A reflection on the use of case studies as a methodology for social learning research in sub Saharan Africa

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A R T I C L E   I N F O

A B S T R A C T

A recent review has highlighted that the methodology most commonly employed to research social learning has been the individual case study. We draw on four examples of social learning research in the environmental and sustainability sciences from sub-Saharan Africa to reflect on possible reasons behind the preponderance of case study research in this field, and to identify common elements that may be significant for social learning research more generally. We find that a common interest in change oriented social learning, and therefore processes of change, makes case studies a necessary approach because long term process analyses are required that are sensitive to social-ecological contexts. Common elements of the examples reflected upon included: a focus on initiating, tracking and/or understanding a process of change toward sustainability; long term research; an action research agenda that involves reflecting on data with research participants; and temporal, process based analysis of data coupled with in-depth theoretical analysis. This paper highlights that there is significant scope for exploratory research that compares case studies of social learning research to generate a deeper understanding of social learning processes, and their relationship to human agency and societal change.

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1. Introduction

Learning is necessary for the adaptations and transformations that will be required to deal with growing social-ecological change at multiple scales[1,2]. Such learning will involve deep changes in understanding about the inter-relationships between people and their environmental systems. These changes in understanding must go beyond small groups of people in specific contexts, and become located within society as a whole[3]. The dual nature of this learning, which emerges in local places, but which must be reflected at global scales has led to a growing interest in social theories of learning. The term 'social learning' is a new descriptor signifying an interest in the sociological expansion and uptake of learning processes in wider societal contexts[4,5]. Reed *et al.* [5: r1] define social learning as "a change in understanding that goes beyond the individual to become situated within wider social units or communities of practice through social interactions between actors within social networks". Thus, for learning to be referred to as social learning it must move beyond individuals and become situated in wider social units. At focus are forms of societal learning that are change oriented, since learning is considered to have a role to play in building human capacities to adapt to changing social-ecological conditions [6]. This emphasis on broader societal learning and change are two of the key characteristics of social learning that are supporting the growing interest in the concept in the environmental and sustainability sciences.

Social learning has thus emerged as a new arena of theoretical development and practical application within the wider landscape of both learning theory (with its roots in behavioural and cognitive psychology, and educational theory), and social-ecological management and governance (with its roots in social-ecological systems, collective governance and management theory). Specifically, growing interest in social learning theory can be found within a wide range of disciplines and sub-fields focused on sustainability, including environmental education [see 7 for a review], participatory governance studies [see 8 for a review], and natural resource management [see 9,10,11 for reviews]. A recent compilation of reviews [12] tracing the emergence of an interest in change oriented social learning in each of these bodies of literature, discussed below, has highlighted some interesting features, particularly the

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coupling of social learning theory and a change oriented interest in learning and practice; and the associated ways in which social learning is and can be researched. We begin by reflecting on the features of social learning research in some of these disciplines, before reflecting on the methodological choices that tend to cut across these.

A review of the emergence of social learning research in the cognitive and behavioural sciences (psychology and education) shows dissatisfaction with narrow theories of learning that focused on individual behaviour change and/or individual cognition [7]. In this literature, theories of social learning emerged from early engagement with the processes of meaning making in social and cultural contexts[13,14], which imply and indeed require participation in the meaning making process. Vygotsky, in fact, restructured the psychological research object to focus on processes of meaning making [15]. Examples are action competence approaches to learning and change [16]; expansive learning approaches [17–20]; and a theorizing of broader reflexive social learning processes tracking the manner in which diversity and dissonance in sustainability issues shapes collaborative learning and change [3,21]. These developments lead to an understanding that social learning is, or can be, a process of change towards sustainability, or that sustainability is a process of learning. In the participatory democracy literature, on the other hand, social learning can be traced to an interest in participation in decision making, and the need for recognition of equity in decision making processes. Habermasian theories of communicative action[22] have been particularly influential in shaping notions of participation and learning in decision making. More recently Sen's [23] concepts of negotiated capabilities (involving participation in decision making about valued beings and doings in context) have influenced understandings of how social learning processes can be constituted in social contexts [8].

A different set of conditions influenced the growing interest in social learning in natural resource management [see 24 for a review]. Here, the interest in change oriented learning emerged largely out of practice in the 1980's. On the one hand, top-down management processes based on linear thinking repeatedly failed due largely to flawed conceptions of ecosystems undergoing gradual, predictable change that could be engineered by managers [25] and led to calls for learning based approaches such as adaptive management [26,27]. The term social learning was first used in the collaborative management literature [28] to refer to a process in which parties learn to work collaboratively. Later Pinkerton [29], influenced by Habermas's communicative rationality, described social learning as a process that involves parties deliberating over problems, undertaking shared tasks, revealing values and perceptions, and conducting joint monitoring. Similarly grounded in deliberative theory, Daniels and Walker [30] described social learning as the process of framing issues, analyzing alternatives, and debating choices as part of an inclusive deliberative process. Over time, social learning became increasingly associated in this literature with the capacity for collective action, problem solving, conflict mitigation and relationship building [31–33]. This focus on learning taking place though dialogue, debate and experiments underpins an understanding of social learning in natural resource management as a process that expands understanding of human-environment interactions [32].

A recent review of methodologies employed to research social learning in natural resource management found that by far the methodology most frequently used has been the individual case study[11].Indeed, the case study appears to be the most widely used empirical methodology for social learning research across all bodies of literature reviewed (education, participatory democracy and natural resource management). The ways in which we research learning are important for the way in which knowledge of social learning theory and praxis is being developed within

the sustainability sciences. The case study method refers to an empirical enquiry that investigates a phenomenon in-depth and in context, and is considered most appropriate where the boundaries between the phenomenon under investigation and the context are unclear [34]. One of the most common critiques of case study research, however, is that is it not possible to generalize findings for application in other sites. However, developments in case study research are indicating various possibilities for generalization, including what Bassey [35] refers to as 'fuzzy generalization' in which generalizations can be made, but always with a recognition of their potential fallibility when transferred to other contexts. This recognition of the fallibility of extrinsic generalizations is, according to Flyvbjerg [36] and Sayer [37,38]) the norm for any research design that works with social (and by implication social-ecological) research objects, and is therefore not a 'problem' per se, but rather a reality of this kind of research. There is growing recognition that it is possible to generalize from case study designs, not at the level of empirical experience, but at the level of the underlying generative mechanisms that support empirical observations [38,39].

In this paper we draw on four independent examples of empirical research into social learning for sustainable environmental management and adaptation in sub-Saharan Africa. All of the examples used the case study method. Taken together, the case studies contribute insights that expand upon Reed *et al.*'s [5] definition of 'what' social learning is by focussing on 'how' social learning emerges or can be facilitated in specific contexts in a way that supports action. In so doing, the authors are careful to avoid confusing descriptions of participatory processes with observations of social learning by describing as social learning only those outcomes that meet Reed *et al.*'s criteria (i.e. a change in understanding that occurs through social interactions and goes beyond individuals). We reflect on the methodological choices made by researchers, and the questions guiding social learning research from within different disciplinary domains. Each approach offers a different vantage point from which to view the system in question, and different opportunities to understand social learning processes and their associated outcomes. We begin by presenting the four examples of social learning research. We use these examples to reflect on possible reasons behind the identified trend toward case study research methodologies in social learning research. We also identify common elements from the examples that may be significant for social learning research in the region and beyond, and on aspects that might be unique to the geographical context of sub-Saharan Africa.

2. Examples of social learning research

Four examples of social learning research are presented in this section. The examples were selected because they all employed the case study method, and because the authors were involved either as the lead researchers (GC, MM, MB & IK) or in a supervisory role (HL, SS) in each of them. The examples were also selected because two of them (examples 1 & 2) were conducted by researchers located within the environmental education discipline and focussed on process-oriented questions of how social learning emerges in socio-cultural contexts, and two (examples 3 & 4) were conducted by researchers who come from an environmental science and participatory development background and focussed on outcome questions related to how one might monitor and evaluate the extent to which social learning has taken place and is leading to action. These different approaches reveal some noteworthy differences in emphasis in social learning research in distinct disciplinary domains. Table 1 presents some of the significant axes of difference and similarity between the examples, and these are reflected upon in the discussion.

Table 1
Summary of case studies of research into social learning.

Examples	Objective	Methodology	Methodological insights
Example 1: Community based mapping in Ethiopia	To *understand* how social learning processes shape identity formation and social change processes	Two in-depth case studies, participatory engagement and mapping and reflections on agency development over three years	Importance of full range of learning and social change theoretical lenses to make sense of rich data sets
			Importance of long term research engagement to allow societal change to manifest
Example 2: Sustainable agricultural practices in Southern Africa	To *understand* how learning takes place, and how learning can be expanded in three sustainable agriculture workplace contexts	Two-phased, multi-layered and nested case studies over a period of 18 months	In-depth contextual understanding of different activity systems and their arising tensions and contradictions is necessary to identify possible spaces for new learning to emerge.
			Change laboratory workshops and interventionist research can fast-track learning and can facilitate different forms of agency development (i.e. individual and collective knowledge and action).
Example 3: Social learning in collaborative natural resource management in South Africa	To *test a methodology* for monitoring social learning over time	Three case studies, participatory engagement over 18 months	Participatory monitoring can be used to track social learning over time.
			There is however some circularity as the act of monitoring itself creates arenas in which social learning takes place.
Example 4: Community based adaptation to multiple stressors in South Africa	To *develop a methodology* for action research to support existing and new adaptive practices	Two case studies, sustained engagement with the same group of individuals over three years	Facilitated social learning processes in community settings require long term commitment and significant budget allocations.
			Capacity and confidence building is vital component of facilitated social learning processes in rural South Africa.

3. Example 1: Researching participatory mapping as a process of social learning and social change in Ethiopia

3.1. Background to project

This research investigated social learning processes that emerge from three dimensional participatory mapping of rural livelihoods, bio-cultural diversity and landscape use, with specific interest in how social learning processes shape identity formation and social change processes [40]. The term social learning in this case implied learning as an individual in the context of social groups, learning as a group and networking with other communities of practice [5]. The research was undertaken in two rural community-based natural resource management contexts in Ethiopia. Participatory mapping processes, which included historical and comparative sketch mapping, eco-cultural calendar building, and three dimensional mapping of the bio-cultural landscape, were documented over a period of three years.Three dimensional (3D) modeling integrates spatial knowledge with elevation data in order to produce three-dimensional stand-alone, scaled and geo-referenced relief models.Significant to this research was the nature of the participatory process, which allowed for, and took full account of local and traditional knowledge, inter-generational knowledge sharing and temporal perspectives on landscape use and landscape change. Capturing this kind of data required in-depth contextual profiling (capturing the actual geo-historical and geo-physical features of the landscape, as well as cultural and social historical patterns of practice and wider political and sociological changes); as well as ethnographic forms of data including interviews, conversation data, data capturing the mapping processes and learning interactions in the mapping communities of practice (which were part of wider land-use management communities of practice). Over 350 farmers, government workers, NGO employees and researchers were involved in the data generation.This led to the development of a large body of data.

3.2. Theoretical lens

To make sense of the data, theoretical lenses from social learning theory, particularly Wenger's [41] communities of practice theory, and Wals *et al.*'s [42] adapted learning process model which focuses on the significance of dissonance in the learning process, as well as identity theory [41] were used. Identity theory focuses on how learning changes who people are, and on understanding how learning creates personal and social histories in the context of communities and their social practices.However, there was also a need to draw on what Sfard [43] refers to as acquisitive and participatory metaphors for interpreting learning, and Vygotsky's [13] theory of the zone of proximal development was needed to fully interpret aspects of the cognitive learning taking place, and its relationship to wider processes of social learning. Vygotsky's theory conceptualizes the learner having an actual development level, which is actively performed and evident without external support and a proximal or possible development level, which the learner can attain through the guidance and support of others. This gap between the actual independent problem solving level and the potential or possible problem solving level that can be attained with the support of others, is called the zone of proximal development [13].However, these theories of learning and identity were inadequate to fully interpret the change processes resulting from the learning, and sociological theory focusing on the emergent interactions that exist between antecedent structures and human agency, and how structures elaborate or change as a result of the learning interactions was needed. Here the morphogenetic theory of Archer [44,45] was most useful, as she provides a temporally framed language of description for interpreting social change over time. This theoretical work showed that when faced with large bodies of complex social-ecological and social interaction data, it is almost impossible to make sense of it without in-depth theoretical understandings of social learning and social change, and that to gain depth of understanding of these, there is a need to consider the full history and scope of learning and social change theory.

3.3. Insights about methodology and analysis

Data analysis was conducted in two phases. The first phase was primarily inductive and used narrative description using the categories of bio-cultural diversity, education, learning and agency. Inductive analysis involves drawing conclusions from a number of observations; and seeing similarities in a number of observations. In the second phase abductive and retroductive analysis were used using Danermark *et al.*'s (1997) framework for analysis.

Abductive analysis involves interpreting and recontextualising the data within a conceptual framework or set of ideas. Retroductive analysis involves 'thought experiments' and analysis that produces knowledge of transfactual conditions, structures and mechanisms that cannot be directly observed in the domain of the empirical. It helped the study identify what qualities are needed for improved learning, change and resilience to exist in the contexts in which the research was conducted. Theories of learning, change and resilience were used to analyze the data generated through this process. A key lesson was that the study required reflexivity, as the researcher cannot claim objectivity when engaged in longer term, socially situated research designs such as the one employed in this study. Time was also a significant methodological feature of this research, as a longer time period was necessary for the societal effects of the mapping activity to manifest in the social structures and context of the community, and for evidence of agency to emerge.

The study showed that strategies such as participatory mapping can make knowledge related to biocultural diversity and natural resources management more explicit. It also showed that dissonance is an important dynamic in the social learning process, and that memory and the mobilization of memory is also a significant dynamic. It showed that strategies such as participatory mapping, while they can catalyse agency and change at a local level, cannot by themselves mobilise significant structural changes at a wider societal level in the short term. However, social learning and the desire for change can emerge from engagement in such strategies, which does lead to actual changes at multiple levels. This learning, desire for change and actual changes that do occur, can give rise to local level adaptation practices and changes that are significant within a longer term, wider process of change, potentially contributing to longer term resilience of social-ecological systems.

4. Example 2: Researching how learning expands from micro level interactions into wider societal contexts in Lesotho, South Africa and Zimbabwe

4.1. Background to project

This research investigated three cases of how social learning takes place, and how learning can be expanded in three sustainable agriculture contexts in southern Africa [46,47]. The study examined how human agency, which refers to the ability to respond to developments outside one's immediate sphere of influence and produce intended consequences [48], emerged in and through the learning interactions [49]. Following Wals and van der Leij [49], social learning was understood to refer to learning that takes place when divergent interests, norms, values and frames of reference are brought together in an interactive and participatory process, where the resultant learning takes place at the level of the individual, group, organisation or network. The study involved multiple stakeholders who participated in each case study, and included sustainable agriculture farmers, sustainable agriculture promoters, and government extension workers. Marketers and entrepreneurs participated in one of the case studies; while agricultural researchers participated in another. Altogether, 79 people participated in the research and of these 33 (48%) were women. Except for four boys and girls aged below 12, the majority of research participants were between 30 and 55 years of age.

4.2. Theoretical lens

To interpret the social learning processes taking place in relation to emergent sustainable agricultural practices, the study drew on socio-cultural learning theory, specifically a body of post-Vygotskian theory known as 'Cultural Historical Activity Theory' (CHAT) developed by Engeström and others [17,18]. They extended Vygotsky's focus on mediated social actions to an examination of such actions in real life social contexts (called activity systems). This re-conceptualisation of learning of individuals as mediated by conceptual and physical tools such as formulas and machines was extended to include recognition that this takes place in the context of rules such as curricula and agricultural policy; a community within which the individual lives and/or works; and division of labour among the interested parties. For example, the mediation of learning in the South African case study included an internet-based search for a solution to make organic farming standards more contextually suitable. The tool that was identified through this process, by one of the research participants, shared with other researcher participants came from a distant activity system–the International Federation of Organic Agriculture Movement (IFOAM). It was the Participatory Guarantee System which provides for local producers, organic inspectors and consumers to set locally acceptable standards. As the study was focused on sustainable agricultural practices and how they change, a theory of practice was also required that took account of the often encultured and tacit [50] nature of practice [51]. For social learning research this is important, as not all that is learned is or can be made explicit. Using these theoretical lenses, more in-depth perspectives on the descriptive data were generated, such as insight into the tensions and contradictions in the learning situations. These were then presented to stakeholders in the form of 'mirror data', which provided the 'source' of new learning possibilities, which in turn were tracked using ethnographic methods in specifically constituted 'learning workshops' that are named 'Change Laboratory' workshops within the developmental work research methodology noted above [18]. The ethnographic research methods used included individual and group interviews, historical timelines, informal conversations, and observations of agricultural practices. Mirror data consist of analysed research participants' information that has been distilled for contradictions and innovations. For example, an issue that was commonly found across the three case studies and which constituted part of the mirror data was: a clash between short and long term social, economic and ecological interests of sustainable agriculture. Change Laboratory workshops allowed the researcher to trace how learning expands, and how new forms of human agency emerge from interactions focused on model solution building, and collective actions in social-cultural contexts of change-oriented learning and practice [17,52]. These workshops involved seven stages, listed below (a-g). We use the example of the Zimbabwe case study to illustrate what happened:

(a) _identifying a shared object:_ research participants comprising permaculture teachers and trainers, permaculture club pupils and permaculture farmers from the school community discussed and agreed the main aim for addressing the issues that were identified in the mirror data, (b) _surfacing and analysing contradictions:_ research participants discussed the contradictions that were contained in the mirror data and reworked some of them after analysing their root causes, (c) _selecting priority contradictions:_ participants noted that they could not tackle all the contradictions at the same time. Through a process of ranking and associated justification, with critical input from the researcher, they decided to work on resolving some contradictions before others. One of the most important contradictions were concerned with the lack of electricity in the school and community which was undermining the school's permaculture activities as it was dependent on water pumped using electricity. The community and farmers on the other hand needed it for processing maize into flour, which is used for making their staple food, and for the planned honey processing.

(d) *developing model solutions:* the model solution that was developed by research participants in relation to the above contradiction was to set up a committee comprising research participants to approach government energy ministry for the necessary repairs to be done.

(e) *examining model solutions:* Research participants' analysis of the above solution–which was mediated by the researcher–revealed that there was need to involve other influential people who were not part of the research participants. Two headmasters of neighbouring schools and a local councillor were identified as key to include in the committee. Additional tools in the form of letters to the headmasters and a letter to the councillor were drafted during the workshop, explaining the motives and the background to the planned intervention.

(f) *implementing the model solutions:* The research participants and members of the committee then approached the relevant ministry for assistance. At that time the state technicians did not have fuel to travel to the site. On their own, the research participants raised the necessary money from the community and provided the transport for technicians to address the challenge. But this took more than one trip and at a latter stage, the research participants involved their Member of Parliament who put additional pressure on the ministry to assist.

(g) *reviewing the solutions implemented:* When the researcher went back for a feedback workshop, he found the permaculture activities flourishing as the water pump was functional. The community's honey processing plant was ready for use and the grinding meals were functional. An important outcome of the feedback workshop was a decision to pursue other forms of energy that are renewable and locally available.

4.3. Insights about methodology and data analysis

To obtain the necessary in-depth social process insights, data generated in change laboratory workshops was video-recorded for micro-analysis. This involved analysing the conversations that took place in the Change Laboratory and feedback workshops for agentive and reflective talk. Agentive talk refers to speech acts that suggested an individual or the group's intention to act and transform their current situations [53] and reflective talk refers to utterances that suggested that a participant had learnt something with others along the expansive learning process.

It was found that time for mastering a practice, building the agro-ecological base (e.g. soil fertility and structure, water and moisture levels and retention, crop varieties and livestock) shapes how farmers learn. So does place in terms of soils, topography, weather and seasonality. Socio-cultural backgrounds, as well as cultural and economic capital, also determine how and even what farmers learn. The research processes showed the potential of an expansive learning process to expand learning processes among research participants.

The study raised interesting insights into the role of an interventionist researcher in social learning research namely the significance of probing, connecting people to people and people to potential opportunities, inspiring research participants, creating space for difficult matters to be raised and discussed, facilitating participants to reach mutual agreement, and eliciting reflective reviews on actions after a period of time. However, some of the methodological lessons were also theoretically inspired. For example, to fully interpret arising tensions and contradictions, critical realist ontological perspectives [54,55] which provide a stratified view of ontology are useful, as one is 'forced' to not just accept that which is said as truth, but also to verify and use retroductive tools of analysis to probe more deeply into the structural dynamics of the tensions and contradictions to fully elicit them as potential learning opportunities [39]. The research also required engagement with

the notion of 'cognitive justice' [56] to afford all forms of knowledge 'equal space' in the learning interactions. Lastly, the study also revealed that researchers should make time to understand the learning and development that takes place outside of facilitated or planned interactions in interventionist social learning research

5. Example3: Developing a methodology to monitor social learning processes in collaborative natural resource management

5.1. Project background

The objective of this research was to explore the processes that support social learning in collaborative natural resource management (co-management) contexts, and to test a replicable methodology for monitoring social learning in similar contexts [57]. The study was conducted in three rural communities in South Africa where co-management was underway between the communities and local government departments; two in the Eastern Cape province, and a third in the Northern Cape. Collaborative monitoring of social learning, which took place together with community decision makers, the researcher and at times government officials, was intended to both track learning over time, but also to create spaces for purposeful reflection during co-management that might build social relationships and support adaptive capacity [58]. The indicators for monitoring are summarized elsewhere [57], and were selected from both the education and natural resource management literatures [3,59–61]. Monitoring activities took place over the course of 18 months with locally elected community level decision making bodies. Roughly ten participants were involved from each of the three communities (approx. 30 in total). These participants were local leaders elected by their respective communities to engage in co-management activities. In all instances, the groups consisted of both men and women, and of varying age groups. None of the groups were dominated by a particular age or gender group.

5.2. Theoretical lens

The starting point for conceptualizing social learning was the work of Keen *et al.* [32], who describe social learning as the collective action and reflection that takes place when individuals and groups work to improve the management of the interrelationships between social and ecological systems. As part of this approach, which is influenced by adaptive management discourses, on-going reflection is considered a key feature of the social learning process. This process is presented as a series of learning cycles that provide a framework for continuous reflection on actions and ideas, and on the relationships between knowledge, behaviour and values. The research findings across the three case studies suggested that the background conditions [see reference number 57 for full explanation] necessary for social learning in co-management, such as trust building, incentives to participate, honest brokers and sufficient funding to enable action and experimentation, can be externally managed. However, for social learning to be effective, a balance needs to be sought between maintaining key individuals within management committees, and preventing rigidity and vulnerability when this is achieved. For example, a major challenge to social learning processes was the constant leakage of people out of committees, or, during elections, the complete change-over of individuals in management committees because they had sat on the committee for too long and suspicions had arisen within the community. The results underscored the need for critical reflection on the role of democratic decision making structures in contexts where social-ecological uncertainty is high, and therefore where on-going learning is critical.

5.3. Insights about methodology and data analysis

This study led to some unintended outcomes that are worth reflecting upon. It very soon became clear that the management committees involved in the research could use the research-based monitoring process to implement an adaptive management approach to decision making. The monitoring events tended to lead to adjustments in activities within the co-management process, and one of the key benefits the committees saw in being involved in this social learning research was that it provided space for reflection and an opportunity to improve on their practice: "*Monitoring helps us as human beings in our everyday lives. It helps us to set goals and to find ways of achieving them*" (Steering committee member, Nqabara, September 2007); and "*Through monitoring, we are learning how to plan for projects and also for the future. Before monitoring, we just watched things like erosion happen, we never planned* (Steering committee member, Machubeni, June 2007). An unexpected outcome of this research process was therefore that monitoring was both a method to track social learning over time, as expected, but that in creating arenas in which such learning took place, it made monitoring learning a circular activity whose real value lay not so much in tracking learning, but in creating reflexive possibilities in co-management.

6. Example 4: Developing social learning methodologies for adaptation to climate change and HIV/AIDS in South Africa

6.1. Project background

The objective of this research, which is on-going, is to develop, implement and evaluate a methodology for action research where the intention is to support existing, and potentially new, adaptive practices through processes of social learning. The research is being carried out in two rural communities in the Eastern Cape Province of South Africa. The entry point for considering the role of social learning in this research is a recognition that societal innovation must involve support for people to learn to adapt and change. This support must occur at multiple levels, and often involves complex mediation processes. The social learning methodology being developed in this research is one such mediation process.

6.2. Theoretical lens and methodological insights

The definition of social learning adopted is that of Reed *et al.* [5], and Engestrom's [62] expansive learning process is used as a guiding framework for the methodology. The goal in this process is to collectively analyse, re-imagine and act upon the activity systems present within communities. Two groups of 10–15 community elected individuals, one in each community, have been formed. Participants vary in age from 19–70 years, and the groups include both men and women. All participants are local community members, and most are unemployed but active members of their communities. These groups are being taken through a number of steps, which are largely, but not always, sequential: Step 1: Considering what makes people *vulnerable* in their community; Step 2: Considering how people are currently coping with and adapting to these issues and what is being valued as this occurs (*capabilities*); Step 3: Considering ways in which individuals and the community could be adapting, and why this is not happening (tensions, contradictions and *barriers*); Step 4: Seeking ways to break down existing barriers (*innovation and adaptation, similar to Engeström's model solutions*). The methodology uses local knowledge and experiences as the basis of its exploration, thus strengthening the potential for local ownership, reflexivity and innovation.

Monitoring and evaluation are an integral part of the methodology, and engender a reflexive orientation to the research process. Both facilitators and participants are being taken through a process of thinking about *who* is learning, *what* they are learning, and *how* they are learning. This process is inspired by the evaluative work on social learning by Schusler *et al.* [63] and Rist *et al.* [64], and on insights from Maarleveld and Dangbegnon [65]. Learning is being monitored at various scales. The smallest scale involves the individuals within the social learning groups, who reflect on the above questions during every interaction. The next scale up consists of the social networks in which these individuals interact. A key concern at this scale is to understand how 'far' learning is moving within the communities, i.e. how many individuals are learning, beyond just the active members of the research groups. The largest scale at which learning is being monitored is at the broader community scale, where a knowledge-action-practice survey is being used to assess changes in understanding about climate change and HIV/Aids before and after the project.

A key lesson has been that social learning methodologies, at least in developing countries, require long term commitments and significant budget allocations. It took a very long time, almost a year, for participants in the social learning groups to build up enough confidence, and trust, to share their views with the facilitators. Even once this was achieved, there was very little criticism of the process by the community participants. This lack of criticism may indicate that participants do not yet feel a sense of ownership over the process. Capacity building and tools, such as exercises that provide a creative and non threatening platform for self- reflection, are needed to help community participants reflect on, and respond to, the issues that they face.

7. Discussion

The examples illustrate that a variety of approaches are being deployed to empirically explore social learning. This research covers such diverse questions as how social learning does and can take place, how it can support human agency and action, and how learning can be facilitated and monitored. The examples provide perspective on why case study design may be a necessary form of research for exploring the processes of social learning: the object of research (social learning), to be adequately understood, requires process analyses that emerge in social contexts of action and change.

Multi-site or multiple case study designs, which was common to all the examples (Table 1), can be a fruitful way of approaching social learning research as insights into different contexts (but similar processes) can provide insight into the way in which social learning processes emerge in diverse contexts. In particular, comparative case study research design offers some promise where the intention is not just to describe a situation, but to analyse and interpret results in such a way that generates questions or propositions for further research [66]. This approach, combined with in-depth engagements in such social contexts can also provide spaces for engaging and understanding the outcomes of social learning processes. Reflecting on the case studies alongside one another also suggests that greater effort at interdisciplinary research in this field would support our ability to both create contexts conducive to social learning through in-depth understandings of local contexts, and simultaneously support our capacity to evaluate the outcomes of such endeavours, thereby informing similar endeavours in different contexts. The marrying of approaches offers fertile grounds for future research into social learning.

All four of the examples illustrate that disentangling the processes that support learning and societal change is a considerable challenge in social learning research. Research into this area requires additional methodological processes such as theory

development and rigorous and reflexive intervention research strategies. Significantly for research design purposes, the case studies suggest that interventionist, or action research, designs are useful in social learning research. We suggest that this is the case because social learning research is change-oriented and most often interested in how social learning unfolds or is mediated and how it can influence action and adaptation. The four research case studies presented here suggest that such interventionist research approaches can be a) explicitly developed as part of the research design (e.g. examples 2, 3 & 4); or b) emerge as research data is engaged with by participants in the field in less explicit interventionist approaches (e.g. example 1).

However, it is important to note that the action research dimensions of the examples were also partly an artefact of the geographical location of the research. In developing countries, a number of factors that go beyond choices related purely to methodological rigor influence the agenda of social learning research. On the one hand, historical legacies of disenfranchisement, distrust and power asymmetries between actors play a large role in determining the kinds of research processes that are considered ethically and socially appropriate[67,68]. The action research agenda, where researchers accept that they are agents of change in the systems in which they work, is firmly established in Southern Africa and elsewhere[69]. Indeed, on a practical level, researchers are very often expected to demonstrate benefits for participants in being involved in a research process, particularly in poor communities. This requirement creates the need for a 'community engaged' orientation to research in which research is not seen as 'separate' from the world in which it is constituted, but rather as a valid contributor to expanding learning (e.g. through working with 'mirror data' in example 2 or/and collaborative monitoring in examples 3 & 4). These requirements of researchers are amplified by acute knowledge exchange challenges, as differential levels of literacy, and historical marginalization of indigenous and local knowledge is a reality of the day in most post-colonial research environments (see reflections in example 4). These challenges often require researchers to work in-depth in some research areas, such as cognitive justice, asking critical questions about whose knowledge counts in social learning processes, and how diverse forms of knowledge need to be acknowledged and respected within social learning processes (e.g. examples 1 & 2).

There are some common elements and key insights across all four examples that are potentially significant for social learning research in the region and beyond:

1) *Social learning research is focused on initiating, tracking and/or understanding a process of change.* As shown in the four examples above, the research object is a process of change that occurs over time, and involves complex social and social-ecological interactions. These differ in specific constitution in different contexts, and in relation to different practices (hence the need for case study designs), but there is a possibility to observe similar aspects of the process of change (e.g. how social learning contributes to identity formation in example 1; or how different forms of knowledge interact in learning processes in example 2; or how interventionist approaches can be constituted to strengthen learning in all of the examples above etc.).

2) *The research takes place over a long period of time.* All four of the case studies took place over a long period of time, typically 18 months to three years. Questions of the *temporal scale* at which change oriented social learning is observed can be said to be a significant element of validity and rigour in gaining in-depth data for providing insight into the social learning process as it emerges and unfolds.

3) *Forms of 'mirror data' (or reflecting information back to communities for discussion and debate) are important stimulants for further*

learning in social learning processes. Examples include monitoring data (example 3), maps (example 1), vulnerability and adaptation data (example 3) or reflected tensions and contradictions (example 2). This mirror data has the potential to 'fast track' or stimulate individual and collective forms of reflection and agency development, which in turn can lead to societal and potentially also social-ecological changes (e.g. implementation of more sustainable forms of agriculture in example 2; or rehabilitation practices; or new forms of governance in example 3).

4) *Social learning research tends to require, and generate, complex data sets that require temporal, process based analysis, as well as in-depth theoretical analysis.* This requires working with social and ecological theories which are inclusive of learning theory, social change theory, and social-ecological change theory and epistemological and political theory (i.e. taking account of different forms of knowledge and ways of knowing; and issues such as cognitive justice).

However, while these similarities were visible in the examples of social learning research, there are also subtle differences, which possibly reflect the disciplinary backgrounds of the researchers or different broader research objectives. Two of the cases above, where the researchers come from an environmental education background (examples 1 and 2), sought to explore and understand how learning takes place, expands and influences identity formation and social change processes, and changes in practice, while two of the cases, where the researchers came from environmental science and participatory development backgrounds (examples 3 and 4) had an additional objective of developing and testing methodologies that could be used to evaluate social learning in an applied management context. These differing objectives can lead to different insights into social learning, with both vantage points being valuable to an holistic perspective on social learning.

8. Conclusion

This reflection on examples of social learning research across disciplinary domains and research objectives highlights, we hope, that there is much potential in exploring social learning processes from different vantage points. Since purposeful empirical social learning research is still comparatively new, and emerging at a time of significant inter-disciplinary interest in societal change toward a more sustainable future [4,60], we suggest this type of exploratory research could forge stronger and deeper understandings of social learning processes, and their relationship to human agency and societal change. Such case study comparisons might focus on methodological issues, or on the actual findings of the research. From this type of exploratory work might emerge research questions that could be explored in wider forums, or within larger scale comparative case study designs. The 'fuzzy generalisations' that are possible from such case study designs can also be used to generate research hypotheses for wider examination and review.

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