

## The contribution of transformative learning theory to the practice of participatory research and extension: Theoretical reflections

Rachel Percy

*International and Rural Development Department, University of Reading, Reading, UK*

Accepted in revised form August 31, 2004

**Abstract.** This paper explores ways in which experiential learning theories, in particular transformative learning theory, can inform farmer participatory research and extension (PR&E). I identify and discuss three key elements of experiential learning theory – second-order experiences, reflection, and dialogue – that are particularly pertinent to PR&E practice. I then turn to one experiential learning theorist – Mezirow, and examine his theory of transformative learning to assess how it may inform the PR&E process. I outline the basic components and stages of transformative learning and summarize the main criticisms of the theory. Following this, parallels are drawn between transformative learning and what actually takes place in PR&E, and examples are given of the ways in which scientists and rural people may undergo transformative learning through the PR&E process. Ways in which transformative learning can be encouraged within the PR&E context are discussed. I conclude that Mezirow's work can provide PR&E practitioners and theorists with additional insights into how adults learn and especially how they – researchers, extensionists and rural people – can transform their ways of thinking to accommodate a shift from conventional research and extension to PR&E.

**Key words:** Dialogue, Experiential learning, Mezirow, Participatory research and extension, Participatory technology development, Reflection, Transformative learning

**Abbreviations:** PR&E – participatory research and extension

**Rachel Percy** is a lecturer in the International and Rural Development Department of the University of Reading, UK, teaching gender, participatory learning and action, and participatory research and extension. Her research interests center on how adult learning theories, particularly those related to experiential learning, can inform participatory practice. From 1980 to 1997, before she joined the University of Reading, she worked in the field of agricultural extension, training and sustainable development in Ethiopia, Nigeria, Sudan, and Malawi. She has published on experiential learning and the training of agricultural extensionists (*International Journal of Lifelong Education*), capacity building for gender-sensitive agricultural extension planning (*Journal of Agricultural Education and Extension*), and gender analysis and participatory rural appraisal (*International Journal of Educational Development*).

### Introduction

Extension workers are essentially adult educators. Furthermore, when they are employing participatory approaches, they may well be seeking to enable rural people to analyze and reflect on their livelihoods in a way that could be said to be empowering or transforming. Much adult education literature, especially literature about experiential learning and critical reflection, is concerned with attaining just this emancipatory goal among individuals and societies (Freire, 1972; Mezirow, 1990). An examination of the literature on experiential learning, and in particular, transformative learning theory, provides useful insights into those involved in participatory research and extension (PR&E).

In this paper, after a review of elements of experiential learning that can inform PR&E, I focus on the work of one experiential learning theorist in particular: Mezirow. The theory of transformative learning developed by Mezirow and his associates over the last two decades focuses on how emancipatory learning can bring about transformations in our own constructions of reality. I explore what transformative learning involves, then reflect on how this theory can inform PR&E practice. In particular, I look at ways in which scientists, extensionists, and farmers, who are engaged in PR&E, undergo transformative learning, and how the latter could be facilitated during the PR&E process, thus enhancing the learning taking place between all stakeholders involved. The paper does not draw on empirical

data. Rather it involves theoretical treatment of practice, with the explanatory power of Mezirow being tested to make sense of PR&E practice.

The PR&E process, though varied, often involves collaborative learning between scientists, and/or extensionists and farmers. Rapport is built, and scientists and/or extensionists learn about farmer livelihoods and development constraints, sometimes through the use of participatory learning and action. Together, they explore possible options and decide on what to try, based on the farmers' indigenous technological knowledge. A plan of action or experimentation is drawn up and, on occasion, scientists may train the farmers in some experimental methods and share other scientific knowledge. Farmer-to-farmer extension may start as soon as experimentation starts. Farmers and researchers reflect on the process and outcome of PR&E and plan further cycles of experimentation. PR&E can be equated with what Sumberg and Okali (1997) term "development-driven" Farmer Participatory Research (as opposed to "research-driven" Farmer Participatory Research) and with Van Veldhuizen et al.'s (1997) Participatory Technology Development. Examples of PR&E include Farmer Field Schools (Scarborough et al., 1997), Participatory Extension Approaches (Hagmann et al., 1999), and co-learning approaches (Hamilton, 1998). The work of van de Fliert and Braun (2002) provides a useful model for conceptualizing the process of farmer participatory research and development. While they put forward a model for the whole process, I focus on the nature of the learning taking place during the process. The level of participation varies greatly, with some PR&E practitioners emphasizing the empowering nature of the process more than others. PR&E practice fits within Alrøe and Kristensen's (2002) concept of systemic science with a "wholeness-orientation" and of scientific knowledge as being socially constructed.

The brief description of PR&E above may imply that the process is straightforward. This is however, far from the case. PR&E, whatever the type, can face a range of constraints. A positive-policy environment is essential (Baur and Kradi, 2001), and even with this it can be difficult to scale-up PR&E practice (Sutherland et al., 2001). Power differences between stakeholders can hinder or distort the process, with every stakeholder group having its own agenda, only part of which is made known (Hall and Nahdy, 1999; Sutherland et al., 2001). Research and extension institutions need to reorient management structures to "fit" with the new (participatory) institutional practice (Collinson, 2001; van de Fliert and Braun, 2002). Further, PR&E places different demands on human and social capital (Hall and Nahdy, 1999; Sutherland et al., 2001), with technically trained scientists being called upon to listen, to facilitate, and to learn, as well as to be able to address

a wide range of complex research challenges. Underlying all of these is the need for change in the perceptions, attitudes, and behavior of all stakeholders involved (Sutherland et al., 2001; Saad, 2002; van de Fliert and Braun, 2002). It is this underlying challenge to PR&E that is the focus of this paper.

I turn now from PR&E to experiential and, particularly, transformative learning, starting with a brief review of the nature of experiential learning in general. Kolb (1984: 38) described experiential learning as "the process whereby knowledge is created through the transformation of experience." He proposed that experiential learning follows a cyclical process – from experience to reflection to conceptualization to application, with this cycle being continuously repeated. Most descriptions of experiential learning place it within the constructivist paradigm (Fry et al., 1999).

Several elements of experiential learning are of particular relevance to PR&E including the role of second-order experiences, reflection, and dialogue in experiential learning. Malinen (2000) provides a useful discussion of second-order experiences in her review of five major experiential learning theorists – Schön, Revans, Knowles, Mezirow, and Kolb – and concludes that experiential learning involves first and second order experiences. First-order experiences are past, lived experiences. They are tacit or implicit, and though they seem true to the adult they are actually incomplete, inadequate, or distorted. These experiences are not sufficient for experiential learning to occur. A connection must be made between what one has experienced and what one comes to learn through second-order experiences. Second-order experiences often involve disorientation (Mezirow), surprise (Schön), or recognition of ignorance (Revans) – elements which challenge the first-order experience and lead to reconsideration and modification of that experience or knowledge. Second-order experiences occur when individuals reconsider their existing knowledge and experience. Referring to van Manen, Malinen explains that experiential learning, therefore, involves "modification of earlier constructions: re-organization, re-construction, re-defining, re-thinking, re-shaping, re-interpretation and re-formulation...aiming to establish renewed contact with something original" (Malinen, 2000: 75).

Reflection is integral to experiential learning, and is often described as a complementary process to action. It is a stage in Kolb's experiential learning cycle as described above. Several authors (Van Manen, 1977; Mezirow, 1991; King and Kitchener, 1994) consider that there are different levels of reflection. For instance, Van Manen identifies four levels of reflection: (1) thinking and acting on an everyday basis; (2) more specific reflection on incidents or events; (3) development of understanding through interpretation; and (4) reflec-

tion on the way we reflect. King and Kitchener's stages of reflection range from the (non-reflective) view – what is believed is true and knowledge is absolutely certain – to the ability to make reflective judgments through a process of rational inquiry. There are parallels between these levels of reflection, levels of cognition (Kitchener, 1983), and Bateson's single, double and triple loop learning (Bateson, 1972). A common understanding concerning levels of reflection is that the higher the level of critical reflection the more likely it is that transformation, autonomy, emancipation, or empowerment can occur. Significantly, for the purposes of the present discussion, empowerment through attaining higher levels of reflection is often the goal not only of experiential learning but of PR&E.

Dialogue is also a key factor in experiential learning according to Mezirow, Revans, and Schön. Malinen (2000) identifies four stages in dialogue: (1) sharing; (2) testing; (3) justifying, and (4) believing. She explains that for true dialogue to take place there needs to be a spirit of goodwill or friendship and that dialogue involves the temporary suspension of each person's points of view. Dialogue is a central element of PR&E as will be pointed out below. Dialogue between farmers, extensionists, and scientists is crucial to the process of group awareness raising and empowerment.

### Parallels between experiential learning and PR&E

Given the parallels between the processes of PR&E and experiential learning, one may ask how far experiential learning theory can inform PR&E practice. Recently, scientists and extensionists, in both practitioner and academic roles, have sought to provide a theoretical underpinning for the PR&E process (Röling and Wagemakers, 1998b; Cerf et al., 2000). In doing so, they draw on action research, action learning, and

experiential learning with reference to Revans, Friere, Kolb, and Schön among others. It is hoped that this paper, which focuses particularly on experiential learning and, within it, on transformative learning, will contribute to the identification of such theoretical underpinnings and, in this way, allow for more informed PR&E practice.

In the above discussion regarding experiential learning, three aspects were considered relevant to PR&E: (1) first and second order experiences; (2) reflection; and (3) dialogue. I now examine each in turn in relation to the practice of PR&E. The key points of this discussion are summarized in Table 1 below.

In experiential learning, a new (second-order) experience, often involving disorientation, surprise, or uncertainty, prompts reflection on a previous (first-order) experience, leading either to defense of the earlier position or to a new level of understanding. This is relevant to PR&E in at least two ways. First, PR&E developed in response to the complex, diverse, and risk prone environments of some farmers. Due to rapidly changing environments, many farmers can no longer rely on their local knowledge alone in order to farm in the way they have in the past. They are thrown into a position of uncertainty or, as Vaill (1996) puts it, "permanent white water." Those facilitating the PR&E process work with farmers to help them step back and analyze their situations anew, then together identify ways forward through experiential learning. The "Promoting farmer innovation" program in East Africa (Critchley et al., 1999) and the participatory technology development on soil fertility improvement project in Cameroon are such cases. In the latter, declining soil fertility led to farmers developing a system of night paddock manuring, taking advantage of the increased presence of nomadic cattle pastoralists. Farmers worked with scientists and development agents to prepare and implement a series of joint experiments (Tchawa et al., 2001).

**Table 1.** Key features of experiential learning and PR&E compared.

Features	Experiential learning	PR&E
First and second order experiences	New (second order) experiences challenge past (first order) experiences. This often involves disorientation, surprise, or recognition of ignorance. Learning may follow.	Changing circumstances for farmers may constitute second-order experiences, as may changing relations between farmers and researchers/extensionists.
Reflection	Integral component of experiential learning. Different levels of reflection (and cognition) exist. The higher the level the more likely that transformation or empowerment will occur.	Reflection occurs both at the start of PR&E when problems and opportunities are identified and during and after experimentation. PR&E may involve movement to different levels of cognition or double (even triple) loop learning.
Dialogue	Key component. Requires a "spirit of goodwill" and temporary suspension of each person's points of view.	As PR&E is an interactive process, its basis is dialogue among all stakeholders. For this to happen, trust, rapport, and time are needed.

A second instance in which second-order experiences prompt a re-examination of previous experiences is where roles of farmers, researchers, and extensionists change in participatory contexts as compared to conventional extension and research. In their review of the challenges facing scientists being required to work in a participatory manner in Uganda's national agricultural research systems, noted five areas in which scientists were challenged: (1) "researcher/farmer power relationships"; (2) "professional identity"; (3) "skill base and human resources"; (4) "professional reward system"; and (5) "perceptions of the validity of research methods" (Hall and Nahdy, 1999: 4). The participatory process is equally challenging to farmers.

Reflection also plays a key role in PR&E. The PR&E process itself involves the experiential learning cycle. Reflection on past experience leads to action (experimentation) after which conclusions and generalizations are drawn from the action, which then inform planning of a further cycle. Where participatory learning and action are used (at any stage) in the PR&E cycle, as they may be when researchers and extensionists are learning about farmers' local knowledge, practices, constraints, and/or opportunities, then a miniature experiential learning cycle takes place, leading to "cycles within cycles." Within all of these, reflection is a key component. Within extension training, The Centre for Rural and Regional Innovation of the University of Queensland, Australia, for instance, uses the experiential learning cycle as a basis for courses, modules within them, and perhaps most interestingly, student work-based projects (Fell, 1999). Also in Australia, King (2000) explored the qualities leading to effective learning among a group of farmers over a period of 18 months. Throughout that period, farmers used the experiential learning cycle to analyze the meetings, field days, workshops, and study tours they were involved in. One conclusion from the work was that systemic reflection (and dialogue) enhanced farmers' learning.

It was pointed out above that there are different levels of reflection and that there are parallels between them and different levels of cognition and double and triple loop learning. This was applied in a professional extension development context by, among others, King (2000) in Australia. Based on experiential and action learning, three different practice domains were identified: (1) extension practice; (2) workplace practice; and (3) improving the professional extension development domain itself. Participants kept learning logs throughout a six-month period. King noted that, in effect, the three levels of learning, which participants worked through, corresponded to single, double, and triple loop learning. King concluded that all three levels were necessary to bring about systemic change. Also in Australia,

Hamilton (1998) developed co-learning tools with farmers using participatory learning and action research. In the process he identified double-loop learning as critical to enhancing farmer's commitment and enabling them to make informed choices.

Situated (Lave and Wenger, 1991) and social (Korten and Klauss, 1984; Woodhill and Röling, 1998) learning theories are also drawn upon in relation to PR&E. Dialogue is critical to both these forms of learning and to experiential learning in general. Kersten (2000) describes how a process for dialogue helped move pastoralists and researchers in New South Wales from destructive debate to constructive dialogue. She explains how the different understandings of pastoralists and researchers were combined through dialogue to "build richer pictures, a process whereby both pastoralists and researchers are knowledgeable and both are learners by sharing and valuing their understandings" (Kersten, 2000: 201). King (2000) and Hamilton (1998) also discuss the importance of dialogue in relation to other Australian case studies.

To conclude, PR&E involves a great deal of experiential learning. Reflection and dialogue are key elements in this process, which is often prompted by a need to work in new ways and find new solutions. Farming in complex, diverse, and risk-prone areas (Chambers, 1997) tends to be more and more unpredictable and uncertain. It could be said that scientists working with such farmers are working in a "soft" system in which it is critical to relate second-order to first-order experiences, thus constructing and transforming reality in a constructivist paradigm. The theory of transformative learning – seen by many as an insightful interpretation and development of experiential learning – involves just this. An analysis of transformative learning in relation to the practice of PR&E may provide greater understanding of the learning processes taking place in PR&E which may, in turn, inform practice.

### **Transformative learning and PR&E**

Transformative learning theory has been growing and changing for almost three decades. It draws on sociology, philosophy, developmental and cognitive psychology, and psychotherapy. Mezirow focuses on adult learning and, in particular, on how the ways in which adults see things – their frames of reference – can become more differentiated, open, inclusive, and integrated, and thus, transformed.

Such changes in frames of references are pertinent to PR&E, where both the attitudes and practice of those involved shift from the "hard" positivist approach of conventional research to the "soft" constructivist

PR&E context. In which ways, then, can transformative learning theory enhance our understanding and practice of PR&E? To address this question, I first describe the three major elements of transformative learning theory: (1) meaning perspectives; (2) learning domains; and (3) types of reflection, and note ways in which the theory is critiqued. I then draw parallels between the steps involved in transformative learning and PR&E. This is followed by discussion of how transformative learning (in relation to second-order experiences, reflection, and dialogue) can be encouraged in the PR&E process.

Mezirow terms our “frames of reference” or the way we see things (i.e., our constructed realities) “meaning perspectives.” He identifies three different, though interacting types. The first, epistemic, relates to what we know and how we know it. The second, socio-linguistic, relates to the social norms and culture we operate in, our socialization and our language norms. The third, psychological meaning perspectives, are how we see ourselves as individuals. Meaning perspectives are made up of meaning schemes – frames of reference concerning particular aspects of a meaning perspective (Mezirow 1991, 1997, 2000).

Mezirow (1991) also identifies three different domains of learning. Mezirow’s instrumental knowledge relates to empirical knowledge in the positivist paradigm, whereas his communicative knowledge concerns constructivist aspects of how we learn as adults. This domain includes how we understand and describe intentions, values, beliefs, and feelings. The third domain, emancipatory learning, involves critical self-reflection possibly leading to transformations of our meaning schemes or even perspectives. The instrumental and communicative domains of learning can work together and interact, and the emancipatory domain can work in either of these domains, as well as independently (Mezirow, 1991; Cranton, 1994).

Parallels can be drawn between Mezirow’s instrumental and communicative learning domains, and the “hard” and “soft” systems involved in conventional and participatory research and extension respectively. “Soft,” “human activity” characteristics of PR&E include the emphasis on partnerships, collaboration, dialogue, co-learning, and social learning. Van de Fliert and Braun (2002: 35) note that “Integrative and participatory, co-creative approaches to R&D recognize the human factor as the core element to attain synergistic outputs and impact.” Recognition of different stakeholders, building rapport, recognizing diversity within communities, team working, reaching consensus, and conflict management are all “soft” activities critical to the PR&E process. These fit within Mezirow’s communicative learning domain. The “hard” (agro-ecological) system in a farming community is seen as a sub-system of the soft system represented by the community itself

(Röling and Wagemakers, 1998a). “Hard” systems emerge as a number of technical options. Thus, they are theoretically subsumed within the “soft” system (Röling and Jiggins, 1998). “Hard” systems fit within Mezirow’s instrumental learning domain. In practice, the two systems interact or work together, as indicated by Mezirow (1991).

Type of reflection constitutes the third element of transformative learning theory. Mezirow identifies three types of reflection: (1) content; (2) process; and (3) premise (Mezirow, 1991). Content concerns what we know; process concerns how we know it and premise concerns why we need to know it. Content, process, and premise reflection take place in all three meaning perspectives (epistemic, socio-linguistic, and psychological) and all three learning domains (instrumental, communicative, and emancipatory) (Mezirow, 1991; Cranton, 1994).

Transformative learning theory is not without its critiques. First, the theory is criticized for its over-emphasis on the individual, at the expense of power and social action issues (Hart, 1990). Nevertheless, several researchers (e.g., Kasl and Elias, 2000) are now looking at transformative learning at the group and organizational levels. Second, it is argued that Mezirow does not acknowledge that all learning is, in fact, situated (Taylor, 1998). Taylor, however, goes on to report on the outcomes of a number of empirical studies that indicate the influence of personal and sociocultural contextual factors on transformative learning. Third, Mezirow’s writing is said to over-emphasize rationality, being heavily reliant on adult, autonomous, cognitive, and critically reflective learning mediated through rational discourse. Yet, other proponents of transformative learning do recognize the role emotions play in transformative learning (Taylor, 2001; Kovan and Dirkx, 2003). Last, Taylor (1998) notes that Mezirow gives very little attention to the role of relationships in learning. But, from his own analysis of a number of empirical studies on transformative learning, Taylor concludes that:

It is through building trusting relationships that learners develop the necessary openness and confidence to deal with learning at the affective level, which is essential for managing the threatening and emotionally charged experience of transformation. Without the medium of relationships, critical reflection is impotent and hollow, lacking the genuine discourse necessary for thoughtful and in-depth reflection (Taylor, 1998: 37).

What then is the relevance of this theory to PR&E practice? A comparison of the steps involved in both processes indicates that, in many ways, aspects of transformative learning take place in PR&E (Table 2). While I have specifically used the six steps of partici-

**Table 2.** Steps involved in transformative learning and in PR&E.

Transformative learning	PR&E
Step 1: Experiencing a disorienting dilemma <sup>a</sup>	Step 1: Getting started
Step 2: Undergoing self-examination	Step 2: Understanding problems and opportunities Step 2: Understanding problems and opportunities Step 3: Looking for things to try
Step 3: Conducting a critical assessment of internalized role assumptions accompanied by a sense of alienation from usual social context	
Step 4: Relating to other people's experiences, commonly through dialogue	Step 3: Looking for things to try
Step 5: Exploring options for new behaviors	
Step 6: Building competence and self-confidence in new roles	Step 4: Experimentation and applied problem solving
Step 7: Developing a plan of action	Step 5: Sharing the results
Step 8: Acquisition of knowledge and skills for implementing the plan	
Step 9: Provisional efforts to try out new roles and gain feedback	
Step 10: Reintegration into society	Step 5: Sharing the results Step 6: Sustaining the process

<sup>a</sup> Although I have placed "experiencing a disorienting dilemma" within the first two PR&E steps above, this dilemma can actually take place at any stage (Cranton, 1994; Van Veldhuizen et al., 1997).

patory technology development identified by Van Veldhuizen et al. (1997), these steps can equally apply to other "varieties" of PR&E.

In transformative learning a disorienting dilemma provokes self-examination, which, in turn, leads to critical assessment of internal assumptions (i.e., meaning schemes or meaning perspectives). At this stage the learner may feel alienated and, in questioning assumptions, may relate to other people's experiences, commonly through dialogue. The next stage involves the learner in exploring options for new behaviors and building competence. A plan of action is then developed and the learner acquires knowledge and skills for implementing the plan. The learner makes provisional efforts to try out the new roles and obtain feedback. The last stage involves reintegration into society from a new meaning scheme and/or perspective (or frame of reference). These stages may not always follow each other sequentially, some may be omitted, and some may take longer than others to appear (Cranton, 1994).

How, then, do the steps involved in the applied, problem-solving process of PR&E relate to those taking place in transformative learning? The first step in PR&E is "getting started," which includes relationship and rapport building between researchers, extensionists, and farmers. This and the second stage, "understanding problems and opportunities," allow for the disorientating dilemma(s) that initiate learning. These can occur at several levels. First, the complex, diverse, and risk-prone environment of uncertainty may be disorienting

and anxiety-causing, especially for the farmers concerned. Further, farmers may have difficulties in understanding scientists' points of view and priorities and vice versa. Third, the collaborative approach required of researchers, extensionists, and farmers may be new and incongruent with existing meaning perspectives. Van de Fliert and Braun note the challenges that can arise in this context:

The importance of determining and then reconciling the different perspectives of each of the stakeholder groups cannot be overly stressed. When the different realms and disciplines are brought together, communication often breaks down. Although it takes time and energy to achieve this, it is critical to project success (2002: 35).

The "understanding problems and opportunities" stage may also involve the use of participatory learning and action to reveal development constraints in the community. If so, a cycle of experiential learning can take place within the stage. The ensuing action, critical reflection, and dialogue, may foster transformation of meaning schemes.

During both the "understanding problems and opportunities" stage and the third stage – "looking for things to try" – there may be a degree of self-examination and critical assessment of internal assumptions going on, as the group examines problems and explores opportunities. As those involved (farmers seeking practical solutions, extensionists and scientists with techni-

cal backgrounds) may not consciously or regularly practice self-examination or critical assessment of internal assumptions, this is one area, in particular, that transformative learning theory could inform PR&E practice. If the work relates solely to agricultural development, those involved may be examining their own epistemic meaning perspectives. If it focuses on gender concerns in agricultural development, participants' psychological meaning perspectives may also be examined in relation to self-esteem, gender roles, and gender needs. Mezirow's emphasis on relating to other people's experiences and exploring options would also be encompassed in the third PR&E step of "looking for things to try." The fourth PR&E step is "experimentation" that would include Mezirow's building competence, plan of action, acquiring knowledge and skills, and provisional efforts. Disorienting dilemmas often occur at this stage too, as the very different problem solving methods of farmers and scientists meet in experimental action. The fifth PR&E step is "sharing the results," and this could equate with both provisional efforts and Mezirow's reintegration, as those involved must be confident enough in the outcome of the PR&E process to share it with others. The last PR&E step is "sustaining the process," which may involve ensuring that a continuing cycle of experiential learning takes place with further transformations of meaning schemes and perspectives where necessary.

Different kinds of transformative learning can take place depending on the level of reflection being employed, the learning domain it is being employed in, and the meaning perspective being examined. Meaning schemes may be transformed through content and process reflection, but premise reflection is necessary to enable transformation of meaning perspectives.

Let us take the example of an agricultural researcher whose meaning schemes are challenged through working with a group of farmers in the PR&E (rather than conventional) research mode for the first time. He, for instance, may be challenged with regard to his scientific knowledge base (instrumental learning domain) and his ability to build trust and communicate with the group (communicative learning domain). He may reflect on each of these through content, process, and premise reflection, or he may stop at content or process reflection. If the scientist reflects on his knowledge base, he may transform his epistemic meaning scheme (frame of reference) concerning, for instance, crop production, by seeking the knowledge he needs to work with farmers in the PR&E process. If he also reflects on his difficulties in communicating with the group as a stakeholder/partner, rather than as a traditional "expert," he may change the way he sees himself, thus bringing about transformations in his psychological meaning scheme. If he has employed premise reflec-

tion, and possibly, critical self-reflection (emancipatory learning), he is likely to apply what he has learned in this instance to other contexts. In this case, it could be said that not only has he transformed his meaning schemes concerning agricultural production (knowledge) – how he views himself and how he works with farmers (values) in the PR&E context – but also how he has transformed his overall meaning perspectives concerning knowledge and relationships.

Another example concerns a woman in a rural community in which gender-sensitive PR&E is being conducted. The experience may prompt her to question the basis of her understanding regarding farming (process reflection on her epistemic meaning perspective in her instrumental learning domain). It may also prompt her to question her gender roles (process reflection on her psychological meaning perspective on her communicative learning domain). It may further prompt her to question her position in society as a woman (premise reflection in her emancipatory learning domain). As a result, she may change various meaning schemes or she may go so far as to change her meaning perspectives.

The enabling environment for transformative learning is much the same as for other forms of experiential learning and for PR&E. It is one of trust, empathy, sharing, collaboration, openness, and receptivity (Cranton, 1994; Van Veldhuizen et al., 1997; Malinen, 2000). Both transformative learning and PR&E can be stimulated by critical questioning and consciousness raising (Freire, 1972; Cranton, 1994). Guidelines for the reflective practitioner (Schön, 1983) and for the supporter of transformative learning (Cranton, 1994), similarly correspond to those for the scientists and change agents involved in PR&E. Schön (1983) points out that it is essential for the reflective practitioner to recognize the client's knowledge, respect the client, engage in reflective dialogue with the client, give up his/her claim to unquestioned authority, and engage in a process of shared inquiry – all familiar to scientists and extensionists engaged in PR&E. Drawing on the work of Mezirow, Brookfield, and others, Cranton concludes: "If the educator is authentic, fosters healthy group interaction, is skilled in handling conflict, encourages learner networks, gives personal advice when appropriate, and supports learner action, critical self-reflection and transformative learning will be supported" (1994: 192). PR&E practitioners will be able to relate closely to this statement. The transformative educator and the change agent in PR&E alike have to be facilitators or, sometimes, provocateurs, co-learners, mentors, and resource persons (Cranton, 1994; Chambers, 1997).

Transformative learning is often challenging and, though enabling conditions can be established to facilitate its taking place, there is no guarantee that it actually will. It is possible, however, to identify specific

practical ways in which the theory of transformative learning can enhance second-order experiences, reflection, and dialogue. In terms of second-order experiences, disorienting dilemmas can be introduced into PR&E training contexts as activating or critical events that expose learners to alternative perspectives (Taylor, 2000). To this end, the diversity of the stakeholder group itself can be drawn upon. Videos showing different viewpoints can be used and role-play and problem-solving techniques employed. Turning to reflection, it was noted earlier that the conscious recognition of, and critical reflection on, assumptions is not commonly part of PR&E practice. Recognizing and articulating assumptions is difficult, but can be encouraged in a number of ways in a training context. These include modeling (Cranton, 1996; Cranton and King, 2003), the use of concept mapping, autobiography, writing exercises, and critical incidents (Mezirow, 1997). In the PR&E context itself, Franz (2003) suggests that facilitators model transformative learning processes by generating thought-provoking questions, raising and testing propositions, and showing curiosity.

Finally, transformative learning theory contributes to the dialogue element through its guidelines on discourse. These include some of the factors mentioned in relation to the enabling environment – openness to alternative points of view, willingness to seek understanding and agreement, and an acceptance of a resulting best judgment. Discourse requires accurate and complete information, freedom from coercion, an ability to weigh evidence and assess arguments objectively, greater awareness of the context of ideas, empathy, and concern regarding how others think and feel, and an equal opportunity to participate in various roles of discourse (Mezirow, 2000).

Franz (2003) explored transformative learning in successful extension staff partnerships (between academics and practitioners in the United States) and identified the following conditions for transformative learning: (1) strong partner facilitation; (2) critical reflection in transforming partnerships (based on articulated assumptions); (3) the presence of critical events; (4) fundamental difference between partners bridged by a common purpose; and (5) the retention of personal autonomy along with dependence on the other partner. She concluded that “Personal change may happen without organizational change and vice versa, but joint transformation can result in individuals and organizations quickly adapting to environmental change” (Franz, 2003: 5).

Much of what we learn is not transformative, neither does it need to be. Cranton (1994) distinguishes between subject-based learning, consumer-led learning, and emancipatory learning, all of which have their place. Subject-based learning applies more to learning

within conventional research and extension, but PR&E involves consumer-led learning as much as emancipatory learning. However, the uncertain, disorientating conditions in which farming communities find themselves and the change from positivist, conventional research and extension to PR&E suggest that, in order to learn, change, and develop, transformative learning may sometimes be called for. Transformative learning enables people to reflect on and analyze their lives. New meaning schemes or perspectives open new doors. They empower people and allow them to recognize new options.

### Conclusion

In this paper, I have explored the ways in which experiential learning theory, in general, and transformative learning theory, in particular, can inform PR&E practice. I have observed that the factors that enable transformative learning parallel those that enable both experiential learning as a whole and PR&E. Transformative learning theory can help us understand in more detail the learning processes and changes in meaning perspectives that must take place if the shift from conventional research and extension to PR&E is to be successful. It provides insights into how extensionists, as adult educators, can facilitate this critical shift and under what circumstances this is appropriate. This has implications for the training of extensionists and scientists who may be involved in participatory research directly with farmers in the absence of extension workers.

Continued study of experiential and, within this context, transformative learning will inform and benefit both the theory and practice of PR&E. There are some processes, however, that occur during PR&E, which perhaps go beyond the transformations described by Mezirow and associates. PR&E always involves a group process leading to action. The process often causes a shift in the groups’ consciousness (i.e., the collective understanding of the situation on which the group is reflecting and acting). Transformative learning theorists may wish, therefore, to study the practice of PR&E to investigate further how this transformation of meaning schemes and perspectives is occurring at the collective level.

Finally, Sutherland (1997) and Malinen (2000) are just two of several authors, who identify the “high degree of concordance” between experiential learning and constructivism (Sutherland 1997: 90). Further study of this concordance may be of relevance to PR&E. Another area of fruitful study would be the language of discourse regarding experiential learning. Michelson (1996) points out that an epistemological hierarchy



based on positivism remains embedded in the language used to discuss experiential learning. It would be interesting to explore the degree to which this observation remains true for PR&E. As we recognize the constructivist basis of PR&E, perhaps each of us needs to examine our meaning schemes regarding our own theory of, and practice in, PR&E.

### Acknowledgments

I would like to acknowledge the five anonymous reviewers of the paper I first submitted to the journal of *Agriculture and Human Values*. Their comments have been most helpful in preparing this version.

### References

- Alrøe, H. F. and E. S. Kristensen (2002). "Towards a systemic research methodology in agriculture: Rethinking the role of values in science." *Agriculture and Human Values* 19: 3–23.
- Bateson, G. (1972). *Steps to An Ecology of Mind*. San Francisco, California: Chandler Publishing Company.
- Baur, H. and C. Kradi (2001). "Integrating participatory research methods in a public agricultural research organization: A partially successful experience in Morocco." Agricultural Research and Extension Network Paper #109. London, UK: Overseas Development Institute.
- Cerf, M., D. Gibbon, B. Hubert, R. Ison, J. Jiggins, M. Paine, J. Proost, and N. Röling (eds.) (2000). *Cow Up a Tree: Knowing and Learning for Change in Agriculture. Case Studies from Industrialised Countries*. Paris, France: INRA.
- Chambers, R. (1997). *Whose Reality Counts? Putting the First Last*. London, UK: IT Publications.
- Collinson, M. (2001). "Institutional and professional obstacles to a more effective research process for smallholder agriculture." *Agricultural Systems* 69(1–2): 27–36.
- Cranton, P. (1994). *Understanding and Promoting Transformative Learning: A Guide for Educators of Adults*. San Francisco, California: Jossey-Bass.
- Cranton, P. (1996). *Professional Development as Transformative Learning*. San Francisco, California: Jossey-Bass.
- Cranton, P. and K. King (2003). "Transformative learning as a professional development goal." *New Directions for Adult and Continuing Education* 98: 31–37.
- Critchley, W., R. Cooke, T. Jallow, S. Lafleur, M. Laman, J. Njoroje, V. Nyagah, and E. Saint-Firmin (eds.) (1999). *Promoting Farmer Innovation. Harnessing Local Environmental Knowledge in East Africa*. Report series 2. Regional Land Management Unit (RELMA) Workshop. Nairobi, Kenya: Regional Land Management Unit, RELMA/Sida, ICRAF House, Girigi.
- Fell, R. F. (1999). "Adult learning and action learning – A real workplace learning approach." *Journal of Education and Extension* 6(2): 73–82.
- Franz, N. (2003). "Transformative learning in extension staff partnerships: Facilitating personal, joint and organizational change." *Journal of Extension* 41(2): 1–9.
- Freire, P. (1972). *Pedagogy of the Oppressed*. Middlesex, New Jersey: Penguin Books.
- Fry, H., S. Ketteridge, and S. Marshall (1999). *A Handbook for Teaching and Learning in Higher Education: Enhancing Academic Practice*. London, UK: Kogan Page.
- Hagmann, J., E. Chuma, K. Murwira, and M. Connolly (1999). "Putting process into practice: Operationalising participatory extension." AgREN network paper #94. Agricultural Research and Extension Network. London, UK: Overseas Development Institute.
- Hall, A. and S. Nahdy (1999). "New methods and old institutions: The 'systems context' of farmer participatory research in national agricultural research systems. The case of Uganda." Agricultural Research and Extension Network Paper #93. London, UK: Overseas Development Institute.
- Hamilton, G. (1998). "Co-learning tools: Powerful instruments of change in Southern Queensland, Australia." In N. G. Röling and M. A. E. Wagemakers (eds.), *Facilitating Sustainable Agriculture: Participatory Learning and Adaptive Management in Times of Environmental Uncertainty* (pp. 172–190). Cambridge, UK: Cambridge University Press.
- Hart, M. (1990). "Critical theory and beyond: Further perspectives on emancipatory education." *Adult Education Quarterly* 40(3): 125–138.
- Kasl, E. and D. Elias (2000). "Creating new habits of mind in small groups." In J. Mezirow and Associates (eds.), *Learning as transformation. Critical Perspectives on a Theory in Progress* (pp. 229–252). San Francisco, California: Jossey-Bass.
- Kersten, S. (2000). "From debate about degradation to dialogue about vegetation management in western New South Wales, Australia." In M. Cerf, D. Gibbon, B. Hubert, R. Ison, J. Jiggins, M. Paine, J. Proost, and N. Röling (eds.), *Cow up a Tree. Knowing and Learning for Change in Agriculture. Case Studies from Industrialised Countries* (pp. 191–204). Paris, France: INRA.
- King, C. (2000). "Moving from natural to systemic social learning through systematic reflection and dialogue." In M. Cerf, D. Gibbon, B. Hubert, R. Ison, J. Jiggins, M. Paine, J. Proost, and N. Röling (eds.), *Cow up a Tree. Knowing and Learning for Change in Agriculture. Case Studies from Industrialised Countries* (pp. 205–226). Paris, France: INRA.
- King, P. and K. Kitchener (1994). *Developing Reflective Judgement*. San Francisco, California: Jossey-Bass.
- Kitchener, K. (1983). "Cognition, metacognition and epistemic cognition: A three level model of cognitive processing." *Human Development* 26: 222–232.
- Kolb, D. A. (1984). *Experiential Learning: Experience as the Source of Learning and Development*. Englewood Cliffs, New Jersey: Prentice Hall.
- Korten, D. C. and R. Klauss (1984). *People Centred Development – Contributions Toward Theory and Planning Frameworks*. Bloomfield, Connecticut: Kumarian.
- Kovan, J. T. and J. M. Dirx (2003). "'Being called awake': The role of transformative learning in the lives of environmental activists." *Adult Education Quarterly* 53(2): 99–118.
- Lave, J. and E. Wenger (1991). *Situated Learning: Legitimate Peripheral Participation*. Cambridge, UK: Cambridge University Press.

- Malinen, A. (2000). *Towards the Essence of Adult Experiential Learning*. Jyväskylä, Finland: SoPhi Academic Press.
- Mezirow, J. (1990). *Fostering Critical Reflection in Adulthood: A Guide to Transformative and Emancipatory Learning*. San Francisco, California: Jossey-Bass.
- Mezirow, J. (1991). *Transformative Dimensions of Adult Learning*. San Francisco, California: Jossey Bass Wiley.
- Mezirow, J. (1997). "Transformative learning: Theory to practice." *New Directions for Adult and Continuing Education* (74): 5–12.
- Mezirow, J. (2000). "Learning to think like an adult. Core concepts of transformation theory." In J. Mezirow and Associates (eds.), *Learning as Transformation: Critical Perspectives on a Theory in Progress* (pp. 3–33). San Francisco, California: Jossey-Bass.
- Michelson, E. (1996). "Usual suspects: Experience, reflection and the (en)gendering of knowledge." *International Journal of Lifelong Education* 15(6): 438–454.
- Röling, N. G. and J. Jiggins (1998). "The ecological knowledge system." In N. G. Röling and M. A. E. Wagemakers (eds.), *Facilitating Sustainable Agriculture: Participatory Learning and Adaptive Management in Times of Environmental Uncertainty* (pp. 283–311). Cambridge, UK: Cambridge University Press.
- Röling, N. G. and M. A. E. Wagemakers (1998a). "A new practice: Facilitating sustainable agriculture." In N. G. Röling and M. A. E. Wagemakers (eds.), *Facilitating Sustainable Agriculture: Participatory Learning and Adaptive Management in Times of Environmental Uncertainty* (pp. 3–22). Cambridge, UK: Cambridge University Press.
- Röling, N. G. and M. A. E. Wagemakers (eds.) (1998b). *Facilitating Sustainable Agriculture: Participatory Learning and Adaptive Management in Times of Environmental Uncertainty*. Cambridge, UK: Cambridge University Press.
- Saad, N. (2002). *Farmer Processes of Experimentation and Innovation: A Review of the Literature*. Cali, Colombia: Participatory Research and Gender Analysis Program, CGIAR.
- Scarborough, V., S. Killough, D. A. Johnson, and J. Farrington (eds.) (1997). *Farmer-led Extension: Concepts and Practices*. London, UK: IT Publications.
- Schön, D. A. (1983). *The Reflective Practitioner: How Professionals Think in Action*. Aldershot, UK: Ashgate Arena.
- Sumberg, J. and C. Okali (1997). *Farmers' Experiments: Creating Local Knowledge*. London, UK: Lynne Rienner Publishers.
- Sutherland, A., A. Martin, and D. R. Smith (2001). *Dimensions of Participation: Experiences, Lessons and Tips for Agricultural Research Practitioners in Sub-Saharan Africa*. Chatham, UK: Natural Resources Institute.
- Sutherland, P. (1997). "Experiential learning and constructivism: Potential for a mutually beneficial synthesis." In P. Sutherland (ed.), *Adult Learning: A Reader* (pp. 82–92). London, UK: Kogan Page.
- Tchawa, P., P. Kamga, C. Ndi, S. T. Vitsuh, and A. M. Ze (2001). "Participatory technology development on soil fertility improvement in Cameroon." In C. Reij and A. Waters-Bayer (eds.), *Farmer Innovation in Africa: A Source of Inspiration for Agricultural Development* (pp. 221–233). London, UK: Earthscan.
- Taylor, E. W. (1998). "The theory and practice of transformative learning: A critical review." ERIC Clearinghouse on Adult, Career and Vocational Education, Information Series no 374. Accessed on October 28, 2003 at [http://ericacve.org/mp\\_taylor\\_01.asp](http://ericacve.org/mp_taylor_01.asp).
- Taylor, E. W. (2000). "Analysing research on transformative learning theory." In J. Mezirow and Associates (eds.), *Learning as Transformation. Critical Perspectives on a Theory in Progress* (pp. 285–328). San Francisco, California: Jossey-Bass.
- Taylor, E. W. (2001). "Transformative learning theory: A neurobiological perspective of the role of emotions and unconscious ways of knowing." *International Journal of Lifelong Education* 20(3): 218–236.
- Vaill, P. B. (1996). *Learning as a Way of Being: Strategies for Survival in a World of Permanent White Water*. San Francisco, California: Jossey-Bass.
- van de Fliert, E. and A. R. Braun (2002). "Conceptualizing integrative, farmer participatory research for sustainable agriculture: From opportunities to impact." *Agriculture and Human Values* 19: 25–38.
- Van Manen, M. (1977). "Linking ways of knowing with ways of being practical." *Curriculum Inquiry* 6: 205–228.
- Van Veldhuizen, L., A. Waters-Bayer, R. Ramirez, D. A. Johnson, and J. Thompson (eds.) (1997). *Farmer's Research in Practice: Lessons from the Field*. London, UK: IT Publications.
- Woodhill, J. and N. G. Röling (1998). "The second wing of the eagle: The human dimension in learning our way to more sustainable futures." In N. G. Röling and M. A. E. Wagemakers (eds.), *Facilitating Sustainable Agriculture: Participatory Learning and Adaptive Management in Times of Environmental Uncertainty* (pp. 46–71). Cambridge, UK: Cambridge University Press.

*Address for correspondence:* Rachel Percy, International and Rural Development Department, University of Reading, Reading, RG6 6AR, UK  
 Phone: +44-118-378-8885; Fax: +44-118-926-1244;  
 E-mail: r.b.percy@reading.ac.uk