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Learning for Sustainability Among Faith-Based Organizations in Kenya

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Abstract The complex and unpredictable contexts in which environmental and development work take place require an adaptable, learning approach. Faith-based organizations (FBOs) play a significant role in sustainability work around the world, and provide a unique setting in which to study learning. This paper explores individual learning for sustainability within two FBOs engaged in sustainability work in Kenya. Learning outcomes covered a broad range of areas, including the sustainability framework, environment/conservation, skills, community work, interpersonal engagement, and personal and faith development. These outcomes were acquired through embodied experience and activity, facilitation by the workplace, interpersonal interaction, personal reflection, and Bible study and worship. Grounded categories were compared to learning domains and processes described by Mezirow's transformative learning theory. The findings indicate that for learning in the sustainability field, instrumental learning and embodied learning processes are particularly important, and consequently they require greater attention in the theory when applied in this field.

Keywords Learning · Transformative learning · Environment · Development · Faith-based organizations · Kenya

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Introduction

Development and environmental work takes place within complex and unpredictable social, political, economic, and ecological systems, and often addresses problems that have no straightforward solutions (Ludwig 2001; Pretty 1995). Consequently, this work requires creativity, innovation, and flexibility, and is essentially a learning process (Blackmore 2007; Chambers 1997; Muro and Jeffrey 2008; Pretty 1995).

Learning is integral to building a sustainable human society. Exclusively technical solutions are increasingly seen as insufficient (Ludwig 2001), while recognition of the need for profound personal and societal changes is growing (Bush-Gibson and Rinfret 2010; Diduck et al. 2012). In describing this task in the context of education reform, Orr (2004, p 32) suggests that

…we will have to challenge the hubris buried in the hidden curriculum that says that human domination of nature is good; that the growth of economy is natural; that all knowledge, regardless of its consequences is equally valuable; and that material progress is our right.

Reconstructing societal foundations such as these will require a profound transformation of assumptions and frames of reference. Current wisdom also suggests that these changes are best achieved through participatory and democratic processes, requiring education that facilitates public involvement in societal transformation (Diduck

1999; Sims and Sinclair 2008; Marschke and Sinclair 2009).

Learning to ensure the sustainability of development work, and other pursuits, involves both learning new skills and knowledge (instrumental learning), and questioning and revising with others our understandings of the problems at hand, our solution strategies, and the values and worldviews that underlie varying perspectives (communicative learning) (Mezirow 1991). It also encompasses building trust and common understanding through relationships and the empowerment of the disadvantaged members of society to participate in the democratic transformation of their economic, political, and social systems (Diduck 1999; Muro and Jeffrey 2008). Within the context of a non-governmental organization working in development or conservation, non-governmental organization (NGO), learning occurs in both the individual and organizational spheres and can be studied in terms of the collective learning processes of organizations, or the individual learning that arises from the particular context of an organization (Blackmore 2007).

Our focus is on the individual sphere of learning, which is appropriate for several reasons. As the building blocks of society, individual processes must be understood in order to comprehend related societal processes. Considering individual learning through nonformal or incidental processes has received scant attention in the literature, particularly in the context of a sustainability-oriented NGO. Moreover, it is through the actions taken by individuals that, whether alone or from within a collective, broader changes aimed at sustainability will occur (Scott 2003). At the same time, we recognize that learning is always social, and linkages between the individual and collective spheres inevitably exist (Diduck 2010).

This paper is based on research that explored how individual learning emerges from the intersection of faith and the pursuit of sustainability within faith-based organizations (FBOs) working in Kenya. FBOs have been active in public life for centuries, and are contributing to a large share of NGO activities whose numbers, scale, and capacity are rising as they address a myriad of issues ranging from landmines to conservation and debt reduction (World Bank 2003). In Africa, for instance, 40–50 % of all health and education services are provided by FBOs (Tyndale 2006). Yet, while they play a prominent role in sustainability work, and resource and environmental management more generally, occurring in the developing world, this role is often unrecognized and understudied (Berger 2003; Moyer et al. 2012). FBOs also provide a unique platform for learning, in which the context and activities of the organization are likely to facilitate learning for sustainability. As well, the faith aspect provides a different, and potentially unique, perspective on learning processes. This paper identifies the learning outcomes and processes of participants from sustainability-oriented FBOs in Kenya and discusses their implications for transformative learning theory and learning for sustainability.

Transformative Learning Theory

Transformative learning is a dominant theory in the field of adult learning, focusing on meaning-making processes of individual learners (Mezirow 1991; Taylor 2007). It is also a commonly used theory for studying individual learning in sustainability and environmental management research (Diduck et al. 2012). Various educational programs promoting sustainability have employed transformative learning theory in their evaluation (Feinstein 2004; Lange 2004; Sipos et al. 2008). It is also being extended beyond the realm of education to examine personal commitments to sustainability (Kovan and Dirkx 2003; McDonald et al. 1999), and to explore the workings of participatory processes such as environmental assessment (Sinclair and Diduck 2001; Sinclair et al. 2008) and participatory resource management programs (Sims and Sinclair 2008; Marschke and Sinclair 2009; Sinclair et al. 2011).

The theory posits that through childhood learning and socialization, individuals develop assumptions about reality and their life within it. These assumptions are combined into complex mental models and frameworks that adults use to interpret and navigate their experiences, particularly in new situations (Cranton 2006; Mezirow 1991). Learning occurs when these assumptions, or interpretation schemes, are confronted by a disorienting dilemma—they fail to explain a situation and expectations are questioned (Cranton 2006; Mezirow 1991).

The theory describes two essential learning processes. First, critical reflection involves examining acquired assumptions and assessing their relevance and functionality against current experience, considering their origins, consequences, and nature. Through this process, the reasoning and justification underlying why we apply certain meanings to reality and the validity thereof are explored (Mezirow 1981, 1991). Second, discourse is the process of testing the validity of beliefs, values, and assumptions through dialogue with others. Founded on Habermas's (1984) ideal speech situation, Mezirow (2003, 2012) suggests that competing viewpoints are defended and evaluated based on logical assessment, evidence, and discussion, seeking consensus through collective discernment. Through these processes, "…previously uncritically assimilated assumptions, beliefs, values, and perspectives are questioned and thereby become more open, permeable, and better validated" (Cranton 2006, p 2). The improved interpretation can then be applied to future decisions and behavior (Mezirow 1991).

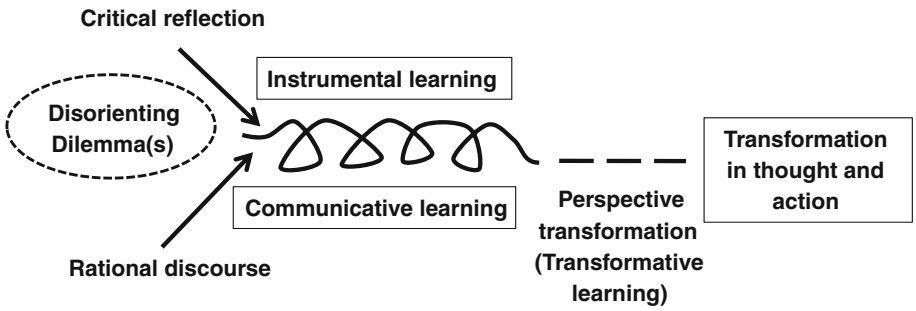

Fig. 1 Transformative learning theory

Several learning domains are identified, which are derived from Habermas's (1971) domains of knowledge. Learning may be instrumental (learning how to control and change one's environments, such as learning how to successfully achieve desired ends, e.g., acquiring agricultural skills), or communicative (understanding others and making one's self-understood, e.g., developing teaching techniques) (Mezirow 1991). When the premises and assumptions that are products of instrumental and communicative learning are questioned and evaluated, transformative learning can occur (Cranton 2006; Mezirow 1991). Transformative learning, also called perspective transformation, constitutes "a holistic and enduring change in how a person affectively experiences and conceptually frames his or her experience of the world in order to apply new actions in life contexts that are personally developmental, socially controversial, or require personal or social healing" (Kasl and Yorks 2012, p 509). The purpose of transformative learning is to learn how "to negotiate and act on our own purposes, values, feelings, and meanings rather than those we have uncritically assimilated from others—to gain greater control over our lives as socially responsible, clear-thinking decision makers" (Mezirow 2012, p 76). Figure 1 illustrates a working model of the theory developed at the outset of this research. Following the theory, it depicts disorientating dilemmas as triggers for reflection and discourse, resulting in both interacting and evolving (represented by the spiral line) instrumental and communicative outcomes, potentially leading to deep-seated (or transformative) changes in perspectives, habits of thought, and/or behaviour.

Methods

The initial phase of field study was designed to gain a broader understanding of FBOs undertaking sustainability work in Kenya. Questionnaires were conducted with 17 FBOs to gather information about their activities, organizational structure, and motivations, as well as potentially unique features of their faith-based approach (Moyer et al. 2012). Through this process, two case studies were selected for the second phase. The cases were purposively selected to exhibit a high level of faith affiliation, and a commitment to sustainability work that involved learning or education in some form. Different faith affiliations and different focuses within the sustainability area were sought to provide contrast. Of the 17 FBOs we considered, A Rocha Kenya (ARK) was a clear choice, being the oldest environmental FBO in Kenya, and the Rural Service Programme of the East Africa Yearly Meeting of Friends (RSP) had characteristics that provided a promising contrast.

ARK is a Christian conservation organization located in the Coast province, targeting conservation priorities for the Arabuko-Sokoke Forest, and the Watamu Marine National Park. It is multidenominational and independent of formal connections with larger church institutions. The organization's programs focus on (1) research and monitoring of birds and forests; (2) community conservation, generating a bursary fund for secondary school students through ecotourism; (3) environmental education in local schools; and (4) a field center, which hosts volunteers, researchers, and tourists. RSP promotes rural development in Western Kenya, an area with high population density and arable land that is depleted from over-cultivation. As the development arm of the Quaker church, it is closely tied to institutional church structures. RSP programs include agriculture (improving yield, diversification, marketing, and sustainability), appropriate technology (energy-efficient stoves), community health (HIV/AIDS, protecting natural springs), microfinance, and supporting widows and orphans (shelter, school fees, employment projects). These projects are delivered by an integrated project team through facilitation with community-based groups, such as farmer field schools and widows' groups (Moyer 2012).

At the end of phase one, we conducted a focus group (Stewart et al. 2007) with the two selected organizations to deepen our understanding of FBO work and to gain a preliminary understanding of the cases. The lead researcher then spent three months with each FBO, participating in and observing the daily life and activities of each organization. Various documents, including meeting notes, program plans, and curricula, were perused for supplemental information about the operation of the organization. A set of two semi-structured interviews (Berg 2004; Rubin and

Rubin 2005) was conducted with staff and volunteers from each organization. The participants for the interviews and focus-groups were chosen from among leadership and program staff to represent the breadth of the organizations' programs. At ARK, there were eight interviewees and five focus group participants (some overlapping), with an even mixture of Kenyans and "Westerners." At RSP, there were 12 interviewees, most of whom also participated in the focus group of 11. Most of the RSP participants were Kenyans, except two American interviewees. At both organizations, there were slightly more men than women participants.

The focus groups mostly concentrated on the characteristics of faith-based sustainability work, and the interviews primarily explored learning. The first of the two interviews explored personal background and work experience, and at the end, participants listed significant learning experiences from their work. The second interview focused on learning, specifically elaborating on selected learning experiences from Interview I: what was learned, how it was learned, how was the learning expressed in action, and what were barriers to action. At the end of each of the two 3-month field placement periods, we conducted a feedback workshop, presenting a preliminary analysis of findings and inviting response from the participants. All the research interviews were conducted in English, and the focus groups and interviews were audio-recorded and transcribed in full. All the data were analyzed for themes and patterns using NVivo software (QSR International 2007). We analyzed the data using grounded categories first, and then categories drawn from the theory. The data are often represented in the text below by quotations from participants. Due to space limitations, we have selected the one, or sometimes, two quotations that best represent the findings.

Learning Through Sustainability Work

The following sections present the findings related to learning outcomes and learning processes, detailing what participants learned and how they learned it.

Learning Outcomes

As indicated in Table 1, learning outcomes covered a broad spectrum of skills, ideas, attitudes, and personal perspectives. The categories presented in the table are grounded in the data, and reveal the breadth of the information collected. The frequently mentioned subcategories in italics will be discussed in greater detail below. The remaining subcategories will not be discussed at length due to space limitations.

Table 1 Learning outcomes

Rocha Kenya	Rural service programme
Sustainability framework	
Nature of development and/or conservation*	Nature of development and conservation
Parameters of science and conservation*	Administration
Strategic conservation and development	Project management
Administration	Peace and conflict*
Project management	
Environmental education approach*	
Importance of assessment and monitoring*	
Environment/conservation	
Environmental awareness/ knowledge/appreciation	Environmental awareness/ knowledge/appreciation
Creation care	
Food*	
Global village	
Skills	
Agriculture	*Agriculture*
Appropriate technology*	Appropriate technology
Birding	Health
Guiding skills*	Income generation*
Computer skills*	Managerial skills*
	Building a mud house*
	Sewing and design*
	Driving in Kenya*
Community work	
General community work	General community work
Methods: teaching and information diffusion*	Doing community work as a church organization
	Development work role or identity
	Impact of community
	Relating to people and managing groups
	Nature of communities
	Approach: empowerment
	Approach: facilitation vs. implementation
	Approach: involvement and participation*
	Approach: program integration*
	Approach: alleviating poverty and sustainability*
	Approach: design, planning, and evaluation
	Methods: entry and exit strategies*
	Methods: teaching and information diffusion

Table 1 continued

Rocha Kenya	Rural service programme
Interpersonal engagement	
Communication	Communication
Relationships	Networking
Cross-cultural relationships	*Teamwork and collaboration*
Intentional community	Relationships*
	Kenyan culture and society
Personal and faith	
Personal development	*Personal development*
Faith development	Faith development
Hope and prayer	

Italics indicate subcategories mentioned with the greatest frequency. *Asterisks* indicate subcategories that were only mentioned by one person, and therefore represent a minority experience

Learning within a category we called SUSTAINABILITY FRAMEWORK (Table 1) included a variety of general concepts and skills related to development and conservation work. Learning outcome subcategories, such as the nature of development and conservation, strategic conservation and development, administration, and project management, provided participants with an understanding of the nature of their work and techniques to do it well.

The ENVIRONMENT/CONSERVATION category constituted the highest proportion of learning outcomes mentioned by ARK participants. The participants who indicated learning in this category covered the full spectrum of program and center staff. Learning outcomes within the subcategory *environmental awareness, knowledge, and appreciation* ranged from general knowledge and commitment to environmental conservation, to specifics such as water conservation, habitat protection, and noninstrumental environmental values.

[F]or all of the thirty-three years of my life, I have never thought of using water carefully, until I came here. Being back at home in the farm, there is just plenty of water, so you never think about it. It's just like water will always be there. But even right from how we wash dishes, in a basin, that's something I came to learn here: you can only use this little water, and it will be enough (Belinda, ARK).

I have come to love nature more, not only from the perspective that if we cut all trees, it causes desertification and things like that, loss of water, because that's true. But I have come to love nature because I have come to link it with my Creator. I love my Creator and I want to build on my relationship with my Creator, that is what now arouses the passion to even leave trees at home (Stanley, ARK).

As this second quotation suggests, a related subcategory of ENVIRONMENT/CONSERVATION outcomes was *creation care*, which is the term that many Christian environmentalists prefer for describing their particular approach. Among the ARK staff, creation care learning involved integrating environmental concerns into their existing Christian faith, understanding caring for creation as a faith imperative, and applying it to their personal life and behavior.

I was a Christian and a biologist and a conservationist my whole career, and I never really saw the link between the two […] so I think that's been a real highlight, really grasping that theology and seeing it practically working out (Roni, ARK).

Before I joined A Rocha, I didn't know that we have the responsibility to conserve […] It's not until we were given the awareness from A Rocha that, if you are a Christian, there is a very big role in conservation. Because everything which was created by God was good (Albert, ARK).

Almost all participants from both organizations gained increased ability in a broad range of skills. In the category of general SKILLS, *agricultural skills* were the most frequently mentioned for both organizations, including: sustainable and organic agriculture; horticulture; grafting fruit trees; livestock management; new technologies; marketing; and Farming God's Way, a technique that links conservation agriculture techniques to biblical principles.

Birding was the most frequently mentioned skill for ARK participants, particularly skills related to bird ringing (or banding). Not only were these new skills for many ARK participants, but they also fed into their environmental awareness, knowledge, and appreciation, and their understanding of creation care:

I used to see birds, but I never took time to really get to know more about them […] But when I came here, I now came to a deeper understanding of how they relate, especially the migrant birds, how they move across the seas and be able to come when it's winter. It's quite amazing and I was really moved by just that thought (Henry, ARK).

Learning skills related to COMMUNITY WORK was reported so extensively by participants from both organizations that we chose to consider it a separate category. ARK participants noted various community work skills, such as learning how to work and deal with people, listening, involving people, and having clear agreements. The breadth and number of community work outcomes mentioned by RSP participants required a more specific analysis. Given their close engagement with communities through facilitation activities, skills in *relating to people and managing groups* were important for RSP participants.

I've learnt more on how to work with communities […] What brings them together, the cohesion, that group approach. So it has really forced me to go into serious studies to understand groups. How do you work with groups? How do they behave? Why do they behave? How do you counter certain behaviors within the groups, and it

has really helped me learn how to work with people, because working with a human being is very challenging (Peter M., RSP).

RSP participants also described learning a variety of methods and approaches for community work. *Teaching and information diffusion* techniques were a key area of learning. These included learning techniques for training and teaching, such as giving examples and demonstrations; methods for convincing people to try something new; and learning how to engage in a meaningful two-way exchange. A key teaching technique was "each one teach one," a method of spreading information through a community by training community members to train others.

Another area of learning that relates closely to some of these community work outcomes is Interpersonal Engagement. Participants from both organizations learned about communication, that is, general communication beyond the specifics of teaching, and RSP participants learned about *teamwork and collaboration*, both in terms of the necessity of teamwork and how to work together. Different aspects of *relationships* were frequent learning areas for both organizations. Relationships in general were important for ARK participants in terms of relating to others both within the organization and with other agencies. Both Kenyans and international volunteers at ARK also learned about *cross-cultural relationships*, broadening their perspectives and sometimes challenging their assumptions. Similarly, at RSP, the two American volunteers were deepening their understanding of *Kenyan culture and society*.

The final area of learning is Personal and Faith. Participants from both organizations experienced *personal development* in various ways, such as recognizing their own abilities, modifying their values, attitudes, and priorities, and becoming personally empowered. This category, and especially the latter component, was of particular importance for RSP staff. Many staff emphasized how the skills and broadened perspectives they acquired through their work had empowered them and transformed their perception of themselves and the world.

It has broadened my mind. And now I can do other great things than the way I [was] before. Like, taking example of agriculture program, I've learned more of agriculture technologies, modern farming technologies. I've learned I can also practice. I have those training materials, I have read them, I understand them. I can also train somebody with modern technology […] I can practice a little bit, so it has broadened me (Kennedy, RSP).

Transformative Learning Outcomes

Learning was identified as transformative when it occurred within higher level meaning structures and appeared to generate an enduring change that affected the whole person, both in thought and action, as established in the results presented below. At RSP, several participants experienced learning about personal development that we deemed transformative. Several of the Kenyan staff talked about how their work experience had broadened their perspectives and empowered them to the extent that they felt different from their previous selves.

It really has widened my thinking, my approach with community work, and I can say, at least how much in person, I'm not the same way I was before joining (Peter M., RSP).

One of the American volunteers also shared how her experiences in Kenya with RSP had completely changed her personal values and expectations:

My priorities have just changed to what can I do to help someone else have a little bit more, and if it means I have to have a little bit less, that's okay. And maybe it means I have a lot less, because I just decide I'll spend it here (Karen, RSP).

At ARK, transformative learning mostly occurred with respect to developing an understanding of creation care. For example, Henry, who had always been passionate about wildlife, and had been a Christian since his childhood, did not associate faith with conservation until he came to ARK. Participating in ARK's bird ringing program has had a profound impact on him, particularly being able to hold and touch birds. This experience feeds into the connection between faith and conservation that he began to make when he first applied for the job. The combination of the tactile experience with the birds, the accompanying knowledge about them and their lives, and a sense of Christian calling to protect these animals, has increased Henry's concern for protecting habitat, both through his work with ARK and on his family's land in Western Kenya.

Initially, before I came to A Rocha, I never associated conservation with faith. I came to learn it here […] That when I participate in conservation activities, reaching out to people, I'm actually serving God in that way, so it has changed now from before I came here. And when I'm here now, seeing that, actually, Christians can even be good custodianships and good stewards for the conservation (Henry, ARK).

Learning Processes

Table 2 provides a summary of the main processes through which ideas, knowledge, and skills were shared with and among the study participants, helping to foster the above learning outcomes. As in the previous section, the frequently mentioned subcategories in italics will be described in greater detail below.

Table 2 Learning processes

A Rocha Kenya	Rural service programme
Embodied Experience and Activity	
Observation and experience	*Observation and experience*
	Experimentation
Experimentation	*Practical application*
Practical application	
Facilitated by Workplace	
Training	*Training*
	Personal supervision, evaluation, and planning
	Program or project evaluation
Interpersonal Interaction	
Discussion and listening	Discussion and listening
From each other	From each other
From community	*From community*
Networking and exchange*	Networking and exchange
Personal	
Personal reflection	*Personal reflection*
Personal study	Personal study
Faith Related	
Bible Study and worship	Christian influence

Italics indicate subcategories mentioned with the greatest frequency. *Asterisks* indicate subcategories that were only mentioned by one person, and therefore represent a minority experience

Overall, learning through EMBODIED EXPERIENCE AND ACTIVITY (Table 2) was the most prominent process category. We use the term "embodied" to signify an experience or activity that involves an interaction of the body and its senses with other agents or objects, requiring physical, "hands-on" presence and engagement (Lawrence 2012). *Observation and experience* was the leading learning process subcategory in this regard for both organizations. It consisted of watching skills being performed, observing environments or circumstances, and seeing how different aspects of the organizations functioned and how particular events and activities unfolded.

On learning about hope and perseverance: I suppose it's more seeing it in other people, that the people here, despite the challenges, have hope and persevere (Lynton, ARK).

On learning about Kenyan culture: You just observe. I mean people aren't out there to conceal these things. You simply have to be observant when you're around people, or when you're in conversation with them. I mean you have to be sensitive to their responses to different things (Dawn, RSP).

The learning acquired through experimentation and *practical application* is even more embodied. Practical application was a common learning process for both organizations, but especially RSP. It refers to the physical carrying out of tasks by the individual, and was particularly important for obtaining and refining skills (Field Note 2010-11-13; 2011-01-19).

When I'm learning about birds, then it's something that you hold in your hand and you learn. It's quite different from listening to someone and writing on a chalkboard […] Because it's more of a very practical thing. You just go and do it. You put the nets and you clear the bush, and then you catch the birds and you ring it, and then you scribe. (Jonathan, ARK).

Learning processes that were FACILITATED BY THE WORKPLACE were of particular importance for RSP participants. *Training* is done very deliberately within RSP through capacity-building workshops for staff on community development methods, and sending staff to local educational institutions for workshops on skills such as bee keeping and sustainable agriculture. This learning process relates closely to practical application since the teaching methods in many of the workshops involved practicing the skills or role playing. Training contributed primarily to general skills and community work learning outcomes.

Learning through INTERPERSONAL INTERACTION was important for both organizations, but in different ways. At ARK, learning *from each other* was common, and often manifested in mentoring relationships that transferred from one person to another. Peter Harris, the director of A Rocha Portugal, was a mentor to Colin (ARK Director), especially in terms of understanding creation care and developing birding skills. Colin acted as a mentor for various staff and volunteers on both these subjects.

Interesting, it took me a little while whilst in Portugal to understand the relevance of Christianity to the environment. So it wasn't something that I had naturally thought of and dealt with […] I knew it was God's creation and that it was important to look after it, but I'd never really thought through the logic and the biblical passages (Colin, ARK).

I knew about conservation, I knew it makes sense. But I did not connect it to my Christian faith at all. But it's when he started mentioning it, then I started thinking about it […] So pretty much from Colin I got the passion (Stanley, ARK).

Discussion and listening was also important for ARK participants in a variety of learning areas, and occurred during interactions within the organization, and beyond.

[I]t's talking to community members, just finding out from them how they respond to different things. It's listening to accounts of what has happened as a result of informing or not informing them of things, including them in activities. It's listening to researchers who study things and discovered one thing or another from it. And it's just getting a bit of a better understanding of human nature, and human understanding, and what people expect (Colin, ARK).

Sometimes that process may require other colleagues or the [same?]-minded people to think together. And that has, in my own perspective, helped me a lot in terms of exchanging ideas and thinking out of the box (Henry, ARK).

We found that regular meetings, including staff meetings, Bible study, and worship times, provide ample opportunity for discussion, as well as in less-formal settings, like shared meal times (Field Note 2010-10-11).

For RSP participants, the primary means of learning through interpersonal interactions was *from the community*. Many participants talked about the importance of approaching communities with an attitude of humility and being prepared to learn from them, even as they went into train and teach. This attitude is in keeping with the facilitation and empowerment approach adopted by the organization, and with the Quaker testimonies of equality and simplicity (Friends United Meeting in East Africa 2002).

You involve the community when you want to do an activity, you let them do; you don't go there and behave as if you are a know-it-all. As they do, you will also learn something that is new to you. They also learn something that is new from your side. So it is a two-way learning process (Peter M., RSP).

Personal Learning processes included *personal reflection*. Personal reflection was an important process to participants in both organizations, though slightly more so for ARK participants. It was often a process that worked in tandem with embodied learning processes (especially observation and experience) and interpersonal learning processes. Much of the reflection that was articulated involved working through a problem, whether it was a new idea that the participant needed to understand—building appropriate technology or a particular work program—or trying to understand another person or situation.

I think I ponder a lot generally. Like if I'm excited about a certain theme, like say now this Farming God's Way concept, it's constantly there. I'm thinking about it all the time. Every time I get a chance, I'll be reading my manual, seeing what the ideas are there. Thinking constantly, how do we apply this here (Roni, ARK).

What I do, I make priorities of these challenges or anything that come before me. I'll make a list of it. And try to prioritize which one should I address first. After I've given a thought, because when you prioritize, you think about it […] Then when I choose what I should address first, looking at the consequences, the negative part and the positive part of it. Then I come with a conclusion, and automatically it will [guide?] you (Mary, RSP).

Faith-related learning processes were not frequently mentioned by participants from either organization. For some RSP participants, there was an element of the Christian nature of the organization, which contributed to their learning, but they often had difficulty in articulating what it was. A few ARK participants noted the important role *Bible study and worship* played in learning at the organization. This is significant primarily because it contributed to much of the learning that was transformative at ARK. Bible study and worship services provided platforms for participants to learn from each other through listening and discussing, and provided stimuli for reflection (Field Note 2010-12-12).

Learning Among FBOs: Implications for Transformative Learning Theory and Sustainability

Drawing from the work of Habermas (1971), Mezirow (1991) divides learning into three primary domains, as defined above: instrumental, communicative, and transformative. The bulk of the learning in this study occurred in the instrumental domain, with learning also occurring in the communicative and transformative domains. Table 3 shows the learning domains with the most frequent learning outcomes associated with each domain. Both the domains and the learning outcomes are ordered by frequency.

Learning was categorized as instrumental when it involved empirical knowledge, cause and effect relationships, problem solving, and predicting observable events. Understanding a state of reality, learning how something worked, and learning how to do something were also considered instrumental learning. Learning was categorized as communicative when it involved understanding others through language, expressing and negotiating purposes, beliefs, feelings, and intentions, and resolving conflict. Learning at higher meaning structure levels that brought about a profound change in the individual's perception of the self and the world, and that resulted in profound change in behavior, was considered

Table 3 Learning domains

Learning Domain	Highlights of Related Learning Outcomes
Instrumental	Skills
	Community work
	Nature of development and conservation
	Communication
	Personal development
	Administration
	Teamwork
Communicative	Community work
	Communication
Transformative	Creation care
	Personal development

transformative. Because transformative learning flows from communicative and instrumental learning, all transformative learning experiences were also assigned to one of the other domains.

The two primary mechanisms of learning presented in the theory—rational discourse and critical reflection—were clearly active in the learning experiences of the research participants (Table 2). Interpersonal interaction corresponds with rational discourse; personal learning processes correspond with critical reflection; and training and faith processes exhibit some aspects of both. Much of the training participants received, however, was practical rather than reflective or discourse based. This aspect of training and the embodied experience and activity category do not correspond with either of the processes described in the theory. These processes, including observation, experience, practical application, and experimentation, were the most frequently cited learning processes for participants from both organizations.

While the importance of instrumental learning and embodied learning processes may seem obvious in many sustainability and management circles, their prominence in this study is a key consideration because they are not aspects of learning that receive much attention within transformative learning theory, and transformative learning is being applied with increasing regularity in sustainability contexts. In the literature, the theory has inherited an emphasis on communicative learning that can be traced through Habermas to the Frankfurt School's critique of instrumental rationality (Finlayson 2005). Through his domains of knowledge, Habermas worked to demonstrate that rationality comes in different forms—instrumental and communicative—which can be applied appropriately to different situations (Habermas 1971). His main concerns in his theoretical deliberations in this regard were social order and deliberative democracy, for which the communicative domain was the most relevant (Finlayson 2005). Mezirow inherited this preference for the communicative domain from Habermas, and much early work on transformative learning emphasized communicative rationality, communicative learning, and personal empowerment.

In contrast, this research and similar studies in the resource and environmental management literature have revealed prominent learning outcomes in the instrumental domain (e.g., Diduck et al. 2013; Sims and Sinclair 2008; Marschke and Sinclair 2009; Kerton and Sinclair 2010; Sinclair et al. 2011; Taylor et al. 2012). Such results have been met with a degree of disappointment (e.g., Sims and Sinclair 2008), as the theory tends to assume that communicative learning is more likely to lead to profound transformation and is therefore of greater importance (Mezirow 1978). In this study, however, the results show that instrumental learning was essential for providing the FBO staff with the skills required to do their work and to engage the other learning domains. The basic techniques of agriculture, birding, or community work are as essential to the work of sustainability as the higher level beliefs and commitments that inspire it.

Concurrently, while embodied learning processes contributed to outcomes in all the domains, *doing* and *experiencing* were key processes for achieving these basic, instrumental sustainability activities. The physical doing of a task is crucial to learning new skills, especially instrumental skills that are accomplished with the hands, like building a fireless cooker or ringing a bird, though embodied learning also builds more interpersonal skills, like communication and teaching.

Beyond their contributions to mastering basic skills, instrumental learning and embodied processes also played a role in transformative learning. Among participants at both organizations, the learning that was deemed transformative, whether it related to personal development or creation care, had both communicative and instrumental components. Communicative components included the values, beliefs, and senses of identity that were learned through sharing ideas, beliefs, and faith convictions with others. For ARK participants, instrumental outcomes, such as practical knowledge about how the world works and developing hands-on skills in relation to this knowledge, especially birding skills, were pivotal to building a new set of values and beliefs about the environment and how it connected to their faith. Similarly, RSP participants developed their sense of empowerment and transformed self-identity through acquiring practical skills in a wide variety of areas. Taylor et al. (2012), studying Farmer Field Schools in Kenya, also noted a significant relationship between instrumental learning and reflection leading to transformation, while research in Costa Rica revealed that "…specific activities, practices, and projects are effective on-ramps to facilitate transformative learning" (Sims and Sinclair 2008, p 165). Our results suggest that instrumental activities and related learning not only provide an initial gateway to transformative learning, but in fact, can play a pivotal role in instigating and driving transformative processes.

Furthermore, embodied learning contributed important processes for transformative experiences. There seemed to be a less tangible but direct relationship between physical actions and sensory experiences, and the emotions, values, beliefs, and self-perceptions that constitute higher level meaning structures. Kovan and Dirkx (2003, p 114) observe that there are "…complex social, emotional, and spiritual processes involved in deep inner work and the processes of transformative learning." Dirkx (2012) calls this "soul work." Both our findings, and the work of Meyer (2012), suggest that embodied experiences and activities

sometimes connect into these profound extra-rational learning processes. She calls this "embodied transformative learning," which involves "…a shift in the embodied experience as adults co-create the space in which it is safe to participate with their whole selves and become aware of and engage their whole bodies as well as their emotions, intuition, humor, environment, and each other" (Meyer 2012, p 29).

While other extra-rational aspects of transformative learning, such as the spiritual component, have been discussed extensively in the literature, embodied learning processes have received less attention. There are, however, a few examples where some forms of embodied or action-related learning have surfaced. Merriam et al. (2007) recognize embodied experience as one dimension of the experiential element that is integral to learning, and both Taylor (1994) and Nohl (2009) document instances where people act first, almost by instinct, and then through their action move into learning and transformation.

Learning through embodied activity and experience is an accepted approach within the broader learning literature, for adults, children, and social collectives (Dewey 1997; Kolb 1984; Leeuwis and Pyburn 2002). Its value is also recognized for sustainability issues in particular (e.g., Fazey et al. 2005; Krasny and Roth 2010; Tàbara and Pahl-Wostl 2007). The prominence this process played in the learning experiences of our research participants is therefore not surprising; nor is the prominence of learning within the instrumental domain, given the practical nature of sustainability work with its focus on adaptation, problem solving, and improving resource and environmental management. It does, however, indicate a need for more cross-fertilization and dialogue between different approaches to learning, so that as transformative learning theory continues to be applied in sustainability and environmental management contexts, it can encompass these instrumental and embodied aspects of learning that are so key to sustainability practice.

Conclusion

Learning was chosen as the subject of this research because of the role it can play as a sustainability driver (e.g., Muro and Jeffrey 2008; Orr 2004). The goal of sustainability is to "…create an ecologically and socially just world within the means of nature without compromising future generations" (Moore 2005, p 78). Some suggest the only way we can achieve this goal is by "learning our way out" (Finger and Asún 2001); learning not only generates necessary knowledge and understanding about the physical and social worlds in which sustainability must be pursued, but it also enhances adaptability and attention to underlying worldviews and values that shape responses to life situations (Merriam et al. 2007; Muro and Jeffrey 2008; Orr 2004).

Our investigation of learning outcomes and processes among the staff and volunteers of two FBOs revealed broad categories, including the sustainability framework, environment/conservation, skills, community work, interpersonal engagement, and personal and faith. Within these categories, we highlighted prominent examples, such as creation care, birding and agricultural skills, community work, relationships, and personal development. Learning outcomes fit within the theoretical learning domains: instrumental, communicative, and transformative. These outcomes were acquired through embodied experiences and activities, such as observation and experience, and practical application; training; interpersonal interactions, such as discussion and listening, learning from each other, and learning from the community; personal reflection; and Bible study and worship. Processes such as discussion and listening and Bible study are examples of rational discourse, while personal reflection generally corresponds with the theory's description of critical reflection.

Figure 1 shows the model of transformative learning we employed for this research and was designed as a visual aid to help us understand the theory. To advance the theoretical discussion and contribute to the integration of instrumental and embodied learning into the model, we have developed Fig. 2 to reflect our current conception of learning. We have included in this new conception, a broader range of learning triggers, learning processes, and outcomes to reflect our findings. Of particular note is the addition of embodied activity along with reflection and discourse as key learning processes. This supports both the evidence we found regarding experience, observation, experimentation, and practical application, and the related importance of learning in the instrumental domain, which often happens through these processes. The learning outcomes also reflect the different levels and domains within which learning for sustainability must occur, ranging from transforming broad frameworks to gaining new or improved instrumental skills, again highlighting the importance of instrumental learning.

The learning experience is depicted in circular form to emphasize the cyclic nature of learning, especially the interplay between action and learning. Thus, the action, or embodied experience, which is applied in response to one's learning situation may become the experience that triggers a new learning journey. Two paths exist on the left side of the cycle to indicate that some learning is transformative, but not all. Similarly, not all learning can be applied in action due to personal, social, and physical barriers, such as environmental circumstances, finances, time, and attitudes. The broken line indicates that these barriers can impede the

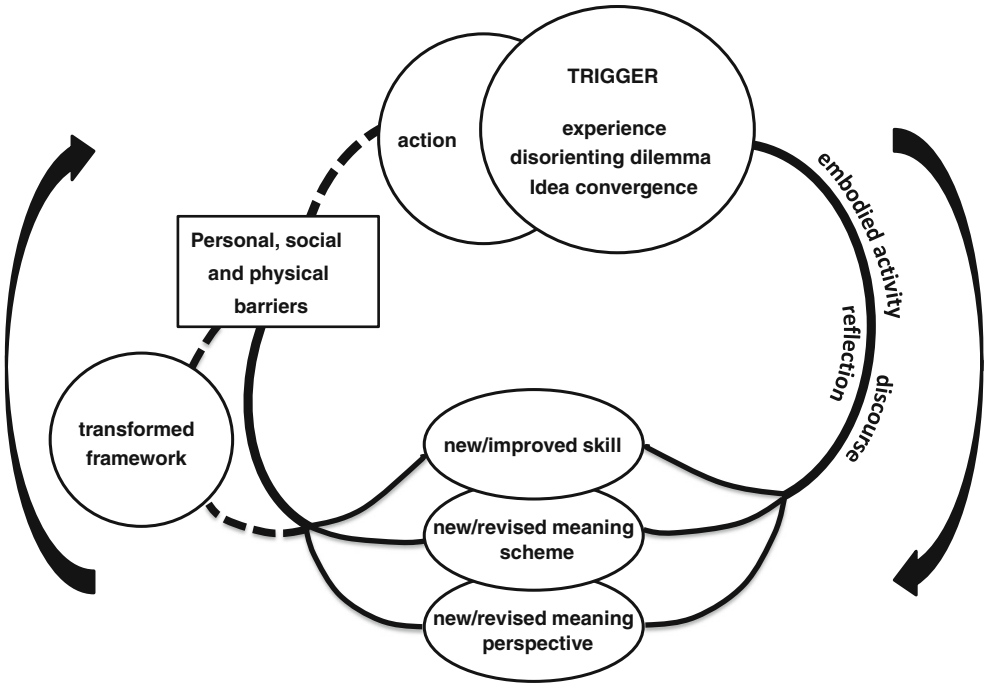

Fig. 2 Transformative learning revisited

successful completion of the learning cycle. Arrows indicate the general direction of learning within this model; however, we do not preclude the possibility that the process may involve changes in direction.

The new conceptual framework depicted in Fig. 2 should not be taken as definitive, but rather as an attempt to illustrate new ideas for further discussion and research. We see many fertile avenues along which this could occur and mention two of particular interest. First, further work is needed to better understand the relationship between instrumental and communicative actions as well as the relationships among such learning outcomes and social action. As well, further attention is required to describe how such individual social action outcomes scale up to social learning, and how individual learning relates to social learning frameworks, such as single-, double-, and triple-loop learning (Pahl-Wostl 2009). Second, we did not use a gendered lens in our case study work, a weakness in much of the transformative learning literature (English and Irving 2012). In our case, this left many intriguing questions unanswered, from whether men and women have the same sorts of learning outcomes, to the impact of the relationship between genders in cross-cultural settings.

The insights into learning and the key role of instrumental aspects and embodied processes in this project derive largely from its context within a nonformal learning platform, and practical sustainability work. Insights can also be drawn from the particular character of the case study organizations, prominent in which was their faith dimension. In both organizations, participants learned extensively from each other, facilitated by strong teamwork models and emphasis on the communal nature of organizations that allowed staff to deepen their learning both within and beyond their own areas of specialty. While not unique to FBOs, this aspect of their learning cultures reflects the holistic approach that is common to faith-based initiatives (Moyer et al. 2012; Tyndale 2006). Furthermore, some of the specific faith activities, like Bible study and theological discussions at ARK, provided opportunities for the staff to discuss and reflect on their instrumental and embodied learning, leading in some cases to deeper personal transformation. Given the relationship between instrumental/embodied learning and transformative learning demonstrated in this research, we feel that resource management organizations (faith-based or otherwise) could improve learning for sustainability among their staff by providing opportunities to reflect on and discuss their beliefs, values, worldviews, and faith. Doing so would allow practitioners to deepen their more practical, skill-based learning by integrating and applying it to their broader frames of reference, their moral understanding, and as relevant, their personal faith and spiritual life. Such integration, though not often discussed in resource management settings, is important, because the challenges of sustainability are moral, philosophical, and religious at their very roots (Orr 2002; White 1967). By providing space for holistic learning that fuses basic skills and knowledge, awareness of broader political, economic and

social issues, consideration of values, beliefs, and worldviews, and an impetus to act at these various levels, personally and collectively (Jarvis 1993; Muro and Jeffrey 2008), sustainability practitioners have access to a more complete toolbox to address the complex problems they face.

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