



MANUAL ON ESD EVALUATION

MODULE 2 *EMERGENCE OF EVALUATION IN ESD*

ROB O'DONOGHUE

Module 2

Emergence of Evaluation in ESD

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THE FOUR MODULES OF ESD EVALUATION COURSE ARE DESIGNED TO BE USED IN CONJUNCTION WITH EACH OTHER AND HENCE SHOULD NOT BE USED INDEPENDENTLY. MANY OF THE TERMS AND CONCEPTS USED IN THE MODULE ASSUME KNOWLEDGE THAT COME FROM ALL THE SECTIONS OF THE ESD EVALUATION MANUAL.

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SUSTAINABLE DEVELOPMENT GOAL 4

4 QUALITY EDUCATION



Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Target 4.7 by 2030 ensure all learners acquire knowledge and skills needed to promote sustainable development, including among others through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship, and appreciation of cultural diversity and of culture's contribution to sustainable development

How does the language we use shape ESD & Evaluation?

INTERVENTION /
INSTRUMENTAL
PROGRAMMES

SCOPE OF EVALUATION APPROACHES

EMANCIPATION /
DECOLONISING
PROCESSES

(Target) GROUP	PARTICIPANTS	PARTNERS
SETTING	CONTEXT	SITUATION
OBJECTIVES	OUTCOMES	PURPOSE
CONTENT	KNOWLEDGE	LEARNING
PEDAGOGY	ACTIVITIES	CHANGE PROJECT
Interventions outputs indicators	Outcomes & change	Transformative value produced

**Monitoring, Evaluation, Reporting and Learning
(MERL)**

Co-engaged assessment and evaluation processes

Outside-in
together

Inside-out
together

**AN INCLUSIVE & WIDER
SCOPE OF EVALUATION
for; in; as; of;
ESD**

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How does the language we use shape ESD and Evaluation

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The ESD Evaluation course has been brought together after efforts of more than two years. The Working Group on ESD Evaluation commenced its work after the presentation by Rob O'Donoghue and the team at Bonn Conference on "From Knowledge to Action: ESD versus Climate Change" in November 2017. Deepika Joon and Eureka Rosenberg presented the concept of ESD Evaluation at the CIES 2019 conference in San Francisco which was followed by the first meeting of the Working Group in Berlin in August 2019.

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Module 2

EMERGENCE OF EVALUATION IN ESD

Table of Contents

2A INTRODUCTION TO THE CONTENT AND STRUCTURE OF MODULE 2	1
2A.1 BROAD LEARNING OBJECTIVES	2
2A.2 ASSIGNMENT OVERVIEW	4
2A.3 AN INTRODUCTORY CONVERSATION AND A QUESTION-LED APPROACH TO CONTEXTUAL DESIGN	4
2B QUESTION-LED APPROACH FOR CLARIFYING AN ESD AND EVALUATION PROCESS TOGETHER.....	5
2B.1 ORIENTING SOCIAL HISTORY OF EDUCATION, RISK AND EVALUATION IN MODERNITY	7
2B.2 THE UNDERLYING THEORY FRAMING EDUCATION AND ITS EVALUATION	8
2B.3 THE SCIENTIFIC STAGING OF RISK FOR EDUCATION INTERVENTIONS	8
2C EVALUATION TRAJECTORIES IN ESD WORK WITH THE SUSTAINABLE DEVELOPMENT GOALS.....	12
ASSIGNMENT 2.1.	12
2D HOW DOES THE LANGUAGE WE USE SHAPE ESD AND EVALUATION	14
2E CASE STUDIES OF A CO-ENGAGED EVALUATION DESIGN PROCESS	15
CASE STUDY 1: EVALUATION OF ESD IN AN RCE CONTEXT CO-ENGAGED REVIEW	15
CASE STUDY 2: ESD AND EVALUATION IN A CONTEXT OF SCHOOL SUBJECT TEACHING	17
2F CLARIFYING AN INCLUSIVE CO-LEARNING PERSPECTIVE FOR REGENERATIVE SOCIAL LEARNING ...	20
2F.1 A REPOSITIONING OF EVALUATION AS INTEGRAL TO ESD.....	22
2G CONCLUDING SYNTHESIS.....	24
ASSIGNMENT 2.2. FRAMING EVALUATION DESIGN PRINCIPLES FOR A CONTEXT OF ESD	24
SLIDES USED FOR THE PRESENTATION	34
TRANSCRIPTIONS	46
ANNEXURES	56
EVALUATION: A 'NESTED GAME CHANGER' FOR ESE AS EVALUATIVE PROCESSES OF LEARNING-LED CHANGE.....	56
ESD AS STRONG EVALUATION FOR THE ETHICAL REVISION OF OUR ROADMAPS OF DESIRE IN DISRUPTIVE TIMES	75
EVALUATION AND EDUCATION FOR SUSTAINABLE DEVELOPMENT (ESD): NAVIGATING A SHIFTING LANDSCAPE IN REGIONAL CENTRES OF EXPERTISE (RCEs)	91

Module 2

ESD and Evaluation

Rob O'Donoghue

2A INTRODUCTION TO THE CONTENT AND STRUCTURE OF MODULE 2

This module is developed around the open question,

“How is evaluation integral to ESD as an inclusive process of regenerative¹ learning?”

This leading question follows on from the perspective on ESD developed in module one. It repositions **evaluation as an integral dimension of ESD** and as **co-engaged, regenerative learning** emergent in modern risk contexts. Approaching ESD as a learning-led regenerative process expands the scope of evaluation to transcend ‘end of pipe’ or ‘behaviour change’ perspectives found in early instrumental approaches to education. As an inclusive expansion of instrumental dispositions, evaluation is reinscribed as critical processes of co-engaged learning that activate reflexive processes of regenerative change in a context of risk. The clear shift from early instrumental evaluation, centred on the assessment of behaviour change, reframes evaluation as agentic critical processes that unfold in and as regenerative learning-led transactions in our modern era. This reflexive and emergent approach to socio-cultural and environmental change requires and expanded and inclusive perspective on evaluation as reflexive transactions that are both culturally situated and integral to transformative learning as critical processes of evaluation in community and school contexts of ESD.

¹ Regeneration is a commonly used term to describe recovery as a positive process of change. Its use here with reference to education draws on the sociology of education and change after Pierre Bourdieu, reflexive change in modernity described by Ulrich Beck and the decolonizing socio-cultural process of emancipatory change after Paulo Freire. Read together as emergent processes of change, these shed light on curriculum and community processes of deliberative transformation to inform how reflexive critical processes of cultural induction can both reproduce inequalities and be latently transformative.

Our goal in this module is to ask and begin to answer questions reframing the scope and focus of evaluation in the diverse context of our ESD work. An emerging change in focus to ESD as a necessary regenerative endeavour with an associated value creation requires an expansion of the current scope of the perspectives informing ESD and evaluation. Module two is an attempt to support you to expand and integrate evaluation as a co-engaged and regenerative process in our ESD work.

This is the second module in a short course on Evaluation and Education for Sustainable Development (ESD). Its purpose is to invite you to scope the changing landscape of Evaluation and ESD so as to enable you to take up a suitable position from which to develop monitoring and evaluation as inclusive process for ESD as accountable and evaluative dimensions of any educational activity in a professional work context.

2A.1 Broad Learning objectives

By deliberately working through this module together to answer questions in relation to evaluation practices, participants will clarify how, for the contexts of their work, evaluation can be contemplated as both:

- a critical process that is integral to ESD as regenerative social learning and
- a linked process for assessing emergent value creation outcomes together.

For this to be possible ESD has been approached as evaluative critical processes of co-engaged, regenerative learning in modern contexts of risk.

The module provides an overview of an inclusive and integrating turn in ESD and evaluation. It argues for ESD as regenerative evaluation emergent in and as co-engaged deliberative learning transactions in diverse institutional and community settings.

Participants will be able to begin to give an account of how an inclusive approach might inform evaluation practices on a changing landscape of deliberative learning actions that is re-shaping some of the current assumptions and institutional conventions in the field of evaluation and ESD today. (Assignment 1)

Through this exploratory work participants will be able to develop better situated perspectives for informing the scope of evaluation in ESD in the contexts of the ESD work (Assignment 2)

The expanded perspectives and tools reviewed in module 2 will be taken into module 3 to deepen a relevant orientating position for making better ESD and evaluation design decisions in line with the more inclusive perspectives, methods and processes now available to be deployed in a proposed evaluation project

Key learning objectives:

After successfully finishing this module, the participants will be able to ...



... Clarify ESD as inclusive processes of evaluative learning and change



... Differentiate some of the main things to be taken into account for informing evaluation and ESD



... Begin to frame an inclusive rationale for approaching ESD and evaluation



... Develop a contextual perspective for an evaluation project

The objectives will be engaged around a set of open questions that are explored in a series of short videos. These are followed by an historical narrative to explore how conventional evaluation practices emerged in education and what needs to be done to expand these for ESD.



Introductory Video- Module 2

A short video introduction by Rob O'Donoghue, giving you an overview of the content and structure of module 2.

Please click on the link above to access the video

2A.2 Assignment overview

There are two assignments in Module 2. In assignment 2.1, you will consider two papers on evaluation and ESD as sources for deliberating a suitable perspective for informing your work in ESD with the inclusion of appropriate monitoring and evaluation practices. An orientating history of evaluation and ESD provides as a starting point for clarifying a perspective for approaching more inclusive evaluation work in a professional setting of ESD.

In assignment 2.2 you will be challenged to develop a preliminary set of orientating principles or a position statement for contemplating the development of a monitoring and evaluation strategy for an ESD project in a curriculum, institutional or community learning-to-change context of ESD.

2A.3 An introductory conversation and a question-led approach to contextual design

Evaluative Dimensions in ESD



ESD and Evaluation: A Conversation

Dialogue between Matthias Barth and Rob O'Donoghue to discuss evaluative dimensions in ESD. This video has been presented in the first module where the authors are exploring key dimensions of Education for Sustainable Development and evaluation together as a concept.

Please click on the link above to access the video

The introductory conversation opens up the question of ESD and evaluation in an informal way. Its purpose is to invite you into a question-led learning journey to clarify evaluation and ESD in the contexts in which each of us works. There is thus no unified position, so this module has been developed around my work as case studies that set out to clarify an expanded perspective on evaluation and ESD.

The opening activity has thus been developed around questions that we have been asking to clarify the scope and focus of ESD and evaluation.

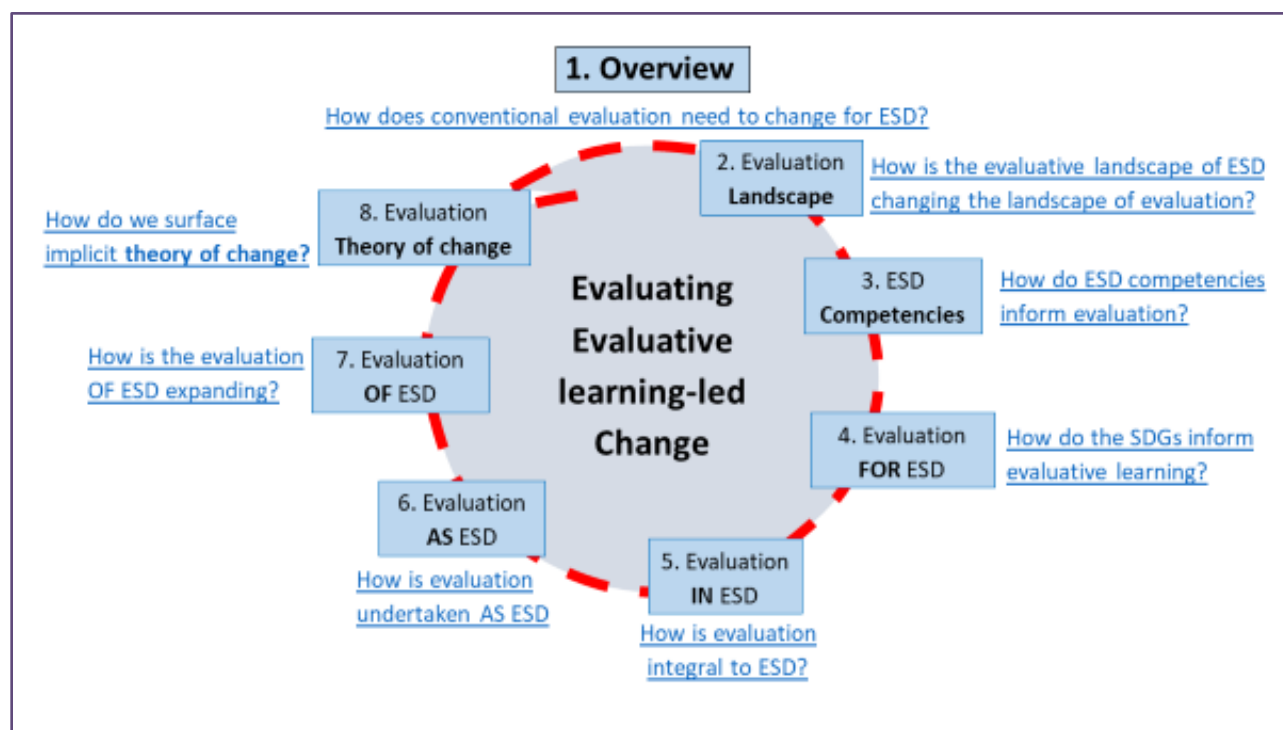
2B QUESTION-LED APPROACH FOR CLARIFYING AN ESD AND EVALUATION PROCESS TOGETHER

The co-engaged learning journey anticipated in this module has been developed around a series of open questions that many of us working in ESD have been asking about evaluation for some time now. *A questions-led approach has been used in the module design because there is currently no clear body of knowledge on evaluation and ESD that can simply be taught and learned on a course. The challenge is for us to ask questions and work together with case studies that will allow us to formulate suitable approaches to ESD and evaluation for the context in which each of us are working.*

In this module, two ESD and evaluation case studies are presented as exemplars of how evaluation has been framed in a community ESD programme and in a school curriculum context. There are further case studies in the other modules, so the first two are simply opening illustrations of how more inclusive approaches to evaluation and ESD have been developed according to need and context of each case.

Participants needs and context should always be a primary concern along with the questions that need to be asked in the design of evaluation as an integral part of ESD. The opening part of the module is thus a series of short videos with leading questions. These can be explored in any order according to the key questions that you are asking about ESD and evaluation in your context. Each video is concluded with a series of references so that you can search for additional information and insights that will be helpful in the design of an ESD and evaluation process in your context. The presentation slides can be seen later in the modules. The third Module on formal methods for ESD Evaluation explores evaluation design in a lot more detail, so this module should be treated as an introduction to some of the key design challenges around ESD and evaluation.

Figure 2.1 Evaluating ESD- Overview



Relationship between ESD and Evaluation

How does conventional evaluation need to change for ESD



Overview of key themes within 'ESD and Evaluation'

In this [video](#) presentation, Rob O'Donoghue gives an overview about the questions that will be tackled in module 2. He further introduces some integrating dimensions of evaluation and ESD.

Please click on the link above to access the video

2B.1 Orienting social history of education, risk and evaluation in modernity

How did evaluation emerge as an accountability driver in modernity?

Evaluation as rational processes of institutional 'assessment' and 'accounting' emerged as school curriculum, community education and development settings began to take up environment and sustainability concerns through interventions to mediate learning-led processes of social re-orientation to more sustainable lifestyle practices. Alongside the changing landscape of 20th century state schooling, education was rapidly expanded in scope as state institutions increasingly began to mediate social life through development education interventions to resolve risk. Institutions like International Union of Conservation of Nature (IUCN) and UNESCO emerged to coordinate international imperatives in Member States. They hosted a notable series of global conferences on conservation, sustainable development and the emerging risk of biodiversity loss and climate change. Rapidly diversifying institutional imperatives to educate were informed by science and framed by the staging of risk (Beck, 1992). Sørensen (2018), for example, notes how:

new risks are (initially) only visible to us through scientific theories, experiments and instruments (e.g. Beck 1992, 27).

With this expansion in school curriculum and community / public education imperatives from the mid-20th century came an increasing need to monitor and account for the effectiveness of widening environment and development education initiative to resolve problems and foster sustainable socio-economic development in modern nation-states.

With education comes assessment and evaluation

As the nation state and international development agencies have taken up expanding educational roles including and beyond formal schooling, so the assessment-based accounting for the relative merits and effectiveness of educational interventions for reshaping human dispositions and behaviours gave rise to monitoring and evaluation as an increasingly professional enterprise. Here diverse and developing modes of evaluation have been legitimated within prevailing research conventions that have evolved over time (See broad approaches and associated methods for evaluating ESD in module 3). In the expanding fields of education and development, proliferating social intervention initiatives have increasingly been called upon to

give an account of how well the education interventions have been structured and are functioning to produce the desired outcomes and impacts.

2B.2 The underlying theory framing education and its evaluation

The rational underpinnings for education in the proliferation and expanding scope of public education developed around 'the scientific staging of risk' informed by prevailing scientific research conventions, notably an instrumental cause and effect rationale and empirical measurement. This shaped a scientific logic of cause and effect in structural-functionalist dispositions within education and public communication. The assumption was that education should be evaluated for how it served to create awareness, effect change in values and attitudes and ultimately create behavioural change. It is notable here that, at the time, behavioural psychology assumed that it was possible to develop empirical measures of awareness, attitudes and behaviour. In this way, the 'gold standard' for early evaluation to give an account for the effectiveness and success of educational interventions became empirical measures of awareness, value, attitude and behaviour change. The scientific coupling of education and evaluation around the empirical measurement of change is still prevalent in education for sustainable development. The foundational assumption is that assessment and evaluation can be deployed to give a rational account of the extent to which specified outcomes had been achieved and the desired change effected. Awareness, attitudes and values were all dispositions that could be measured with research instruments. Behaviour was more elusive so this was inferred and education and communications developed around 'staged risk' towards the attainment and measurement of 'behavioural objectives.' These behavioural outcomes were to be assessed for evidence of change in behaviour to resolve risk. The underlying proposition here was that change was a matter of the target group becoming aware and making rational choices to resolve risk. This modernist logic is rooted in the assumption that the scientific production of knowledge as abstract propositions could be deployed (staged risk) for citizens to derive better orientation and effect the desired change in their everyday lives.

2B.3 The scientific staging of risk for education interventions

The way that the evolving cultures of evaluation and evaluation research associated with environment and sustainability education emerged, was primarily driven by the scientific institutional rationality of the times. This rationality can be seen as rooted in how bio-physical change and socio-economic risk had been

determined in scientific research reported into institutional settings. Informed by empirical analytical research that was peer reviewed, education was developed to create awareness of risk. This was done by the staging of risk as problems to be solved through didactic interventions to create awareness and effect behaviour change. In this way evaluation emerged as a measurement-based accounting process for assessing the effectiveness and impact of education and development interventions.

The institutional framing of education in both schooling and civic settings of education developed clear accountability mechanisms. In schooling a clear distinction was drawn between assessment and evaluation practices, the former being the assessment of learning as the acquisition of knowledge and skills and the latter, primarily the outcomes and effectiveness of the education enterprise. Assessment and evaluation in schooling was stabilised with the intervention of instructional psychology to differentiate cognitive, affective and psychomotor domains (now cognitive, social and emotional and behavioural) along with Blooms Taxonomy of Educational Objectives as a normalising mechanism to resolve cultural / racial prejudice and inequalities in early state examination systems.

In a similar way, the normalising framework for public education and communications was mediated by behavioural psychology around education as target-group interventions that embodied rational choice perspectives for behaviour modification in civil society settings. There also, the instrumental model of process was offered up against the theory of the time that it was possible to measure awareness, assess values and attitudes to infer behaviour change using empirical analytical evaluation instruments deployed by expert evaluators.

Unfortunately, in both cases, the marriage of an instrumental ideology in state institutions and empirical evaluation research methodology was to prove untenable and evaluation theory went through a succession of changes in the late 20th century (See 3.2 for an overview of these)

It is notable how the expanding education and communication imperatives for enacting change in relation to manifestations of risk were primarily staged within the prevailing scientific and institutional cultures of the times. These shaped education and communications imperatives to resolve problems with interventions in schools and communities. These, in turn, needed to be monitored and accounted for thorough evaluation of how education and communications served to enable problems to be resolved in target groups of learners and citizens who received the necessary educational treatment for them to learn to behave differently.

This broad and simplified vantage point on the 20th century institutional cultural history of an emergent professional evaluative enterprise was to evolve and expand with a more inclusive and participatory turn in education. The shift to more inclusive co-learning processes of social reorientation began to drive more participatory evaluation practices in the latter part of the 20th century but these were often still underpinned by the careful pre-specifying of behavioural outcomes that could then be measured as an account of effectiveness.

The revised approach reflected in this module is an inclusive break from behavioural intervention approaches in community, public education and curriculum settings. Here the focus shifts to how the action learning interventions of participants develops as a process of regenerative value creation. This requires an inclusive approach to ESD as a regenerative process amongst participants engaged in evaluative action learning processes that are open to co-engaged monitoring and evaluation.

This module explores the emergence of this inclusive approach to evaluation where target groups became participants and where evaluation of concerns and outcomes became an integral and collaborative part of ESD as a regenerative process.

A review of some case studies as an orientating task in an ESD and evaluation project setting

The two case studies and associated publications have been selected as they reflect how we have worked on more inclusive and integral evaluation designs. They reflect our reframing struggles as emerging work in a context of ESD.

This participatory course in evaluation and ESD is situated at a time of change in evaluation theory and practice that is briefly explored in O'Donoghue (2016) and developed with a case study of an evaluation process in a Regional Centre of Expertise (RCE) in Education for Sustainable Development (**Case Study 1, below**). This evaluation work was written-up to navigate a more inclusive strengthening of evaluation activities in the ESD initiatives within RCEs that were initiating diverse Education for Sustainable Development activities. The outcome was a hybrid evaluation framework for a collaborative evaluation process in Makana RCE in the Eastern Cape of South Africa summarised in the case study.

The RCE study informed further exploratory work on Evaluation and ESD that was undertaken within ESD Expert-Net. This led to the writing of a position paper, (O'Donoghue, Rosenberg, Joon and Krah, 2019) and deepening work in the context of the COVID-19 pandemic, (O'Donoghue, Joon and Roncevic, 2020). These position papers can be read alongside the O'Donoghue (2016) paper to navigate the clarification of expanding approaches to evaluation 'for, as, in, and of ESD'.

Evaluation Landscape



How is the evaluative landscape of ESD changing the landscape of evaluation?

In this [presentation](#), Rob O'Donoghue sketches the intermeshing landscapes of evaluation and ESD as the landscape of transformative learning. He places the notions of using SGDs *for* ESD, ESD *as* an evaluative process, evaluation *in* ESD and evaluation *of* ESD and in a broader landscape in this video.

[Please click on the link above to access the video presentation](#)

2C EVALUATION TRAJECTORIES IN ESD WORK WITH THE SUSTAINABLE DEVELOPMENT GOALS

There are two evaluative directions in ESD when working with the Sustainable Development Goals:

Direction 1: An evaluation of how the SDGs are being realised. It is normally the evaluation work that is undertaken in states and state institutions to track and report progress towards achieving the SDGs

Direction 2: An inclusive review of an evaluative learning and change process where participants work with the SDGs as a tool to steer their participatory learning actions as a regenerative process. It is normally the focus of an ESD project or programme where the evaluator can be either an independent outsider contracted to undertake an evaluation or, more commonly now, an evaluation convenor of a collaborative or participatory evaluation process amongst programme participants.

The former is rooted in institutional cultures of 20th century modernity and the latter in a slow evolutionary change that accompanied increasing individualisation and an associated levelling of power gradients with the expansion of the democratic state. This slow shift in focus can be tracked as a long methodological struggle in evaluation that emerged as and within a participatory turn in ESD.


ASSIGNMENT 2.1.

Evaluation and the Sustainable Development Goals

Read the positioning papers (Annexure 1&2) to develop your own perspective on the evaluation landscape as situated processes of co-engaged assessment and accounting within ESD as a regenerative process of social-ecological transformation informed by the Sustainable Development Goals.

Task: Prepare a descriptive position statement for a proposed evaluation process specifying:

- ✓ An ESD context
- ✓ Proposed approach to evaluation



The papers track how the participatory / inclusive turn in ESD and evaluation are developing as a 'game changer' expanding and changing how evaluation is being undertaken in more collaborative ways (Case Study 1) or as an integral part of an ESD process of evaluative action learning as a Hand-Print CARE process of regenerative learning (Case Study 2).

2D HOW DOES THE LANGUAGE WE USE SHAPE ESD AND EVALUATION

Social Science's favoured 'spectator's view'

Social Science's spectator view produces evaluators who try to assess the worth and value of other's practices by being 'objective', cast in the role of observer, commentator, judge WITH AN ASSUMPTION OF 'VALUE NEUTRALITY' AND 'FACTUAL RIGOUR'



- It seems that becoming a social scientist involves learning to adopt a distanced relation to social life, perhaps so as to be more objective, **as if we could become more objective by ignoring part of the object**
- This leaves us producing bland accounts of social life, in which it is difficult to assess the import of things for people. (Sayer, 2011)

Source: Key note lecture of Prof. Heila Lotz-Sitika on 16 August 2021

- It is in the context of capability, vulnerability and precarious wellbeing or flourishing, and our tendency to form attachments and commitments, **that both values and reason in everyday life need to be understood.**

FACT/VALUE
DICHOTOMY

- Social science's favoured spectator's view of action, coupled with its wariness of normative or evaluative discourse, can easily prevent it from understanding what is most important to people. (Sayer, 2011)



... values guide us as to what conduct is desirable and what is not. **Values carry an evaluative meaning.** It is because values involve a preference/choice of a particular thing/ good/ action, **the desirability of a particular value may vary from one culture to another, from one group to another.** (in [Chakrabarty, 2019, 16](#)) ...

Source: Key note lecture of Prof. Heila Lotz-Sitika on 16 August 2021

2E CASE STUDIES OF A CO-ENGAGED EVALUATION DESIGN PROCESS

Some Case Studies to explore how more inclusive evaluation are Emerging in ESD

Case Study 1: Evaluation of ESD in an RCE context co-engaged review

Makana and Rural Eastern Cape RCE in South Africa was constituted as an open forum structure for diverse civil society and university-based project initiative to collaborate on ESD. This led to a variety of loosely constituted community engagement projects being initiated in the area during the United Nations Decade of Education for Sustainable Development. With the DESD ending, there was an imperative to evaluate the ESD initiatives in RCEs across the world so that outcomes could be reported into the UNESCO review process. To this end, an ad hoc evaluation working group was established through the United Nations University – Institute for the Advanced Study of Sustainability (UNU-IAS). Following a review of the shifting field of education and evaluation a working group was convened to undertake a pilot project in Makana RCE.

The development of a hybrid framework for the evaluation of five ESD projects led to a 5-stage participatory evaluation process to both strengthen the ESD initiatives and report emerging outcomes (See O'Donoghue, 2016 p. 227 and power-point video presentation 2.2).

An inclusive stakeholder team was convened to:

1. Undertake an appreciative review of the context, coordination activities and networking within the 5 RCE partner projects so as to strengthen and understand the education activities that were being undertaken under the umbrella of the RCE as a collaborative ESD structure (p. 230).
2. Following this a more in-depth review of the activities and their effects was undertaken by small working groups (p. 231).
3. These were reported back to the stake-holder group where participants worked with the case evidence to identify evidence of transformation and sustainability (p. 231-232).
4. Next was a process of reviewing the activities in terms of the regional RCE structures for evidence of shared strategic focus areas and linkages that could be strengthened (p. 232).
5. These were then reviewed in relation to the services of the Global RCE Service Centre (p. 232-233) before a concluding review.

6. This was centered on a deliberative process that attempted to document outcomes as a process of 'value creation' through the RCE ESD initiatives in the area (p. 233).

The evaluation process was of immense clarifying value to the participants. Their project records and an evaluation report were submitted to UNU-IAS where it was noted with interest and commended as a useful review process. However, there was little satisfaction because the report as a process record reflected a paucity of empirical evidence of the actual changes achieved through the various ESD initiatives.

Based on this polite and muted reaction to the outcomes of the appreciative enquiry evaluation process, the evaluation design challenge ahead became the clarifying of evaluation and ESD as well as the development of evaluation programmes that generate more evidence of change. The former was undertaken through ESD Expert-Net to produce a positioning document for this course within which the challenge is to work together towards undertaking ESD in evaluative ways that include more tangible evidence of change.

Key questions to frame the participatory review of the ESD initiatives were:

1. What concerns were the participants evaluating and acting upon in their area
2. How were they going about this?
3. What assumptions were guiding their regenerative initiatives?
4. How was the work playing out?
5. What expansions of the work were anticipated?

Following the participatory RCE review work on evaluation and ESD we also worked with school subject teachers. This developed around trying to better understand ESD as an evaluative process through the Hand-Print CARE collaboration reported as Case Study 2 below.

Case Study 2: ESD and evaluation in a context of school subject teaching

Paper: (O'Donoghue et al., 2020 Hand-Print CARE)

O'Donoghue et al. (2020) describe how Hand-Print CARE was inspired by the spontaneous action learning imperative expressed by a young Indian scholar. Rather than simply learning about problems she wanted to do things to bring about positive change for the common good. The advent of a more learner-centered action learning approach to ESD in Hand-Print CARE reflected a shift that repositioned evaluation as integral to ESD as a regenerative process.

ESD Competencies



How do ESD competencies inform evaluation?

In this [video](#), Rob O'Donoghue talks about ESD competencies and their role in informing evaluation. He looks at the key competences for sustainability that need to be read together as evaluative action competence.

(Please click on the link above to access the video)

From intervention to create awareness to co-engaged processes of regenerative social learning

In Hand-Print CARE, ESD as ethics-led learning in school subjects was taken up around how the modern sciences are commonly used to stage risk for educational interventions to bring about a desired change in behaviour. The Hand-Print CARE approach to education departs from this instrumentalist approach to ESD and its evaluation, noting limitations and flaws in the rationalist logic of assessing awareness creation and changes in attitudes and values to infer behaviour change. A handprint approach is centred on ESD as a co-engaged process where teachers and learners interact in evaluative learning transactions to resolve historically constituted risk-producing conditions in a modern world. Here ESD in school subject teaching settings was approached as a Hand-Print CARE process of evaluative co-learning to recognise concerns, assess value and act together in positive ways for more just and sustainable futures (Schreiber and Siege, 2017).

Evaluation FOR ESD – How do the SDGs inform evaluative learning?

In the [video](#), Rob O'Donoghue gives an example project for working with SDGs as an evaluative tool for ESD. He explains how several issues were uncovered by using the SDGs not only as goals to be achieved, but as an assessment tool.

(Please click on the link above to access the video)

Figure No: 1 Global SDGs and Evaluation: Cup and Saucer Metaphor



Evaluation IN ESD

How is evaluation integral to ESD?

In this [video](#), Rob O'Donoghue introduces the 5 T's of Action Learning as a practical tool to use in a classroom or community situation to check whether evaluative learning and a progression of competencies can be tracked.

(Please click on the link above to access the video)

Evaluation AS ESD

How is evaluation undertaken as ESD

Rob O'Donoghue presents an example for ESD as an evaluative process in this [video](#). He comes back to the example of the miniSass project, where pathways to future sustainability were found through backcasting. He also presents some useful guiding principles for sustainability.

(Please click on the link above to access the video)

Evaluation OF ESD

How is evaluation of ESD expanding?

In the [video](#), Rob O'Donoghue gives an example project for working with SDGs as an evaluative tool for ESD. He explains how several issues were uncovered by using the SDGs not only as goals to be achieved, but as an assessment tool.

(Please click on the link above to access the video)

Evaluation Theory of Change

How do we surface implicit theory of change?

In this last [video](#), Rob O'Donoghue explores the issue of navigating competing realisms in the evaluation of ESD. He also presents a model showing the connections between past and present experiences in order to re-imagine a more just and sustainable future.

(Please click on the link above to access the video)

2F Clarifying an inclusive co-learning perspective for regenerative social learning

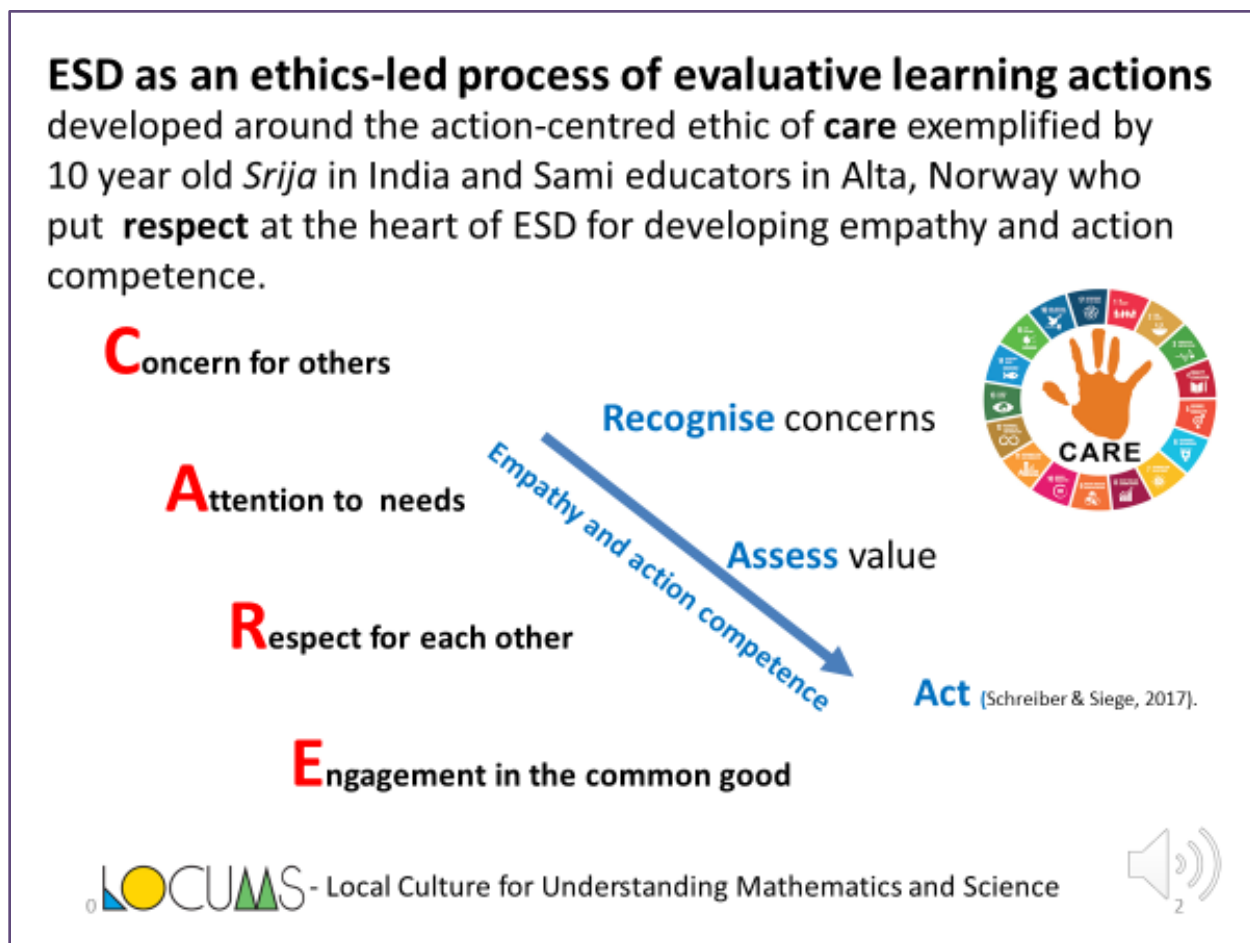
A revised and more 'evaluative' and 'learning-centered' approach is emerging in settings as scientific knowledge of climate, for example, is used to stage risk as a global warming problem to be solved by human social intervention. In this way, school subjects reflect concepts to be taught and commonly stage risk as environment and sustainability problems to be solved. This is commonly found in problem-based-learning methodologies.

Beck 1992 read with Beck and Beck-Gernsheim (2002) points to a disjuncture between the scientific staging of risk and manifest settings of risk experienced by individuals. Sorensen (2018) in a review of Beck's work, notes how there is often little correspondence between a scientific staging of risk and how risk manifests for individuals.

The individualization process means that citizens (as parents, neighbours, consumers etc.) ultimately have to find ways whereby they are able to deal with the unpredictability of the new risks, their considerable content of non-knowledge and their potentially very destructive character. (Sorensen, 2018 p. 14).

This suggests that a scientific staging of risk in a school subject will have to make provision for 'bridging a gap' into the cultural and contextual reading and experiences of risk for a desired action learning engagement with environmental problems that need to be resolved in relation to complex concerns like climate change. Climate change, as noted above, is commonly portrayed by science as global warming but is manifest in many complex social-ecological and economic concerns. The pedagogical inclusion of intergenerational heritage knowledge and life experience in a local context is being accommodated in two ways in Hand-Print CARE. Firstly, in the co-engaged mediating of learning spaces for students to differentiate how scientifically staged risk might be manifesting in relation to their cultural setting and life histories. And secondly, in supporting learners to track how colonial histories of marginalizing exclusion have shaped concerns beyond the scope of scientific abstractions that need to be evaluated and resolved in ESD as change orientated social learning transactions in line with and informed by the Sustainable Development Goals aligned with Education 2030, for example.

Figure No 2: ESD as an ethics-led process of evaluative learning actions



Source: Handprint CARE, ESD as Evaluative learning

This subtle change from interventionist to co-engaged learning served to reframe ESD and to reposition evaluation as integral to ESD as cultural-historical processes of evaluative learning. In Hand-Print CARE, we noted how learning can be activated in 'real-life and true stories' and in regenerative work with heritage knowledge practices alongside the informative scientific concepts and problem-solving challenges now found in many school subject disciplines. Here, the inclusion of **evaluative story-sharing** and **deliberative learning** enabled participants to raise questions for enquiry to find out more and to work out possible solutions together. With deliberative inquiry data as a foundation, a learner-led action learning approach was extended to participants as evaluators trying out and reporting on the effectiveness of their exploratory interventions. It was noted that ESD as a reflexive process of evaluative learning appeared to enable

participants to narrate action learning accounts as **ethics-led learning to change** in and as **positive stories that ‘point the way’** to more just and sustainable futures in a changing world. To clarify this for teachers we noted the need to balance subject knowledge acquisition with learner-led participatory learning actions as a regenerative process of evaluative action learning. To include a balance of both we developed an aide memoire which noted that: ***the scientific staging of risk as a problem informs but only situated learning actions can transform.***

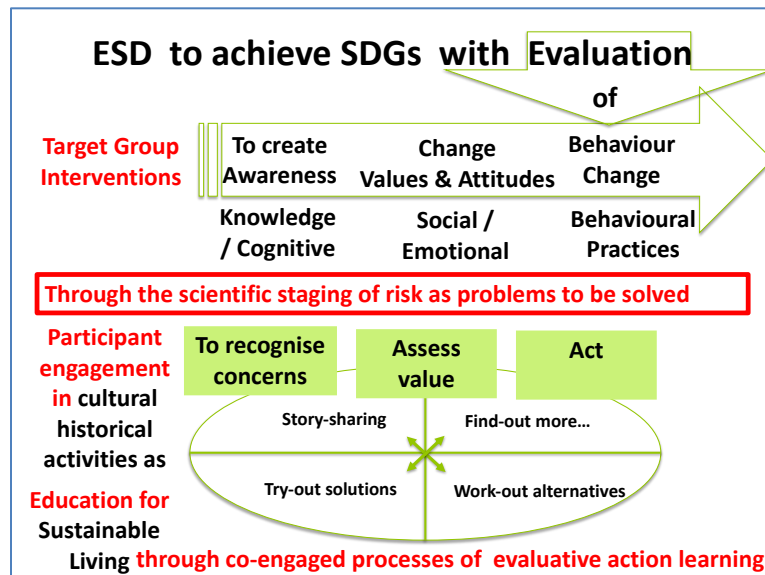
This enabled teachers to teach specified subject concepts in expansive ways that include situated cultural capital, local inquiry and positive change challenges. The expanding of conventional assessment to include significant learning reframed evaluation as a narrative process of evaluative learning and change that is reflected in narrative accounts of change challenges arising in deliberative learning in a school subject teaching setting.

2F.1 A repositioning of evaluation as integral to ESD

It was notable how a Hand-Print CARE approach served to de-center evaluation from the mere assessment of effectiveness, impact and scaling into an open-ended knowledge mediated evaluative learning processes of regenerative change. Here participants became the ‘enactors and narrators’ of regenerative change in their reviews of change-challenge experiences as regenerative processes of social-ecological change.

This subtle shift disrupted and expanded the conventional relational powers implicit in expert-led evaluation alone and evaluation became implicit in inclusive processes of co-engaged learning. The integrating re-positioning of evaluation in ESD as open-ended action learning processes encapsulating social and institutional accountability was developed as an expansion of the conventional taxonomic framing for the assessment of learning in schools. Here, assessment of the attainment of specified learning outcomes and an account of evaluative learning to change are coupled as the roles of educators in schools as educational institutions. The integral role of ESD as an evaluative learning process of regenerative change in Education can be accommodated alongside how from time-to-time schools and schooling practices are evaluated against institutional quality criteria by experts. Here school evaluation becomes a quality assessment process of value creation.

Figure No:3 – Co-engaged processed of evaluative action learning



Behind the repositioning shift of evaluation as integral to ESD as a regenerative process, was a redefining of ESD (along with the underlying assumptions and conventional power relations in education) as an inclusive process of co-engaged regenerative learning. Here culture, history and life experience were activated along with institutional scientific knowledge as the conceptual foundations for staging risk as contextual problems to be solved in

educational settings. Figure 1 reflects a situating break from ESD being defined as a process of awareness creation to change values, attitudes and behavior. Here ESD is reconstituted as a evaluative learning processes of regenerative change developing around the co-engaged mediating of learning that enables participants to recognise concerns together towards (re)assessing value and acting to achieve more just, peaceful and sustainable futures (Schreiber and Siege, 2017).

2G CONCLUDING SYNTHESIS

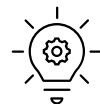
The reframing of ESD as co-engaged evaluative learning in school subject teaching does not exclude the objective role of an outside professional evaluator as part of an assessment process from time to time. The change does, however, come with the challenge of reframing the conventional evaluation research enterprise and its instrumental foundations that are centered on the measurement of outcomes. This reframing and expansion of evaluation work has been underway for many years and is summarized in overview in O'Donoghue et al. 2020 and in methodological terms in module 3.2.

Key questions that have served to shift and balance of institutional perspectives for constituting the evaluation of ESD in school and community settings are:

1. What concerns are being evaluated in the programme?
2. Who is involved in evaluating these concerns?
3. How did their evaluation work play out?
4. What value creation and change has been evident to participants?

ASSIGNMENT 2.2. Framing evaluation design principles for a context of ESD

Assignment 2.2 *Considering the shift from intervention to co-engaged approaches in the participatory turn that developed in the late 20th century, build on task 2.1 to attempt a preliminary mapping of a strategy for co-engaged evaluation work in the context in which you are working.*



Develop this as broad statement of design principles for a proposed ESD and evaluation process. The task should be written up in a concept proposal for reporting to a group of fellow course participants as a formative discussion document of principles for guiding your ESD and evaluation work. This could be structured to include:

1. *The ESD context and history in which I work.*
2. *The staging of risk in this ESD setting.*
3. *Proposed guiding principles for the evaluation of ESD as a regenerative process.*
4. *Any concerns that will need to be resolved with clients and amongst ESD participants.*

Today, assessment and accountability are at the heart of all evaluation practices as these play out across classroom, community and state settings. A key referent has become the Sustainable Development Goals. Here states are under pressure to undertake evaluations that account for progress towards the goals of Education 2030. This responsibility is commonly downloaded to the evaluation of change as evidence of the transformation achieved.

All of the tensions and ambiguities that accompanied early modernist imperatives to regulate social life through education and communication initiatives are still with us. These do not make the design decisions of evaluators any easier. On the positive side this makes the evaluation arena an open-ended creative cultural space where design decisions have to be carefully weighed up around whether the evaluative learning as a regenerative process is being undertaken by a 10-year-old girl in India, the manager of an initiative to evaluate a civic ESD programme of deliberative social transformation in a modern democratic state setting together or with the help of an evaluation professional or researcher.

The challenge here is to develop an inclusive approach to **evaluation as learning** that is both informative of and transformative as a regenerative process of change.

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REGENERATIVE ESD AND EVALUATION

HEILA LOTZ-SISITKA

Figure No: 4 What is important in ESD Evaluations

What is important in ESE (ESD) evaluations?




- **Ethics, Values(ing) & Sustainability principles** ... *how people relate to each other and the environment in terms of their and the environment's well-being ... this is important because the quality of people's lives depends hugely on the quality of the social relations in which they live, how people treat one another, and ultimately also on ecological integrity.*
- **Education & learning** ... *how people relate to each other and can learn from each other and the environment in terms of their well being ... this is important because the quality of people's lives and the environment depends on the quality of the social-ecological relations which they practice and which might need to change, be transformed or re-generatively reconstructed*

Source: Key Note lecture delivered by Heila Lotz-Sisitka

Figure No:5 Evaluation in environment and sustainability education

in environment and sustainability education



- we continually monitor both our own learning and agency for social-ecological change, and that of others, particularly amongst those people and places we care about.
- our relations are strongly influenced by our relations to others and our understandings and experiences of place(s) and changes emerging in the social-ecological learning environment(s) and place(s) we find ourselves ...
- **we are monitoring and collectively reviewing and re-shaping our own being and becoming in the company of others in the environment(s) we find ourselves ...**

Source: Key Note lecture delivered by Heila Lotz-Sisitka

REGENERATIVE ESD and EVALUATION for the FUTURE WE WANT

by Heila Lotz-Sisitka

16.08.21



Regenerative Education for Sustainable Development and Evaluation

“as sentient beings, capable of flourishing and suffering, and particularly vulnerable to how others treat us,
our view of the world is substantially evaluative.”

we are social beings – dependent on others and necessarily involved in social practices.

...we are sentient, evaluative beings: **we don't just think and interact but *evaluate things***, including the past and the future” (Archer, 2000a, in Sayer, 2011)



Evaluative being(s) and becoming(s)- Keynote lecture by Heila Lotz-Sisitka

In the video, Heila Lotz-Sisika articulates that we are all evaluative beings capable of reflexivity and re-viewing matters of concern with others and out of this, we are capable of re-generating alternative cultures that reflect ‘the futures we want’

[Please click on the link to watch the video](#)

Below is the summary of Keynote address by Heila Lotz-Sisitka, Distinguished Professor of Education for Sustainable Development, Rhodes University. This keynote was delivered on 19 August 2021 at the opening of the Summer School on “Regenerative Education for Sustainable Development and Evaluation for the Future We Want”.

Key points:

- Evaluation is a process of *'finding value' / appraising value*
- Evaluative work lies between 'is' and 'ought'
- Finding value is central to being and becoming in-between 'is' and 'ought'
- Social science's favoured 'spectator view' of objectivity often reduces the evaluator to the role of observer, commentator and judge. This limits the degree to which we can assess the import of things for people

- It is in the context of capability, vulnerability and precarious wellbeing or flourishing and our tendency to form attachments and commitments, that both values and reason in everyday life need to be understood.
- In order to address questions of sustainability, climate change, in a context of vulnerability and precariousness we have to bring both values and reason together, we have to appreciate our capability for understanding the situations we are in and being able to reason about those in the everyday.
- We need to work with people to look at the real referent for their discourse which needs to be assessed. The evaluator can come in and begin to make an assessment of how that relates to flourishing and suffering and thereby can assist and support people with their evaluative discourses.
- The work of the evaluator, by adopting a critical relation to the ideas and practices of those we study, can open up a space for public discussion of what constitutes well-being and those generative mechanisms and structural factors that underly experiences, and how to possibly change these.
- It is important to recognise *within ESD evaluation that we are monitoring and collectively reviewing and reshaping our own being and becoming in the company of others in the environment(s) we find ourselves.*
- People are capable of reasoning about value judgements in practice, and this is an evaluatively constituted reflexive learning process in the company of others.
- Theory of change approaches give us a tool to think backwards and forwards, between what 'is' and 'ought' and can help to uncover assumptions and make them more explicit, and they can also be complemented or replaced by activity theory or value creation framework approaches.
- This takes us to working more closely with learning and learning theory in and as evaluation processes that work between the 'is' and the 'ought' with others and provides the possibility for evaluation to become re-generative as a process of monitoring, evaluation, reporting and learning (MERL).
- We are all evaluative beings capable of reflexivity and re-viewing matters of concern with others and out of this capable of re-generating alternative cultures that reflect 'the futures we want'.

The most important questions we tend to face in our lives are normative ones of what is good or bad, how to act and what to do for the best. We are beings whose relation to the world is one of concern. Yet social science often ignores this relation and hence fails to acknowledge what is most important to people.

Evaluation has morphed into a form of measurement for control and managing people's behaviours and organisations changes, and has become more closely associated with the practice of 'judgement', aligned with a managerialist discourse. We need to be careful and critical about the words that we use, how they have transformed and how we use them in contemporary times.


Evaluation is central to being and becoming. The distinction between is and ought, that has dominated thinking about values in social science, allows us to overlook the missing middle, the centrality of evaluation. It obscures the nature of our condition as needy, vulnerable beings, suspended between things as they are and as they might become, for better or worse, as we need or want them to become. (Sayer, 2011)

There is a relationship between positive and normative thought within our everyday practice and life as evaluative beings. However, social science's favoured spectator view of 'objectivity' has produced a separation, a division between positive and normative thought which has become institutionalised by the academic division of labour. This produces evaluators who try to assess the worth and value of others' practices by being cast in the role of observer, commentator, judge with an assumption of 'value neutrality' and 'factual rigour', adopting a fact / value dichotomy.

Values guide us as to what conduct is desirable and what is not, they carry an evaluative meaning for us "because values involve a preference, / choice of a particular thing/ good / action, the desirability of a particular value may vary from one culture to another, from one group to another" (Chakrabarty, 2019) We need to counter the idea that values are not only subjective but synonymous with 'bias' and distortion, or that they are personal biases that one ideally should confess to, so that others will at least be able to 'take them into account', that is, discount them.

Theory of change approaches:

A theory of change (ToC) uncovers the assumptions we make about what is possible in reaching a long-term goal. It specifies the connections between program activities and outcomes, and challenges designers of complex community-based initiatives to be specific about their often-implicit theories of how to achieve the change they seek.



ToC and re-generative evaluations

theory of change approaches contain a **predictive element** ... **what outcomes might be anticipated** – and *this question cannot be answered without building in assumptions about how the current situation will develop in future.*

“students, families and community members where beneficial impacts were clear.... told us a great deal about what might be achieved under particular circumstances” ... working *with* the evaluative capabilities of students, families and community members (dyson and todd cont...)

Source: Key note lecture by Heila Lotz-Sisitka

As an evaluation strategy the ToC approach involves, ‘systematic and cumulative study of the links between activities, outcomes and context of the initiative’ (Connell and Kubish 1998:16). Typically, therefore, evaluators work with actors to explicate the latter’s underpinning theory or theories. Once this theory is articulated, evaluators can:

- examine the inherent coherence of the theory
- collect data on the intermediate changes produced by action, and
- assess the extent to which these changes occur as predicted by the theory; and
- collect data on any longer-term outcomes that are generated in the evaluation period.

Rather than being imported into the evaluation by the evaluators or some external sponsors, outcomes are articulated by the actors in the initiative, albeit in negotiation with the evaluators (Weiss, 1995)

The TOC approaches contain a predictive element about what outcomes might be anticipated – and this question cannot be answered without building in assumptions about how the current situation will develop in future. However, if you treat it as a technology and not as a kind of co-engaged learning process with others, you can ‘miss’ the important work that needs to be done by the evaluator to co-construct change with participants.



the role shift ... from anticipated spectators to collaborators in formative evaluation

- the focus on relatively small, intermediate changes identifiable in the course of daily practice meant that practitioners themselves were sometimes best placed to gather data.
- as a consequence, they became participants in the evaluation process rather than simply recipients of its findings
- the roles of actors and evaluators became, if not interchangeable, at least much closer than is usual. Dyson and Todd cont ...

Source: Key note lecture by Heila Lotz-Sisitka



evaluation theory and expansive learning theory

- “The national evaluators of the Children’s Fund – an initiative recognisably from the same stable as FSEs and Sure Start – for instance, found it necessary to supplement their use of theory of change with an approach drawing on activity theory (Edwards et al. 2006: 247ff), and there may be something to be said for combined approaches of this kind.”
- “the issue at this juncture, however, is that what seems to be important is not so much the relative merits of different approaches as the extent to which evaluators will be able to keep pace with the changing realities of schools’ expanding roles”. (Dyson and Todd cont...)

Source: Key note lecture by Heila Lotz-Sisitka

SLIDES USED FOR THE PRESENTATION

Module 2

Emergence of Evaluation in ESD



ESD Evaluation Course, Module 2 by Rob
O'Donoghue

1

1. Evaluation and ESD: An Overview

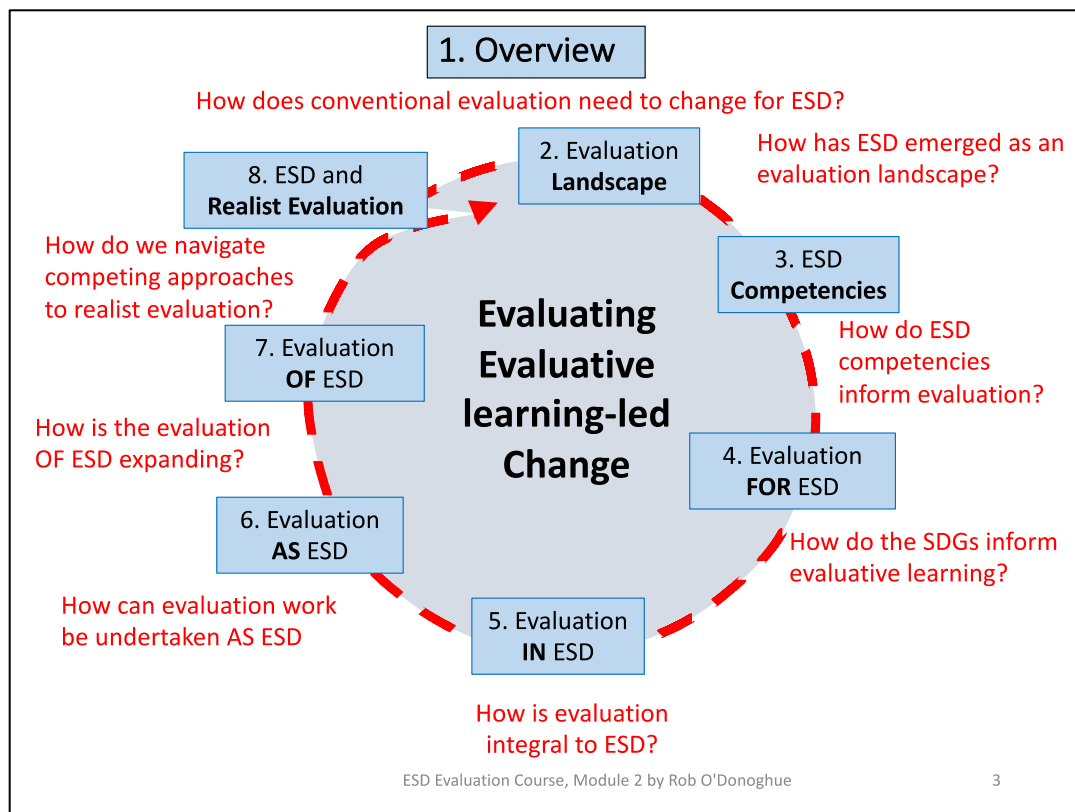
What are some of the questions that we need to be asking?

Rob O'Donoghue



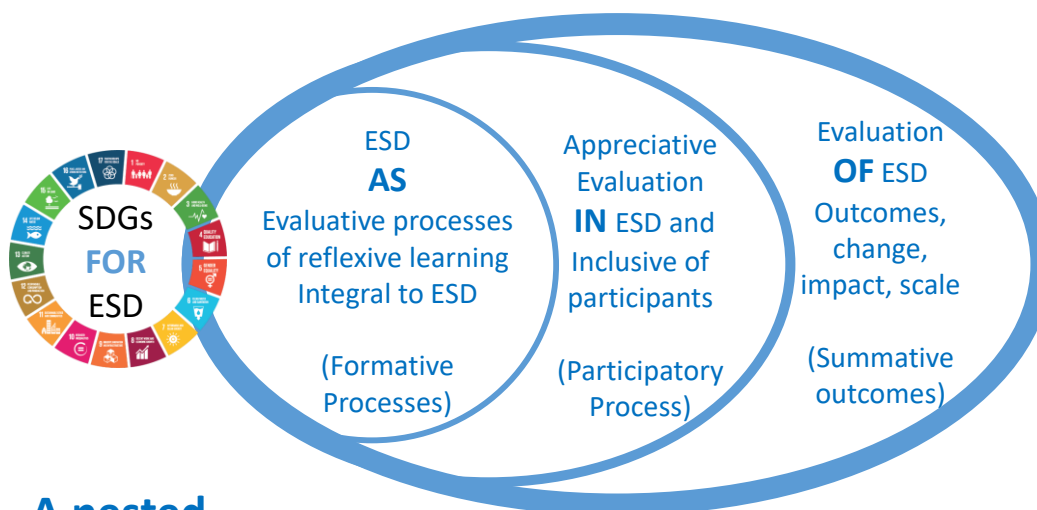
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3

Some integrating dimensions of evaluation & ESD

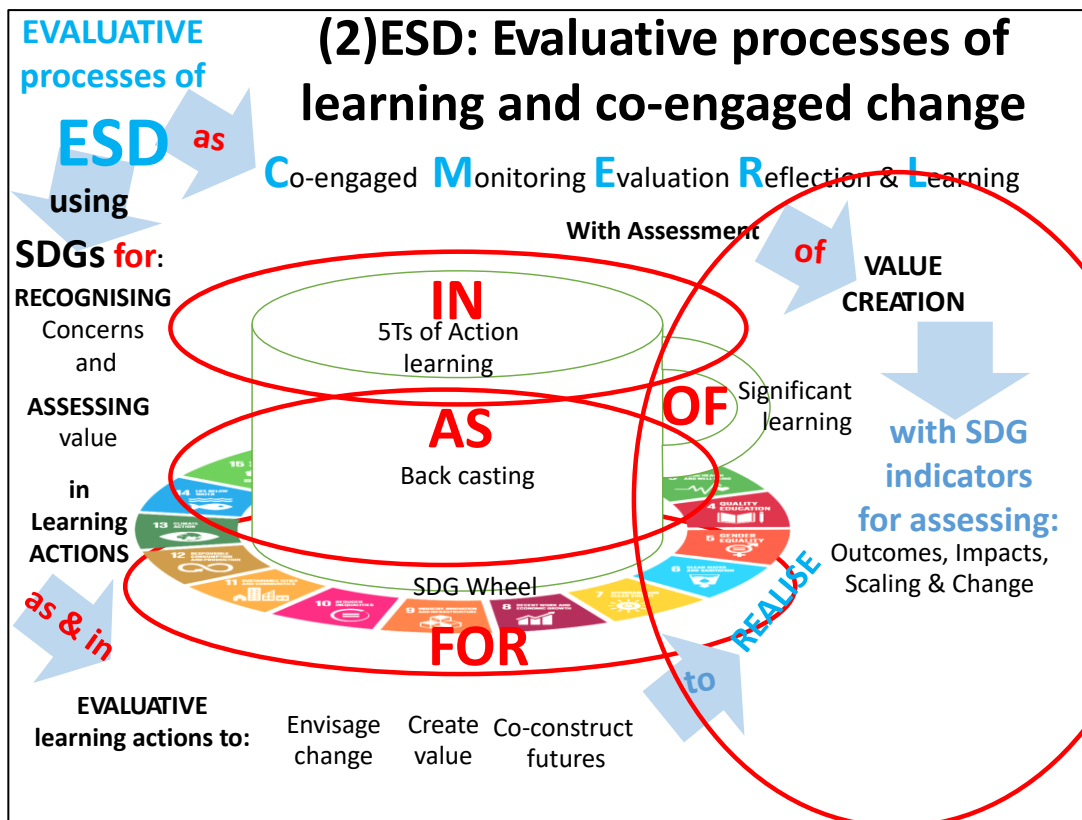


**A nested
Deepening of evaluation for ESD as
regenerative learning with SDGs**

2. The intermeshing landscapes of evaluation and ESD

How has GCEd/ESD emerged as an evaluation-led landscape of transformative learning?

Rob O'Donoghue



3. ESD Competencies

How do ESD competencies inform evaluation?

A competences approach re-integrates an earlier separation of cognitive, social-emotional and behavioural dimensions to overturn the early linear assumption that by creating awareness, values and attitudes will change along with behaviour.

Rob O'Donoghue
 environmental
 LEARNING RESEARCH CENTRE



ESD Evaluation Course, Module 2 by Rob O'Donoghue

(3) Defining ESD and **competences** for evaluative processes of learning-led change

Competence in ESD refers to the knowledge, dispositions and a capacity to act together in ways that enable participants to **recognize** concerns and **assess** value in evaluative learning **actions** that respond to local matters of concern.

(Extrapolated from Schreiber & Siege, 2016 – p.91).

Key competences for sustainability include:

- **Systems thinking**
- **Anticipation**
- **Normative**
- **Strategic**
- **Collaboration**
- **Critical thinking**
- **Self awareness**
- **Problem solving**

(UNESCO, 2017 – p.10).

These competences can be read together as evaluative action competence emergent in evaluation work .

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8

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9

4. Evaluation FOR ESD

How do the SDGs inform evaluative learning?

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10

(4)SDGs as an evaluation tool **for** ESD



5. Evaluation IN ESD

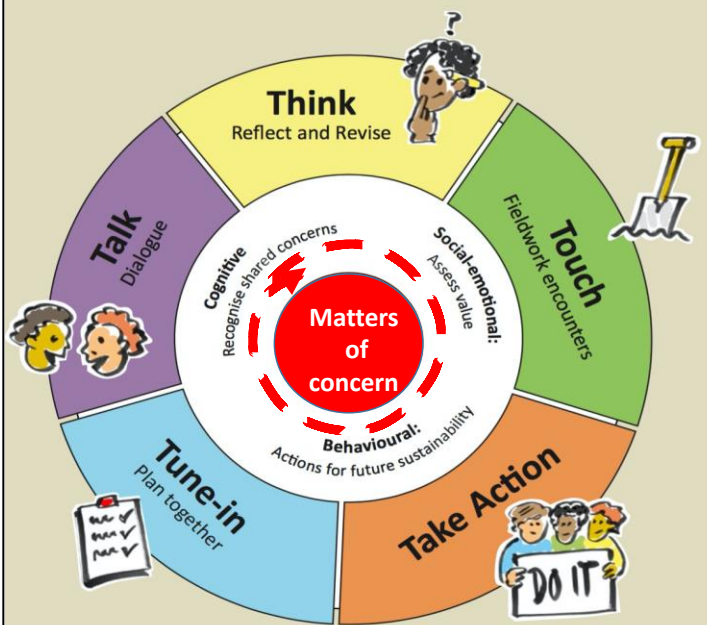
How is evaluation integral to ESD?



12

(5) Scoping Co-engaged action learning processes in ESD

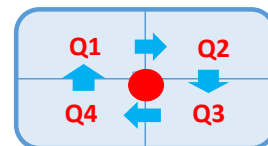
5 T's of Action Learning



(UNESCO, 2018)

Nexus learning action towards safer, more just and sustainable futures

Photo deliberations,
Story Sharing (Q1)
and
Local Inquiry (Q2)
towards
Handprint action
(Q3-4)



(5)References

O'Donoghue, R.B. Taylor, R.J. and Venter, V. (2018) How are Learning and Training Environments Transforming with ESD? In Education on the Move. Paris, UNESCO.

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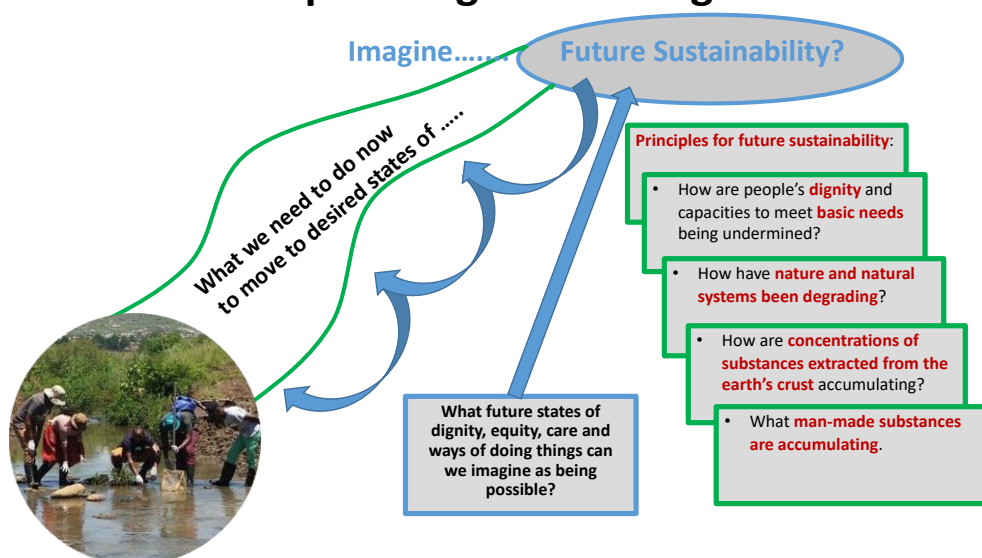
O'Donoghue, R.B., Joon, D. and Roncevic, K. (2020) Strong evaluation for a learning-led revision of our roadmaps during a disruption of desire

6. Evaluation AS ESD

How is evaluation
integral to ESD?

Rob O'Donoghue

(6) Evaluation **as** ESD to imagine the future we want and plan to get there together



A SADC / SWEDESD 'Enclosed earth garden,' 'planetary boundaries' and 'Natural Step (John Holmberg).'

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16

7. Evaluation OF ESD

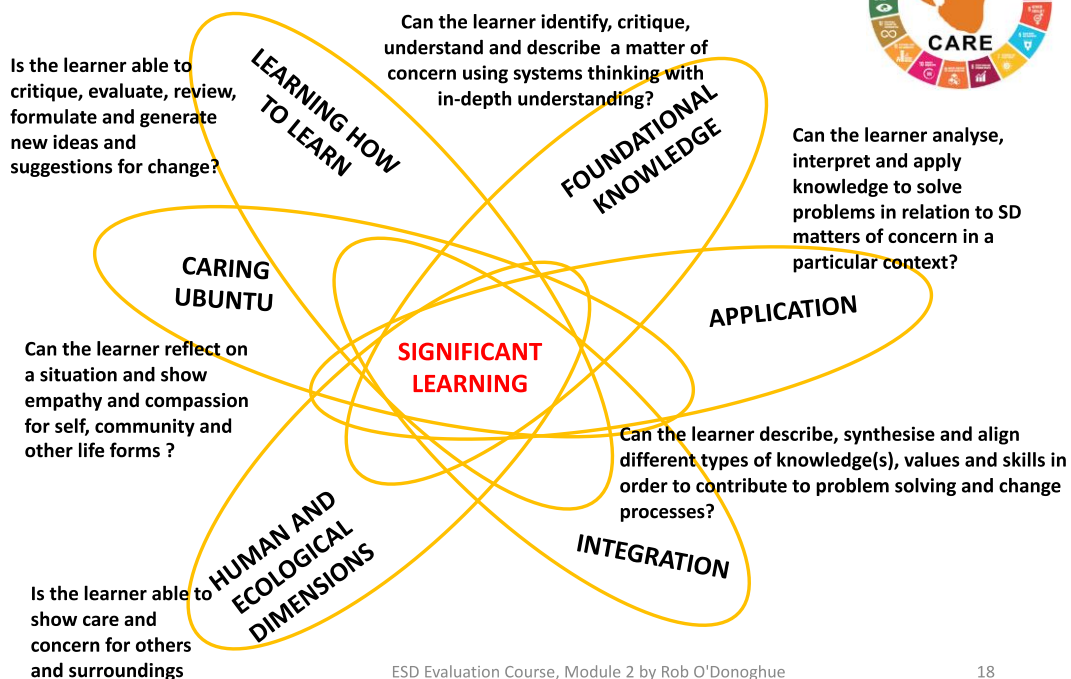
How is the evaluation OF ESD expanding?

Rob O'Donoghue

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17

(7) 3.4. Assessing SIGNIFICANT LEARNING ACTIONS



8. ESD and Realist Evaluation

How do we navigate competing
approaches to evaluation?

Rob O'Donoghue

In a review of realist evaluation after Pawson (2013), Porter (2015) concludes:

...there is good reason for evaluators to adopt the positions of critical realism, rather than those put forward in realist evaluation.

(Porter, 2015, p.79)

(8) Navigating competing realisms in the evaluation of ESD

A realist evaluation approach to ESD interventions can signify mediating **mechanisms** and an implicit '**theory of change**.' These can appear to have causal resonance with outcomes and impact of an intervention but....

Learning is not readily reduced to abstractions imbued with causal agency in empirical analysis.

Empirical causal mechanisms have effects but seldom provide a window on **learning as onto-epistemic, emergent and open-ended meaning-making transactions that are socially mediated with developing learner agency in a real-world setting**.

Tricky questions like this arise in realist evaluation across contrasting perspectives on realism and evaluation. In a critique of the realist empirical evaluation of interventions after Pawson (2013), Porter (2015) contends that:

*evaluation of interventions needs to focus on both the social **mechanisms** they entail, and the **responses** to these by the actors affected by (and enacting) them.*

(p. 79; my bold and brackets)

12/7/21

20

(8) Navigating competing realisms contd.

Anyone in the role of **professional evaluator of ESD** has to consider causal patterns at the empirical level and onto-epistemics process of emergent, evaluative learning and agency that are commonly muted in empirical causal analysis.

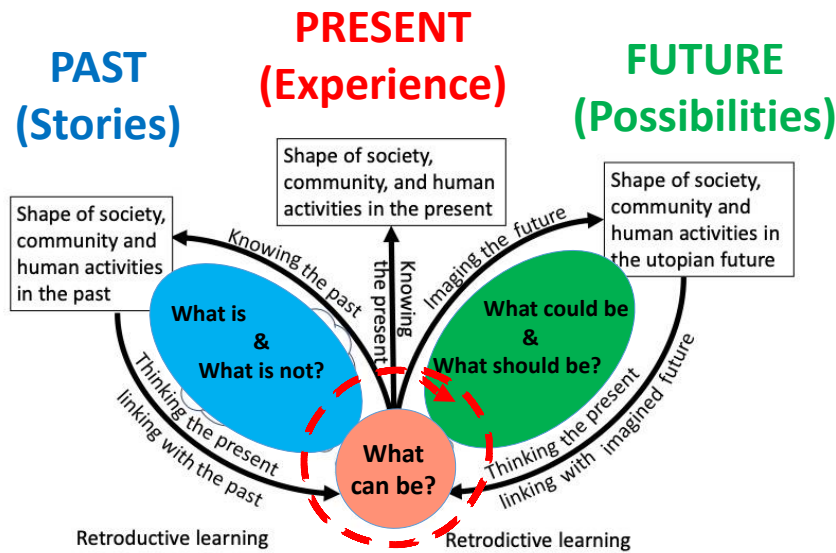
Transformative learning in ESD can be read as open-ended dialectic and reflexive processes that are emergent in co-engaged evaluative learning.

Critical Realism after Bhaskar provides some useful tools for evaluation that is integral to ESD as emancipatory, real-world, action learning transactions.

12/7/21

21

(8)ESD as Evaluative Learning across **PAST** and **PRESENT** to re-imagine a more just and sustainability **FUTURE**



(Chikamori et.al, 2019)

(Schudel, 2016)

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TRANSCRIPTIONS

Introductory Video by Rob

Hello, my name is Robert O'Donoghue from the Environmental Learning Research Centre at Rhodes University. I will be working with you on Module 2. This module expands conventional thinking on evaluation and the expansion that we will be exploring together repositions evaluation as a co-process within ESD. It is a challenging module because it looks at transformations that are occurring in the field, and I hope to work with you to expand the frontiers of evaluation to open up deeper understandings of evaluation as an inclusive process and as a really process that central to being and living in these challenging times.

Video on Evaluation overview

This overview on evaluation and ESD poses some of the questions, that we need to be asking ourselves. The overview view itself looks at how does conventional evaluation need (to in change) to change for ESD. And the way I've put it in the circle here is evaluating evaluative learning lead change. Little bit of a tongue twister, but what it does is it poses that ESD is an evaluative process and we probably need to rethink conventional evaluation when we're dealing with ESD now. So, what I've done is I've put together a series of short videos. The first one deals with the evaluation landscape, then competencies, evaluation for ESD, evaluation in ESD, evaluation as ESD, and finally evaluation of ESD. And then it looks at evaluation and the theory of change that is important for contemplating the evaluative approach to ESD.

So, on landscapes – how is the evaluative landscape of ESD changing? The landscape of evaluation is probably the core question. And then how do ESD competences inform evaluation? And how do the SDGs inform evaluative learning? How is evaluation integral to ESD? How is evaluation undertaken as ESD? How is the evaluation of ESD expanding? And finally, how do we surface implicit theory of change? So, all of these questions are raised and commented upon in these short videos that you can undertake in any order according to the questions that you're asking about evaluation work and ESD. Now, some of the integrating dimensions of evaluation and ESD have been mapped out in the paper that we wrote to explore these questions. If we start in the conventional end, evaluation of ESD, then everyone's pretty comfortable about outcomes, change, impact and scale.

So, summative evaluation is how this is often referred to, but when we look into ESD appreciative evaluation in ESD and inclusive of the participants as a participatory process is becoming a new normal in ESD. And ESD as evaluative processes of reflective learning, integral to ESD is another dimension or the formative processes that we need to take into account. And then, on the outside is the Sustainable Development Goals, as a tool for evaluative work in ESD and through ESD.

So, what we pose in this work is a nested deepening of evaluation that we explore in the series of short videos and we include some references that you might find useful just to orientate yourself and to look at the questions that will be significant for the evaluation work that you're going to be undertaking.

Video on Evaluation landscape

In the second short video on ESD and evaluation, I tried to give a sketch of the intermeshing landscapes of evaluation and ESD to answer the question how has ESD emerged as an evaluation-led landscape of transformative learning. And you all be familiar with the Sustainable Development Goals looking at evaluative process of learning and co-engaged change.

So, if we use the Sustainable Development Goals for ESD, the example that we often use is with this Sustainable Development Goals wheel. And we developed this little cup and saucer sort of metaphor for looking at how the various dimensions in the landscape of ESD fit together. So, you've got ESD as an evaluative process and here we look at an internationally well renowned example of back casting and evaluation in ESD, a tool for looking at the transactions and interactions in a learning process and of ESD the conventional one we look at significant learning in us in a school setting. So, these examples kind of produce a backdrop of a landscape of evaluative processes of ESD and there are many tensions and contradictions to be navigated, but in the early days we had interventionist approaches as ESD and now these intervention approaches have become much more co-engaged Monitoring Evaluation Reflection and Learning processes.

And here as well within these you find they're using the SDGs for recognizing concerns and assessing value in learning actions. And then as ESD and in these ESD processes you've got evaluative learning actions taking place where people are envisaging change together, they're creating value and they're co-constructing futures to realize outcomes, impacts, scaling and change. So, ESD is quite a wide landscape and if you go back to CMERL, then the co-engaged Monitoring Evaluation, Reflection and Learning needs to be assessed as well as being a process of assessment.

So, very commonly these days people are using value creation as a way of assessing intervention processes, whether the interventions are in terms of an education process to change others, or people intervening in their own lives, or a combination of both.

The SDGs are often used as indicators for assessing particularly in institutional settings the outcomes, impact, scaling and change.

So, here's a brief sort of sketch of the landscape of evaluation that we're dealing with today and of course we have the conventional evaluation of ESD, but we must not forget the other dimensions: evaluation in ESD, evaluation as ESD and of course using the SDGs for ESD.

Video on Evaluation competencies

A key area to look at is competencies. And it's taken some time for evaluators to begin to realize that a competencies approach reintegrates an earlier separation of cognitive, social-emotional and behaviour dimensions, to overturn the earlier linear assumption in EE and ESD that by creating awareness through communication or through activity, then we'll change values and attitudes along with behaviour.

So, competencies is a very important area in evaluation and how do ESD competencies inform evaluation, is the question that I've raised here. Of course, we could raise how do we assess competencies and that is a whole other area of importance, that we could explore in some detail.

So, defining ESD incompetence's for evaluative process of action learning and change, is that the competences need to be read together as evaluative action competence, emergent in evaluation work.

So, I come to that question by looking at competences as extrapolated from the research that was done on early ESD curriculum. That ESD refers to knowledge dispositions and capacity to act together in ways that enable participants to recognize concerns, assess value in evaluation, evaluative learning actions that respond to local matters of concern. And here you'll notice that underpinning this notion is still the differentiation of cognitive knowledge, the social emotional dimension and also the behavioural dimension. And it's very difficult to explore this without looking in some depth into the key competencies for sustainability. How these include systems thinking, anticipatory competence, normative and strategic, along with collaboration, critical thinking, self-awareness and problem-solving. And immediately you're able to see that there's much more to a competences approach and it's more co-engaged than the previous interventionist type of styles of ESD. And these competences need to be read together as evaluative action competence emergent in evaluation work.

So, there's still a lot of work to be done on competences and it cannot be reduced to specifying a competence and measuring the achievement or enactment of that competence in some way.

And here are some references that you might like to explore in this important area for evaluation work.

Video on Evaluation “FOR” ESD

This next short video looks at evaluation for ESD. And you have probably guessed already, that it's centered on the Sustainable Development Goals and the question: How do the Sustainable Development Goals inform evaluative learning?

Now, there are two ways of looking at the Sustainable Development Goals. One is at goals to be achieved and to be measured, and the other one is a tool to actually deepen understandings about sustainability concerns. It's in the latter that I'm going to be actually concentrating. So, I want to concentrate on the Sustainable Development Goals as an evaluative tool for ESD.

And here, are some young people, a youth group, working in a river in Mpophomeni near where I live, and they're working with the miniSass process. And, in their work, they are describing the context of the Mpophomeni stream, which is at risk to Midmar Dam, which supplies the water to the big cities in this area, Durban and Pietermaritzburg. And they have explored their concerns, which is the overflowing sewage from manhole covers, increasing disease risk and entering the dam to pollute the river, to pollute the water supply. And then they look at the summary of the knowledge that they managing to achieve by testing their local river. And they started reporting and undertaking education work, so that the learning-led change that is produces improvements in water quality that will be report it to municipal authorities, who will fund the expansion of the removal of the blockages and the improvement of the water supply.

Now, a key tool to them, was to work with the Sustainable Development Goals, because they constructed their own knowledge and their own sense of things. And then by working with the Sustainable Development Goals, they were able to say, ok there are the water concerns that we were looking at, but there is an education challenge in the area, there is a health and wellbeing challenge. Now they'd opened these up, but when they were working with the Sustainable Development Goals what was really noticeable, poverty came up, which hadn't previously been one of the concerns. And nor was the inequalities that came out of history, in this area, or the challenges of gender, that women are more at risk. And then the challenges to peace and justice in the area, as well as the life in water that they were measuring to asses this.

So, here what we've got is, we've got a whole series of aspects that are uncovered by the Sustainable Development Goals, not only as goals to be achieved, but also as an assessment tool for sustainability. And don't forget climate and climate change, which was very significant in this area.

So, here are some references that you might like to explore to deepen your understanding of ESD working with the Sustainable Development Goals as evaluative tools.

Video on Evaluation “IN”

Next, we look at evaluation in ESD. Around the question how is evaluation integral to ESD?

In other words, how are participants involved, can you use an appreciative inquiry approach to enhance ESD. And here we look at a very simple model, that is centered on matters of concern, scoping co-engaged action learning processes in ESD. And here, we draw on the Handprint CARE project and also on a paper that we wrote for UNESCO on the changing environments of ESD. And this simple model came out of the 1990s and has been expanded and developed and practically used for decades now. And it's centered on a tool for looking at what are the type of interactions that are taking place and you see right around the center, the cognitive, the old social emotional and behavioural dimensions. These have still relevance, because what they can do is they can produce the competencies for engaging matters of concern. But often the talk is dominated by a teacher, the thinking is all done by the designer of the course, there's not much scope for the person to do it.

So, this type of evaluation tool is really important to ask questions like is there a tuning-in process. And here in the Handprint CARE, we use photos and deliberations, so that there's a tuning in and talking and thinking. And there's space for the students and participants to talk and think together about the concerns. Then story sharing, building a deeper understanding through talk and thinking work, that happens together. So, this is a very practical quadrant one tool for the introductory part of an ESD process.

Then, looking at local inquiry as the students take up more investigative work, they can go and explore the local area to touch, tune-in, talk together, talk to others and think about a particular problem. And this happens as an ESD process evolves and takes shape. And here, the evaluation can be extended towards Handprint action, what type of work or the students coming up with talking about and enacting together.

So, this is a very useful practical tool to use in a classroom situation, in a community situation, or just as a reflexive tool for a team working, to see if there is scope for the nexus learning actions towards a safer more just and sustainable future to be more inclusive and all-embracing in ways that produce evaluative learning and a progression of competences that can be tracked. So, these are the quadrant (four) three and four activities, where the students deliberate and take action on a particular idea.

Now of course, you don't have to end with action you could start with action and that's why this is such a particularly useful tool for evaluative work around ESD transactions.

And here's some references that you might find useful to explore further.

Video on Evaluation “AS”

Next up is evaluation as ESD, to explore the question: How is evaluation integral to ESD?

Now, evaluation as ESD to imagine the future we want and plan to get there together, is an example that I draw from the SADC / SWEDESD perspective, and also from the “Natural Step” work of John Holmberg. It’s become widely used and here we’ve got the youth group in the river during the miniSASS, and what they are looking to do is to look at pathways to future sustainability that are possible through the work that they are doing, the evaluative work that they are doing. And what John Holmberg points out is that if you going to reimagine the future sustainability, it’s not really that easy to just move from where you are to future sustainability. And he provides some guiding principles for sustainability that are very useful.

How are people’s dignity and capacity to meet basic needs being undermined by the current circumstances. Or, how have nature and natural systems being degrading in the area that the students are looking at, the matter of concern. How are concentrations of substances extracted from the earth’s crust accumulating? As toxins in the environment or as a problem that needs to be resolved? And what man-made substances are accumulating?

So, these are very useful sort of conversation starters, if you like, which allows to look at what future states of dignity, equity, care and ways of doing things can we imagine as being possible in the work that that we’re doing together? And, pushing that up to future sustainability.

By doing the process like this and then back casting, what the students were able to do is to look at, well you know, do we work with the water quality issues in the river to start with, then do we look at the manholes, then do we look at an education program? How are we going to get to a state of future sustainability? And now this is ESD as an evaluative process, along a pathway to future sustainability. What we need to do now, to move to a desired state of future sustainability?

So, here is another example. This time an example of evaluation as an ESD process and here are some references that you can explore to deepen your understanding of the ideas that we’re trying to open up in these series of presentations.

Video on Evaluation “OF”

Next up is the evaluation of ESD. Something that we would always normally start with. How is the evaluation of ESD expanding, is the question that I'm posing here. And a good example that I thought to use would be to look at the assessment of significant learning, as an expansion of conventional assessment processes and evaluation processes in a school setting where Bloom's taxonomy would be used. And this has been found inadequate. It sort of separates the knowledge from feelings and practices and of course a competency approach reintegrates these.

So, in a competency approach one would look at competencies and relate them to significant learning actions. And first amongst these is foundational knowledge. Can the learner identify, critique, understand and describe a matter of concern, using systems thinking with in-depth understanding? And that's fairly conventional.

Next, can the learner analyse, interpret and apply knowledge to solve problems in relation to sustainable development matters of concern, in a particular context. So, here you've got the foundational knowledge and the application of knowledge integrated.

And then, integration, can the learner describe, synthesize and align different types of knowledges, values, skills in order to contribute to problem solving and change processes. And what you've got here is, this aligns with the conventional Blooms approach and here you've got the higher order thinking skills coming in. And is the learner able to show care and concern for others and surroundings, integrating the human and ecological dimensions in the work that they're doing? And the Ubuntu caring and ethical side. Can the learner reflect on a situation, show empathy and compassion for self, community and other life forms?

So, here what we've got is this overlapping and integrating dimensions of significant learning in an ESD process, that go beyond the conventional and into learning how to learn. What does learning how to learn in an ESD context mean? Becoming critical, being able to engage in evaluative learning. Is the learner able to critique, to evaluate, to review, formulate and generate new ideas and suggestions for change?

So, this is just one illustration and there, I'm sure you can think of many others, in evaluation, where evaluation is expanding, deepening, becoming more integral to ESD and is an important driver of sustainability practices.

Video on Evaluation Theory of Change

In this concluding video we look at ESD and realist evaluation as a contested cutting edge and ask the question, how do we navigate competing approaches to evaluation? And starting off on a contentious note in a review of realist evaluation after Pawson 2013, Porter 2015 concludes there is good reason for evaluators to adopt the positions of critical realism, rather than those put forward in realist evaluation.

So, let's explore this in some depth, navigating competing realisms in the evaluation of ESD. A real evaluation approach to ESD interventions can signify mediating mechanisms in play and an implicit theory of change. These can appear to have causal resonance with outcomes and impacts of an intervention. But, the big but is learning is not readily reduced to abstractions imbued with causal agency in empirical analysis. Empirical causal mechanism have effects but seldom provide a window on learning as onto epistemic emergent and open-ended meaning making transactions that are socially mediated with developing learner agency in real-world settings the challenges of ESD.

Tricky questions like this arise in realist evaluation across contrasting perspectives on realism and evaluation.

In a critique of realist empirical evaluation of interventions after Pawson, Porter also contains that evaluation of interventions needs to focus on both, the social mechanisms they entail and the responses to these by the actors affected by and in brackets I add, and enacting them.

So, we have some challenges ahead if we're going to be navigating competing realisms. Anyone in the role of professional evaluator of ESD, has to consider causal patterns at the empirical level and onto-epistemic processes of emergent evaluative learning and agency that are commonly muted in empirical causal analysis. Transformative learning in ESD can be read as open-ended dialectic and reflexive processes that are emergent in co-engaged, evaluative learning. Critical realism after Bhaskar, as is proposed, have some tools for evaluation that is integral to ESD as emancipatory real-world action learning transactions.

So, let's look at some recent work that's happened for ESD as evaluative learning across past and present to reimagine more just and sustainable futures. And here drawing on Chikamori's work, on Ingrid Schudel's work, one of the things that one needs to look for is an adequate theory of transformative learning and what Chikamori does, drawing on Bhaskar, looks at present experiences, past stories and future possibilities.

And in this model starting around the students, he manages to choreograph and open up that we need to understand how the present that we face comes from knowing the past and thinking causally from the past into the present. And here, what Ingrid Schudel adds, using the MELF from Bhaskar is, what is and what is not produces the dialectic processes of learning-led inquiry that are critical for ESD. And then, if we're going to be reimagining the future and if we're going to be thinking the present and linking it to an imagined future what could be and what should be open up the ethical and the pragmatic side of things. And ultimately the students have to face what can be.

So, this model is very, very useful for opening up this contentious area in evaluation. What is realist evaluation? How do we constitute realist evaluation? And how do we best do it in inclusive grounded ways, that are relevant to understanding the work that we're doing together?

And here's some references that you might find useful to explore this contentious issue more deeply.

Evaluation: A ‘nested game changer’ for ESE² as evaluative processes of learning-led change

Rob O'Donoghue, Eureka Rosenberg, Deepika Joon and Jennifer Krah.³

... we have to be evaluative if we are to describe, understand, and explain social life adequately. (Andrew Sayer, 2011, p.216, authors bold)

Abstract:

The paper opens with a critique of instrumental perspectives on education and evaluation that emerged within the structural-functionalist bureaucratisation of modern social life in social institutions. The conventional wisdom here, commonly reduces evaluation to accountable measure of behavioural outcomes or to a perspective on the worth of a course that can be reduced to a collection of ‘likes’. The study notes how an instrumental system of reason in education and its evaluation has persisted despite the shift to ESE as co-engaged evaluative processes for enabling participants to enact evaluative transitions toward more just and sustainable ways of being.

The paper approaches evaluation as nested assessment moments for, as, in and of ESE as situated processes of deliberative, learning-led change. In this way the narrative scopes an expanding evaluation landscape implicit in environment and sustainability education. Here, the SDGs are reframed as an evaluation tool for enabling more purposeful contextual work in situated depth-inquiry where participants are co-engaged in evaluative actions. The mix of evaluative work here shapes and plays out in reflexive patterns of *reason*

² Environment and Sustainability Education (ESE) is approached as a process encompassing diverse education responses to social justice and future sustainability concerns. These emerged in early conservation, environmental, development, peace and global citizenship education, for example, as expanding sustainability education imperatives that has been variously contested and enacted in response to emergent matters of concern in a changing world of and at risk.

³ This paper, lead authored by Rob O'Donoghue with Eureka Rosenberg (Rhodes University Chair of Monitoring and Evaluation in a SITA Environment), Deepika Joon (Mahatma Gandhi Institute for Education and Peace, MGIEP) and Jennifer Krah (WWF, Germany), was developed across a series of ESD Expert-Net workshops on evaluation in 2017/18. (<http://www.esd-expert.net>)

and changing material practices that can, in turn, be evaluated for the coherence of the associated learning actions and their outcomes.

The paper thus points to a need to contemplate four intermeshing dimensions of evaluative assessment for, as, in and of ESE, namely:

- Evaluation **for ESE** (Contextual histories and the SDGs)
- Evaluative action learning transactions **as ESE** (Deliberative critical processes of reflexive, depth inquiry enhancing diverse competences)
- Evaluation **in ESE** as embodied processes of reflexive learning (Tools and processes for participants to produce and assess value.)
- Evaluation **of ESE** practices and their outcomes (The evaluation of programmes, projects, centres and outcomes, impacts and scaling of change in transformative material practices).

An expanded and integrated conception of evaluation is centred on the modern human condition where reflexive agency for positive, depth enquiry has emerged as necessary evaluative processes to foster deliberative action learning and change. To develop this wider perspective, the narrative scopes four start-up trajectories in evaluation around local change projects, namely:

1. working with **contextual histories and the SDGs** as an initiating evaluation tool for ESE
2. contemplating the **purposes of evaluation** work in ESE as reflexive processes of evaluative learning and change
3. ESE as inclusive processes where the rational contours of sustainable futures are differentiated by **participants in the course of depth inquiry**, and
4. Where the **outcomes of learning-led change** remain open to review for the scope of the change (impact / scale) but where these are not only attributed to education processes but inscribed in the evaluative agency of the participants producing both more enlightened learning and any associated emancipatory change.

The central concern of the paper is to question the narrow, instrumental scope of current systems of reason informing evaluation practices and to open up the possibility of better situated evaluation work that is more orientated towards ESE as deliberative processes of evaluative reflexivity. These reflexive historical processes of becoming critically active in the re-making of society and ourselves are contemplated as co-engaged evaluation in our changing worlds.

Preamble

Most environment and sustainability education processes include elements of action and reflection that, in ESE, are commonly associated with participant-initiated change projects in our daily lives, institutional settings or communities. The conclusion of an intervention project commonly involves evaluation work to judge the effectiveness and impact of an intended process of learning and change. This narrow approach to evaluation reflects a system of reason which developed within modernity in a period where education was seen as an instrument of change. The instrumental assumptions and functionalist dispositions of modern education are examined in this paper towards repositioning evaluation as an critical agency emergent where people are engaged in the reflexive reproduction of sustainable well-being within the finite limits of socio-economic and ecological systems and processes. Here evaluation work is emerging as a reflexive human agency that has expanded the hitherto narrow scope and reductionist systems of reason in evaluation and evaluation research to become a nested game-changer.

Background

Diverse forms of ESE as evaluative processes of learning-led change have encapsulated and superseded

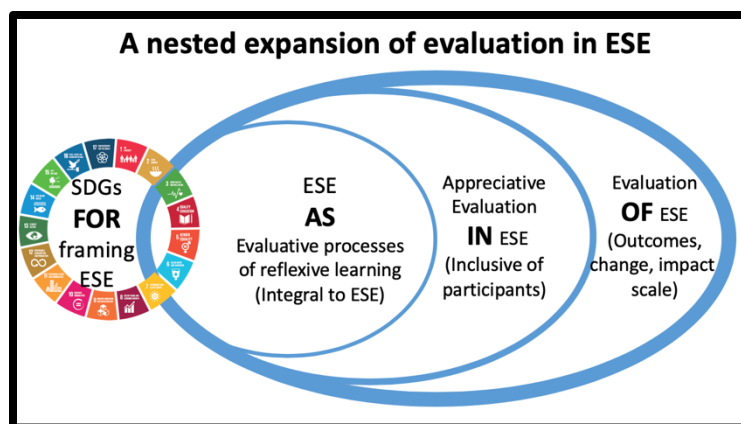


Figure 1: A nested image for ESE and evaluation

earlier education narratives like conservation, development, human rights, peace and environmental education that had proliferated as responses to increasing contradictions and risk in the modernist project. Here focus areas for evaluative review have been wide ranging across concerns like poverty and social justice as well as biodiversity loss and

climate change, for example.

The scope of sustainability concerns have been made explicit by world governments in the 17 Sustainable Development Goals (SDGs) as an agenda for evaluation and change on both local and global scales. As an integrating discourse, the emergence of environment and sustainability concerns in Education for Sustainable Development has shaped and activated diverse social movements, notably within the UNESCO DESD and the Global Action Programme (GAP) that followed and is now integrated with Global Citizenship Education (GCEd) (UNESCO, 2018). Here imperatives for learning-led change have developed as salvation narratives for humanity to engage and resolve sustainability concerns. The underlying educational rationale for ESE is

that expanding systemic and social-ecological competences will enable participants to recognise sustainability concerns and effect the necessary changes to attain the desired more sustainability states of being signalled in the 17 key focus areas and their specified goals. The outcomes are then to be assessed against the SDGs with measures that attest to the attainment of specified goals as proxies for the desired states of future sustainability.

Defining the generalised norms and standards for evaluation UNEG (2016) specifies:

An evaluation is an assessment, conducted as systematically and impartially as possible, of an activity, project, programme, strategy, policy, topic, theme, sector, operational area or institutional performance. It analyses the level of achievement of both expected and unexpected results by examining the results chain, processes, contextual factors and causality using appropriate criteria such as relevance, effectiveness, efficiency, impact and sustainability. An evaluation should provide credible, useful evidence-based information that enables the timely incorporation of its findings, recommendations and lessons into the decision-making processes of organizations and stakeholders.

This externalises and constitutes evaluation as impartial, rational and professional processes of accountability that was perhaps necessary in relation to development funding. There are implicit limitations here, and a reductionist perspective of education being enacted as an instrument of change to subsequently be evaluated. This approach does not include the evaluative human agency necessary for deliberating partners to discover and produce an enhanced well-being that is more sustainable in a changing world. The study proposes an expansion of current disposition on evaluation and for ESE to be contemplated as a nested sequencing of evaluative processes of situated learning-led change (See Figure 1)

In the earlier functionalist framings of global education as instrumental interventions to effect change, the measurement of behaviour change was the gold standard for evaluation. Despite more inclusive, participatory and collaborative methodologies, these entrenched systems of reason on evaluation have remained relatively unchanged. Evaluation systems still exemplify impact measures of behavioural change as evidence of transformation to future sustainability. Also, the measurement of these effects is commonly undertaken by more objective and trusted external agents for institutions framing education initiatives to mediate future sustainability. This has shaped evaluation as an expert field of endeavour that is relatively blind to evaluative processes that are integral to learning-led collaborative processes of reflexive reorientation.

The review noted how instrumental systems of reason driving evaluation work are prone to assumptions that are not consistent with participatory learning processes of reflexive change, an evaluative and co-engaged process of situated, evaluative learning. Here the specifics of sustainable human wellbeing are not open to a priori specification as these must emerge for humans within deliberative enquiry. Individuals and groups engaging in resolving the concerns of the day can come to realise new insights and enact change to mediate social-ecological and economic wellbeing of people and planet. An emergent condition of wellbeing can only be proposed as found in the SDGs but cannot be known before being realised by participants engaged in reflexive activity. Here they are guided by what is becoming known to them in deliberative action learning so this only emerge for them in an enlightened learning condition that is open to refinement and further change as conditions change.

An underlying functionalist ‘theory of change’ rationale for ESE

The Millennium Development Goals were accompanied by a United Nations Decade of Education for Sustainable Development that has now been followed by Sustainable Development Goals and an associated

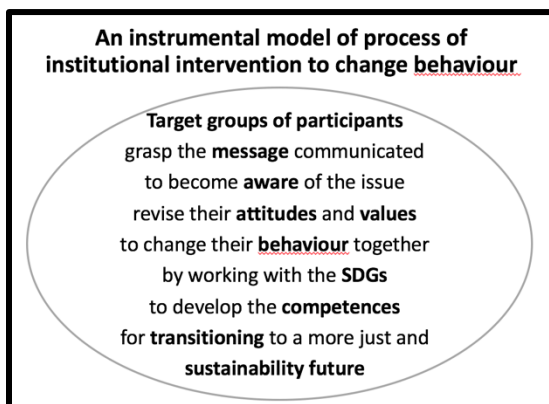


Figure 2: An instrumental schema for ESE

Global Action Plan (GAP, as mentioned above). Here education, environment, civic and state organisations all over the world made commitments to mediate change, working with the Global Goals 2030 (SDGs) as a roadmap to future sustainability. The embedded theory of change or system of educational reasoning in most of these initiatives was constituted around educational interventions to create awareness so as to change attitudes and values in learning actions that develop the necessary competences to effect the desired change towards a sustainable future (See

figure 2 for a process model of an educational intervention).

Limitations of instrumentalist ‘theory of change’ approach to ESE

Institutional models of instrumental change do not come with an adequate underlying theory of change and human agency. It is simplistic to assume that that information / knowledge on risk, communicated to target groups, will create the awareness and that the associated learning will develop competencies with changed attitude and values that shape changed patterns of behaviour. One of the difficulties here is that education is

seen as the instrument of change within a conventional wisdom that it is the intervention that produces behaviour change to be assessed against benchmarks (SDG Goals) as indicators that reflect proxies for the attainment of a sustainable future. Unfortunately, this is a dissociative logic as it is only humans learning individually and in the mediating company of others in education and other settings who can develop a cognitive capability to enact and realise change. The mediating design and progressions of a course cannot be given causal precedence over the reflexive capabilities of participant actions as they learn together on a course. Alongside this it should be pointed out that no educational research has determined a conclusive causal progression from awareness creation and behaviour change, except perhaps at the level of becoming aware that fire burns and choosing not to touch a hot pot on a stove without suitable oven gloves. And yet the instrumental shorthand of courses creating change and the associated educational assumptions that one can measure behaviour change as a learning outcome is still the underlying logic in most education and evaluation work.

Popkewitz (2017) describes how this institutional disposition has emerged as a system of reason which promises relief from uncertainty through the educational intervention being the instrument that produces an enlightened future. The roots of this pattern of reason can be found in how the sciences have produced institutional knowledge that has resolved uncertainties despite the reality that the same scientific innovation has also produced much of the escalating risk we are currently experiencing in our modern age. However, a faith in science and progress has led to the doubtful extrapolation that the provision of knowledge through education will create awareness that will, in turn, produce the desired behaviour change.

Here it is also important to note how, in colonial modernity within many countries of The South, the sciences and state institutions were implicated in colonising processes of social engineering that gave effect to particular historical patterns of exclusion. Notable in apartheid South Africa and elsewhere were sustained state processes of economic, racial and political marginalisation of indigenous peoples. The reductionism in instrumental pedagogies for education and its evaluation commonly exclude these social histories from consideration as the focus in education programmes becomes technical competencies. Educational interventions can thus be experienced by many in the South as oppressive and as lacking relevance. They can also play out in modes of instrumental social control that are resisted least they continue the exclusionary social-ecological cultures and economic hegemonies of a globalising West.

In summary, the scientific treatment and assessment of people through education programmes that are orientated to give effect to and measure a priori specifications of competences to mediate future conditions of sustainability have developed as an entrenched but tenuous intellectual conventional wisdom in modern education. One of the challenges in instrumental systems of reason is that education as processes of emerging competence are not easily articulated within imperial histories of domination and exclusion/oppression in the South or with associated struggles for emancipation. Exclusionary histories and emancipatory struggles can be stripped away and displaced by technical inscriptions of competence like systems thinking and problem solving skills. Here competencies can be little more than inadequate proxies that are unlikely to engage participants in producing the conditions of future sustainability and wellbeing that they desire.

Specifications of competence should note how learner agency and collaboration is a necessary and emergent dimension for participants to develop the insights and grasp necessary for realising desired emancipatory change together. In formal education, Rieckman (2018) illustrates how the SDGs can be deployed as an agenda centred on competencies to be acquired within a specified blend of cognitive, social-emotional and behavioural dimensions for ESE pedagogy in classroom learning (See also UNESCO, 2017) ⁴. The three categories of objectives are stipulated for student acquisition of knowledge, social acumen and systemic competences for transitioning to future sustainability. Competences here are a useful referents for contemplating and enabling action learning towards better ways of knowing and doing things together. In this way the SDGs, as a 'road-map' for future sustainability, can assist participants in learning transactions to choreograph how they might come to grasp concerns and become competent to enact any necessary change.

A pedagogical omission here is that the necessary contextual histories for initiating and enacting change are emergent properties that cannot be reduced to systemic and other categories of competence. Contextual histories and life experience cannot be displaced by abstract specifications of technical competences as those necessary for a systemic grasp of and coordinated action on sustainability concerns. Pinker (2018) pointing to the importance of the 'cognitive or cultural niche' of the human condition notes:

⁴ For the area of Higher Education Wiek et al. (2011, 2016) synthesised a key competency model in sustainability education, also giving suggestions how to operationalize these (systems thinking, future thinking/anticipatory, values thinking/normative, strategic/action oriented, collaboration/interpersonal and integrated problem solving competence).

This embraces a suite of new adaptations, including the ability to manipulate mental models of the world and predict what would happen if one tried out new things; the ability to cooperate with others which allowed teams of people to accomplish what a single person could not; and language, which allowed them to coordinate their actions and to pool the fruits of their experience into the collections of skills and norms we call cultures. (Pinker, 2018 p. 23.)

The challenge here is to not to specify competences as abstractions but to see them as emergent within intergenerational cultures of knowing (contextual historical capital) as foundations for evaluative inquiry by participants. This clarifying break within earlier instrumentalism exemplifies ESE as emergent, emancipatory processes of situated learning where participants work from what is experienced and known as they travel together on deliberative, learning pathways to future sustainability that becomes known to them. An explicit inclusion of contextual histories and life experiences here foregrounds reflexive systemic competences as an evaluative capability for the emergent realising of changing ways of being and doing things together in a changing world.

Towards more inclusive ‘theory of change’ approaches of ESE and evaluation

It has been noted how institutional evaluation practices have reifying and narrowing attributes in education that is approached as instrumental change management with measurement of behaviour as the gold standard in programme evaluation. Here instrumental generalisation has exemplified reified competencies over reflexive expansion within and through situated cultural capital. Most recently, ESE is being exemplified as contextually within cultural norms and emergent within co-engaged processes of reflexive depth inquiry. Here the concern is with participants working from what is known, to deliberatively learn together to recognise sustainability concerns, assess value and exploring better ways of acting to bring about change as expansive

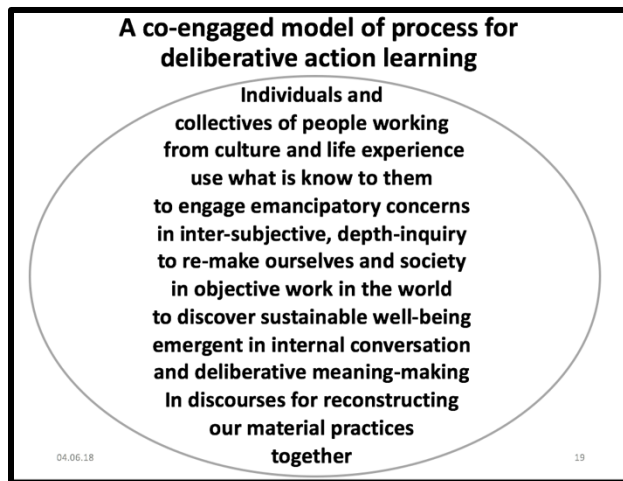


Figure 3: A co-engaged schema for participatory ESE processes

evaluative depth enquiry in a given context will enable participants to transition to more sustainable states of wellbeing.

Evaluation in this transition to more situated, emergent and participatory approaches to education has recently stuttered between differing degrees of specification and measurement. As mediating control has shifted from the intervening programme of education to co-engaged participants and developing reflexive competence to enact change together, evaluation has become more integral to and distributed across education processes. The significant point for evaluation work is that education as an emergent change game, reframes evaluative processes as a nested sequence in nested evaluative progressions as was depicted in Figure 1. Perhaps the most significant change here, is a de-centring from instrumental intervention to situated participatory agency for depth inquiry to effect change towards more sustainable wellbeing; an emergent process of realising discovery through inclusive depth inquiry by individuals and collectives working from culture and life experience and using what is known to them in deliberative engagement with emancipatory concerns that become evident and important to the co-engaged participants.

The expanding integration of evaluation in ESE as deliberative action learning, resonates more closely with the SDGs as a process of evaluation for framing ESE deliberations amongst the interest groups in a given context, opening the way for co-engaged work as a learning journey to sustainable wellbeing as an open-ended arena of change in response to emerging risk.

learning processes (See fig: 3). Here the competencies associated with recognising concerns, assessing value and acting for change (*Schreiber and Siege 2016*) are evaluative processes in ESE.

There have been notable shifts from functionalist models of process for education as institutional interventions to more contextual, participatory and action-centred approaches. The latter foreground the context and deliberative agency of the participants and are centred on a concern for how

To make the four intersecting evaluation processes for ESE, as ESE, in ESE and of ESE more explicit, we developed a cup and saucer metaphorical image. This attempts to remind us that we must ensure that

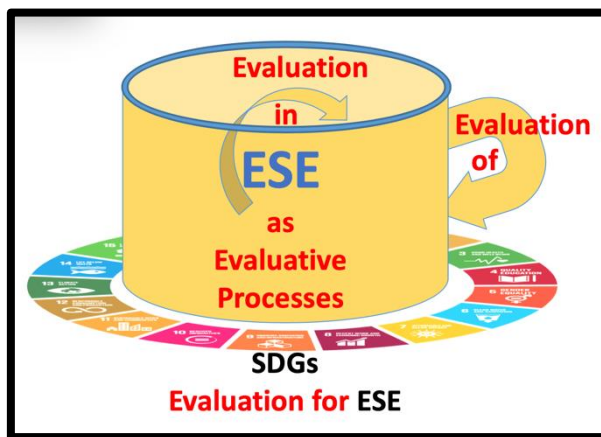


Figure 4: A cup and saucer metaphor for ESE and evaluation

situating, integral process, inclusivity and outcome evaluation are in a balanced mix.

Pinker notes:

As soon as you turn up to discuss the question of what we should live for (or any other question) as long as you insist your answers, whatever they are, are reasonable or justified or true and that therefore other people ought to believe them too, son, and to hold your beliefs accountable to objective

standards. Pinker (2018:8)

Objectivity here can be narrowly inscribed as what can be measured or what can be reasoned in the company of others within the intergenerational processes producing a current grasp of things. A grasp of reasoned objectivity⁵ developing within the evaluative processes of critical reflexivity can produce what is reasonable or justified and true for those committed to learning-led change as an evaluative process that is open to evaluation by all of those involved.

Practical evaluation tools for an ESE change project

Evaluation tools were developed as starting points for partners initiating local ESE change projects. The starting point that participants found useful was to initially specify the purposes of the evaluation process and then to ensure that there is a balance across:

1. Contextual profiling use of the SDGs to frame concerns with participants (Constitutive Evaluation)
2. Developing tools for participants to monitor and report activities (Appreciative Enquiry)
3. Tools to assess value creation and the scope and scale of impact of the project learning activities (Value Creation and Impact Evaluation)

⁵ The empirical notion of 'object congruence' and the idea of 'inter-subjective objectivity' are useful here.

4. The underlying theory of change shaping the processes enabling evaluative learning and change.
(Developmental Evaluation)

Getting started with a purpose

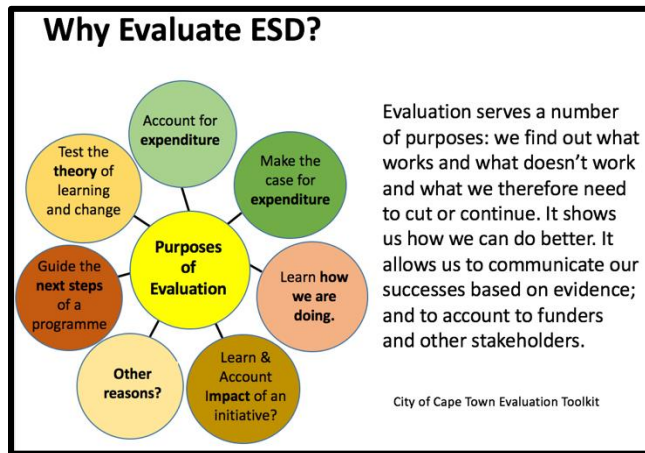


Figure 5 : Clarifying the purpose of evaluation work

Evaluation activities are best undertaken with a clear purpose that can be simply mapped out in a lollipop diagram like that shown in Figure 5. This was developed to scope the range of purposes for the monitoring and evaluation of the environment and sustainability programmes for youth that were undertaken by the City of Cape Town in South Africa. The tool is part of an evaluation tool kit that is a useful resource for the development of evaluation tools.

Evaluation in context with the SDGs

The SDG wheel has been widely used as a quick and powerful tool for scoping the range of concerns in an historical context. It can be included as part of a contextual profiling exercise to drill down into the drivers of

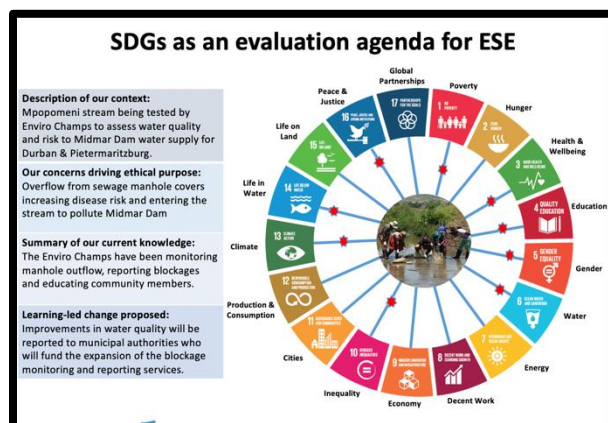


Figure 6: SDGs as an evaluation tool in Mpopomeni, KZN

environment and sustainability concerns for an ESE change project. It is best used with the project partners and is useful for scoping the interests and goals that can be taken into account in an ESE initiative. The example here was completed with Enviro-Champs involved in the monitoring of river quality and sewage pollution in the Mpopomeni area of KwaZulu-Natal in South Africa.

Framing evaluation activities

The next design concern is to develop an evaluation process with participants as an integral part of the programme activities and reporting. The tools for reporting activities can take many forms and this is primarily a creative challenge to design appropriate monitoring and reporting tools.

Some data generation tools for participant assessment of change project activities		
How do we generate data with participants for reporting?	ACTIVITY	ASSESSMENT TOOL
<ul style="list-style-type: none"> • Participant reports • Assessment forms • Interview transcripts • Focus group records • Competency tasks • Course assessment form • Impact indicators 		

Figure 7: Participant evaluation as appreciative enquiry

Working in this way provides partners with feedback on project activities to inform decision making going forward as well as becoming the information foundations for assessments of value creation that can be extended to include assessments of the scale of impact of a change project. Here value creation after Wenger, Trayner and deLaat (2011) is a useful framework for evaluation research but this can also be used in

the simple sense of what value the activities are producing for participants.

All evaluation tools can be simply administered in focus group sessions or as written feedback forms. They can also be developed as a progressive process or a cycle that is aligned with a change project cycle.

Evaluation progressions and cycles

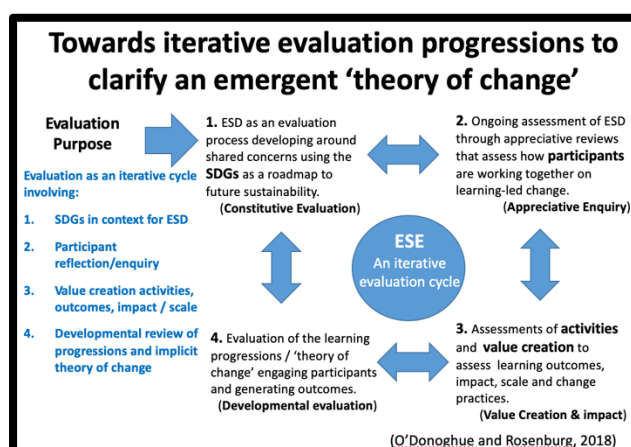


Figure 8: Evaluation as a cyclical process in ESE

The information generated by these tools can produce an accumulating picture of a change project and the learning insights and impact that the activities are producing for the participants.

The advantage of developing an evaluation plan as a simple progression around the purpose of an evaluation is that the accumulating data can be read with increasing depth to provide useful insights on learning and change.

A useful way to work with project data is to assemble the accumulating evidence in a sequence to cover:

1. The constituting assessments that have informed a project. These can be read as baseline information but it is seldom that one finds pre-tests of awareness and competence these days as they are increasingly found to be spurious in the social dynamics of change. Along with this 'target groups' have become interest groups and co-engaged participants. What is more important is the depth and detail of the framing data and how this provides a detailed picture of the context and concerns emerging amongst the participants driving the deliberative learning in an ESE change project.
2. We cannot emphasise enough that ESE is a co-engaged deliberative process and that the inclusion of participants in every stage of a project and in shaping and driving the project activities as evaluative processes is essential for ESE as a collaborative process of transitioning to new ways of seeing and doing things together. Here appreciative enquiry can be undertaken with and by participants and will usually provide the first evidence of the developing trajectories of a change project.
3. Value creation can be assessed quite formally by analysing how participants are producing and experiencing value.
4. Figures 2 & 3 above are examples of process modelling of differing theories of change. The first is a target group approach centred on awareness creation that has been common in many institutional settings but the latter is now superseding this disposition as participant become change agents intervening in their own contexts in ways that are appropriate to bring about change that is meaningful to them. We have found that it is very useful to process model the implicit 'theory of change' in a change project as this helps clarify the thinking and how this is playing out in learning-led change for participants and differing stakeholders. A clear model of process for a project is also a picture against which the other data and evidence of deliberative learning and co-engaged change can be assessed.

Conclusion

This paper was developed to clarify evaluation in relation to ESE processes of learning-led change. Co-engaged change projects can only benefit from depth analysis of the context of change with the SDGs, the use of a variety of evaluative process to generate data to inform the emerging learning-led change project with a sense of the value that the changing material practices are created for participants.

The field of evaluation is vast and not all perspectives are relevant for ESE processes of reflexive change and transitioning to future, more desirable, states of sustainability and social justice. Steven Pinker provides a useful perspective to conclude this short review of evaluation and ESE to suggest some start-up tools and progressions for the evaluation of change projects when he notes:

If we keep track of how our laws and manners are doing, think up ways to improve them, try them out, and keep the ones that make people better off, we can gradually make the world a better place. (Pinker, 2018:11)

In line with the opening quote by Andrew Sayer, this perspective is founded on the proposition that the evaluation for, as, in and of ESE is centred on 'being evaluative.' This implies inclusive processes that must often disrupt conventional institutional assumptions about and conventions of evaluation and evaluation research. This paper is developed as just such a disruption of institutional norms and standards by pointing to a necessary expansion of evaluation practices to indicate that evaluation and evaluation research in ESE must become more inclusive and evaluative in nature. Bhaskar (2016) in a review of conceptuality and behaviour in the social sciences concludes that:

[....] because we are embodied as well as conceptualising beings, the human sciences must be prepared to use quantitative as well as qualitative research, that is, to measure and count our material features, as well and interpret and record our conceptual activity – to employ, in effect, mixed-methods research (Bhaskar, 2016:57).

In ESE contexts of reflexive change, externalised conventions of professional accountability measurement and review (conventional evaluation practices) do not take adequate account of how reflexive processes of conceptualisation and the enactment of chance call for an inclusive expansion of evaluative practices and associated processes of civic accountability if embodied processes of evaluation are to produce the futures that we would like future generations to be better able to sustain.

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Case Studies: The Development of a Toolkit for Collaborative Evaluation in RCEs

Rob O'Donoghue, Rhodes University and Zinaida Fadeeva, Consultant

Evaluation in RCEs

Evaluation work is the entry point to start-up and development of all RCEs. The start-up evaluation tools, developed collectively by UNU-IAS and the RCE Community aim to strengthen evaluation practice and focus RCE work around the SDGs. The work of RCEs is thus rooted in evaluation. It begins with evaluating how things are being done, what is going wrong and what can be improved. Evaluation work is an entry point for the start-up of all RCEs, and to strengthen assessment practices.

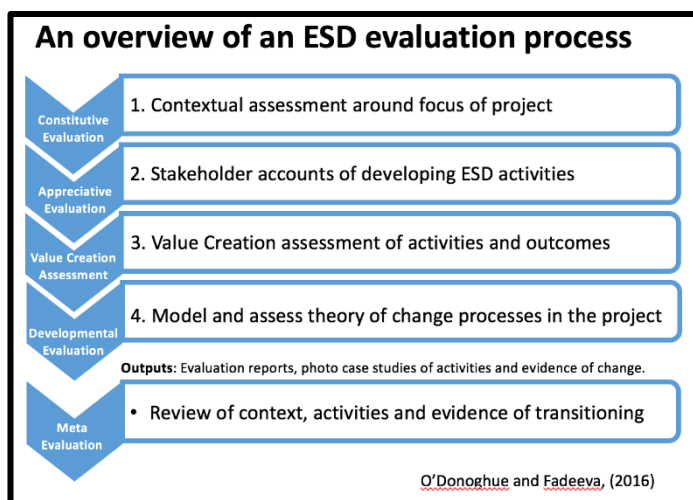
Goals

The RCE Start-up Evaluation Toolkit is a framework for RCEs to assess the following goals:

- improved collective learning
- enhanced sustainability and
- strengthened SDG work of an RCE

RCE Tools

The RCE assessment tools are built around three evaluation processes, present in most RCEs (See figure 1) :



1. **Constitutive Evaluation** - assessments of the local situation that have given rise to the RCE and its activities
2. **Appreciative Enquiry** - a collaborative approach to assessing what participants appreciate about the work they are doing together.
3. **Value Creation** - participant assessments of the value, scale and impact of

Figure 1: Summary of an evaluation process with meta-evaluation

collaborative learning and change projects of the RCE.

4. **Developmental** – Model and assess the ‘Theory of Change’ within the learning transactions in the co-engaged learning-led change activities.

Assessment Processes

These evaluation processes can be used in a step-by-step evaluation or in other creative sequences to:

- document RCE change projects that have been undertaken together,
- gather evidence for the assessment of what has been happening and
- use the information gathered to assess emerging value (3), to understand the learning processes (4) and to plan a way forward together in continuing RCE activities (5).

This final stage 5 in a change project review can often take the form of a Meta-Evaluation where each stage of an evaluation cycle is read to get insights into what happened and how effective the whole process was for all involved. This can also be important for scaling up a change project.

Evidence and Outcomes

The start-up evaluation tools focus on questions that help participants to gather information and to deliberate the emerging evidence. Evaluation work is important to track and report RCE activities as civic society collectives. The toolkit will hopefully help RCEs to report the value, scale and impact outcomes of their programmes and to strengthen their collaborative work on the SDGs as local concerns that are relevant to them.

Case study of work with the hybrid evaluation framework in Makana RCE

Tichaona Pesanayi and Rob O’Donoghue

ELRC Rhodes University

The RCE Evaluation Toolkit was used over a three-day review workshop with 12 participants in the Makana RCE involved in education activities related to:

- water (Water for Dignity group),
- energy (St Mary’s Development and Care Centre staff)

- waste and sanitation (Makana Youth group)
- cleaning and compost gardens (Inqaba Yegolide organisation).
- an education exhibit on water (Albany Museum education staff)

Used in a primarily discursive process of six stages of scaffolded questions, as outlined above, and with a field visit to develop case stories of situated practice, the workshop was seen as a preliminary evaluation around which other evaluation focus areas, instruments and strategies could be developed as increasing capacity in evaluation practice emerged.

Groups unable to attend the review process that was convened by Makana Municipality as the new host of the RCE secretariat were subsequently interviewed using the same framework tool (Cowie Catchment Campaign, Eco-Schools, Umthathi, Fundisa for Change, RU Green and Galela Amanzi). The interview process allowed these groups to reflect on the outcomes of the evaluation and to provide their input into the process. This was not ideal but was a necessary adaptive move that illustrated how the RCE is a 'moveable feast' of partners / activities that, as affiliates, have tended to move in and out of the RCE structure over the years. Here it was notable that social movements from poorer communities tend to be facilitated by more formal structures like Makana Municipality (Makana Youth and Inqaba Yegolide) and the Rhodes University Water Research Institute (Water for Dignity)

The Makana RCE was identified as a structure for collaboration where 'people meet and work together' or 'meet – talk – act' in a local context. The Water Research Institute is exploring 'a new paradigm of transdisciplinary research' that interfaces university researchers, civil society organisations and state service institutions. These approaches were noted with appreciation as they meant that local issues could be addressed. The following positive features were recorded:

- beginning to communicate through water forums and by forming co-operatives (Water for Dignity)
- supporting small gardens with composting and then seedlings (Gaba yeGolide)
- hot bags being made and shared to save electricity costs (St Mary's DCC)
- stories of water and change-choice-practices are in the museum education programs (Albany Museum)
- sanitation practices are changing and problems are decreasing in Extension 6 and Extension 10 (Makana Youth)

ESD as Strong Evaluation for the Ethical Revision of Our Roadmaps of Desire in Disruptive Times

Rob O'Donoghue, Deepika Joon and Katarina Roncevic
Rhodes University, Leuphana University and University of Vechta

Orientating preamble

To open this exploratory piece on evaluation and Education for Sustainable Development⁶ (ESD) in the disruptive times of COVID-19, we borrow from Hartmut Rosa's perspective on 'resonance.' This provides us with a vantage point on the evaluative dimensions in ESD as learning-led processes of change amidst widespread disruptions in the fabric of modern-day life. He draws on a somewhat overly individualising perspective after Charles Taylor who foregrounds how the '*strong evaluations*' of individuals manifest as 'ethical conceptions' around which to differentiate or to 'contain' '*what is important, what really matters* (p.133).' This allows him to work from a perspective that:

We possess a moral or ethical *map for evaluating the world* and at the same time an astonishing unruly *map of affective desire*. (Rosa, 2019 p.135)

Across humanity as a whole, the recent COVID-19 pandemic has most of us evaluating our '*unruly map of affective desire*' amidst unprecedented disruptions in our livelihoods and everyday lives. The current corona virus pandemic has thrust individuals and communities across the world into disruptive times in all spheres of life. The preamble to United Nations Development Programme (UNDP) Human Development Report 2020 notes that 'perceptions of normality'⁷ have been challenged, reminding society that the unacceptable today was accepted long ago. Rosa's exploratory work on 'resonance' gives us tools to contemplate how the

⁶ This overarching UNESCO term is used alongside and inclusive of Environment and Sustainability Education as modern imperative to foster learning-led-change towards a more inclusive and sustainable future.

⁷ UNESCO New Normal film festival

unacceptable can give rise to discontinuities in the fabric of the everyday that can, in turn, enable reflexive processes of evaluation in resonance-seeking learning transactions.

Learning arising from discontinuities associated with the COVID-19 are currently emerging in societies across the globe amidst calls for radical transformative changes. Mochizuki and Yarime (2015) drew an analogy of between 'ESD and Sustainability' and 'treatment of global illness.' They note a similarity between the sense of purpose where the physicians and the sustainability researcher are both striving for better and healthy relations between humans and the earth system. The corona pandemic has surfaced many sustainability and social justice concerns in a modern era that is now characterised by evaluative critical engagement. A recent report by United Nations Environment Programme called "Preventing the Next Pandemic: Zoonotic diseases and how to break the chain of transmission" identifies that in order to prevent future outbreaks, we must become much more deliberate about protecting our natural environment."⁸ There is also growing evidence suggesting that outbreaks or epidemic diseases may become more frequent as climate continues to change⁹. These emergent and unprecedented situations are shaping ESD as evaluative processes of action learning and change in response to emerging matters of concern.

This reading of ESD necessitates a transformative deepening and expansion of prevailing functionalist notions of ESD to re-inscribe reflexive learning as inclusive and evaluative processes in transformative work towards more sustainable futures. To explore this subtle reorientation of ESD from instrumental interventions towards the achievement of the SDGs to inclusive processes of evaluative change with the SDGs as a roadmap for learning-led social transformation, we review the emergence of critical social processes of evaluative change in colonial modernity¹⁰.

There is a growing international consensus towards rethinking the role of evaluation and repurposing it around Agenda 2030. The imperative in our work is to recognise and locate evaluation as a key part of learning transactions amongst participants in an ESD programme or activity. This vantage point reveals how evaluative conventions in current evidence-based performance management systems in institutional systems

⁸ United Nations Environment Programme (UNEP) and the International Livestock Research Institute (ILRI) report (2020) report on World Zoonoses Day(6 July) to commemorate the work of French biologist Louis Pasteur which successfully administered the first vaccine against rabies, a zoonotic disease on 6th July 1885

⁹ <https://www.unenvironment.org/news-and-stories/story/six-nature-facts-related-coronaviruses>

¹⁰ This term is used to reflect how processes of colonial domination and oppression underpin the modernist project both in the development dispositions of The North and marginalisation that persists in current globalising trajectories.

are inadequate for ESD. Here expanded and more inclusive evaluation work in co-engaged processes of ESD might provide us with useful insights on how learning-led change as an ethical endeavour gravitates around critical processes where participants are engaged in resonance-seeking (re)evaluation and change in school, home, community and societal settings.

Challenging evaluation as a narrow, expert terrain of instrumental assessment

Sustained critical trajectories and emergent evaluative practices as co-engaged critical processes of learning and change are a necessary part of ESD. The evaluation of Education for Sustainable Development (ESD) has, however, been entrenched as a primarily expert activity within the prevailing institutional systems of reason that have shaped ESD as an intervention process to foster change in the attitudes, values and behaviour of participants. Here, evaluation has most commonly been approached as the gathering of evidence of what an institutional intervention has produced towards achieving the Sustainable Development Goals and Education 2030.

In modern schooling systems, the assessment of learning was differentiated from the evaluation of teaching and learning as a curriculum process of performance assessment. After the prejudicial inequalities of culturally exclusive examination in the 1950s and 1960s, school examination assessment was normalised within three domains (cognitive, affective and psychomotor) in Bloom's Taxonomy of Educational Objectives, now recently updated for the modern competence-based curriculum. Here the assessment and evaluation of learning is often both formative and summative as a continuous or iterative process that is primarily conducted towards measurement of the outcomes achieved or the competence attained by learners. In curriculum settings competence specification and taxonomies of outcomes now frame more equitable assessment of performance and competence acquisition in education programme settings. They also specify evaluation as a higher order competence in taxonomic schema. In this way, the assessment of learning is being further expanded in ESD to include a schema for 'the assessment of significant learning' (Mandikonga et al (2020) that is aligned with current assessment protocols.

Evaluation is still commonly differentiated from assessment in most education settings where evaluation is most commonly undertaken to get feedback on how learners have experienced and value-rate a teaching and learning programme. In ESD programme-evaluation the assessment of value is commonly undertaken as a reductive process, often designed by an external evaluator or conducted by a teacher as a summative

process to gather evidence for the assessment of competence and change achieved through an ESD programme. Unfortunately, prevailing system of reason and a fixation on empirical evidence of behavioural change, commonly brackets-out the necessary roles and influence of participant evaluative actions that generate change that is meaningful and sustained by them.

In line with current institutionally inscribed systems of reason for assessing and evaluating educational interventions, the Sustainable Development Goals were framed as ESD targets to be attained and reported against desired ends towards Education 2030. The narrative that follows disrupts the behavioural foundations of these reductive and instrumental approaches to assessment and evaluation. It challenges prevailing assumptions underlying current orientations to evaluation which are orientated to canvass participant experiences in survey or focus group evidence that can provide empirical insights and evidence on outcomes that can be assessed against the desired ends of Education 2030. The change that we are noting for ESD is that of approaching ESD as co-engaged evaluative work with and by participants and not reduced to an effect of an intervention.

More inclusive approaches to evaluation have emerged that extended the scope of evaluative work to include the rights of the child after Article 13 of The Convention on Rights of the Child. Here the SDGs can become a tool for critical deliberation and the evaluation of widening conceptions of inclusion and rights towards equity and a more sustainable future. At the international level, the growing needs for repurposing evaluation was evident in the Declaration of 2016 as the International Year of Evaluation-responding to the changing global, regional, national and local contexts. The ongoing reconfiguration of role and purpose of evaluation is still somewhat narrowed by evidence-based management systems. These modes of performance management appear to work well for civic institution accountability but are grossly inadequate for education activities like ESD. More inclusive and nuanced approaches to evaluation have emerged in recent decades as we struggle with the exclusionary legacies of colonial modernity.

Evaluation, colonial modernity and ESD

Early evaluative critical processes emerged within the proliferation of critical social theory evident in social movements and education. This sustained critical turn in modern societies is notable in the emancipatory narratives from the Global South, notably in liberation movements against the oppressive conditions developing as outcomes of colonial modernity. The emergence of critical processes of evaluation

accompanied widening modes of ideological critique are evident in social-justice movements on a global scale. This is apparent in the 'Black Lives Matter' movements as social justice disruptions alongside the height of the current corona virus pandemic in the USA.

Increasing critical and evaluative work in education accompanied modern social theory noting shifts towards more critical and co-engaged knowledge co-production as emerging evaluative processes. Andrew Sayer, for example, notes:

... we have to be evaluative if we are to describe, understand, and explain social life adequately. (Andrew Sayer, 2011, p.216, authors bold)

Heller and Feher (1988) had earlier noted how cumulative societal change in the latter part of the 20th Century shaped an emergent critical morality in Europe. They track these expanding evaluative processes that gave rise to an '*alienation generation*' engaging contradictions emerging in modernity. Disruptions and escalating risk and critical trajectories of evaluation in modern times have driven diverse and developing education imperatives to foster evaluative learning processes for resolving contradiction and risk. These expanding evaluative insights on modernity can also be read within 'Risk Society' after Ulrich Beck (1992) and into modern education as a critical project that now includes ESD in diverse ways.

Transdisciplinary as inclusive critical processes of co-engaged learning

A more inclusive and co-engaged or 'participatory turn' in Environment and Sustainability Education has developed over recent decades. This has been accompanied by a popularisation of transdisciplinarity (Osborne, 2015). This has also been accompanied by some loss of clarity on Sustainability Education as a process mediated by the sustainability sciences with the recent inclusion of decolonising social movements and intersectional questions of social justice that are providing new critical dimension to the transformative learning enterprise of ESD. An emerging emphasis on intersectionality has revealed how normalised modes of exclusion produce discriminatory effects that suppress and marginalise others.

A concern for inclusive social justice through an emphasis on diversity in ESD is providing a new base line for intersectionality as:

the interaction between gender, race and other categories of socially inscribed difference and prejudice in individual lives, social practices, institutional arrangements, and cultural

ideologies. The outcomes of these interactions are evidenced in exclusionary power relations (Davis 2008, P.68).

O'Donoghue and Roncevic (2020, p.20) argue that inclusion implies previous exclusions that have been felt by the excluded but are often invisible and taken for 'the way things are' by the included who derive advantaging benefits from a system. Kaijser et al. (2014, p.419), note that feminist studies, anti-racist, post-colonial commentary, queer, masculinity, and disability studies, are enriching through the inclusion of a critical understanding of how norms are constructed and power relations interact. Inclusion in ESD is proffered as a tool for avoiding any prejudicial discrimination and inequalities. It is seen as indispensable to build strong intersectional linkages to all dimensions of the SDGs (5 P's)¹¹. This is notable in decolonizing social movements like Black Lives Matter that seek to reframe and integrate sustainability with more complex layers of inclusivity in these times of global disruption and change.

Alongside these pedagogical transformations, institutional dispositions on evaluation in ESD have not kept pace with a more open-ended and inclusive reframing of education as critical transdisciplinary processes of evaluative learning. The widening field of environment and Sustainability Education might now be read as evaluative and resonance-seeking endeavours undertaken together in deliberated in meaning-making transactions of strong evaluation with knowledge co-production. Here, drawing on Michael Foucault, the dialectics for a pedagogy of knowledge co-production can develop within deliberative learning transactions across the mediated acquisition of disciplinary knowledge ('*connaissance*') and the everyday knowledge and agency acquired in intergenerational, daily life ('*savoir*'). In simple terms and for teaching and learning transactions in education settings, the critical, dialectical interplay of evaluative deliberation in ESD pedagogy is centred on meaning-making in inclusive ways across plural knowledge systems. Here, it is possible to surface the intersectoral concerns for social justice and inclusive equity as one currently finds in the widening social movements associated with the Black Lives Matter, for example. The new forms of open and inclusive pedagogy in relation to the matters of concern of the times can detour the problem of an a priori inscription of what knowledge is 'true' or 'reality congruent.' In this way ESD can be re-constituted as evaluative processes of ethics-led and learning mediated, inter-subjective deliberation and knowledge co-production.

¹¹ The 5 P's as identified in Agenda 2030 are People, Planet, Prosperity, Peace, and Partnerships.

This reading of social learning transactions as implicitly evaluative can be extended to transdisciplinarity as co-engaged, knowledge-mediated critical processes of evaluative learning notable in the ‘depth-inquiry’ and ‘immanent critique’ of Critical Realism after Roy Bhaskar. Here on the transdisciplinary dimensions of these emancipatory processes for ‘free flourishing within a freedom to flourish’ Bhaskar (2016) notes that:

The generation of the knowledge of an emergent outcome (or mechanism) will depend upon a species of transdisciplinarity. This involves drawing on the resources of pre-existing knowledge which may be explored in a myriad of different ways, including the creative – often lateral, occasionally oblique – use and development of analogies, metaphors and models from a whole variety of different cognitive fields (and even eras). (Bhaskar 2016, p. 88).

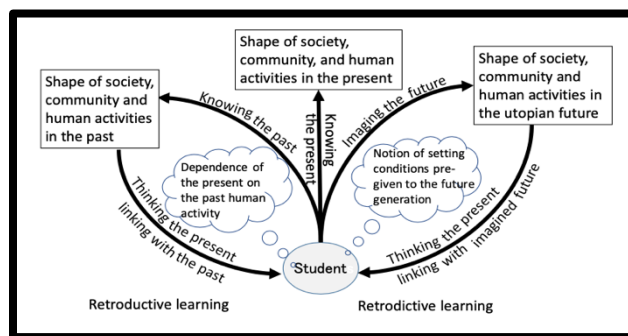


Figure 1: Graphic representation of a Past-Present and Present-Future TMESD learning progression after Chikamori et al. (2019)

Working with critical realist perspective after Bhaskar, Chikamori et al. (2019) have mapped out an intermeshed, two-phased transdisciplinary learning process. This develops around historical review and abductive inference to understand how present contradictions of unsustainability came into being out of past ways of knowing and doing things together (Figure 1). The emerging retroductive

insights provide a realist platform for ‘absenting absences’¹² in deliberative, retroductive inferences to re-imagine future sustainability. This can be undertaken with ‘back-casting’ to contemplate how to get to the desired, more sustainable states of being.

In support of the central role of historical narratives in cultural settings, Rosa notes how:

Our consideration of the experience of history has now made it clear that this opening and connection also extends to the relationship between past, present and future. Inner world and outer worlds, the world that was and the world to come, are in a way co-present in experiences of resonance. (p.304)

¹² The coming into being of something new that resolves a contradiction-producing-absence, is a key proposition in Critical Realism after Roy Bhaskar. Here, in simple terms, analysis can surface what is not being done (absent) that could be absented to resolve a concern, hence ‘absenting an absence’ or changing things in a way that an omission is rectified.

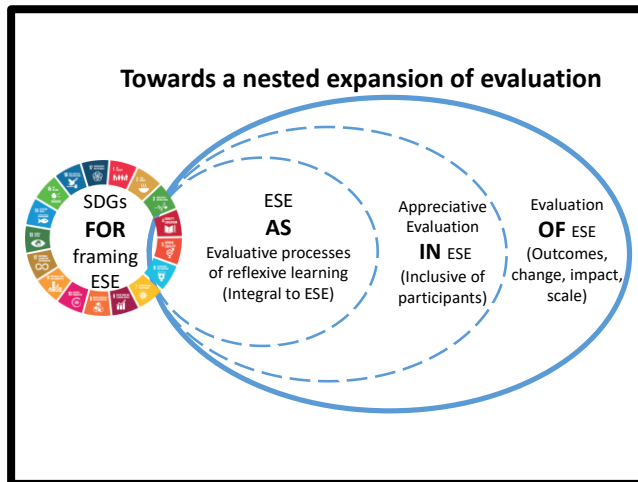


Figure2: Evaluation as integral dimensions of ESD.

With the advent of diverse perspectives on environment and sustainability education, the associated learning transactions have successively become more inclusive, transdisciplinary and manifestly evaluative to resolve contradictions that now confront us in the fabric of modern societies.

Recent work with Critical Realism re-frames the social project of education as a situated and inclusive process of deliberative learning and

change. In line with this, more and more work is being done with the SDGs as conceptual tools for an evaluative contemplating of more just and sustainable practices across the fabric of modern social, economic and political life.

Towards an embedding expansion of evaluation for, as, in and of ESD

A wider view of co-engaged knowledge mediation as evaluative critical processes found in ESD informed the development of a 'nested diagram' (Figure: 2) of intermeshed evaluation tools and processes. The expanded yet integrative mapping of evaluation in the diagram is intended to disrupt a dominance of instrumentalism and to clarify learner agency in more inclusive, transdisciplinary learning processes of evaluative resonance-seeking in relation to matters of concern (Figure: 2) that confront us in accelerating modern worlds of alienating contradiction (O'Donoghue et al, 2020). Here transdisciplinary learning is approached as resonance-seeking evaluation processes of reflexive social learning activated amidst contradictions and disruptions in the fabric of our desires and practices and open to deliberative evaluation by individuals in the company of others. The disruptive challenges confronting us with the emergence of COVID-19 are exposing axes of tension for evaluative learning in a changing world. Juha Uitto for example has emphasized that:

Evaluation has the specific role of bringing forth knowledge and understanding of what works under what circumstances based on past experiences.

This points to a need to realign evaluation practices in an expanding 21st Century ESD project engaging matters of concern at nexus of nature and humanity. Three dimensions of ESD as expanding and

intermeshed evaluative work are evident here and reflected as a expanding process in table 1 below after Mochizuki and Yarime (2016).

Table 1:

ESD	Sustainability Science	Evaluation
Education about sustainability <i>→Content based sustainability literacy</i>	'Multi-disciplinarity' identifies and assembles relevant knowledge and expertise in traditional academic disciplines for addressing sustainability problems	Outcomes, change, impact and scale
Education for sustainability <i>→critical questioning of assumptions and contribution to problem-solving</i>	'Inter-disciplinarity' connects and integrates a critical questioning of assumptions; disciplinary knowledge and expertise to advance basic understanding of the complex, dynamic interactions of human-environment systems.	SDGs for framing evaluation of ESD
Education as sustainability <i>→A Shift of worldview</i>	'Trans-disciplinarity' promotes active collaboration with various stakeholders throughout society, organising processes of mutual learning among science and society	Evaluative process of inter-subjective learning

Source: Adapted, Routledge Handbook of Higher Education for Sustainable Development. 2015 p19.

The expanding trajectories of ESD reflected in this table point to necessary change in the scope and focus of evaluation in ESD.

Expanding the scope and depth of evaluation in ESD

Our concern in this review of evaluation and ESD is to contemplate a central position for evaluative work within a wider and more inclusive framing of education in a world of disruptive desires. In this way we would

hope to reposition a nested expansion of evaluation (Figure 2) as a central dimension of education and within a resonance-seeking critical project in disruptive modern times of change. The shifting norms and values, rising complexities and technological advancements are prompting evaluation narratives and ESD practitioners to reframe our evaluation practices in ESD. It could be suggested that we have reached a Copernican moment where we realise “*earth isn’t flat*” and hence there is a need to reframe evaluation dispositions beyond a fixation with our current pantheon of expert conventions¹³.

A key challenge for us has been the development of schematic tools for transcending conventional wisdom to reframe ESD as multi-dimensional processes of evaluative learning-led-change within an expanded view of evaluation. To attempt this, we used guiding questions to approach evaluation as a nested game-changer for, as, in and of ESD

The SDGs as an evaluation tool FOR activating learning-led change

The SDGs with their useful a priori categories for more equitable conditions of future sustainability are a useful schema for evaluative work but their evaluation against competency and outcome specifications is proving elusive where the specified targets are inscribed as change descriptors (Goals) to be evaluated through independent and objective means of verification. These assume an a narrow instrumental effect of ESD as an educational intervention. Contrary to this assumption, evaluative competencies are emergent in participants who are critically reflexive of co-engaged in the company of others. Here participants are critical evaluators of the matters of concern. They are also agents of change through learning-led critical processes of re-orientation that they need, in turn, to evaluate and act on to give effect to the changes that are desirable in a given context.

In an instrumental approach, the implicit assumption is that the outcomes of a scripted story are assumed to play out in inscribed ways through the education intervention. But to achieve the desired ends, it is the evaluative competence of participants that needs both to critically engaging the problems at hand and to narrate actionable outcomes through their evaluative work. This more integrated and inclusive approach does not preclude independent evaluations of mediated learning transactions but it does remove the blinkers of

¹³ Relevance, Effectiveness, Efficiency, Impact, and Sustainability

earlier instrumental assessment and point to the need for the inclusion of the co-engaged participants in evaluative processes of ESD.

Evaluation reduced to or centred on empirical measures of a priori behavioural outcomes to the exclusion of the participants is still common, particularly in institutional settings of evidence-based management. Here

The SDGs as an inquiry tool

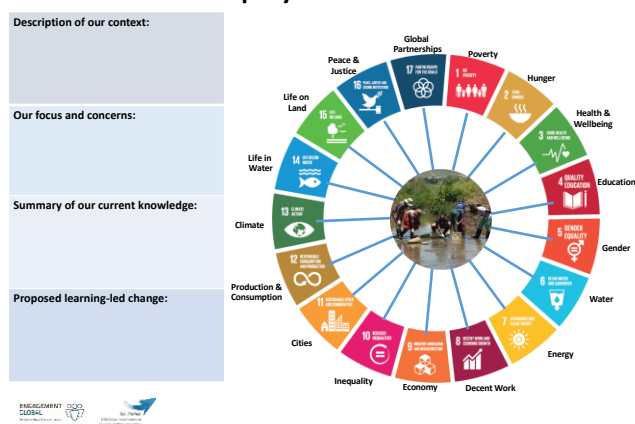


Figure 3: Working with the SDGs as an evaluation tool.

there is often an institutional call for independent expert verification of outcomes. This is still commonly found entrenched as the ‘gold standard’ in programme evaluation. There has, however, been a slow move to include participants. This tends to be both surface and nominal in evidence-based evaluation programmes. A theory-of-change approach is useful here for uncovering the common foundational assumption that ESD is centred on giving effect to changed awareness, values,

attitudes and behaviour. These behavioural foundations are slowly being displaced by approaches centred on co-engaged evaluative activities where participants learn by developing competences that enable them to recognise concerns, assess value and clarify more sustainable alternatives together. Within this more participant-centred and processual approach to ESD we have re-framed the SDGs as a wheel for learners to work with as evaluative tools to more fully engage the socio-cultural, ecological, economic and political scope of emerging sustainability concerns at the nexus of human and natural systems. In this way the SDGs have been reframed from targets to evaluative tool FOR ESD.

Evaluation AS situated, critical processes of learning-led change

The review work that we undertook to question and expand prevailing approaches to evaluation pointed to evaluative work as both an ‘outside-in’ process of critical review and an ‘inside-out’ process of critical engagement. The latter is often neglected or assumed to be implicit in evaluation from the outside by outsiders with an assumed objectivity that outsiders can bring to an evaluation process.

Working with the SDGs as an evaluative tool for ESD (Figure 3) ‘Evaluation AS ESD’ developed as a focus to foreground and activate ESD as inclusive, situated, critical processes of evaluative deliberation. In this

way the SDGs as an inquiry tool was used as a deliberative framework for participants to critically evaluate sustainability and social justice matters of concern as historical processes shaping the matters of concern that confront them. Here the SDG goals did not present as 'an agenda of received truths' about things and goals to be attained to resolve these through changed attitudes, values and behaviour to be effected through ESD. Here ESD as evaluative critical processes demands an inclusivity that brings implicit or emergent matters of concern into deliberative learning transactions. In our ESD work we found that it was possible for participants to work with the SDGs as both sensitising constructs and for the framing of formative goals in their evaluative critical engagements with matters of concern.

Here we noted that evaluative narratives in Europe within a cultural purview of '*Bildung*' will not take the same form or develop in the same way as emancipatory, critical appraisals of sustainability and social justice in southern African post-colonial settings or in Mexico and elsewhere in Latin America where the writings of Freire have currency. It would thus be important to read evaluation as a critical process of emancipation in Latin America where civic engagement and empowerment might prevail in Europe and elsewhere.

We concluded that transdisciplinarity and intersectionality imply a balanced interplay across cultural-historical perspective, noting how expert interventions and outsider evaluation work can miss and/or mute intergenerational experiences of exclusion necessary for activating ESD as emancipatory critical processes of learning-led change.

Evaluation IN ESD as co-engaged reflexive processes of learning-led change

Evaluation '*in*' ESD can be conflated with evaluation '*as*' emergent critical processes of Learning-led change. To clarify a necessary expansion of evaluation '*in*' ESD we asked the question, "Who is evaluating here?" and "How are the participants included in evaluative review?" The inclusion of participants as more than informants in an evaluation process is a critical nexus between conventional approaches to evaluation where objective empirical data is seen as the 'gold-standard' in evaluation and evaluation research activities.

The emerging narrative towards clarifying an inclusive expansion of evaluation points to the participants and the matters of concern that they are addressing as a signified moment or centre of meaningful concern for ESD to play out in resonant moments of emancipation. Rosa notes how:

In evaluative terms, the things of the world...are always doubly coded for us, in as much as they are furnished with both an index of evaluation and an index of desire. Our relationships to the world are always both *appetitive/affective* and *evaluative/cognitive*, and I am convinced that the dynamic of life can essentially be understood as a constant oscillation between these two poles (p.135).

Here, 'strong evaluation' in ESD is approached as individual and co-engaged processes of 'resonance-seeking' deliberation as a participant-led process in a process of learning-led change.

Evaluation OF ESD within a wider, inclusive and critical approach to learning-led change

The nested diagram (Figure 2) is an attempt at a simplified graphical representation of ESD as evaluative critical processes where evaluation 'of' a process cannot be reduced to an objective appraisal by an outsider who is informed by the participants. This is, however, how most institutional appraisals and accountability review processes are currently conducted.

As noted earlier, this review and inclusive expansion of evaluation is an attempt to disrupt the prevailing institutional conventional wisdom that evaluation is necessarily an 'end of pipe' determination of outcomes and impact of ESD as an intervention. Evaluations of ESD can have many purposes and be conducted in a variety of ways. This paper suggests that evaluation of ESD could be conducted with a wider views, that are better culturally situated and more inclusive. In this approach, evaluation is conducted as an integral process of critically engaged and deliberative processes of learning-led-change at the nexus of human and earth systems. Formative questions to open up a wider perspective on ESD as evaluative learning might be:

- What evaluative work have participants undertaken towards resolving matter of concern?
- Who has been included in this evaluative work, why and to what ends?
- What evaluative interventions are being initiated by participants?
- What critical, inclusive and evaluative competences are evident?
- How can I teach and assess learning in inclusive and supportive ways that foster evaluative work?
- How will a review assist participants to enhance the evaluative depth of their work?

A broader, more inclusive and process-centred approach to evaluation and ESD is reflected in Figure 4. This is being developed around a subtle re-framing of the SDGs as an evaluation tool for participants doing evaluative work in more inclusive and critically engaged ways. Here ESD is approached as nested critical processes of evaluation and learning where participant acquire the competence to effect and report change

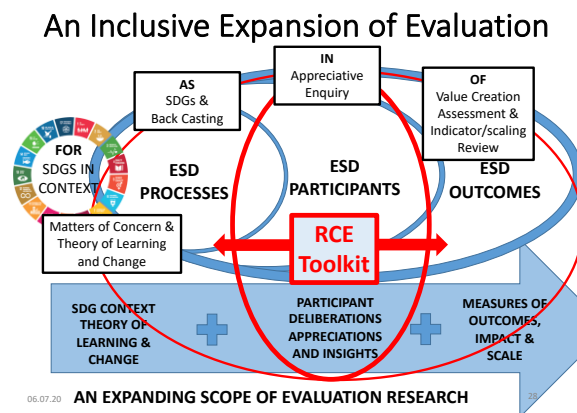


Figure 4: Nested evaluation applied to a co-engaged evaluation in an RCE ESD programme.

to challenge an entrenched and somewhat intractable system of instrumental reason and to suggest a more expanded and integral perspective that is both situated in prevailing matters of concern and consistent with our emerging capabilities to both engage and resolve these. Rosa (2019) in exploring a 'sociology of our relationship to the world' opens up how in resonance-seeking evaluative challenges:

The attractive and repulsive qualities of our relation to the world give rise to the significance for subjects of certain segments of the world. As expressed by Max Weber's concept of culture and Charles Taylor's concept of ineluctable strong evaluations, they form the basis for the development of all cultural and cognitive and cultural conceptions of the self and the world. Fear and desire – or the attraction and repulsion of various segments of the world – along with the associated need to take a position with respect to the world – thus constitute the starting point for developing a cognitive or reflexive relation to the world as well as a corresponding value system, for drawing our cognitive and evaluative maps of the world, which reveal potential courses of action and indicate obstacles or inhibitions. They establish the motivational basis for wanting to -or having to – cognise and evaluate world. (p.111)

In this paper we have critically reviewed a pervasive institutional conventional wisdom that approaches evaluation the analysis of evidence of instrumental effects of ESD in terms of changes in the attitudes values and behaviour of participants. The structural functionalist ideals embedded in the blend of behavioural science and colonial dispositions has been long overturned by a more inclusive and participatory approach

centred on co-engaged learners deliberate matters of concern, recognise value and act to effect change. Within processes such as this, it is participants who are both changed through learning and can develop the agency to effect change both individually and together. The outcome of these insights is a shift from ESD being evaluated to ESD being approached as evaluative learning with resonance and agency emerging through strong evaluations for revising roadmaps of desire in disruptive times.

In light of the challenging insights explored in this paper, perhaps suitably expansive questions for framing a more inclusive and expanded approach to evaluation and ESD might be:

- how is ESD culturally situated as a co-engaged process of evaluative action learning and
- how can ESD as a deliberative journey of evaluative struggle best be mediated in more inclusive and evidence-based ways?

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¹⁴ Environment and Sustainability Education (ESE) is approached as a process encompassing diverse education responses to social justice and future sustainability concerns. These emerged in early conservation, environmental, development, peace and global citizenship education, for example, as expanding sustainability education imperatives that has been variously contested and

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enacted in response to emergent matters of concern in a changing world of and at risk. At times, the term is used interchangeably with ESD.

Evaluation and Education for Sustainable Development (ESD): Navigating a shifting landscape in Regional Centres of Expertise (RCEs)

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Abstract:

A hybrid framework for evaluation in southern African RCEs is narrated with a brief review that brings features of evaluation as a realm of professionally mediated measurement into question. ESD is approached as an evaluative process in its own right and a start-up tool kit for situated evaluation processes is developed drawing on core aspects of appreciative inquiry, developmental evaluation and value creation assessment. A case study of a collaborative evaluation process is then reported to begin to re-inscribe and integrate evaluation practices in RCEs as situated critical processes of transformative social learning for the common good.

Deriving a perspective on evaluation

The expert-mediated evaluation of change and impact found in the education literature was primarily framed in the structural functionalist conventions of modernity that emerged within education as an emancipatory process of mediated social control in the education project of the 20th Century (Popkewitz, 2008). Evaluation in Education is characterised by tensions across empirical analytical, constructivist and socially critical perspectives that have been hotly contested over the years. The emergence of Critical Realism after Bhaskar (1975) has latterly come to provide some useful tools for resolving much of the ambivalence of the 1980s and 1990s when appreciative enquiry (Cooperrider and Srivastva 1987) and developmental evaluation (Patton, 1994) began to emerge, notably in the evaluation of aspects of schooling and projects in the environment and development education arena. Drawing on the Critical Realism oeuvre, the works of Pawson and Tilley (1997) are notable for signalling the advent of a realist turn in evaluation research that brought some order to a diverse and contested landscape at the close of the Twentieth Century.

Within these emergent trajectories of expansion and realignment, evaluation has primarily remained the realm of experts who are commonly contracted to mediate the steering and summative evidence demanded by the structural functionalist conventions of state and international environment and sustainability institutions. Quinn Patton vividly illustrates the expert position of the evaluator and the balancing act between working with participants and undertaking assessments for funding agencies by noting:

Indeed, in my own work, I prefer to facilitate the generation of recommendations by my clients and primary users. I rarely formulate independent recommendations. However, in the developmental evaluation process, part of my value to a design team is that I bring a reservoir of knowledge (based on 25 years of practice) about what kinds of things tend to work and where to anticipate problems. (Patton, 1994:316)

The evaluation of Education for Sustainable Development (ESD) has, more recently, been one of the expert-mediated and contested terrains, particularly as mid-decade reporting emerged and as the United Nations Decade of Education for Sustainable Development was coming to a close. Here the tension has been between the participatory imperatives for ESD in civil society movements like Regional Centres of Expertise (RCEs) and the institutional need for evidence of tangible change desired by international convention networks. Within this arena, and following earlier work on evaluation with ARIES, Tilbury (2007) produced one of the early framings for the evaluation of education for sustainability and has played a coordinating role in much of the UNECE (2011) framing of evaluation work to review the DESD.

In a time of fascination with the competence framing of education processes, some notable work was undertaken to develop concepts and competence specifications (de Haan, 2010; Wiek et al, 2011) to constitute ESD as a measured and measurable processes of learner-led, reflexive, social learning and change. This work served not only to more firmly frame the field but did so in ways that might make curricula more coherent and learning / change more readily assessed. It is thus no surprise that the United Nations Economic Commission for Europe (UNECE) published *Learning for the Future: Competencies in Education for Sustainable Development* by 2011 as the imperatives to evaluate the effectiveness of the UNDESD began to emerge.

A review of competence perspectives must remain beyond the scope of this chapter but it is important to note that inscriptions of competence and implicit theories of change here became infused into ESD curriculum discourses and the practices and perspectives of social movements amidst imperatives to undertake some

form of evaluation of activities and impacts in the reviews of the United Nations Decade of Education for Sustainable Development (UN-DESD). The processes examined here are primarily centred on some of the challenges in the evaluation of RCEs and co-engaged ESD activities where measures of change had long been established as the gold standard.

Measuring change entrenched as the ‘gold standard’ in programme assessment

From early on, expanding Education for Sustainability initiatives (EE and ESD) sought reliable measures of change. These measures were the ‘gold standard’ or the ‘holy grail’ (Moore, 2012) for assessing impact as behaviour change. Measuring values/attitudes and behaviour were combined in the concept of pro-environmental behaviour as a trustworthy approach for the assessment of change brought about by education as a process centred on the production of new environmental behaviour (Hungerford & Volk, 1990). The shift to more participatory approaches and a socially critical trajectory in the 1990s led to behavioural measures becoming less prominent (O’Donoghue, 2014a). Courtenay-Hall and Rogers (2002) note fundamental tensions between a ‘behaviour modelling’ commitment to measuring impact as evidence of behavioural change, and participatory approaches that commit to stakeholder engagement in learner-led change practices. Towards the close of the UN-DESD, the resolution of this contradiction in favour of the latter (participation) shaped a shift from an emphasis on measures of behaviour change to environmental literacy (Hollweg et al, 2011), with the measurement of change remaining an often, elusive ideal.

Today there is a proliferation of measures ranging from institutions that survey behavioural patterns in their target communities (see, for example, DEFRA, 2008 and Moore, 2012), to rapidly expanding batteries of tests for environmental knowledge / literacy (Hollweg et al, 2011) along with diverse contexts where consultant groups produce measurement instruments (metrics¹⁵) for the assessment of specified attributes (competences) and impact. Evaluative measures of environmental literacy and indicators of competence and change are now found in global-level metrics for initiating, tracking, steering and evaluating education programmes directed at enabling global citizenship for a sustainable future (O’Donoghue, 2014b).

¹⁵ It is notable that metric-based assessment is an a priori process where the measures and proxy criteria for evaluation are pre-inscribed. This is useful for achieving clarity and projective certainty but not where outcomes not wholly predictable or are open, variable and even unknown in diverse contexts of change.

Education to foster the literacy and competences necessary to bring about a necessary re-orientation in a changing world and the search for evidence-based assessment of change has continued to be a challenge in RCEs as an expanding field of multiple stakeholder engagement in the escalating global risk to future sustainability. Here, measures of behaviour change and proxy measures that reflect the attributes for the necessary change-orientated dispositions (competences) remain a key concern in most large-scale, survey instruments that have an evaluative dimension (UNESCO, 2014). When these programme and evaluation processes are read with care, it is apparent that education processes and assessment are seldom meshed with sufficient coherence. There has thus always been a search for refinements for the more effective and reliable evaluation of programmes and the assessment of change. In the latter part of the UN-DESD, where calls for evidence-based assessment became pressing, the production and measurement of change included:

- contouring the necessary attributes (competences) for change to a more sustainable world;
- literacy (knowledge-led agency) in relation to sustainability concerns; and
- social learning practices to bring about the desired change (sustainable development).

Here the expert mediation of metrics to generate reliable evidence of change and established conventions for expert-mediated evaluation are developing into global-scale collaborative process in systems design evaluation (UNESCO, 2014). This is particularly evident in the criterion-referenced framing of initiatives in Global Citizenship Education (UNESCO, 2013) where there is a notable shift to own-assessment as expert in context but within the earlier established cultural conventions of measured changes in practices / behaviour. These developments have brought new challenges to higher education research and evaluation practices conceptualising and appraisal of ESD.

ESD as evaluation that needs reflexive evaluation and expected to produce value

Without a clear grasp of ESD as a critical process of evaluative enquiry and learning-to-change in relation to unsustainable patterns of human conduct, to propose that an appraisal of an ESD initiative as 'an evaluation of an evaluation' suggests tautology. However, praxiological enquiry as an evaluation process is at the heart of ESD as a process undertaken as a deliberative process with the intention of reimagining more sustainable ways of doing things. Here the educative processes of evaluative enquiry are centred on ESD as a review of human conduct and its effects. Processes of learning and change such as this are dialectical in character

(deliberative across differences) and are centred on exploratory processes of learning-to-change (reflexivity). For an appraisal of evaluative learning such as this, an emerging culture of evaluation in RCE contexts came to be conceptualized and approached as three intermeshed processes:

- Evaluation as an implicit ESD process (praxiological enquiry)
- Evaluation *in* ESD processes of co-engaged learning (strategic enquiry)
- Evaluation *of* ESD as a process with more sustainable outcomes (emerging outputs and impacts).

The evaluation of ESD would commonly be directed at outputs and impacts so differentiating and enacting these intermeshed dimensions of evaluation as, in and of ESD necessitated an expansion of earlier more expert mediated framings of evaluation practice. The expansion developed over an extended period of deliberative work on evaluation in the multi-stakeholder contexts of many RCEs.

Clarifying a cultural context for evaluation in RCEs

A relatively undifferentiated collaborative and participatory framing of evaluation in RCEs was prevalent at mid UN decade, and pressure for more measured assessments of impact and change escalated. As noted above, differences between what one might call participatory perspectives and more empirical / impact assessment approaches that sought tangible measures of change were not easily reconciled and it became clear that the necessary expertise in evaluation was not always to hand in RCE contexts. The ARIES (2007) handbook on evaluating Education for Sustainability in local government contexts presented evaluation as a review of a programme where:

*As part of the planning or review of your programme you will have identified **the needs of your participant groups**. Deciding **whether you have met these needs** has to be part of your evaluation. You will also **have identified clear objectives**. Part of the process of setting objectives is to agree desired outcomes (including **learning outcomes**) **that will be measurable** to varying degrees. These will help define what you are trying to achieve and **the information you need to collect to measure what has actually been achieved**. (My bold to accentuate the expert-mediated educational conventions of the time. Pp. 147)*

Here, an expert disposition is clearly evident along with the prevailing structural functionalist and behaviourist education research conventions of the time. In response to the framing of evaluation in this way, the UNU-IAS initiated a deliberative process and a concept paper to decode much of the complexity was developed out of the Tongyoeng Global RCE Conference in 2011. A consultative process followed in The Netherlands where a working group on evaluation was constituted. The process emerging here involved clarifying the

constituting and practices of RCEs and trying to develop principles for the assessment of RCE processes and the impact of our diverse change practices. This work drew on some early evaluation that was undertaken by Geoff Scott in RCE Western Sidney and perspectives emerging in RCE Graz (Clemens Mader) and in the work of RCE European Advisor, Jos Hermans. This work was undertaken in a rapidly evolving field of diverse evaluation practices and is now being extended into the Global Action Plan (UNESCO, 2013).

Many other RCEs, including those in an emerging African regional network of RCEs co-ordinated through the SADC Regional Environmental Education Centre in Howick, participated in the deliberation on evaluation. This engagement became a testing ground for diverse approaches and a consensus seeking process on perspectives for suitable evaluation practices in RCEs. For example, one of the early propositions was that of establishing a baseline from / against which an evaluation could be conducted. Other perspectives were centred on the importance of collaborative review so that all interest groups in an RCE were included in an evaluation process. The latter received positive responses that exemplified participatory approaches and appreciative enquiry emerged as an important constituent of evaluation in RCEs as collaborative civil society initiatives. Alongside this, a clarifying of the strategic purpose of RCEs emerged as a priority and it was noted that some tangible baseline data, appreciative records and a strategic assessment would lend themselves to some sort of meta-analysis of RCEs that would be necessary for reporting the outcomes and impact of the global network of Regional Centres of Expertise in ESD.

The UNU-IAS working document became a reference point for the development of an evaluation process by southern African RCEs following the preliminary evaluation processes that were undertaken in Goa, and in other contexts in India in early 2013 (UNU-IAS, 2013).

Towards an situated framework for Evaluating RCEs

With the RCEs in the region having emerged at differing times within the UN DESD and with them taking many forms (some being centred on cities whilst others having a regional or small country character), the idea of a baseline for an evaluation process became a concern for the development of contextual profiling data. Contextual profiling had emerged as a situating methodology for much of the environment and sustainability research in the SADC region along with the need for a grasp of the way in which each RCE had been constituted. 'Constitutive evaluation' thus became an opening deliberation in an evaluation framework that was to be developed for site-based collaborative evaluation across the RCEs of the region.

Drawing on the earlier evaluation work done in Goa, this opening move was then broken down into a framing of an RCE as:

- *A platform for dialogue* on concerns and practices among RCE stakeholders.
- *A local resource base* to support ESD work.
- *A networking structure for enabling ESD* in local school and community initiatives.

This allowed each RCE to begin an appreciative review of how the collaboration had been constituted in a particular context but did not provide an adequate model of process for evaluative data generation that resonated with the evaluation literature. An associated problem was that much of the sophistication demanded by the professionalised evaluation literature in higher education research was not accessible to the constituency wanting to undertake evaluation initiatives as RCEs. Evaluation work was thus most commonly mediated by a university academic or by an expanding network of experts who held sway over the conventions demanded for evaluation in the environment and sustainable development sector. Navigating these complexities was not an easy matter as the evaluation discourses were complex and contested, with tightly held conventions where each interest group had sought to package all of the elements necessary for undertaking an evaluation.

The emergence of a hybrid framework for evaluation in RCEs

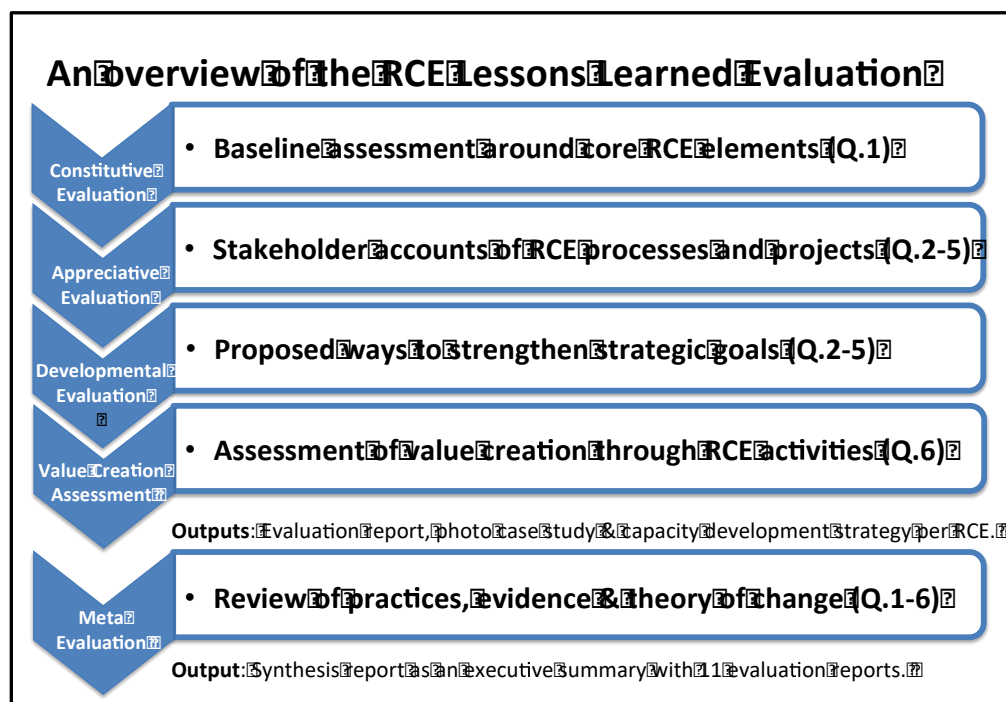
Appreciative inquiry approaches to evaluation, after Copperrider et al (1987 and 2008) reflect the participatory and collaborative dimensions necessary for work in RCEs but are orientated towards common sense consensus within constructivist conventions. Deference to collective consensus around their 4D model and 5 guiding principles for a positive critical engagement process can often fall short of a demand for robust empirical data on impact or overlook the less positive side of things, for example.

Literature on what has been broadly termed developmental evaluation (Gamble, 2008) emerged alongside much of this work to partially resolve some of these tensions but, in our reading, was less amenable to collaborative approaches and orientated towards expert mediation, particularly for processes of extended formative and summative review using a tool like the Panarchy Loop. This was developed by Holding for the evaluation of complex economic, ecological and social system contexts (Holding, 2001) and for reviewing social innovation processes (Westley et al. (2007).

Appreciative and developmental approaches to evaluation are not dissimilar in many ways but each, like

most framings of evaluative processes, demands allegiance to a set of inscribed perspectives and processes. Ignoring some of the peripheral inscriptions and working with the essences of the perspectives, we began to draw on both, the former for a positive, co-engaged roadmap and the latter for a more in-depth strategic review of emergent evidence and a probing of underlying ‘theory of change’ (Gamble, 2008: 48; Blamey and Mackenzie, 2007).

With evaluation practices becoming more diverse and variously informed, we elected to construct a hybrid start-up tool for framing co-engaged evaluation processes in RCEs. Figure 1 summarises the perspectives that we have drawn on to construct a framework tool for situating a positive, co-engaged and developmental evaluation framework that can enable participants to probe practices, to generate evidence of impact and also begin to assess value creation within the RCE network in the SADC Region. The remainder of this chapter reports an initial implementation of this open-ended evaluation start-up process that can be expanded and deepened by drawing on the constituent perspectives as evaluation capabilities emerge and are enhanced in capacity development initiatives.



Overview of the evaluation tool kit developed for SADC RCEs

The evaluation process started with the development of an evaluation toolkit as a hybrid instrument that, as outlined above, draws on a range of evaluation traditions that can be adapted to differing needs and contexts. These include: Constitutive, Appreciative and Developmental Evaluation, and Value Creation Assessment.

The start-up tool kit opens with a review of documentary evidence on *how the RCE was constituted*. It then develops as an unfolding review of 'The RCE Journey.' The opening development is an appreciative picture of how the RCE evolved and the 6 stage process is guided by questions (See appendix). This is designed to provide key reference points or a baseline around which the participants can probe the core elements of the emerging RCE activities and practices.

The evaluation is approached as a deliberative process of *appreciative*¹⁶ *inquiry* with *developmental evaluation dimensions* designed in to prompt expansion of successes related to:

1. How the RCE developed as an ESD coordination and networking structure
2. The activities undertaken and their effects
3. A review of initiatives producing transformations and enhanced sustainability
4. Strategic focus areas and the links established for these to be effective
5. Collaboration with and support from the RCE Global Service Centre
6. The assessment of value creation within the RCE and its activities

The focus areas and questions in the each stages are intended to loosely frame an evaluative concern to prompt appreciative conversations that generate evidence and developmental inferences that can be built on these.

The evaluation concludes with an open-ended assessment of *value creation* (Wenger et al., 2011), who describe how communities of practice produce value in their work cycles of activity. Value creation starts with a sense of something that is of *immediate value* that might be seen to have a wider *potential* for value creation. The aspiration to create value is then initiated through *applied* work that affirms and creates value, often producing change that is *realised* in context and can involve a positive *reframing* of what is of value and worth achieving. Looking back into the document record and the appreciative data of an RCE, it is possible to work with the evidence to undertake an assessment of value creation in the emerging story of the RCE as an active learning community producing value through the work that they have done and continue to do together.

¹⁶ It is notable how the opening trajectory of 'what positive things people appreciated' came to shape 'narrative appreciations of how things are' (informed critical appraisals) that entered conversations towards developmental possibilities to strengthen RCE activities. (See evidence of this in the record that follows.)

The focus areas outlined above were used to produce a question framework for the toolkit (Questions 1-6) that scaffolds an appreciative review process to inform and to strengthen an RCE. The appreciative and developmental story of an RCE can be used in a meta-evaluation of emerging ESD activities and practices across regional RCEs. This wider picture of the practices, evidence of impact and theory of change will be useful for understanding and informing our continuing RCE work.

Case study of work with the hybrid evaluation framework in Makana RCE

The RCE Evaluation Toolkit was used over a three-day review workshop with 12 participants in the Makana RCE involved in education activities related to:

- water (Water for Dignity group),
- energy (St Mary's Development and Care Centre staff)
- waste and sanitation (Makana Youth group)
- cleaning and compost gardens (Inqaba Yegolide organisation).
- an education exhibit on water (Albany Museum education staff)

Used in a primarily discursive process of six stages of scaffolded questions, as outlined above, and with a field visit to develop case stories of situated practice, the workshop was seen as a preliminary evaluation around which other evaluation focus areas, instruments and strategies could be developed as increasing capacity in evaluation practice emerged.

Groups unable to attend the review process that was convened by Makana Municipality as the new host of the RCE secretariat were subsequently interviewed using the same framework tool (Cowie Catchment Campaign, Eco-Schools, Umthathi, Fundisa for Change, RU Green and Galela Amanzi). The interview process allowed these groups to reflect on the outcomes of the evaluation and to provide their input into the process. This was not ideal but was a necessary adaptive move that illustrated how the RCE is a 'moveable feast' of partners / activities that, as affiliates, have tended to move in and out of the RCE structure over the years. Here it was notable that social movements from poorer communities tend to be facilitated by more formal structures like Makana Municipality (Makana Youth and Inqaba Yegolide) and the Rhodes University Water Research Institute (Water for Dignity)

The Makana RCE was identified as a structure for collaboration where 'people meet and work together' or 'meet – talk – act' in a local context. The Water Research Institute is exploring 'a new paradigm of transdisciplinary research' that interfaces university researchers, civil society organisations and state service institutions. These approaches were noted with appreciation as they meant that local issues could be addressed. The following positive features were recorded:

- beginning to communicate through water forums and by forming co-operatives (Water for Dignity)
- supporting small gardens with composting and then seedlings (Gaba yeGolide)
- hot bags being made and shared to save electricity costs (St Mary's DCC)
- stories of water and change-choice-practices are in the museum education programs (Albany Museum)
- sanitation practices are changing and problems are decreasing in Extension 6 and Extension 10 (Makana Youth)

1. Appreciative review of Context, Coordination and Networking

The opening appreciative summaries emerging from the initial interest group discussions illustrate that the Makana RCE is a mix of university, NGO and municipal community-engaged projects that are independently active across civil society, youth and community service organisation structures. All are funding-dependent and most focus areas are reflected in the Local Environmental Action Plan (LEAP) that was a core focus in the constituting of the RCE. Project implementation has been small-scale but uneven, although there has been an EE and awareness strategy and there is now more provision for LEAP projects within the municipal Integrated Development Plan (IDP) with some funding having been allocated to projects by Makana Municipality and with the municipal counsellors having tried to establish and maintain a Makana Environmental Forum for collaboration and reporting on environmental problems and activities. This structure has become more of a complaints space than a project development structure. The coordination and networking has thus moved to many groups acting on their own and with the University Community Engagement structure and other independent organisations initiating and managing projects outside and critical of the municipal services framework that is not operating effectively in most sectors.

After the opening appreciative conversation and a scoping of the coordination and networking processes in play, the appreciative exploration continued in relation to activities and their positive effects (appreciative) that could be built on to strengthen (developmental) what was being done and valued by the groups participating in the evaluation.

2. Review of activities and their effects

This review process was once again developed around the success stories but it probed the collaborative processes within which the learning and change emerged and then developed to examine possible up-scaling, mainstreaming and widening collaboration within the RCE and with other structure across the region.

Notable here were:

- Eco-school support – primarily gardening and curriculum initiatives.
- Waste communication – Pilot projects at the household level.
- School water materials and exhibition at the museum.
- An emergency water proposal being advanced by civil society and the university Water Research Institute.
- The identification of training priorities – LEAP and IDP.
- Health and service data collection and reporting to the municipality.
- Hot bag distribution to save money and with follow-up to provide counselling and support to families suffering unemployment.

It was noted that working in and with small structures can be rewarding and effective but it was found to be difficult to scale-up activities to work effectively with big structures. This insight pointed to a gap where there was a need for the training of community facilitators. By chance, a training manual had recently been developed by the Environmental Science Department and the Community Engagement unit of the University was running its first course across town. This activity was discussed as an initiative that would strengthen the work of civil society initiatives. More community facilitators would strengthen work within small structures emerging in and in support of those suffering from environmental problems and training might it possible for RCE initiatives to work better with the big structures of municipal governance and service delivery. Here it was notable that whereas many initiatives were being undertaken and having an effect, these could be

strengthened by the RCE operating as a more formal structure supporting collaboration and community-engaged initiatives.

The next stage of the evaluation probed emerging 'flagship initiatives' in more depth to assess positive transformation and processes that are strengthening sustainability as a project impact.

3. Evidence of transformation and sustainability

It was at this stage that the evaluation participants went on a field trip to review flagship initiatives by developing picture narratives that would inform the evaluation process. The projects selected were:

- Health and service delivery data collection (WfD)
- Hot bag saving and family support services (DCC)
- The Umthathi SUS Garden (Makana Municipality)
- Youth Cleaning and Composting (Inqaba Yegolide)
- Waste awareness communicating (Makana Youth)
- Blue Planet Gallery water education exhibit (Albany Museum)

The objective was to scope the scale of knowledge and practice transformation and to examine how the mobilisation of resources and patterns of governance might be contributing to the successes being experienced by those involved. This was to be extended to the identification of barriers and how these might be overcome to sustain and strengthen the work being done.

The photo narrative approach was successful to a point, particularly for representing what was being done. This will need to be extended, with more time allowed, to probe for depth data and to source wider participant accounts that can be examined in relation to patterns of resource use and governance that are contributing to learning and change. These questions of practice and effectiveness were probed in more depth when strategic areas and linkages were reviewed the next day.

4. Strategic areas and linkages

Although it was noted that the 'RCE structures enable projects to link strategically on and around local issues' this was seldom realised and most projects worked independently, particularly community / civil society

initiatives that tended to work directly with a particular university or municipal structure. The key outcome from the review was that 'the RCE should be formalised as a platform for key stakeholders to meet and engage around local environmental issues and initiatives.'

The key outcome of this focus was the deliberation of a strategy for capacity development training and to strengthen the RCE by establishing a platform for co-engaged ESD with the Makana Municipality structures and projects working on problem solving and change in the area.

Capacity development for community facilitators and decision-makers in the city hall was identified as the priority with partners working to:

- Get reliable data together on health and basic services
- Develop pilot projects on key interventions that reduce risk, notably the idea of 'one street one tank' to ensure potable water when the system breaks down.
- Have water forum meetings where residents will have a voice and access change practices that have immediate and tangible benefits.
- Train museum, project staff and community facilitators to support co-engaged education initiatives.
- Expand communication and resourcing to the house-to-house engagement of youth in problem solving related to waste, water and sanitation.

5. RCE and Global Service Centre

The university-based RCE structure has been little more than a forum and staging post for small-scale initiatives that has come and gone in cycles of activity and inactivity over the years. What was noted as necessary is core funding to maintain and manage the RCE as a platform for capacity development and collaboration. The RCE has also been too far removed from the municipal structures and has not had the capacity to mobilise and initiate anything more than small-scale pilot initiatives. These have been useful and have built some small-scale success stories that could now be scaled up to make an impact beyond the few participants involved. The RCE has, however been critical for supporting community-based initiatives that would not have emerged or not have been sustained without RCE training support. It will be important to

strengthen both the training support and operate in ways that are more closely tied to and better aligned with the municipality.

Being recognised as an RCE initially produced some momentum in key areas but this has not been sustained or scaled-up sufficiently. Participation in regional conferences has enabled a sharing of ideas but a more strategic platform is needed to work up wider engagements and benefits. This evaluation report will be shared with other RCEs through the Global Service Centre and it will also be used to bring projects together under the municipality as the secretariat for the RCE as is the case in many other RCEs in the region.

6. Assessment of value creation

The focus here was on ‘what value creation would not otherwise have happened if it was not for our initiatives.’ This was not an easy matter to assess because many of the initiatives reviewed would probably have happened through university programs and community engagement initiatives or municipal project funding without an RCE that had been an open voluntary and informal structure over the years of the UN Decade of Education for Sustainable Development. However, many of the small-scale initiatives in co-engaged innovation would not have happened without the social learning commons project that was established within the RCE at the Environmental Learning Research Centre.

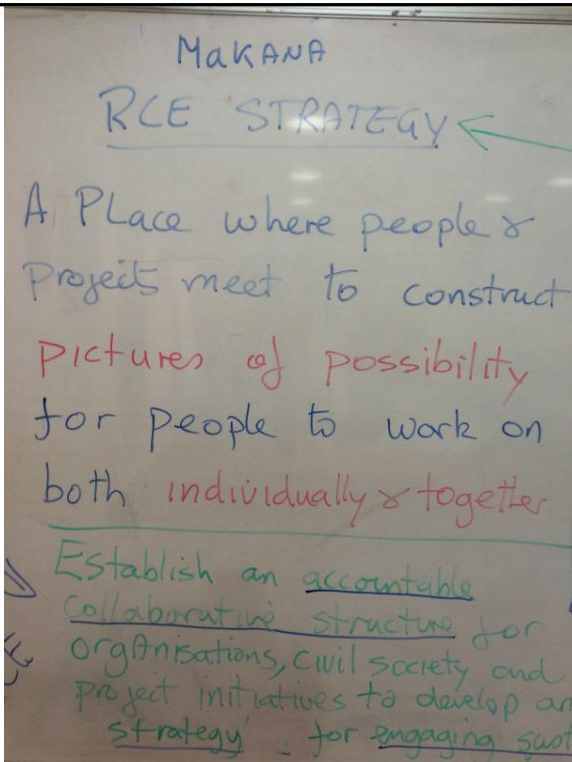
The most meaningful activities, of self-evident value to participants in the evaluation process were:

- The collection and sharing of data on health issues and water problems.
- A realisation that Makana Municipality had many problems to deal with.
- That the RCE was providing a platform in which small-scale community-based projects could emerge and flourish.
- The use of hot bags had high value for the electricity savings that they bring.
- There is a potential value in collaborative work but this is not yet being realised as projects tend to work independently.
- The evaluation process gave participants support to begin to think systematically about their activities.
- The output could be more fully developed as value creation case stories (Rivers, 2014) and these could be developed from the photo narratives generated on the field trip. Here it was felt that flagship

projects, for example, could be drawn together with the support of some capacity development training within the RCE.

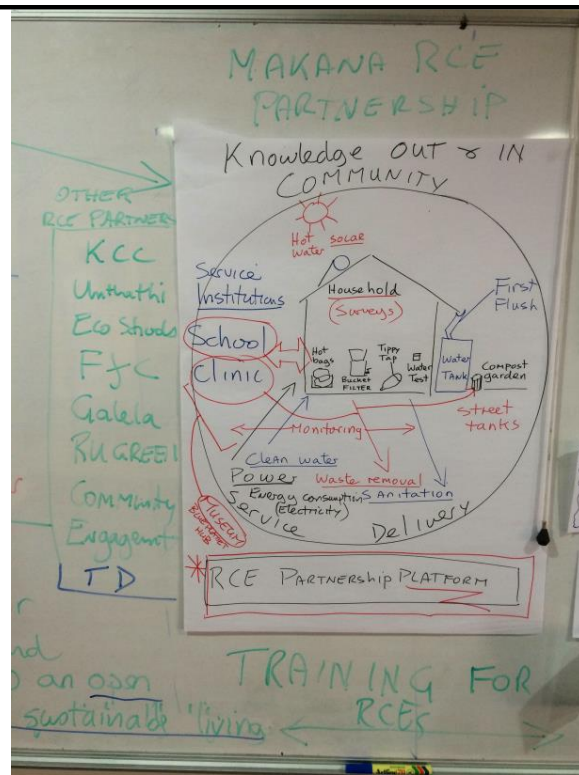
Overall, the review of value creation was somewhat surface and centred on what participants were getting out of the evaluation exercise. This was said to help 'getting around mental road blocks by working from what is appreciated and practically available.'

Finally, the outcomes were all drawn together into a vision for the RCE, a shared image of tangible value in relation to the context and priorities for capacity development and training. These are summarised in the evaluation record images and associated summaries below:

<h2>Strategic Platform</h2> <p>An affirming perspective on the RCE as a civil society platform enabling diverse structures for and processes of co-engaged learning and change in Makana</p>	 <p>The image shows a whiteboard with handwritten text in blue and red ink. At the top, it says 'Makana' and 'RCE STRATEGY' with a green arrow pointing to the right. Below this, it reads 'A Place where people & projects meet to construct pictures of possibility for people to work on both individually & together'. At the bottom, it says 'Establish an accountable collaborative structure for organisations, civil society and project initiatives to develop an strategy for engaging youth'.</p>
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RCE Vision

This schematic diagram summarised how both the improvement of service delivery and management could be supported alongside work on change-choice-practices



RCE Capacity development

Training priorities includes community facilitation as well as technical skills and evaluation practices as a key strategy in the strengthening of local RCE initiatives.



Concluding synthesis

The above case record of an initial deliberative evaluation by community project partners in Makana RCE reflects how it was possible to draw on key features of evaluation practice to produce a hybrid evaluation framework for a participatory review of an RCE as a collaborative process of co-engaged social learning. The evaluation had high local relevance and was a step towards approaching ESD as an evaluative process as well as supporting capacity development in RCEs as sites of co-engaged, transformative social learning for the common good.

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Question 1: RCE Coordination & networking

The RCE Journey: A review of how the RCE was constituted and is functioning to enable learning and change?

- 1.1. How did the RCE evolve?
- 1.2. How has membership changed?
- 1.3. How are local issues being addressed?
- 1.4. What ESD initiatives have been undertaken?
- 1.5. a) What can be done to improve RCE work and b) how?

Reference appreciative comments to the available **documents**: RCE application, articles in the RCE bulletin, RCE publications, project documents, other publications, audio visual materials etc.

Question 2: Activities & their effects

- 2.1. How has the portfolio of activities of the RCEs evolved?
- 2.2. What have been the best/most successful RCE activities and why?
- 2.3. Give examples of how successful collaboration/decision making is producing the effects that are being achieved?
- 2.4. How can activities be up-scaled and mainstreamed?
- 2.5. How could better work be achieved?
 - In the RCE? (inward looking)
 - In the region? (collaboration and outward looking)

Question 3: Transformation & Sustainability

- 3.1. What **flagship initiatives** reflect the successes of the RCE?
- 3.2. Summarise the **scale of a) knowledge and b) practice transformation** apparent in these initiatives over a period of 12, 24, 36 months etc.
- 3.3. What has changed and how is the change evident?
- 3.4. What **resources and governance** have enabled success?
- 3.5. What, besides funding, can be done to **overcome barriers** and **sustain the work** of the RCE

Question 4: Strategic areas & linkages

- 4.1. What **strategic focus** areas, partnerships, activities have been key to the successes of the RCE?
- 4.2. What could be done to **improve learning and effectiveness** (e.g. partnerships, resourcing and scale)?
- 4.3. How can existing linkages, processes and programs be strengthened?
- 4.4. What new **strategic links** and **capacity development** could be explored?

Question 5: RCE Global Service Centre

- 5.1. What have been the benefits of being acknowledged as an RCE?
- 5.2. How are you interacting with the RCE Service Centre?
- 5.3. How are you working with other RCEs and what are some of the activities, successes and challenges?
- 5.4. How has your RCE participated in regional and global RCE conferences and undertaken follow up activities?
- 5.5. How could regional and global RCE activities be improved to strengthen your RCE work?

Question 6: Value creation assessment

Reviewing evidence of **value creation**

- 6.1. What were the most meaningful RCE activities discussed?
- 6.2. What of potential value are the RCE activity producing?
- 6.3. What difference has this made that would not happen otherwise?
- 6.4. What difference has it made to the ability of the RCE to produce what matters through its ESD projects?
- 6.5. What new understandings of what produces value are becoming evident?

About the Author

This module has been developed by Rob O'Donoghue, Emeritus Professor at Rhodes University in South Africa. After early work on participatory evaluation in Environmental Education, Rob O'Donoghue worked with a United Nations University (UNU-IAS) task team on a 'hybrid tool kit' for evaluating ESD. This work pointed to the need for a revised approach to evaluation and ESD. In recent work with ESD Expert-Net colleagues, a more inclusive and integral conception of evaluation explored ESD as a 'nested game changer'. This approached evaluation and ESD as 'critical processes of transformative value creation and change'. These are emerging in response to the sustainability challenges of colonial modernity as critical processes of evaluative learning that are open to inclusive evaluative review. Rob is member of ESD Expert Network.

This module has been designed by team of student assistants Charline Rieffel, Edali Beltran, Johanna Philipps, Maxi Baumert with support from Deepika Joon, Ludwig Chanyau and Jennifer Krah

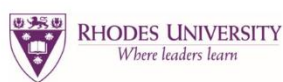
The members of ESD Evaluation Working Group of ESD Expert Network contributed with their ideas towards the development of the module.

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