

Module 3

Topic 3.2: METHODS AND PROCESSES TO SUPPORT SOCIAL LEARNING

Introduction

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 involves diverging 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 1).

Box 1: A reminder - Social learning as a form of environmental learning: 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 used by the educators who mediate and facilitate learning.

By methods and processes, we have in mind the strategies and steps that educators or facilitators use when engaging learners or participants. In Topic 3.1. we discussed different learning metaphors to 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 learning process. 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 (*learning as 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 included recent 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 your choice (see assignment 3 rubric). To do so, you need to identify methods and processes that would be 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 and started 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 want to teach the community how to restore degraded wetlands, s/he will need to use additional methods to awareness raising, and in this case s/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 require different methods and processes. Some of them will learn better from some processes (such as reading 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 at the 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 relational agency)
- 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 range of different kinds of methods generally helps us to address a broader spectrum of social learning outcomes.

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):

- 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.

Box 2: Facilitating social learning requires:

Recognizing:

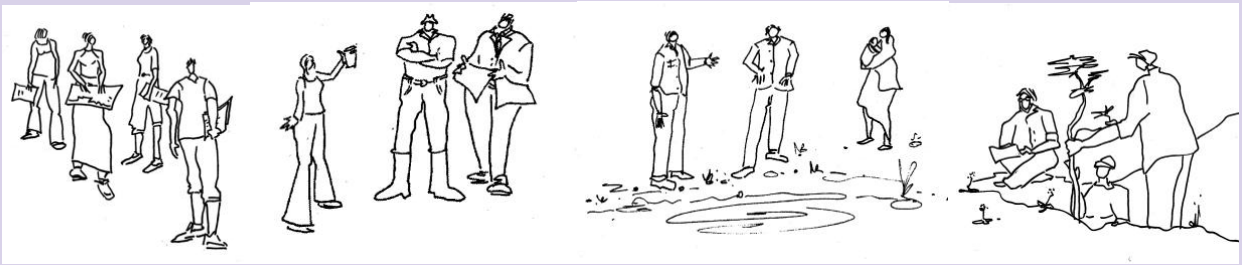
- That social learning is multi-faceted and multi-directional
- That social learning takes place all the time, in all activities
- That much social learning is subconscious (people are often not aware of learning or sharing knowledge)
- That social learning is inherently a participatory and reflexive 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



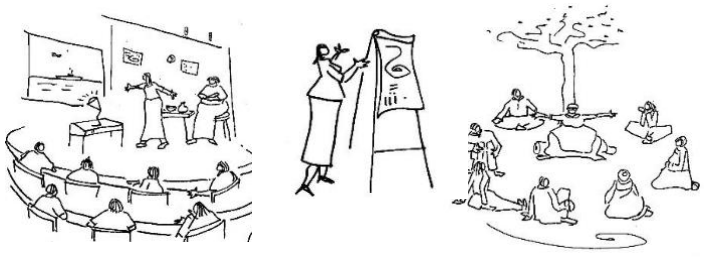
Source: Cundill, *et al*, (2014, p5).
Full reference: Cundill, G., Shackleton, S., Sisitka, L., Ntshudu, M., Lotz-Sisitka, H., Kulundu, I., Hamer, N. (2014) Social learning for adaptation: a descriptive handbook for practitioners and action researchers. IDRC/Rhodes University/Ruliv.

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 ACQUISITION

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 instructive teaching.** A classic example here is a school teacher who transfers already known information or knowledge (written as curriculum) to the learners through teaching. Neither the teacher nor the 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 to be 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 campaign calling on the public to 'Stop Rhino Poaching!'; a poster about the dangers of pollution put up by the Blue Flag programme at beaches during the holiday season.

Underlying ideas … The basic assumption is that people do not know about issues that they should know 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 spread of HIV infections despite greater awareness). Often people are quite aware of an issue, but other 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 but feel 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 awareness campaign 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 deeper insight; 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

e.g. 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; an industry 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 information in 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 much more 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 fancy themselves 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 an audience to ask questions or otherwise interact with the content presented.
- Talks and presentations are less time consuming than participatory methods, and easier 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 come to 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.

e.g. 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 which humans, 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 learners often work with others to decide how they want a story to end (e.g., We want the sea to be clean again), 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); and critically 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 of sharing 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 sustainability might 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.

For more:

Bjerg Hansen, K. & Sguazzin, T. 2000. *Sustainable Stories? Using the Scottish Storyline Approach for Environmental Learning in South African Schools.* Learning for Sustainability Project, Johannesburg & Department of Education, Pretoria.

Gorman, C. 2014. Digital storytelling for transformation. Blog article: https://participatesdgs.org/2014/09/08/digital-storytelling-transformation/

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

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

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 groups of 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 from various 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 how others (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 who have 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 focussing 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:

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 from their 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 that the 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 to come 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 enable social 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 social learning (each of which may contain numerous examples):

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

Communities of practice (CoPs)

By this we mean … an approach to facilitating social learning among stakeholders working together on 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 new relationships 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 fisheries in that estuary in a sustainable way requires a stakeholder engagement process through which the diverse stakeholders can come together to learn collectively about the estuary and how to manage it. 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 originators of 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 Cape town 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 in a 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 are practitioners. 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 of CoPs.

For more:

Downsborough, L., 2009. Understanding social learning processes in a citrus farming community of practice. 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

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.

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. Below we discuss a few examples of specific methods that can be used to facilitate co-inquiry towards social learning.

e.g. guided questioning in interviews, focus group discussions or field work

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 guide the 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 and support 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 themselves and 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 knowledge to 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.

e.g. 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 you rescue 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 we might look for common ground between parties in an environmental dispute, or try to match our actions 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, irrespective of 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 Chan et 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 defend their values can be a turning point for many people in terms of how they view themselves in their community and wider environment.

Pitfalls:

- Where power relations don’t allow learners enough opportunity to put forward their own ideas, learners might feel pressurised to ‘adopt’ the values that they see the educator is pushing forward. Where learners are assessed, they might feel even more under pressure to 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, in the absence of waste management services in an informal settlement, have limited options to dispose of their waste.

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: A workbook 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.

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

e.g. participatory learning and research methods

By this we mean … a variety of participatory learning activities (PLA) including participatory rural appraisals (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 Module 2: 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 community needs, 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 to the 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 like Petty 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 opportunity to 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 are flexible 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.

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 Development Studies (UK). Available online.

Price, L. 2006. Joking around in Zimbabwe: Undoing and redoing participation. *Southern African Journal 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/

Complementary methods: Co-inquiry methods; action research; arts-based and visual methods like 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.

e.g. 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, using an 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 basis for 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 we study 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, for example, 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., in the 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 of knowledge.

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: Lessons from 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, Grassland Life, Fynbos Life). Available from Share-Net, Howick. Available online: http://learningthroughnature.co.za/share-net-resources/

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

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

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 forms of 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.

e.g. exploring indigenous knowledge

By this we mean … investigating traditional practices and local or indigenous knowledge to 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 in his 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 it is 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.

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 education within communities in southern Africa: A Handbook*. SADC Regional EE Programme, Howick.

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

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

e.g. inter- and transdisciplinary learning processes

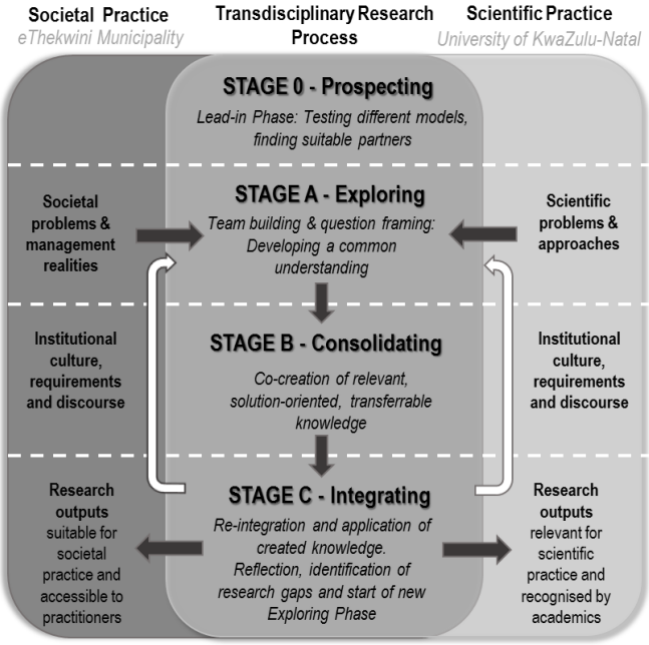
By this we mean … Co-engaged research and learning processes which draw on knowledge from a wide range of different academic disciplines (i.e., academic knowledge), as well as knowledge from beyond academic institutions such as local knowledge, indigenous knowledge, embodied knowledge, etc (i.e., societal knowledge). Through bringing together diverse forms of knowledge to 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 and inspire action and policy development for more sustainable management of urban ecosystems (see Cockburn et al. 2016 for further details).

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

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 into academic 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 approaches are 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).

For more:

Cockburn, J., et al. 2016. How to build science-action partnerships for local land-use planning and 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/

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.

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 different art and visual methods, stakeholders can learn together about their environment, get to know and understand 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.

e.g. 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 own roles 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 to the issue. Theatre for development works best if the audience can recognise themselves and the issue 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 engaging people in empowering and transformative learning experiences. It draws on the *liberation pedagogy* 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, and take 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.

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 Environmental Educators*. Share-Net: Howick. Available online: http://learningthroughnature.co.za/share-net-resources/

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

e.g. 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 are asked 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 develop a 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 are different 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 may come 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 facilitate social 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 are thus of secondary importance. Unless the intentions and relevance of the process are made clear, some participants might feel they are wasting time.

For more:

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

Pearson, K.R., Bäckman, 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*

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

e.g. role-play

By this we mean … Participants taking on different identities (roles) and acting these out with or for 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.) Role play 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 envisaging alternative 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 can be difficult to achieve if participants have limited life experience or limited access to information about the situation they need to role-play.

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/

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

e.g. working with 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 they use. With the visiting educator, the photos are discussed as the starting point for weaving a story about natural resource use. The photos and story are later shared with other communities to stimulate discussion about community-based natural resource management (CBNRM). … Farmers take 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 think more deeply about the way we relate to our environment, and how certain views we subconsciously hold 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 concrete basis from which to explore people's relationship to their environment and help them understand it 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 useful than 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 across multi-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 them later 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.

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 Sustainability Project / 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 and Society, 23(3). https://www.ecologyandsociety.org/vol23/iss3/art13/ES-2015-7739.pdf

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

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).

e.g. 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 on feedback loops of information and communication as a source of learning.

Typical examples … A MEL system was implemented in the RESILIM-O project implemented by the NGO 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 and uncertain 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

For more:

AWARD, 2019. *Harnessing monitoring & evaluation for learning: Experiences from the RESILIM-O Program*. 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 for engaged praxis in a complex social-ecological system. *Land* 7(4), p.129. https://www.mdpi.com/2073-445X/7/4/129/pdf

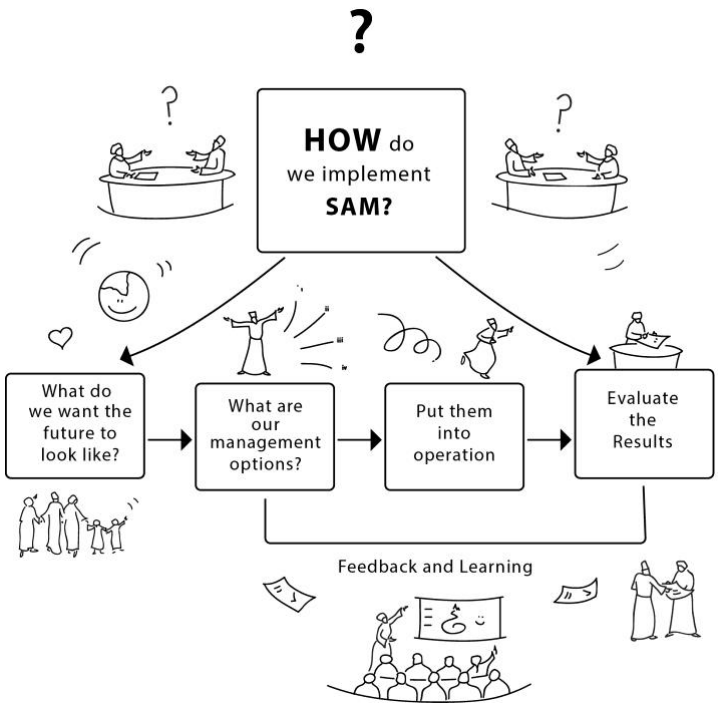
Oswald, K., Taylor, P., 2010. *A Learning Approach to Monitoring and Evaluation*. IDS Bulletin 41, 114–120. Available Online.

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.

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

e.g. 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 developing objectives, 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 enabled a 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 and implementation. 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 stakeholders who might dominate the process.
- SAM is time and resource-intensive, and programme managers need to plan accordingly.

For more:

Fabricius, C., and G. Cundill. 2014. Learning in adaptive management: insights from published practice. *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 for engaged 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 WCPA Freshwater 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.

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

ACTIVITY:

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 we combine 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 specific social 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 your tutor 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 our NRM 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 that before 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 or transformation 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 and capabilities 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 and development 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)

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 model users, 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 involving some 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.

e.g. 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 catchment degradation, 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 also bring 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 stakeholders on 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 as effective 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 and computer-based scenarios enriches the process and offers even broader alternative options.

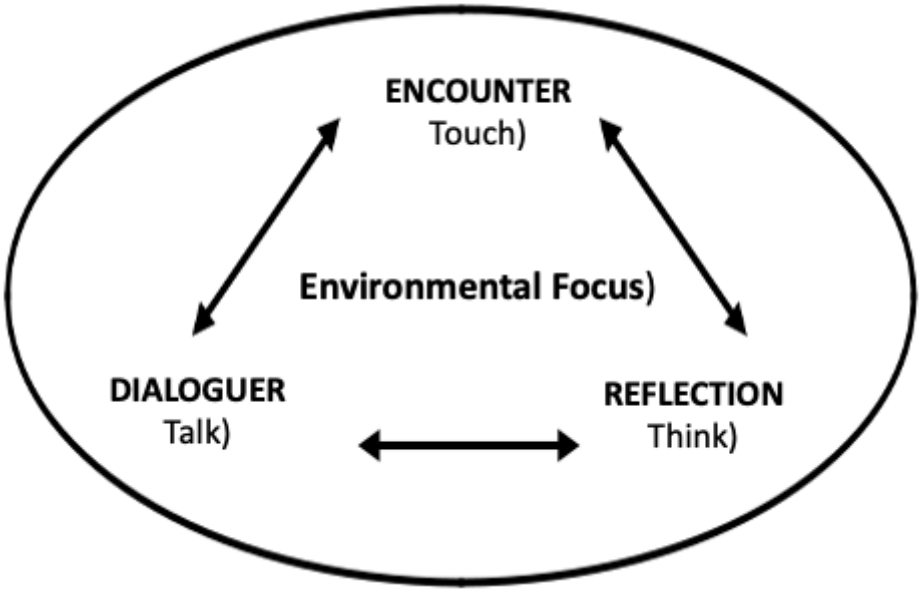
Pitfalls:

- 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 goals or 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

Action research & facilitated learning platforms for community problem-solving

This involves working collectively to address a localized problem, usually as a group of interested or 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 and planning. 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), then plan 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 African environmental 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 research and 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).

e.g. Course activated learning networks and change projects

By this we mean … This is a process in which learners/ participants are supported individually and collectively to develop their agency (capacity and capabilities) to explore and take action on NRM issues 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 Management Contexts. 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 only learning 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 enable participants/ learning to learning 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 directly with 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 different group 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 using the similar scaffolding principles.
- Course activated learning networks can also be developed informally. i.e., In the ToT we have 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 including community 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 manage the 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

e.g. projects and practical actions

By this we mean … Local actions to address an environmental issue or a practical development or 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 projects to 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 well as a sense of agency (we can feed ourselves even if we are unemployed). This relate to experiential learning 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 an extension 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 learningful but only up to a point as they can also derail the focus of the projects by raising unrealistic expectations.

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.

Complementary methods: Field trips, excursions and exchange visits; Demonstrations and experiments.

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, and again collectively envision the pathways towards sustainable solutions.

e.g. Activity System Analysis

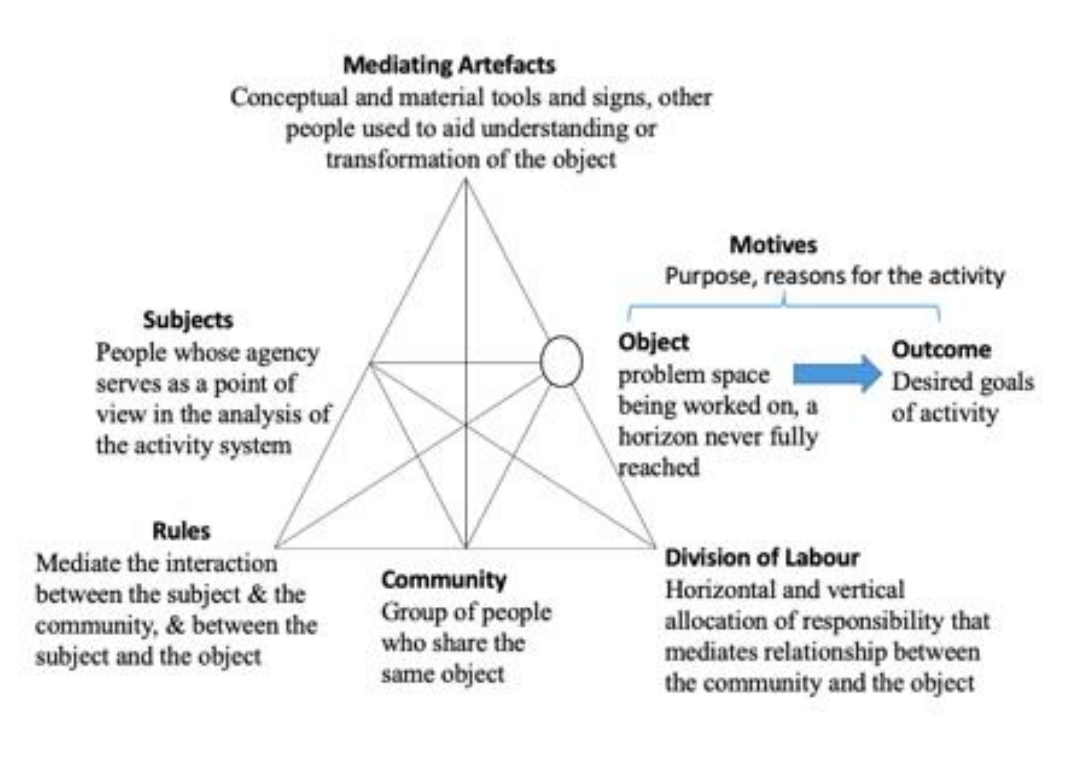
By this we mean … Activity System Analysis is a method within the cultural-historical activity theory (CHAT) school of thought, which argues that:

- learning is situated in cultural traditions of practices (e.g., NRM is a practice within a bigger environmental 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., wetland restoration 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 …

BOX 3: The diagram below is the Activity System Analysis model that shows the relationships on how 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)

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 new and alternative solutions (expansion of learnings). As such, using Activity System Analysis in a CHAT based 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 is involved?), envision new solutions or alternatives (e.g., how can we solve our NRM issues? who else can contribute and how can they support us?).

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.

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.

Complementary methods: Community of practices, Action research & facilitated learning platforms for community problem-solving; Participatory mapping and modelling.

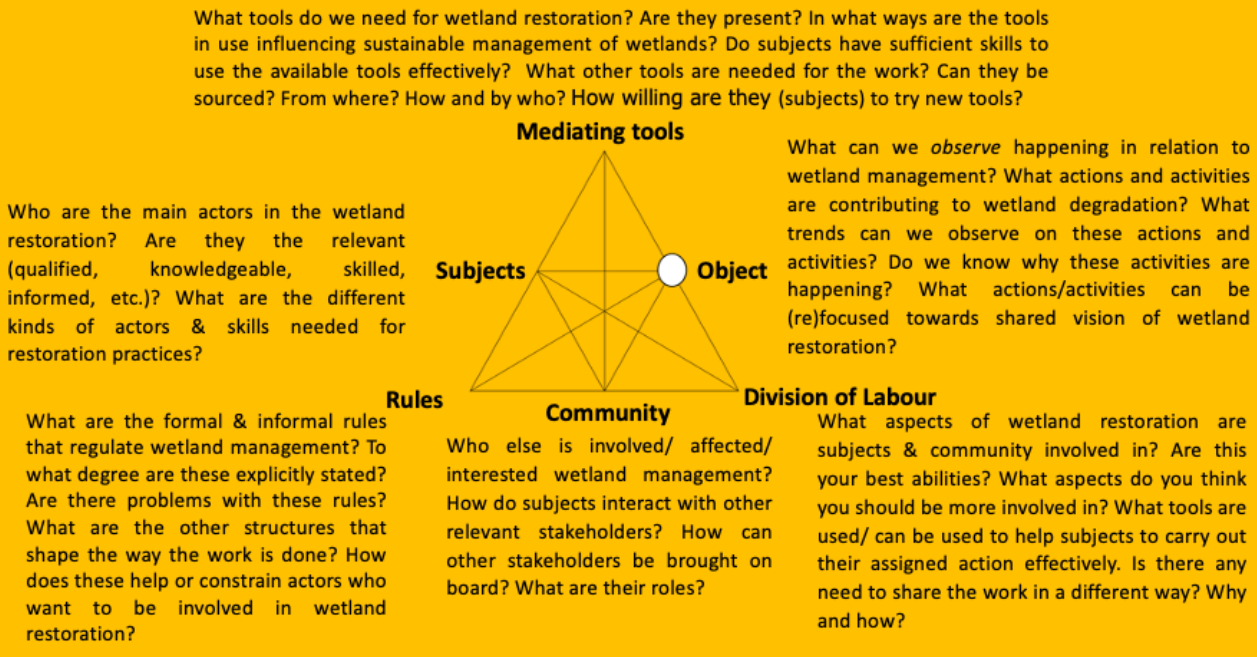
ACTIVITY:

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: And 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 options for 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 stages of 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 the course modules and also provided some guiding strategic questions to prompt participants on what type 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?)

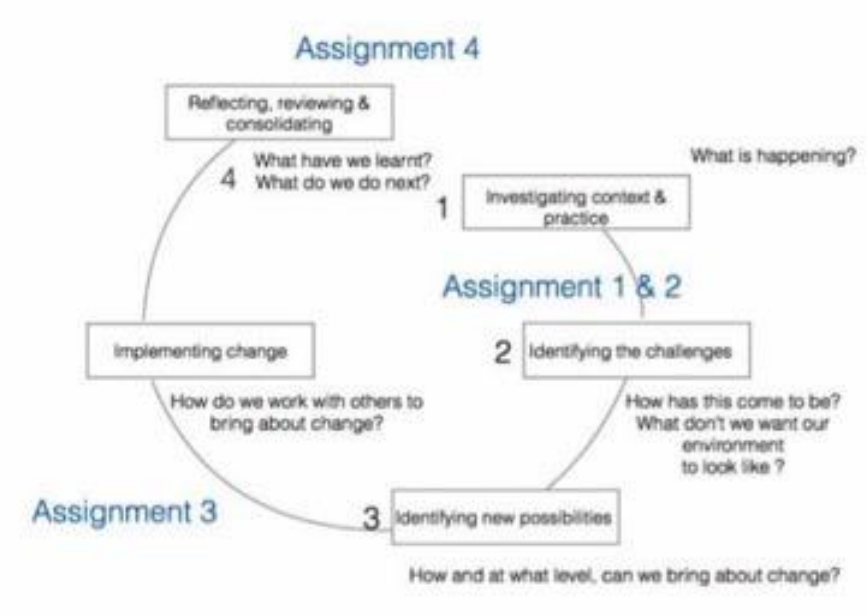
NB: Both stage 1 and 2 of this transformative social learning process were explored in module 1 & 2, and the learning actions were captured in assignment 1 & 2 as shown in the figure below.

- **Stage 3**: Identify new possibilities and implementing change to address the challenges and improve 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.



An illustration of a transformative social learning process based on Wals (2007) and Engeström (2001).

Full 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, Wageningen Academic Publishers.