference being the extent to which they arestructured. For a large-scale survey, for example, a tightly structured instrument (the questionnaire or list of questions, exactly as they are to be asked) is used, sothat all survey participants respond to the same questions, and answers can be aggregated for statistical comparisons. The evaluator is not likely to change the instrument (questionnaire) mid-way through the survey. In a workshop, on the other hand, activities would be planned beforehand, but also flexible enough (i.e., less structured) to be adjusted if necessary as the workshop unfolds, to better engage the participants towards the desired purpose. The term **tools** can beused quite generically to refer to a wide range of online and printed reporting formats and templates,question sets, question designs (such as the well- known Likert scale), statistical techniques and formulae for calculating differences.

Many of these will be encountered through Section C, and there is merit to consider tools, activities and instruments that have been tried and tested but evaluators can also design their own.

Monitoring and Evaluation

Development agencies and government funded initiatives often use the terms **monitoring and evaluation** (M&E) together, as a system for measuring changes in programmes (or policies) and assessing their impact (OECD, 2011, p.7). **Monitoring** in these contexts involves the recording of activities and results, that will then be collated to account for how resources have been used, and to what end. Monitoring provides the information needed for accountability purposes, but also data that can be used for evaluation purposes (see below).

Monitoring can also be done by programme participants (or citizen scientists and community activists) to monitor what is happening to Commons resources like rivers, air quality and forests, to pick up the impacts of pollution for example, and track improvements brought about by sustainability actions. Citizen monitoring is a powerful approach to stakeholder engagement and social learning, an example of the evaluative nature of stakeholder engagement and social learning.

In Section C we focus on evaluation methods, but we can assume that in longer-term evaluation systems, monitoring will be part of a coherent monitoring-and-evaluation system.

Generically, monitoring is simply data collection, that requires a protocol, agreement on what is to be monitored, why, how, how often, by whom, and how the information should be stored and shared. In specific evaluation methods, monitoring practices will be influenced by the method, e.g., one will collect stories or quantitative data; it will be collected by external parties or programme participants. When evaluations are undertaken, the quality and relevance of the monitoring data should also be evaluated and adjustments made where necessary.

Evaluation is needed to complement monitoring, for while monitoring can alert us to problems that arise or improvements needed, evaluation is necessary to understand the nature and causes of the problem and the reasons behind the improvement. Molund and Schill (2007, p.12) noted that, while monitoring provides records of activities and results, and signals problems to be remedied along the way, it may not be able to explain why a particular problem has arisen, or why a particular outcome has occurred or failed to occur. To deal with such questions of cause and effect, an evaluation may be required. Only with deeper understanding can we decide how to address a problem, or under what conditions asuccessful intervention can be scaled out or scaled up.

Molund and Schill (2007, p.11-12) describe an evaluation as a reality test, a learning mechanism that provides feedback on the results of the action in relation to programme objectives, plans, expectations, or standards of performance. The requirement that evaluations should be systematic and credible derives directly from the function of evaluation as a reality test. To serve as a probe on the realism and accuracy of plans and expectations, an evaluation must use sound and transparent methods of observation and analysis (ibid).

There are many kinds of evaluations, that serve different purposes in the life of a programme: from diagnostic evaluations and feasibility assessments, to design evaluation, implementation evaluation, economic evaluation (like cost-benefit analyses), outcomes evaluation and impact evaluation, as well as synthesis or meta-evaluations that collate and analyse the findings of other evaluations.

Assessment and Review

An assessment is a critical evaluation of information, for purposes of guiding decisions on acomplex, public issue. The topic is defined by the stakeholders, who are typically decision makers. Assessments are conducted by a credible group of experts with a broad range of disciplinary experience, in a balanced and transparent way. Assessments *reduce* complexity but *add value* by summarisation, synthesis and sorting what is known and widely accepted, from what is not known (or not agreed). Assessments relate to the situation at a particular time and in a given geographical domain. They are often repeated after some period.

Table 1 is based on the explication of scientific assessments in the report on the Millennium Ecosystem Assessment (2005). (www.millenniumassessment.org) (Source: PAGE, 2016, *Green Economy Learning Assessment South Africa*, DEA, DHET, UNITAR and Rhodes University,
https://www.un-page.org/files/public/green_economy_learning_assessment_south_africa .pdf.)

Table 1: Comparing Reviews with Assessments

	Review	Assessment
Audience	Scientists	Decision makers
Done by	One or a few	Large and varied group
Topic	Simple and narrow	Broad and complex
Identifies gaps in	Research: curiosity driven	Knowledge for implementation: problem-driven
(Un)certainty statements	Hidden	Required, but clearly flagged
Coverage	Exhaustive, historical	Sufficient to deal with main range of uncertainty
Synthesis	Not required	Essential to reduce complexity

Effectiveness and Efficiency

Effectiveness is about whether a programme achieves what people want it to achieve. In the context of interventions that have clearly defined, predetermined targets or goals, effectiveness refers to whether the targets or goals have been met as a result of the implantation of planned activities. In the first case we are concerned with theachievement of targets for the production of goods and services (such as stakeholder engagement and social learning materials or workshops). In the second we are concerned with the achievement of the further effects that we intend to bring about through these materials and workshops. Effectiveness at the output level is no guarantee for effectiveness in terms of outcomes and impacts. An intervention may achieve all its targets with regard to goods and services, and still not be effective at the outcome and impact levels (Molund & Schill, 2004, p. 28). Effectiveness should ideally be determined at the level of outcome and impact. Efficiency is about what lies between the process of intervention and the results. More exactly, it is the ratio of the value of the results of an intervention to the value of the resources used to produce them. An intervention is optimally efficient if its value is greater

than the value of any alternative use of these resources. If the same resources could have produced better results in some other way, or if the same results could have been produced with fewer resources, it is less than full efficient (Molund & Schill, 2004: p. 37).

Inputs, outputs, activities vs outcomes, and impacts

Inputs in stakeholder engagement and social learning initiatives are all the resources required for the stakeholder engagement and social learning process being evaluated, that which is being used to do the work; often considered to be what donors, governments, and other parties invest to make the programme happen. This usually includes staff, physical resources, teaching materials, and funds. Very often, inputs can also be outputs, that is, if practitioners produce what they need themselves, as part of the stakeholder engagement and social learning process. Examples of inputs that can also be outputs (and then become inputs again in further processes) include policies, partnership contracts or formal agreements, and teaching materials.

Outputs are materials and other produces produced and services delivered, e.g., a funded programme may deliver a series of stakeholder engagement and social learning resources or workshops which would then be called its outputs (workshops could also be called activities). While outputs and activities are easy to count up, they are seldom the final intended outcomes of a programme.

Inputs and outputs language is associated with simple engineered systems (think of a pipeline) and so-called results-based and public management. That is why it is often difficult to apply these concepts to more open-ended, complex, and emergent systems and processes.

Activities are the work being done in stakeholder engagement and social learning programmes, using the inputs and producing outputs and hopefully also outcomes (results) in the process. In stakeholder engagement and social learning programmes the activities canbe workshops, lectures, field trips, networking, practical experiments, modeling, forecasting, tree planting, gardening, building, producing new policy, producing teaching materials, doing radio and TV broadcasts, and more.

Outcomes are results or intended benefits, in the form of specific changes— what we wish to achieve. They can be divided into initial (short term), intermediate, and long term and are the results of the interactions between the programme processes, inputs, activities, and outputs, as well as contextual factors—foreseen and unforeseen. There can be much disagreement about what constitutes an outcome vs an output and also about the difference between outcomes and impacts. In some classification systems, the impact is the more immediate result, with the outcome being the longer term, and ultimately desired result. In other classifications, it is the opposite.

Impacts, in the system used here (SIDA's Evaluation Manual (Molund and Schill, 2007)) are usually regarded as the longer term or 'final' results of achieving all the desired outcomes. The impact is the operationalised version of the vision that has been set for the programme at its start, although there is also a recognition that impacts can be both intended and unintended, both positive and negative. The difference between outcomes and impacts is often one of scale (e.g., individual outcomes, system level impacts) and/or time (outcomes in the shorter term and eventual impacts in the long term).

NRM example

The impact we would like to see from stakeholder engagement and social learning for NRM, for example, would be citizens, industries, and governments all using natural resources in a socially just and on an ecologically sustainable basis. Working back from this ultimate impact, the long-term outcomes would be sustainability and justice being considered by citizens, industries and governments in all their decisions and actions. Working back from there, more short-term outcomes would be that these role-players havea good understanding of the nature of and need for NRM. When we think about how that isto be achieved, we think about activities and outputs (like knowledge resources and processes for building agency) and finally, about the tangible resources we will need for these NRM related stakeholder engagement and social learning activities, i.e., budgets, staff,skills, materials, and so on.

Indicators

Indicators are the observable occurrences which provide evidence that something significant has happened – whether an output was delivered, an intermediate outcome occurred, or long-term changes are manifest (Bakewell, et al. 2003, p.21). The simplest definition is a "piece of information that provides evidence of a change". Indicators can be quantitative (e.g., the number of new NRM courses introduced at universities in 2020) or qualitative, requiring a more subjective evaluation. It is imperative to mention that indicators provide an idea of the changes that took place, but do not explain the change process. It is also important to ensure that the means of collecting indicators will remain constant over time.This is crucial in order to ensure comparability, especially in the context of adaptation where end of programme evaluations may not take place until twenty or fifty years after programme completion (Lamhauge, et al. 2012, p.24).

Programme, Project, Intervention

- Programme is a set of interrelated interventions, projects or projects that are typically implemented over an extended period of time, often by several parties, and may cut across sectors, themes and/or geographic areas. A programme may have a range of strategies working towards defined outcomes, for example it may be a mixture of development, relief,advocacy, networking and capacity building (Office of the Director of U.S. Foreign Assistance, 2009, p.9). In an NRM context, a programme is a coherently planned set of stakeholder engagement and social learning activities or interventions over a longer periodof time.

- Project is a discrete activity (or 'intervention') implemented by a defined set of implementers and designed to achieve specific objectives within specified resources and implementation schedules. A set of projects make up the portfolio of a program (Office of the Director of U.S. Foreign Assistance, 2009). At the heart of project design is deciding what to improve or change, and how a project can bring about that change. However not all projects bring about dramatic change. Stabilising a situation or slowing the rate of decline could be just as important (IUCN, 2004, p.6). In an NRM context, a project might be a discrete activity, such as an experimental planting or a short-term workshop series ona discrete topic.

- Intervention is an action or entity that is introduced into a system to achieve some predetermined outcome or result. In the program evaluation context, an intervention refersto an activity, project or program that is introduced or changed, amended, expanded, etc., (Office of the Director of U.S. Foreign Assistance, 2009, p.9). Social learning as aneducational process is not usually conceptualized as an intervention. However, a donor or government might propose an intervention to strengthen a country or organisation'scapacity to undertake stakeholder engagement and facilitate social learning.

Accountability

Sida (Molund and Schill, 2004, p.14) defines accountability as the relationship which exists where one party – the principal – has delegated tasks to a second party – the agent – and the latter is required to report back to the former about the implementation and results of those tasks. If an NRM agency has received funding from someone such as Sida to undertake NRM activities, then that form of accountability will apply, based on the agreement between the parties (such as a contract) and often evident in reporting. However, accountability also involves the NRM agent's answerability vis-à-vis other partners, such as the social learning programme participants. In this case reporting is still important but can take a variety of different forms. Social learning participants and stakeholders can be accountable to each other on a range of issues, not just the use of funding. Some distinguish between financial accountability, which is answerability for the allocation, disbursement and utilisation of funds, and performance accountability, which concerns results. Evaluation, in so far as it serves as a tool for accountability, provides information for reporting about performance and results. It is less concerned with financial accountability, which is mainly the province of auditors and accountants.

Note: The explanations have been kept short here; for a deeper understanding, including a sense of where there are different uses of the same terms, and how different terms are shaped by the assumptions underpinning the particular evaluation approaches in which they are most frequently used, please refer to the references below.

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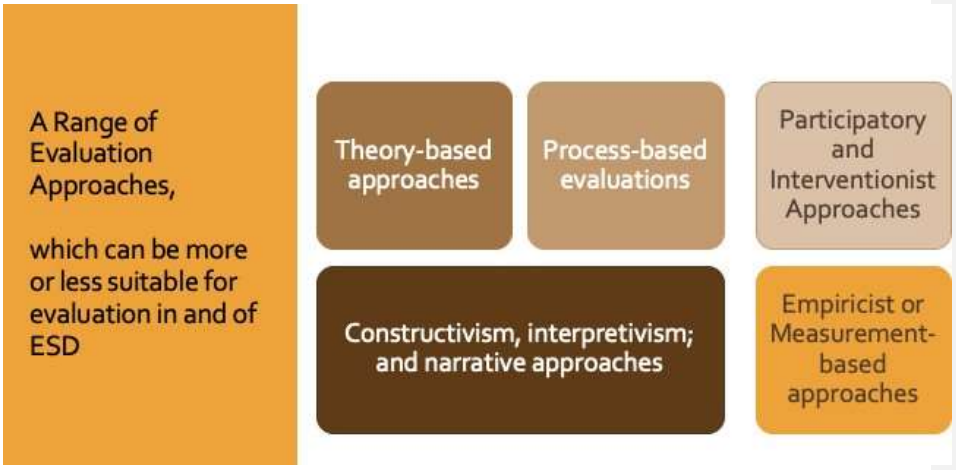
Broad Approaches to Evaluation (an overview)

Table 2: Map of different approaches to evaluation methodology



There are many different ways in which to classify different approaches to evaluation. Evaluation typologies can vary according to (for example):

- **contexts** (e.g., in national policy contexts, or international development intervention contexts, or health programmes, educational programmes, social work programmes, etc.)
- **purposes** (e.g., in a government policy evaluation context, different evaluation types canbe described as diagnostic evaluations, feasibility studies, design evaluations (e.g., strategyevaluations), implementation evaluations, economic, impact and synthesis evaluations.
- **philosophical and methodological framings (**approaches to knowledge and how best toproduce it).

In this course we use the third framing. We focus largely on programme-based contexts, in education and development. A note on scope: We will not be extending discussions about economic evaluations (such as cost-benefit or efficiency evaluations).

1. Empiricist Approach to Evaluation

Evaluation methods typically used with an empiricist approach include experiments (test group(s) compared to a control group), quasi-experimental designs (e.g., pre-test post-test comparisons), surveys and some systematic reviews. These methods can also be used with non-empiricist approaches. So, what exactly is meant by empiricism?

An empiricist approach to evaluation *privileges measurement*, in the form of quantitative data that can be statistically manipulated, *to the exclusion* of all other forms of information. It is based on the premise that one can only trust that which can be mathematically measured, because everything else is too subjective to present the truth about the matter. Empiricism is closely aligned with a logical-positivist approach to science, and with what philosophers like Santos (2018) call 'modern Western science' in its narrowest sense.

This approach has strong support among governments and donors, and has a long history inevaluation, and so it is easy to find information on how to design such an evaluation, and it can be readily communicated. By cutting out most of the contextual variables in a situation,and just focusing on a small set of variables of interest, which are turned into measurablesthat can be statistically analysed, empiricist approaches create the possibility of a straight-forward design and easy-to-communicate findings.

The challenge with an empiricist approach is that it has to try and create laboratory-like conditions, which *on its own*, does not accurately represent reality and *as a stand-alone*, isnot that helpful for evaluation of and learning in stakeholder engagement and social learningprocesses. One is then also required to leave out a lot of contextual and other relevant factors which may not be amenable to measurement or manipulation. This approach represents what Bhaskar (2010) called a shallow ontology, that is, important layers of socialreality are not taken into account in the knowledge production (in this case evaluation) process.

This does not mean that methods like surveys and experiments are not useful if one wants to avoid the shallow or narrow nature of empiricism. They can be used combined with other methods, with other underlying approaches. The empiricist underpinnings - that only that which can be measured, actually exists - would first have to be discarded. For example, one could do a survey of NRM practices at universities across the country in a participatory manner, with academics, students and operational staff first coming together to decide what might be important to include in the survey, and also following up the completion of the survey with focus group discussions at the various universities to discuss the findings inmore depth, in relation to findings from elsewhere. This offers evaluation the 'best of bothmethods' (case studies and surveys) and is often described as a 'mixed methods' approach.For a non-empiricist approach to systematic reviews, Pawson and other realist evaluators are helpful resources (see www.betterevaluation.org).

2. Constructivist Approaches to Evaluation

In contrast to the experimental sciences which seek to discover immutable causal laws and relationships, interpretivism approaches the analysis of human actions as enquiry in search of *meaning*. Constructivism is related to interpretivism and takes the view that knowledge is created or constructed, not discovered, as the product of complex, discursive practices. Researchers do not discover truths about social life or education; they build models and

concepts, often by working with others, to make sense of it, and test and modify these in the light of further experience. Thus, people's interpretations, opinions, perceptions, cultural values and institutional norms, are all regarded as valuable information in the quest for understanding what is going on, and whether a social undertaking like stakeholder engagement is worthwhile or not. Constructivism is a general philosophy (an epistemology and, in the case of radical constructivism, also an ontology) that has informed education and evaluation. In the field of evaluation, the so-called Fourth Generation Evaluation Approach (Guba and Lincoln, 1989) has been influential as an interpretivist and constructivist approach.

It is also worth noting evaluation approaches based on the premise of radical constructivism, which has been associated with post-structuralism and the assumption that all of human reality is socially and personally constructed. This ties in complex ways to postmodern approaches to research and evaluation, where the search for a universal or even a particular truth, is abandoned. Stronach and Mclure (1997), writing from a postmodern perspective, argued that despite the radically open nature of reality, useful evaluations can nonetheless be undertaken. They explain how in an article "Can the Mothers of Invention Make Virtue out of Necessity?" which reviewed the common practice of "quick and dirty" evaluations.

Not all constructivist approaches to evaluation assume a radical constructivist ontology; most assume a realist ontology (Bhaskar, 2010), in which there are layers of reality beyond individuals' interpretation of them, and mechanisms that are social in nature but nonetheless quite intransient, so that some statements and conclusions will be 'truer' and more reality-congruent than others. Subjectivity is addressed through 'inter-subjective' objectivity and multiple data sources and methods are used to give a fuller, more dimensional picture of reality. This is sometimes referred to as triangulation, with either the one truth, or the one best version of the truth to arrive at through the different data sources.

Sometimes constructivist approaches are used by an external evaluation team to arrive at aconclusion about a programme towards the end of a programme's life, which is then reported to the programme stakeholders. At other times, there is an emphasis on evaluation throughout the programme's life, with a view to also continuously improve the programme as it unfolds. Process-based evaluations are not epistemologically different from constructivist evaluations, but to highlight the process dimension, they are introduced here as an additional category; they could also be seen as a sub-category of constructivist evaluation, and they are often used to respond to the complex nature of social settings, asdescribed later in the Module in complexity-sensitive approaches.

3. Process-based Approaches

These are evaluations that recognise the value of ongoing evaluative thinking and evaluative processes, extending from evaluations that are only done at the end of a programme or mid-way through a programme, to evaluations that are done *as part of* programme activity, by the practitioners or programme implementers themselves, with or without other stakeholders, or by external evaluators, or a combination of these role-players. Patton (2011) has promoted and illuminated the notion of developmental evaluation as a prime example of process-based approaches to evaluation, in his book that linked it to complexity and the need for ongoing learning (informed by evaluation activities) when rolling out complexity-sensitive programmes.

Process-based evaluations recognise that evaluation is not just about accounting for how resources have been used or proving whether a programme has been a success or not, but

a source of ongoing learning that can be used to improve the programme. Process-based evaluations also recognise that many educational and social change initiatives involve processes with significant outcomes that might only manifest or be visible far in the future (an example from the natural resource management field is strategic adaptive management), and that in the interim, it is useful to get evaluative feedback so as to steer or redirect the programme, and to recognize whether some worthwhile outcomes can already be celebrated and used to further direct the programme. The value-creation evaluation method (Wenger-Trayner and Wenger-Trayner, 2020) is an example of the latter process-based evaluation.

4. Participatory & Interventionist Approaches

Participatory evaluations are examples of process-based and developmental evaluations andalso a sub-category of constructivist approaches, broadly. They are discussed as an additional category, along with interventionist approaches, because the participatory and interventionist dimensions highlight additional guiding principles and considerations that are worth discussing under a separate heading. A participatory turn has been prominent in stakeholder engagement and social learning and also in broader evaluation fields.

Participatory approaches are based on the assumption that those who implement programmes and those who are meant to benefit from programmes are not just good sources of information for external evaluators to consult; they are in fact well placed to conduct the evaluations themselves. They usually have a very high stake in whether the programme is successful or not; they are on site most of the time; they have special insider insights, butthese insights may only surface if they approach the programme with an evaluative lens; and their emerging insights can steer the focus of evaluative processes towards the most pertinent questions that need to be asked at the time. In fact, in some ways anyone contributing to an evaluation is already a participant, and this approach recognises that and optimises it.

This relates to the epistemological and political reason for knowledge co-construction; as argued by Santos (2018) and others, the current world presents as a 'cognitive empire' in which only certain (modern Western scientific) knowledge forms are regarded as credible, leaving everyone impoverished, because (according to Santos) all knowledge is partial, and a much wider range of ways of knowing (including modern Western science) is needed to understand (for example) sustainability problems and how to respond to them. Participatory research and evaluation methodologies can help to expand the range of knowledge forms that NRM managers, learning facilitators and other stakeholders have access to (establishing rich 'knowledge ecologies' that compensate for their partial natures), provided the evaluation methodology allows for the recognition of these 'other ways of knowing'.

Thesemay include the voices of marginalised people(s), knowledge of the body or senses, knowledge lost in undocumented archives, or knowledge born from struggle. As potentially a form of decolonial practice, participatory research must address the insider/outsider dilemma, i.e., the extent to which insiders (or outsiders) have the right to claim evaluative knowledge of a particular situation; and to craft data collection (or data co-generation) methods that are not extractive in nature and are suitable for bringing to the fore knowledge that had in one way or another been oppressed before.

An ***interventionist approach*** is specifically designed to take some action to address a particular issue, and at the same time evaluate the outcomes of the action, through reflective processes, before taking further action. It can be undertaken by one person only but is often participatory in nature as well. Interventionist approaches to evaluation can bean integral part of daily organisational life, e.g., in the case of strategic adaptive

management and evaluation, where it is often associated with a desire for ongoing learning and capacity development on the part of the participants; in which case it would require learning-focused evaluation (Patton, 2011). Alternatively, it could be a once-off or occasional event to address a discrete problem. An example of the latter may be a reflective practitioner evaluation, where a facilitator, for example, may decide to introduce a new approach to stakeholder engagement, and study the outcomes. When the stakeholders themselves become involved in the design and evaluation process, it can be described as a participatory and interventionist process, that is integrally educational, and developmental,and evaluative in nature.

5. Theory-driven Approaches to Evaluation

Theory-driven approaches are aimed at evaluating societal and institutional intervention programmes, such as the introduction of a new environmental education policy for schools, or an intervention to better resource sustainability education at all universities, or the implementation of a programme to strengthen farmers ability to use new sustainable agriculture practices.

Theory-driven approaches are quite specific to *programme* evaluation, and here it is necessary to distinguish between evaluating programmes aimed at social or institutional impacts, e.g., introducing or improving stakeholder engagement and social learning processes or outcomes (evaluation of stakeholder engagement and social learning) vs evaluating stakeholder engagement and social learning processes and learning outcomes (evaluation in stakeholder engagement and social learning). The programme and the educational impacts are of course linked. A distinction is however necessary here because we can develop a theory of change for a programme but not always for an educational process or curriculum.

The educational logic in a learning programme or curriculum is philosophically different to the change logic of a societal or institutional programme intervention logic. Theory-driven approaches to evaluation apply to programmatic interventions designed to bring about a predefined change: The policy is meant to guide schools on a new curriculum to teach, but it is not the curriculum itself. There can be a drive (programme or other intervention) to strengthen sustainability education at universities, but the drive/ programme is often not the same as the education processes themselves.

So how do we go about evaluating programmes aimed at supporting stakeholder engagement and social learning, and what are theory-driven approaches about? Surely all programmes are based on theories of how the change they want to see in the world, will come about through this programme? That is indeed so, but in practice, very few programmes are explicit about what exactly this theory is, which makes it difficult to evaluate the programme, unless of course, the evaluation is actually aimed at identifying the theory. In theory-driven approaches to evaluation one may therefore start by surfacing and articulating the programme theory, then designing the evaluation from there. Or, one can intentionally undertake an evaluation (often a meta-evaluation) to develop theory.

A program theory approach to evaluation aims to explain what happens between the intervention and the eventual outcome, and *why* this is occurring. The interest in the theoretical underpinnings of interventions is enjoying a particularly popular moment at this time. In *Purposeful Program Theory: Effective use of theories of change and logic models*, Funnel and Rogers (2011) traced the history of theory-driven approaches to evaluation all the way back to Kirkpatrick who, in the 1960s, used four domains of change for evaluating training. In more recent times theory-driven evaluations have become popular where programme developers recognised complexity in the situationsthey were trying to change, to the extent that there is now talk of it representing a fifth generation

of evaluation theory (Brouselle & Buregeya, 2018).

6. Complexity-Sensitive Approaches to Evaluation

The notion that social situations are complex systems is not new, but it has only recently started to receive wider attention in the evaluation community. Based on the disappointing value of evaluation findings compared to the complex questions that need answering in NRM, stakeholder engagement and social learning situations, there have been calls for evaluators to recognise these situations as complex systems. If NRM involves *complex* systems, then evaluation methods that treat them as *simple* systems are seen to be inadequate for evaluating them. Hence the call for what has come to be termed complexity-sensitive evaluations (Britt, 2016).

Some of the features of complex systems is that they have many dynamically and often unpredictably interacting parts. Whereas complicated systems (like a space rocket) also have many interacting parts, those parts are finite in number (the system is closed) and they interact in predictable ways. Therefore, when complicated systems are evaluated, it is easy to set expected outcomes and associated indicators for them and monitor and evaluate them accordingly. What makes systems complex as opposed to complicated, is that (1) they are open; hence it is harder or impossible to pin down the number and nature of interacting parts, (2) the interactions between parts are unpredictable, and (3) they are characterised by emergence, that is, surprising outcomes arise from these often-unforeseen interactions, even when there is some intentionality in the system (that is, it is not random).

A complex system is not chaotic and not completely unknowable; much can be learnt (e.g., through evaluation) about what is going on and why, if one tracks the patterns of interactions and looks for more intransient mechanisms that could give rise to the observable events, interactions, and outcomes in the system. For example, capability, agency and/or sense of community could be underlying mechanisms giving rise to citizens starting a recycling or reforestation programme. Identifying the presence of these underlying mechanisms could lead to some predictions (Bhaskar, 2010; Pawson and Tilley, 1997).

Complexity-sensitive evaluations respond to the presence of complexity not by trying to reduce the complex situation to something simpler, because then their findings will not apply to the actual situation, but by taking cognisance of the features of complex systems. This means being open to emergence, and to acknowledge that there will always remain a fair amount of uncertainty as to what is actually going on. This approach may not be well received by some evaluation stakeholders, but as Wenger-Trayner and Wenger-Trayner (2020, p.26) put it:

> "*Uncertainty, in this case, is a safeguard against oversimplification, biases, and assumptions. Uncertainty is not the opposite of certainty, but its critical friend. Uncertainty is a precaution. It is a way to encompass complexity, to weave it into knowing*".

Two recognised methods for evaluation under conditions of complexity are the value-creation framework for evaluating social learning spaces (like ESD) (ibid); and developmental evaluation as described by Patton (2011).

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Weiss, C. H. (1997). Theory-based evaluation: Past, present, and future. *NewDirections for Evaluation*, 1997(76), 41–55. https://doi.org/10.1002/ev.1086

Wenger-Trayner, E. & Wenger-Trayner, B. 2020. Learning to Make a Difference: Value creation in social learning spaces. Cambridge University Press, Cambridge.

Key Readings

Key readings on the landscape of and different approaches to evaluation. These aremeta-papers, rather than details about specific methods.

Brouselle, A. & Bureyega, J. 2018. Theory-based evaluations: Framing the existence of a new theory in evaluation and the rise of the 5th generation. *Evaluation*, Vol. 24(2), 153–168.

Funnell, S. C., & Rogers, P. J. (2011). *Purposeful Program Theory: Effective Use ofTheories of Change and Logic Models*. Jossey-Bass/Wiley, New York.

Pawson, R. & Tilley, N. 1997. A history of evaluation in 28½ pages. Chapter 1 in *RealisticEvaluation*. Sage, London, pp, 1-29.

Section D

Case study examples of evaluation

Introduction

Four case studies are presented here to demonstrate some of the evaluation frameworks described in Section A, B and C. These frameworks demonstrate how a learning and stakeholder engagement process can be evaluated. When conducting an evaluation, participants must be clear about the aim of the evaluation – in other words what is it that you are evaluating in the learning and/or stakeholder engagement process. Topic 4.3 SectionB discusses the relevant terminologies in monitoring and evaluation and how these relate toevaluation. For instance, we must understand what we are evaluating? Is it outcomes – which is difficult to measure, in the sense that the change can be attributable to various other intervening factors?

In this document we present examples of how one could implement three of the evaluation frameworks, namely the:

1. Kirkpatrick (using the Training of Trainers Course as an example – this example should complement the examples provided in Section A).
2. The Value Creation Framework (two example, one using the Training of TrainersCourse and case study story presented by Sara Durr).
3. Most Significant Change Technique (two case examples are provided shared as linksto videos).

The common theme in the second two frameworks is the definition of value and or change from the perspective of participants, or actors. The change is captured in the narrative stories of actors or participants.

Case Study Examples

a) Kirkpatrick's Four Levels of Training Evaluation

Kirkpatrick's model of evaluation was developed in 1968 and has been a popular framework for evaluating training programs. It has a particular focus on how individuals gain from the training process and uses four levels of evaluation, namely:

1. Experience (or reaction) - e.g., How did you like the learning process?
2. Learning - e.g., What did you learn from the learning process?
3. Application (or behaviour) - e.g., To what extent did you apply what you learnt outside of the learning process?
4. Impact (or results) - e.g., What impact has resulted from what you have learnt and applied from the learning process?

We briefly unpack each of the Levels and provide examples (in text boxes) of how we have applied them and propose to apply them to evaluate the ToT Course. We include suggested evaluation questions that you could adapt and apply to suit the evaluation of your learning process.

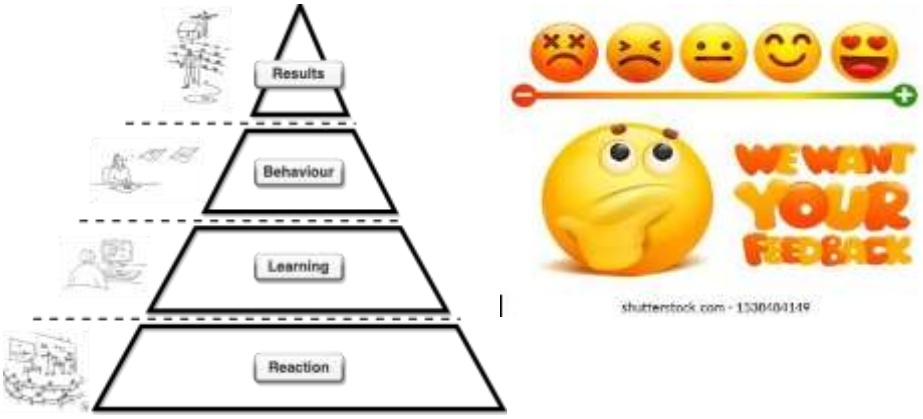

Figure 4.13: Kirkpatrick's 4-level model for evaluation training

To apply the Kirkpatrick Model of Evaluation one needs to gather information on each of the four levels. It becomes increasingly challenging to collect information as you go higher in the pyramid. One can easily collect information on a participant'sexperience of a learning process by using a **simple survey (we learnt aboutsurveys and questionnaires in Module 1).** In the survey, you might ask: how didyou find the workshop? Some evaluations make this question superquick and simple to answer by asking how was your experience of the learning event and ask people to mark and provide an emojifeedback form for you to match your experience: The bulk of the comments are situated in Level 1, as these are the immediate things peoplecan tell you about an event.

To evaluate your experience of the ToT course we created an online survey (a Google Form) which included some of these questions:

- What was the online learning experience like for you? Consider issues such as (a) how easy the site was to navigate, (b) the nature and quality of the resources, (c) length and number of Zoom sessions, (d) anything else?
- What did you enjoy most about the course so far?
- What did you enjoy least about the course so far?
- What recommendations/suggestions do you have for improving the course?
- Would you recommend this course to a friend or a colleague? If yes, why? If no, why not?

It is more challenging for evaluators and even participants to know **what you learnt** from anexperience. It might take time to understand what you have learnt and you may not immediately realise what you have learnt in an event until much later. It is harder to evaluate learning and there is less evidence of this. Typical ways of evaluating this are through **quizzes, testsor exams** that aim to showcase what you cognitively learnt in terms of new facts, information gained, or concepts understood (e.g. question to explain or unpack a concept using examples).

In the ToT Course we prepared quizzes for participants to test their basic understanding of the content and included a broad learning reflection question in the Module feedback forms:

- Can you identify one new insight that you have learnt in Module 1?

Further learning evaluation could be done by interviewing the tutors and reviewing participant assignments for evidence of how participants have understood the content. One could compare the evidence of participant learning to the stipulated expected learning outcomes of the course.

Other questions you might find useful for evaluating learning may include:

- Do you think that you have gained the skills you need to further your learning?
- How would you rate your knowledge of the following learning process conceptsfrom 1-10 (list a few of the concepts covered in the learning process)?
- Are there concepts from the learning process that you still do not understand?
- Could you apply what you have learned in your work context?
- Did anything make it harder or easier for you to learn during the training?
- Are there any topics or concepts that you would like to learn more about?

It is a bit more challenging to get information about Level 3 (application) and level 4 (impact) but these indicators are the most valuable for understanding the true impact of a training process. In Level 3, evaluators want to know whether you have gone away and **applied the learning** in your work practice. This Level explores evidence of changed behaviours that result in improved performance based on new learnings gained from the learning process

attended. For example, in the ToT Course, you might have learnt and applied new methods and principles of stakeholder engagement in order to better understand a Natural Resource Management issue. Methods to gather application data include observation (observing participants in the workplace to see whether they are applying new learnings) or interviews(e.g., interview the supervisor of one of your participants to learn whether and how well theyare applying new learnings). Evaluating work progress reports may also shed light on the application of learning and resultant behavioural change (e.g., reviewing back to office reports after field trips).

To evaluate the application of learning in the ToT Course we would need to analyse the assignments and conduct follow up interviews with key informants from participant's workplaces (e.g. the participants, their supervisors and work team members). Some of the questions we could ask include:

- Are you using what you learned in the course in your daily work?
- Have you noticed and changes in individual and team performance since the course?
- Do you think you are performing better now than you were before the training?
- What is the biggest challenge in applying your learning in your work?
- Have you felt supported and motivated to apply new learnings, skills and ideas that you have gained from the course? How can those in charge better support you?

Both Level 3 (application) and Level 4, **what impact** has the application of what you have learnt had, are the most challenging levels to evaluate partly because we are not always following the participants to observe their application of what they are learning and the impact this is having. However, it is worthwhile to uncover information about the impact orresults as it gives a real indication of the overall success of a training process and whether itwas worthwhile spending effort and resources running it.

To evaluate the impact or results of the ToT Course we would also make use of assignmentreviews and interviews. As results are not immediately obvious and often take time to appear we may consider two rounds of evaluation, one shortly after the course and one afew months after the course. Some of the questions we might investigate include:

- Do you feel that you are better able to facilitate stakeholder engagement and learning processes since the course? Which areas have you improved on the most?
- Have you managed to build knowledge and skills gaps in your team or people you have engaged with?
- Have you had positive feedback on improvements or changes you have made in facilitating stakeholder engagement or learning processes since the course?
- To what extent has the course helped you and your colleagues reach your stakeholder engagement or learning/training-related goals? E.g., Are participants of your learning processes better able to engage with/manage or address NRM issues?
- Has the course helped you work toward and/or achieve any personal developmentgoals?

b) The Value Creation Framework (VCF)

The VCF borrows from the business sciences the concept of value chain, where value is addedalong the chain from production, packaging, marketing to retail. In the context of this course, value creation refers to the self-defined value of the learning facilitated by participating in a learning activity or interaction with other participants. It is an evaluation technique that integrates data from different sources (quantitative and qualitative data) to understand changes that may be attributable to the learning activity or an intervention.

The framework uses value creation stories which are personal value narratives and the collection of data against monitoring indicators. The VCF, therefore, is a mixed-method approach to evaluation as it uses both qualitative (e.g., stories and reflections) and quantitative information (e.g., attendance registers, recordings, other project documents report – back-to-office reports, etc). The data are collected to create a holistic picture of the outcome. The framework is designed to be flexible in that value creation stories and indicators can be developed as the process unfolds. The value creation captures the overall self-defined value of participation as well as specific instance of activities that are deemed meaningful or of value.

The underlying assumption of the value creation framework is that meaning is negotiated, among those who want to make a difference in their practice or learning, instead of being imposed. So, in the value creation framework (Wenger *et al.*, 2011), the concept of **value** (importance, worth or usefulness) is defined from the perspective of participants or actors.

In other words, the framework captures self-defined outcomes (Dingyloudi *et al.*, 2019) e.g., does the engagement or learning interaction contribute to me making a difference that I care to make (Wenger-Trayner & Wenger-Trayner, 2020)? The learning interaction includesinformation that is a potential resource to us as the evaluators, which we may or may not choose to apply. Such information may elicit insights, and resources which we could use to change our practice or improve the results we are working towards (Wenger-Trayner *et al.*, 2017).

As participants or actors, we may attach value to our learning interaction, for example duringa learning exchange, the value of learning a new technique, meeting people who know morethan us which we can refer to in future or we may apply what learnt to solve similar issues in our own environments. So, the measure of processes and outcomes reflects what mattersto us who have interest and have taken part in the learning interaction. Through sharing, reflections, and further interactions with our communities, the effects are fed back into the communities. So, we answer the question - what value have I found by participating in this activity? Does it speak to my needs? Can I use it to solve similar issues or can it make me a better person in executing my tasks?

The diagram summarizes the Value Creation Framework, conceptualised as learning/feedback loops that are cyclical – demonstrating the different potential values fromthe learning activity. The change, effect or outcome must be attributed to the intervention(i.e., the learning process implemented). However, as it is hard to be sure that it was the intervention that caused the change, the word **contribution** is used (as they may be other intervening circumstances that could also contribute to change). The framework acknowledges that during the learning interaction, different kinds of values (value is contextspecific), such as those depicted in the diagram below, can be generated, depending on howyou have found the information and whether you will use it.

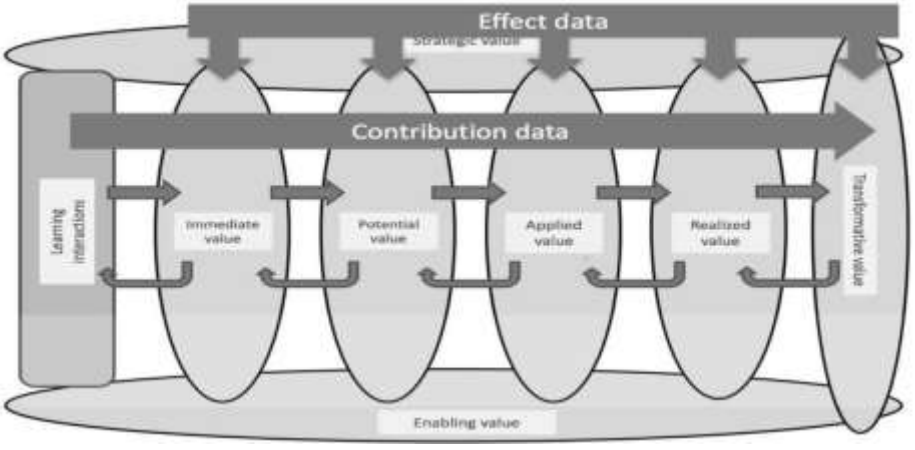

Figure 4.14: The Value-creation model (B. Wenger-Trayner *et al.*, 2017)

In this topic four case studies, in the Natural Resources Management (NRM) context, are presented. These case studies provide practical examples of evaluation using these specific frameworks.

Case Study 1: *The proposed evaluation of the Training of Trainers Course using the Value Creation Framework.*

The coordinators and some of the tutors intend to use the VCF as a framework for evaluating the Training of Trainers Course. We have put together a diagram outlining how we intend tocollect data on the different value creation cycles that were evident during and after the Course (Figure 2). In the diagram we describe the indicators (what we are measuring against)and the data collection methods, both quantitative (QUAN. In the diagram) and qualitative (Qual. In the diagram), that we propose to use for the evaluation.

The data from the indicators will be complemented narrative value creation stories. We provide a blank template of questions that can be used to compile a value creation story. Inaddition, we provide a completed template as an example of how a narrative story could sound like (Table 1).

We also include a video link to another example of the application of the Value Creation Framework produced by the authors of the framework, Etienne and Beverly Wenger-Trayner.They provide a very accessible introduction to the method in the video below. They also have a blog with the transcript of the video as well as additional resources.

Link to video by Etienne and Beverly Wenger-Trayner

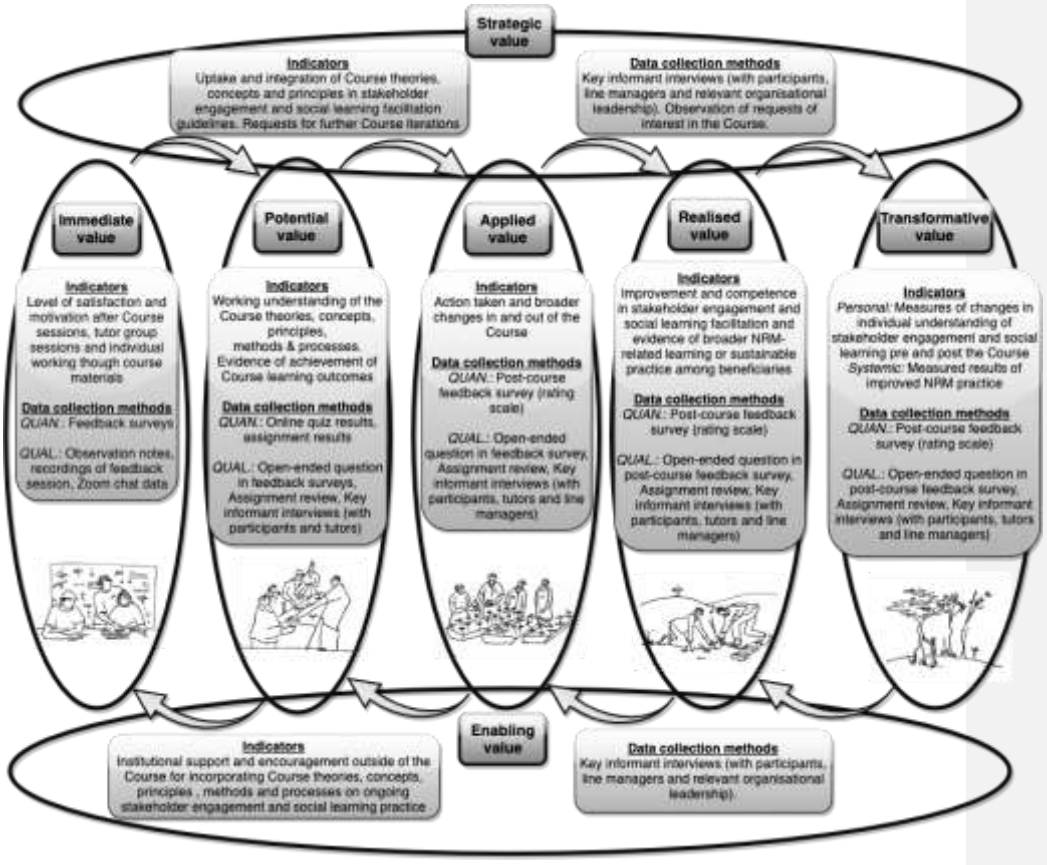

Figure 4.11: The proposed application of the Value Creation Framework for the Training of Trainers Course. Seven value creation cycles are shown as well as the indicators that will be measured for and data collection methods proposed to gatherinformation for each cycle. Quan. = Quantitative and Qual. = Qualitative.

Instructions to complete the Table below:
(1) In the first row, describe the moment during an interaction – either meeting or conversation when some shared an idea. Where wereyou? What happened?
(2) In the second row, describe the idea itself. What was it about? Why did you find it potentially useful?
(3) In the third row, describe how you used that idea in your own teaching. How did you apply it and to what purpose? Did you need to adapt it? What happened in the classroom?
(4) In the fourth row, describe what the outcome was (i.e., in 3) (a) for your own success and/or (b) for the success of your school or district. Did it improve the student's understanding? Were they able to become engaged with a new concept? Did they do better in their test? Were their grades affected? Were the metrics of your schools improved?
(5) Use row 5 if the event made you reconsider what counts as success.

Table 1: Specific value creation story of a participant of the ToT Course: The story must have 5 components (1 -5).

Name: Monde Duma	
Typical cycles	**Your story**
1. Activity: (Immediate) Describe a meaningful activity you participated in and your experience of it (e.g., a conversation, a working session a project, etc.	I saw this course on Facebook. I followed up with Dr Weaver who was referred to in the pamphlet.I realised that the course spoke to my kind of work, for which I did not hold any qualification. I ama community liaison officer from Queenstown who assists researchers with collecting data and interacting with our community. I applied and was successful, which meant a lot for me. It meant that soon I would be qualified in the kind of work that I do and be able to speak with some level ofauthority when facilitating workshops and interviews.
2. Output: (Potential) Describe a specific resource this activity produced for you (e.g., an idea or a document) and why you thought it might be useful.	The learning materials for this course have been great source of inspiration and knowledge. The materials are packaged in such a way that I can always read them as reference materials as I developconfidence in my skills and knowledge. The group sessions provided further support as some of thekey concepts were explained. The breakaway sessions and tutor groups also provided us with ways for me to check my understanding of the content.
3. Application: (Applied) Tell how you used this resource in your practice and what it enabled that would not have happened otherwise.	Recently I had to apply what I learned from the course, when a neighbour tried to stop a rill from the nearby road that was flooding his yard. Instead of just fixing this situation, I called some colleagues and the owner and together we made this a learn-by-doing session. We demonstrated tohim how to build simple structures to divert the flow away from his house and slow the down the water.
Outcome: (Realized) Personal: Explain how it affected your success (e.g., being a better professional job satisfaction) Organisational: Has your participation contributed to the success of your organization (e.g., metrics they use)	I now see myself as a “teacher”, as a few weeks ago when I went past his house, I saw several structures that he has built. I was proud that he had learnt from the activity I organised and was now trying to apply the knowledge. I know he will not know everything involved, but we have a closer relationship now and continue to share more information and he will learn more and get better like myself.
New definition of success: (Transformative) Sometimes, such a story changes your understanding of what success is. If it happened this time, then include this here.	From the course and the interactions I have had in my community, I now realize that working closelywith people with similar interests can inspire a lot of people and revive some of the values that we once had. Values like working together for a common good, especially us here in the villages. I realized that from the success of one person many more people can benefit if we cooperate with one another.

Case Study 2: *The case of the Food for Us food redistribution mobile application development process (Sara Durr – researcher)*

The study investigated social learning enabled by a food redistribution mobile application (app) project, Food for Us, in the Raymond Mhlaba municipality (Alice-Fort Beaufort) in theEastern Cape, South Africa. Mobile application was piloted for over an **18-month period**. TheFood for Us app project aimed to address the challenges of food insecurity and market accessfor small-scale farmers by creating an innovative technological solution in the form of a mobile app. The app provided a virtual market where farmers can advertise their produce sothat it could be bought before going to waste.

The research project aimed to investigate the social learning that was enabled within the communities of practice that utilised and interacted with the Food for Us mobile app and Food for Us project support systems. Data was collected through a series of surveys, interviews and workshops and was analysed using the Value Creation Framework.

The results showed that, even though the app pilot project was not as successful as originallyanticipated, however, there were important social learning lessons gained that opened up anew way of looking at technological innovation in the supply chains within the small-scale farming contexts. The key findings indicated that technological innovation on its own is not effective in enabling deep social learning. When facilitated and supported by other networked social learning systems (such as WhatsApp group, workshops and course meetings),however, boundary crossing, intergenerational learning and network building emerged as important forms of value creation that can be enabled.

Link to video for Case Study 1: Interviewwith Sara Durr

This Case Study is still under development

c) The Most Significant Change Technique

This is a qualitative evaluation technique that requires participation of actors or participantsto tell their stories, about what they perceive as significant change (Davies and Dart, 2004).The stories are collected from each participant and rated (through voting by the participants). Just like in Value Creation Framework, the project stakeholders, actors, or participants must agree on what will be recorded as change (the significant story). It is therefore a participatory evaluation method that promotes dialogue (dialogical). MSC is hardly used alone, as it is used or adapted with other evaluation methods.

There are 10 steps that must be fulfilled when using MSC (Dart & Davies, 2003):

- Step 1: How to start and raise interest
- Step 2: Defining domains of change
- Step 3: Defining the reporting period
- Step 4: Collecting significant change stories
- Step 5: Selecting the most significant of the stories
- Step 6: Feeding back the results of the selection process
- Step 7: Verification of stories
- Step 8: Quantification
- Step 9: Secondary analysis and meta-monitoring

- Step 10: Revising the system

Case Study 3: Most Significant Change - Beyond Numbers (UNICEF)

The short video, below, gives a good explanation of how MSC is used and use a case study ofhow hand washing improved health of villagers in an Indian village. The gentleman whose Most Significant story was voted tops by the community in the ranking is acknowledged in hissocial circles or by his peers because his story of change was selected by the community. Theproject formed part of projects in India focusing on behavioural change.

https://www.youtube.com/watch?v=NkuJ69zKScU&t=24s

Case Study 4: Most Significant Change 2012 Program evaluation - Lower Georges River Sustainability Initiative

This video is vignette of six community groups providing the MSC stories in an NRM context in Australia. The Lower Georges River Sustainability Initiative (LGRSI) was a collaborative project incorporating four councils in the Lower Georges River (Hurstville, Kogarah, Rockdale and Sutherland councils), the Georges River Combined Councils Committee, and with support from agencies and community groups. The project was fundedfrom 2009-2012 by the NSW Environmental Trust.

https://www.youtube.com/watch?v=WNju6uaY0Hk

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Topic 4.4: Reflective Practice as Learning

Presented by Jessica Cockburn, Preven Chetty & Reuben Thifhulufhelwi

Introduction: What is REFLECTIVE PRACTICE?

"We do not learn from experience…we learn from reflecting on experience." John Dewey

Reflection is something that we all do in the course of our everyday lives. In the simplest sense, reflection is a process of *making sense of an experience*, or *making meaning* from an experience. For example, we often reflect when we have met a new person: we ask ourselves questions in ourminds like: *Do I like this person? How does this person make me feel? Do I want to keep on interacting with this person?* Or, we reflect on an unexpected event, like the arrival of the COVID-19 pandemic in our lives, asking ourselves: *How am I going to cope with this new situation?Why is this situation making me feel so unsettled? How can I draw on my previous experiences of crises or difficulties to help me through this?*

Reflecting on and making sense of our experiences is an important step in us LEARNING from and through these experiences. Reflection is also important to enable ADAPTATION: if we can step back and look at how things happened, think about why they happened the way they did, we can then think about how we might do things differently next time around. Reflection therefore also plays a central role in EVALUATION, as discussed in Topic 4.3 (see Figure 1 below as a reminder ofhow reflection was introduced in Topic 1.6 as a key learning process).

According to Donald Schön, a philosopher and urban planner from Boston in the USA, reflective practice is *the practice by which professionals become aware of their implicit knowledge base and learn from their experience*. He identified two aspects to this:

1) reflection-in-action: to reflect on behaviour as it happens, and

2) reflection-on-action: to reflect after the event, to review, analyse, and evaluate the situation (Schön, 1983) (Figure 4.15).

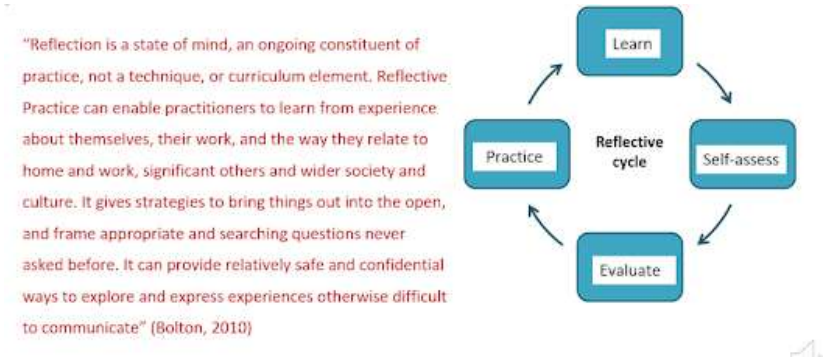


Figure 4.15: Reminder from Topic 1.6: Introduction to reflection as a learning practice.

The principle of REFLEXIVITY which we introduced in Topic 2.3 (as a principle to guide stakeholder engagement processes), is what underpins the development of our personal and collective reflective practice (Figure 2). A commitment to reflexivity means being able to step outside of our experience, take a bird's eye view, and reflect carefully and critically what is going on. Through this we can consider adapting our practice and be responsive to the ever-changing context. Reflective practice is the way in which we actually bring this commitmentto life and put it into practice.

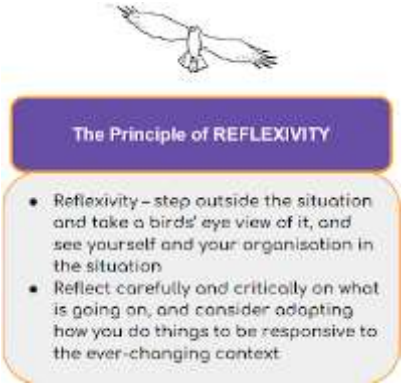


Figure 4.16: Reminder from Topic 2.3: The principle of reflexivity is about taking a bird's eyeview of our practice, reflecting on it, and adapting it to the ever-changing context.

In our work as facilitators of stakeholder engagement and social learning processes, reflection is therefore an important way of us learning about our own work or practice and being able to adapt our practice and ways of doing things based on changing contexts. To develop a REFLECTIVEPRACTICE, and thereby embed ongoing learning into our everyday work, we can ask ourselves and/or the participants, these kinds of **REFLECTION QUESTIONS** (e.g., during and after an experience, interaction, or learning process):

- **What?** (what happened?) **So, what?** (what does it mean?) **Now what?** (what are we going to do about this?)
- **What went well, and what didn't go well? Why, or why not?**
- **Did I/we achieve what we set out to do? If not, why not?**
- **How could I/we adapt our intervention or learning process in the future?**

Tools to support reflective practice

We now present you with a range of frameworks, templates and guiding questions to facilitate reflection. You can use these tools to *reflect on your own, or together with others*, i.e. they can be used individually, collectively or organisationally. Also remember that the **guiding REFLECTION QUESTIONS** (above) are a useful tool to guide reflective practice in a variety of contexts.

REFLECTION TOOL 1: THE "DIG DIEP" FRAMEWORK:

You can use the D-I-E-P (Describe-Interpret-Evaluate-Plan) framework to guide your reflections i.e., to 'DIP DEEPER' into your experiences and catalyse learning (RMIT University, 2015; Boud et al. 1985). Below we describe the framework and provide guiding questions under each heading.

D – DESCRIBE what happened

I – INTERPRET the events – why did it happen that way?

E – EVALUATE the effectiveness of what you observed/learned – make judgments clearly connected to observations made.

P – PLAN how the information generated through your reflections will be useful to you.

D - DESCRIBE what happened: Describe the experience e.g., of a specific event, interaction or learning process which you facilitated. Explain how things happened or unfolded and identify key elements of the experience or process. Use your power of observation to carefully describe things.

I - INTERPRET the events - why did it happen that way/ why is it happening this way? Interpret your experience in relation to the event or process, explain the role of the elements that you identified in your description. What worked well, and what did not? Why, or why not? Now go deeper and analyse your interpretation by exploring the consequences of the experience or insight: Does this change things? Does it cause any feelings or change your understanding of a previous experience/insight? Is your experience/insight transferable or relevant in other situations?

E - EVALUATE the effectiveness of what you observed/learned - i.e. make judgments clearly connected to observations made. Unpack and explain your opinions, experiences and feelings about your experience in order to make sense of your progress. Evaluate the situation yourself: What is your opinion about how you experienced this event or process? What do you think is/was really going on? What sense can you make of the situation?

P - PLAN how the information generated through your reflections will be useful to you. What are your recommendations? So what? Make a plan of how you will act differently from now on: how will you incorporate what you learned? What could you do differently going forward? Is there someone you could reach out to help you with this?

REFLECTION TOOL 2: BACK-TO-OFFICE REPORT

The back-to-office (BTO) report is a tool which supports reflective writing. This tool has been refined for use in the context of natural resource management by Karen Kotschy and others implementing Monitoring, Evaluation and Learning (MEL) approaches at the Association for Water and Rural Development (AWARD) and in the Tsitsa Project.

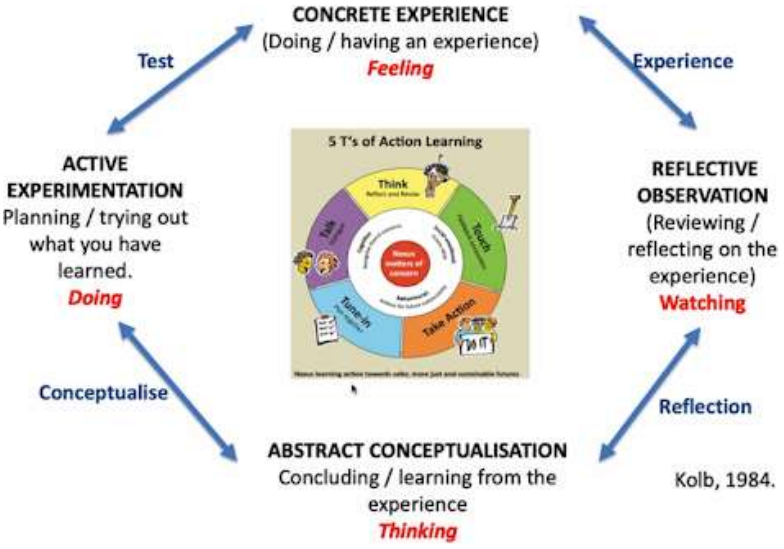
The BTO is a document template that helps NRM practitioners and facilitators to reflect on various activities such as field work, meetings, workshops and other experiences in a structured way. It's a useful way for people managing MEL processes to gather reflection data from teams. The BTO can be customized according to the aims of your social learning or stakeholder engagement process, and it can be used both as an individual or collective reflection tool.

Back to office report template

Activity:	
Date of activity:	
Purpose of activity:	
Reported by:	
Who hosted/facilitated the activity?	
Who was the activity aimed at?	
Who attended the activity?	
Summary of the activity:	
Observations:	
Relevant information:	
Next steps/follow-up actions:	
Parties with whom this information should be shared:	
Appendices (e.g., register, agenda, minutes, presentations, handouts, photos).	

REFLECTION TOOL 3: THE '5 TS' OF ACTION LEARNING AND KOLB'S EXPERIENTIAL LEARNING CYCLE

This framework has been designed for use in a variety of 'Education for Sustainable Development' (ESD) contexts and brings together a classic action learning framework - the '5 Ts of Action Learning' with Kolb's Experiential Learning Cycle (Kolb, 1984; O'Donoghue, 2020). The framework places reflection within an on-going cycle of PLAN-DO-REFLECT-LEARN.



For more information on this approach, visit the Environmental learning Research Centre's **Knowledges Commons Website:** https://www.ru.ac.za/elrc/projects/knowledgescommons/

On this website, Prof. Rob O'Donoghue has prepared two short videos on ***Learning and Educationfor Sustainable Development***. The first videos reflect 'Changing Learning and Training Environments,' a chapter in the recent UNESCO book on 'Issues and Trends in ESD.' The video is in 2 parts: 1. ESD (Education for Sustainable Development) learning theory with case study examples, 2. An overview of common theory and some recent process perspectives. The second series is a 5-part set of Hand-Print CARE videos on learning theory for classroom contexts of teaching and learning.

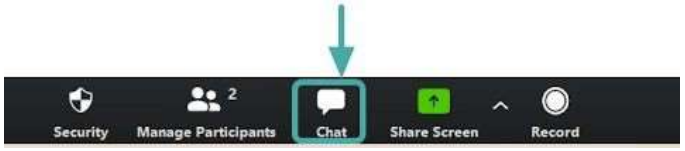
REFLECTION TOOL 4: OPEN, INTUITIVE, OPPORTUNISTIC, OR ARTS-BASED REFLECTION

While it is useful to have *frameworks, templates, or guiding questions* to structure and guide reflections, sometimes it is best just to create space in our lives for open, intuitive, opportunistic, or arts-based reflections.

For example, you could take a quiet moment for yourself and reflect in a more open, emergent way on what you have experienced and what it means. This might mean **sitting somewhere quietly with a cup of tea or coffee and thinking** about your experiences; or maybe it means doing some **free writing or drawing,** i.e. just writing or drawing your thoughts and reflections in an open-ended way, as if you were having a conversation with yourself; or **going for a walk or run** to process your experiences. Some people also find that engaging in some kind of **artistic process can enable them to reflect**, e.g., drawing, singing, dancing, photography, or reading or writing poetry.

This kind of open, intuitive reflection can also happen together with others, often quite unexpectedly or opportunistically. For example, some of the most useful reflective conversations between colleagues happen **in the car, while driving back home** from an event or experience. The **'spaces in-between' formal planned activities, sessions and events** are often where the richest reflection happens (e.g., tea and coffee breaks in meetings, drinks after a workshop, taking selfies on a field trip, walking back to the hotel room after a day of meetings, or even in the chat box during a Zoom meeting!).

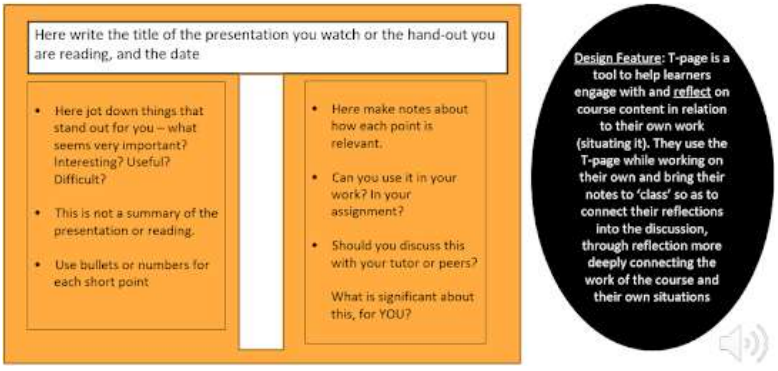
Keep an eye out for opportunities for this kind of open and intuitive reflection and allow yourself to tap into your own inner reflective capacities, or those of your colleagues and friends.



REFLECTION TOOL 5: T-PAGE TO PROMOTE ACTIVE LEARNING THROUGH REFLECTION

The "T-page" template is a tool to help you to engage with and reflect on course content - *or anyother novel concepts or knowledge you may come across* - in relation to your own work (i.e., to help you to SITUATE the work and MAKE SENSE OF IT in relation to their own work and context).

Reflection and Active learning: T-page Example



You can use the T-page while working on your own, and then use it in conversation with others (e.g., in your tutor groups, or in your organisation) to connect your own reflections into discussion with others. This kind of reflection can enable you to more deeply connect the work of the course - or other new knowledge and ideas - into your situation.

Concluding thoughts on working with reflection in learning processes

Always remember that reflection is an ongoing process that is applied throughout your learning journey (i.e., social learning or stakeholder engagement). Therefore, reflection should not be seenas a step that one must do at the end of a learning process or engagements. It is also important tothink of a reflection tool or process that works best for your context in order to maximise the learning insights. e.g., if as a facilitator you would like to reflect on the workshop you conducted with participants, and you want to know "what went wrong / could be improved", it might be best to ask such question through an individual reflection tool rather than asking it on open discussions, but this depends entirely on the context and participants involved in the process. Another example could be when you are working with stakeholders in different power hierarchies or areas of influence (i.e., having traditional leaders within your participants or having a high-level manager in the midst of low-level employees of the same organization). In these cases,a facilitator must employ a reflection tool that takes into account the power dynamics, as these might affect your process.

Activity:
Try out one of the **REFLECTION TOOLS** as a way of starting to *work towards your assignment: you could do this individually, and/or select one to work on together with your tutor group.*

Audio snippets from the field: Insights from learning practitioners

On the course website under the materials tab for Topic 4.4, we have shared some audio clips from practitioners in our field. We asked colleagues and course participants the following guiding question to learnfrom them how they reflect in their practice:

What does reflection mean in your practice as a learning facilitator, and what practical suggestions do you have for beginners?

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