Transformational Learning for Smallholder Farmers
in Southern Africa

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Introduction

Currently sub-Saharan Africa is home to 76% of the world’s ultra-poor (121 million people) who live on less than 50 cents a day (Barrett, 2010). Most of these people live in rural areas and agriculture is their primary livelihood strategy. Typically smallholder farmers in Africa have very low yields, use few modern inputs and their practices are degrading the soil quality. Training these farmers on improved agricultural practices has the potential to increase their productivity and dramatically improve their quality of life.

During the six years I spent working in Malawi on agricultural projects I was constantly struck by the disparity between what farmers actually do and what agricultural researchers think they should do. There are many promising techniques and seed varieties that appear to be beneficial but are not being used by farmers. It is often unclear if this lack of adoption is because the practices are economically inappropriate or if the methods used to share information are not adequately communicating their potential. More importantly, technology transfer approaches to rural development are prone to fail because they do not consider the diversity of local contexts and disregard the importance of local knowledge.

In this essay I use theories and models from adult learning to analyze agricultural learning contexts of smallholder farmers in Southern Africa. I start by describing how the social and cultural context of smallholder farmers in Southern Africa affects their learning and then describe what is known about the physical, cognitive, and emotional characteristics of these learners. Next, I analyze some of the typical agricultural training methods and argue that a transformational learning approach is essential for sustainably reducing poverty.
The Learning Context for Agricultural Training in Southern Africa

Because of the communal nature of small scale agriculture in most African villages, agricultural training must be adapted to the social and cultural contexts that shape the learning environment. Training farmers how to improve their production practices is a prime example of situated learning, where the learning outcomes are highly dependent on the situation where the learning takes place (Merriam et al., 2006). Because local variation in soils and climate are important for agriculture, local training is necessary. This is typically accomplished through some sort of agricultural extension that trains groups of farmers in their own village using a demonstration field. Unfortunately many of the extension agents have not been trained to adapt their lessons to the local social and cultural context and they are ill-equipped to handle the heterogeneity of characteristics pertinent to learning in any given group. This section outlines what is known about the social and cultural context for learning including the physical, cognitive, emotional and spiritual characteristics of smallholder farmers in Southern Africa.

Social and cultural context for learning

Much of the research on adult learning has been carried out in the context of Western cultures in industrialized countries, which has led to an emphasis on rationality, cognitive ability and individuation (Merriam, et al. 2006). In contrast, African perspectives on learning emphasize a more holistic and communal approach where spiritual dimensions and oral traditions are prominent (Merriam, et al. 2006). Niseane (2011) argues that a culturally sensitive form of Mezirow’s transformational learning (described below) for Botswana would need to recognize: 1) the importance of communal knowledge creation, 2) the spiritual aspects of connectedness between people and nature, 3) the collective nature of social change and 4) the
importance of a gendered perspective on learning. I will elaborate on each of these using my experiences in Malawi, Mozambique and Zambia.

Communal knowledge generation is important in this context because small scale agriculture is more of a social system than most industrialized agriculture systems. Farmers are aware of each others’ practices and new knowledge may be subject to communal decisions about validity. Change can be seen as a threat to the stability of a community and social pressure may be exerted to make innovators conform unless the opinion leaders of the community are persuaded about the change (Rogers, 2003).

The spiritual aspects of agricultural training are often completely overlooked. Much of the disconnect between researchers and farmers may be due to the fundamental differences between the traditional African worldview and that of Western science, which most agricultural training is based on. While a materialist worldview sees agriculture as a problem to be solved using empirical research of observable variables, the traditional African worldview resists such narrow analysis of cause and effect. As Ntseane points out (2011), spiritual causes are often identified for poor health, bad crops or even economic success. Unless this perspective is explicitly discussed it is likely that farmers will see the agricultural training as only a partial truth that ignores the wider spiritual reality and human inter-connectedness with nature.

The collective nature of change is evident both from the pressure for conformity described above and from the cultural attitudes toward farming. A major cultural barrier for agricultural training is the common perception that farming is for the poor and uneducated. Mukute (2010) found this to be a key issue in his studies of agricultural change in South Africa and Lesotho and it resonates with my experiences in Malawi where nearly everyone farms (even in the cities) but few identify themselves as farmers. Often when you ask a person in the rural

Commented [wha4]: In some ways, that farming is still viewed that way by many in this country.
areas “Mumachita chiyani? (What do you do?),” they reply “Ndimangokhala (I just stay),” though they have been working hard in their fields. There is a strong perception that farming is a lowly profession and most parents hope their children will get a wage earning job. The economics of this is certainly understandable but the pervasive negative attitude towards farming may affect the intrinsic motivation to participate in agricultural training.

Finally, a gendered perspective is essential for agricultural training in sub-Saharan Africa because women have major agricultural responsibilities and have been historically marginalized from receiving training. Extension efforts typically reach men more than women (Dross, 2001). Women have greater challenges participating because of the domestic responsibilities they bear. When they do participate they usually have to bring their children with them which may prevent them from focusing on the material. Some husbands prohibit their wife from participating in adult literacy training because they feel threatened if she is learning (Sifuna & Sawamura, 2010) and the same may be true for agricultural training.

Significant gains for female farmers have been obtained simply by having more female extension workers (Dross, 2001) but even more benefits seem likely if the training is customized for women’s particular training preferences. For example, a project in northern Malawi emphasized improving soil fertility through legume production, which specifically addressed women’s priority to improve childhood nutrition that had been under appreciated by men (Bezner-Kerr, 2008). Women have fewer resources so are less able to try new ideas, which may also decrease their motivation to participate. Men have greater control of land, greater access to credit and higher education levels making them more likely to benefit from agricultural training. As long as these power dynamics are ignored when trainings are designed, they will fail to support women who are in most need of agricultural training (Cramer and Wandira, 2010).
Individual characteristics important for learning

Effective agricultural training in groups will require carefully considering the variation of physical, cognitive and emotional characteristics of individuals and how that affects their learning experience. The most important physical aspect of learners in this context is nutrition, which has both short-term and long-term impacts on individuals. Short-term negative impacts on learning are expected when participants experience hunger during the training. In Southern Africa many smallholders experience weight loss during the annual hungry season when the harvest is not yet ready but the previous harvest has been consumed and grain prices are high (Cramer and Wandira, 2010). During this period extension agents should be aware that some farmers may not be able to concentrate unless food is provided during the training. Others may not attend if they are busy working to be able to buy food. Long-term negative consequences are caused by poor nutrition during the first 5 years of age which can impair cognitive ability for life (Grantham-McGregor et al., 2007). Over 50% of children in the region are deficient in vitamin A and iron (Watson II & Pinstrup-Anderson, 2010) and it is likely that many of today’s adults were cognitively impaired as children because of poor nutrition.

Cognitive ability as measured by formal testing is generally low in rural Africa, primarily because of low levels of formal education. For example, only 68% of Zambians are literate (Sifuna & Sawamura, 2010), and in Malawi 90% of primary school leavers do not go on to secondary school (Lwanda, 2005). Even those who were educated may not have been trained in critical thinking. Since colonialism, rote learning has dominated formal education settings despite attempts at reform (Jansen, 2005). However, measuring cognitive ability formally does not directly measure the practical intelligence of smallholder farmers, many of whom employ creative solutions to complex social and economic problems. Based on my experiences, I would...
hypothesize that smallholder farmers have a diversity of cognitive abilities. Trainings must be designed to find methods to communicate effectively with those who are struggling to understand new content, while still keeping the attention of those who apprehend new material quickly. For example, using cognitive, affective and psychomotor aspects of learning in each session may help all learners to remember the experience (Vella, 1994).

Emotional characteristics of some farmers may play an important role in agricultural training because of the dramatic changes in agricultural performance. At independence African agriculture was able to supply enough food for the entire population but since then populations have grown dramatically and yields have remained constant resulting in massive food shortages (Todaro and Smith, 2009). As population increased the availability of land has decreased thereby limiting the natural regeneration of soil fertility. Land degradation combined with recent climatic changes has made agriculture nearly impossible in some areas. Farmers who have seen their production and their livelihoods dramatically reduced over their lifetime may be experiencing the “disorientation” of Taylor’s model of the learning cycle (MacKeracher, 2004). The designers of an agricultural training experience need to be aware of this so that the farmers’ anxiety can be used to motivate reflection and change and so a “decremental cycle of learning” where new information is closed off can be prevented (MacKeracher, 2004). It would seem wise for extension agents to be aware that many of the poorest may be so downtrodden by negative experiences with agriculture that they will need support imagining themselves as capable learners and successful farmers.

Approaches to Agricultural Training

Agricultural training typically emphasizes the transmission of technical information to improve smallholder farmers’ practices but this approach has a number of drawbacks. After describing the typical modes of transmitting this technical information I argue that these
approaches often fail to provide the situated experiential learning needed for individual farmers. In addition, the linear transmission of information reinforces a cultural perspective that denigrates poor smallholder farmers as ignorant and backwards. This perspective disempowers the very individuals who need to see themselves as capable agents of change if they are to adapt the new technologies to their own context.

Most agricultural training is seen as the final stage in a linear process of knowledge transfer from researchers to farmers (Mukute, 2010). Various modes of transmission of the information are used and this will certainly affect how well it is received. Written information is rarely used because it is not likely to be understandable by those with low literacy levels and also because it is expensive to produce. Radio programs in local languages on the other hand are a relatively inexpensive means of effectively disseminating ideas on new practices or new crops. Some communities are visited by a government extension officer or an agricultural worker for a non-governmental organization (NGO) who makes presentations on new information.

The limited effectiveness of this approach for complex technologies has led to the recognition that agricultural information requires local adaptation. This is because the biophysical and socio-economic diversity affects the performance of agricultural technologies (Giller et al. 2011). This can be partially accomplished through listening clubs who try out the new information from the radio together in an experimental field. Groups of farmers organized by an extension agent can meet for training in a demonstration garden where new practices are tried out. Learning through these group efforts is likely to be more effective, not only because of the adaptations to the agricultural practices but also because the learning becomes situated in the context where it needs to be implemented. It is argued that such experiential learning, situated in
the relevant environment, provides skills in real life problem solving instead of merely spreading abstract knowledge.

In recognition of the poor performance of the linear approach some adaptations have been made to adjust the training material to the agro-ecological context through increased farmer participation (Mukute, 2010). Villages can be conceptualized as “communities of practice” where agricultural knowledge has been evolving for generations. This emphasis recognizes that learning is both a social activity and that there is an “intimate connection between knowledge and activity” (Smith, 2009), which resonates well with the cultural aspects of learning mentioned above. Farmers do a great deal of informal learning by doing, but outside expertise may still be of use to these communities as they seek to improve their practices. A participatory technology development approach, for example, can build on the community’s knowledge and preferences as it aims to overcome the challenges of using a new technique in their own bio-physical and socio-economic context.

Though it may be tempting to romanticize African villages as harmonious communities, in reality unbalanced power differentials exist. Participatory processes where all voices are heard and respected are not natural or easy. Project implementers often label their work as participatory simply by letting “the community” decide, which in practice may mean nothing more than devolving the choices to the local elite, who tend to be men with land, cattle and money. Unless agricultural training specifically aims to learn from and with the most vulnerable, the benefits will not reach the poorest.

The linear transfer of knowledge approach also perpetuates the cultural perspective that smallholder farmers are ignorant and backward because it exalts formal and scientific knowledge and devalues local knowledge. Even where farmer participation is central to the project this...
perspective can be implied by the behavior and attitude of the agricultural technician providing the training. Many adult learning experiences in Africa use the same methods as are used for primary education, including the embarrassment of those who do not understand a topic (Sifuna & Sawamura, 2010). Reasons for this may be the relatively low education levels of those who are implementing the learning experience and the insecurity of technicians who assert their authority when they feel threatened. The abuse of authority by the educated perpetuates the disempowerment and fatalism of the marginalized. Basic training in andragogy would help these trainers to see the importance of creating a respectful environment, building on learners’ experiences and targeting the training towards their most immediate needs (Merriam et al. 2006).

**A Transformational Approach to Learning**

Where deeply held beliefs such as fatalism prevent farmers from effectively solving their own problems a transformational learning approach may be necessary to empower them to become transformative agents of a better reality. Transformational learning aims to achieve a “fundamental change in the way we see ourselves and the world in which we live” (Merriam et al., 2006, p. 130). This theory is based on the understanding that we all have “habits of mind” which are assumptions that “act as a filter for interpreting the meaning of experience” (quoted in Merriam et al., 2006, p. 132). Transformative learning aims to transform these assumptions “to make them more inclusive, discriminating, open, emotionally capable of change and reflective so that they may generate beliefs and opinions that will prove more true or justified to guide action,” (quoted in Merriam et al., 2006, p. 133). This is accomplished through a process of experience, critical reflection, reflective discourse and action (Merriam et al., 2006).

It is important to highlight that by promoting the transformational learning approach I am not suggesting that outsiders with the “right” perspective come in and correct the “backward” perspective of poor farmers. Transformational learning is opposed to this type of ideological
oppression. “Attempting to liberate the oppressed without their reflective participation in the act of liberation is to treat them as objects” (Freire, 1970, p.65). Transformational learning is founded on the concept of discourse as described by Habermas where opposing viewpoints come together to present their arguments without coercion in an effort to find a new understanding (Merriam et al., 2006). “There are neither utter ignoramuses nor perfect sages; there are only people who are attempting, together, to learn more than they now know.” (Freire, 1970, p.90).

An important element of dialogue is active listening. In practice, agricultural technicians will only understand farmers’ implicit assumptions about reality if they listen to their stories with an open mind. “The first business of a guide is to listen to the dreams of the pilgrim” (Daloz, 1986, p.21 quoted in Merriam et al., 2007, p.138). Similarly Freire calls for “sympathetic observers with an attitude of understanding towards what they see” (1970, p.110, emphasis in original). This can be difficult for technicians with ingrained perceptions of their own superiority and for projects with formal objectives to which they are accountable to donors. In order for the transformational learning approach to agricultural training to be effective the project must allow farmers to establish the objectives of the interaction so that it matches their priorities.

Daloz argues that guiding others to an expanded worldview is also best accomplished through sharing stories in order to challenge assumptions and provide a new vision (Merriam et al, 2006). Similarly, Freire (1970) suggests that in many situations a process of “conscientization” will be necessary before the oppressed can take action. They first must gain an altered perspective becoming critically aware of what they perceive as immutable barriers. Freire suggests a process of presenting the situation of the oppressed back to them through stories or pictures and using a process of critical reflection and dialogue to facilitate awareness of limiting situations that can be challenged.
Freire (1970) emphasizes that true dialogue must include both reflection and action in order to be transformative, and this is what he calls praxis. Reflection without action is meaningless and action without reflection is misguided. This type of transformational learning with smallholder farmers could be accomplished through implementation of an action research project where outside technicians work with local farmers to solve agricultural problems. The outsider provides technical information that she or he believes will be useful and the insiders provide local knowledge of soils, climate, culture and economy. If the outsider has adequate skills in facilitating transformational learning there will be a process of true dialogue where a synthesis between the outside and inside knowledge emerges and an action plan is developed to test the new knowledge. The two parties are carrying out transformational learning as they experience working in agriculture, reflect on what has been accomplished and dialogue about how it can be improved.

The Farmer Field School (FFS) methodology has great promise for combining these transformational aspects of learning with the transmission of new information and situated experiential learning (Taylor et al, 2012). In this method the instructor facilitates the cycle of action and reflection for a group on a demonstration garden where the members of the group are highly involved in deciding what are the most important problems and what “experiments” should be tried to address those problems. This approach recognizes that farmers need instrumental knowledge that is immediately applicable to stay motivated and that they can learn best by implementing the new practice in their own fields. But the approach has the potential to go beyond that when it challenges farmers’ worldviews by explicitly facilitating critical reflection on their assumptions about agriculture. Qualitative interviews with participants in Kenya suggest that some farmers’ perspectives on gender and culture were transformed through
the structured dialogue of their regular meetings (Taylor et al., 2012). The method also lends itself to be more holistic if it includes non-agricultural information as well. For example the FFS in Kenya trained farmers on HIV/AIDS and civic education as well (Taylor et al., 2012).

Unfortunately it is easy to call any demonstration training a Farmer Field School even if it focuses on the transmission of technical information, is dominated by the outsider and neglects the transformative aspects. We should not be surprised if such efforts fail to result in transformation. In addition, Greenwood and Levin (2007) warn that facilitators of transformational processes should expect resistance from those whose power may be threatened by the empowerment of the poor. Government extension workers and NGO trainers may be co-opted by the local elite to soften the transformational elements if it threatens their hegemony.

In order to develop an agricultural training system that uses true transformational learning there will need to be fundamental changes in at least three domains - the facilitators of learning experiences, their relationship with the community and their organization’s structure. These three areas align with the first-, second-, and third-person skills described by Reason and Bradbury (2008) for action researchers. The first domain requires facilitators to improve their skills in observation and inquiry through introspection and reflection on their actions in all parts of life. The second domain focuses on facilitators’ skills in facilitating dialogue with others with both integrity and humility. The third domain focuses on developing an organizational structure that supports these approaches and encourages facilitators to improve in the first two domains.

**Conclusion**

Sub-Saharan Africa has the largest number of ultra-poor in the world (76% of all people living on less than 50 cents a day) and most of these are smallholder farmers (Barrett, 2010). The quality of life of millions could be dramatically improved if their agriculture became more
productive through the use of sound agricultural practices. Unfortunately agricultural training experiences are not as effective as they could be because they ignore many important aspects of the social and cultural context that affect how the ultra-poor learn about agriculture.

The linear transfer of technical information is not only ineffective (due to the bio-physical and socio-economic diversity which strongly affects agriculture) but also reinforces social and cultural forces that denigrate and disempower the poorest smallholder farmers. At a minimum, basic training in andragogy should be provided to agricultural technicians providing training so that they respect the farmers they interact with and build on their lived experiences. More importantly the communication of knowledge should be seen as bi-directional where villages are seen as a “community of practice” with significant practical intelligence on local conditions that can complement outside technical knowledge.

In order to challenge the deeply held assumptions of the disempowered, outside technicians need to facilitate a transformational learning experience characterized by critical reflection, dialogue and action. Methodologies, such as Farmer Field Schools, hold the potential to effectively engage with farmers in a way that provides some immediate instrumental learning while at the same time fostering a deeper internal transformation. Through this process disempowered farmers crippled by fatalism can begin to see themselves as capable agents of transformation who can solve agricultural problems. Only through transformation learning will agricultural training result in significant poverty alleviation and greater social justice.

Phil – Nice work on this. Your rationale for moving toward an approach grounded in transformational learning seems warranted and you demonstrate through comparison with existing practices the potential benefits. It seems like you explanation of the transformational model could be enhanced a bit so that the reader gets a fuller sense of what the transformational
Your inclusion of additional concepts such as those from Habermas and Frier are useful and help to capture the deeper level of engagement and the acknowledgment of power that is essential in a setting such as the one in which you are focused. The importance of the “fatalism” mentality is important to understand and you capture this well.

You did a nice job elaborating on the importance of contextual understanding and the influence of contextual factors in the learning process. It does seem from your presentation that appreciation of contextual issues may be an important missing component in some educational situations in Malawi.

I think your proposal has merit and wonder if you might consider how you could possibly more fully develop this proposal or further explore current practices from the lens of transformational learner? It would be worth considering whether there is work already being done along these lines and/or if there might be an opportunity to do some form of collaboration between folks in your area and those in College of Ed for an international experience for graduate students in the respective programs or the possibility of developing a grant proposal.

Some things to consider.

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