

## 3 Learning through collective action

### 3.1 Overview

All stakeholders in an innovation system have relevant knowledge based on their roles in the system. This includes both codified (or explicit) knowledge and tacit (implicit) knowledge. The tacit knowledge in particular can only be tapped into and made available to others through interactive learning and by joint action.

Beyond simply a concerted *action* process, we therefore argue that IAR4D is a mutual and interactive *learning* process, with stakeholders learning from each other and from the experience of working together; a process often referred to as “social learning”. For this type of experiential learning to be effective, and hence for IAR4D to be effective, it requires a conscious but flexible cyclical and interactive process of planning, action and reflection, re-planning and so on.

The learning that takes place is thus embedded in the partnerships needed to resolve real world issues, and focuses primarily on the processes of stakeholder interaction themselves, rather than just on the technology, policy options, etc. It is the processes learned that can be adapted for use in other situations, to solve other complex problems, rather than only technical results or outputs.

This learning takes place at several different levels:

- At the **individual** level, where individuals learn about their own interaction with others, and how their own personalities, attitudes, and “mindsets” affect this interaction;
- At the **organisational** level, where members of organisations collectively learn how their administrative and management practices, incentive structures, etc. affect or limit the interaction between individuals within the organisation and between the organisation and other stakeholders (these aspects are discussed in more detail in Chapter 7 of this resource book).
- At the inter-organisational or **institutional** level, where individuals and organisations collectively learn how they interact to facilitate innovation. In other words, learning how to collectively create the “enabling environment” that encourages this interaction, and how to share information and manage knowledge across such networks. In addition, local systems need to learn from other local systems (e.g. through national learning platforms), and national innovation systems need to learn through international platforms.

#### 3.1.1 Learning and agricultural research

Theories of adult learning recognise that adult learners learn mainly from experience rather than instruction (adult learning is therefore often called “andragogy”, to contrast with “pedagogy” or the more instructivist approaches associated with teaching children). Constructivist learning approaches also assume that much knowledge is socially constructed through dialogue and consideration of multiple perspectives, rather than being something external and handed on by a knowledgeable “authority” or “teacher”.

“Experiential learning” models, such as those proposed by David Kolb and colleagues, suggest that there are 4 different but linked sub-processes that interact in a cyclical process over a period of time (which may be minutes or months). In this cycle, direct (“concrete”) experience is followed by reflection on what happened, then the formulation of a general rule or conclusion from this reflection (conceptualisation), followed by more experimentation that gives rise to new experience, and so on. This process forms the basis of “action research”, or “learning cycles” of planning – action – observation – reflection by stakeholders.

“Action Research” is so called because the main objective is to effect change (the action) and learn from that change (the research), not just generate new information, emerging as a means for researchers to engage with and practically solve important social problems. It therefore contrasts with the conventional research, its objectives, its institutions, its methods and its principles. Reflection is the crux of the methodology, with the resulting joint learning enabling participating stakeholders engaged in action research to analyse the outcomes of their actions, their own behaviour and the processes in which they are involved, hence leading to adjustments in their plans, commitment to joint decisions, and a general improvement in competencies. The process is iterative, thus systematically testing the concepts, methods and interpretations developed in the early cycles, allowing fine-tuning and improvement.

These core principles of action research, and the cycle of planning-action-observation-reflection, form the basis for ARD thinking and have been used as the basis for many applied research programmes in Africa. A prominent example is the African Highlands Initiative, supported by ICRAF and working to improve natural resource in several countries of East Africa. The principles have also been adapted as part of the “Participatory Learning and Action Research” (PLAR) approach, which was originally developed to promote integrated soil fertility management in Africa, then adapted by the Africa Rice Center (WARDA) for use with integrated rice management, and later still adopted by the Aga Khan Foundation for its programmes in Tanzania and Madagascar. Using the PLAR approach, farmer groups reflect on their experience, decide themselves on things to try out, and then learn from each other’s tryouts in successive seasons.

A similar learning and empowerment approach is the “Farmer Field School” (FFS). The general FFS approach is based on the principles that farmers are experts, they “learn-by-doing”, they carry out field studies when they want to learn, they learn in groups, they generate their own learning materials, and they are supported by extension workers as facilitators – not teachers. Originally developed in Indonesia in the 1980s to promote Integrated Pest Management as an alternative to intensive pesticide use in rice (and consequent devastating losses to brown plant hopper), the FFS approach has since been extended to other contexts, including soil fertility management, livestock production and forestry in Africa. It has also been developed beyond the original natural resource management perspective (as in “Farmer Business Schools”).

An even broader approach to multi-stakeholder learning are the “Learning Alliances” established by the Rural Agro-enterprise Development Project at CIAT, mainly in Latin America but with some experience in Africa. These Learning Alliances seek to build links and improve communication between the different stakeholders (researchers, donor and development agencies, the public sector and private enterprise), design and test methods for analysis and documentation that facilitate collective learning by these stakeholders, and build an innovation system that supplies new ideas in response to demand at both local and policy levels. From the perspective of ARD, such broad-based learning alliances are valuable because of the possibility that they can integrate institutional and policy change, as well as the traditional focus on technology. However, such broad approaches that attempt to analyse and share experiences and promote joint learning from diverse partner agencies different scales (e.g. local, municipal, provincial, national) are undoubtedly very demanding of time and effort.

### 3.1.2 ARD learning in South Africa

The approach to learning in ARD in South Africa is described in more detail in this chapter. The ARC, together with support from ICRA in the Netherlands has attempted to integrate learning within ongoing research and development contexts as defined by ARC Institutes and Provincial Departments of Agriculture. These learning programmes have been based on the action research learning cycles described above, consisting of planning, research, analysis and reflection. The fieldwork has followed three main stages:

- **Forming partnerships** between the ARC, the PDAs, municipal governments, and local communities who share an interest in a common "development challenge";
- **Achieving a common understanding** of this challenge - synthesizing the perspectives of different stakeholders, understanding the wider context of the challenge, negotiating and defining the changes that these stakeholders want to jointly achieve;
- **Screening and evaluating** the different options that exist, or activities already carried out, to improve technology, service delivery, policies and institutional change that can enable innovation and improve rural livelihoods.

These learning programmes have been successful particularly at the individual and team level, and several projects developed within the context of the learning cycle have had success in initiating and facilitating multi-stakeholder interaction. However, sustaining this multi-stakeholder interaction, and “mainstreaming” these ARD processes has remained a challenge, showing the need to give more emphasis to organisational and institutional aspects.

### 3.1.3 Outline of chapter 3

This chapter reviews learning in ARD.

First, in section 3.2, we review some learning theories that we think are especially relevant to ARD: these include adult learning, experiential learning and action research and learning.

Next, in section 3.3, we look at the experience ICRA has in organising learning programmes in ARD: the competencies we think are necessary, the essential elements of such programmes, and the way in which these elements can be put together to make a practical programme.

Finally, in section 3.4, we look at the experience to date of organising ARD learning programmes in South Africa, and the integration of these into ongoing research and development programmes of the Agricultural Research Council and Provincial Departments of Agriculture.

### 3.1.4 Bibliography

Defoer, T. and A. Budelman, (eds), 2000. “Managing soil fertility in the tropics: A resource guide for participatory learning and action research”, by The Royal Tropical Institute (KIT), Amsterdam, The Netherlands.

Lundy M., Gottret, M.V. and J. Ashby, 2005. “Learning alliances: An approach for building multi-stakeholder innovation systems”, ILAC Brief No 8. Available at: <http://www.cgiar-ilac.org/downloads/Briefs/Brief8Proof2.pdf>

Pontius, J., Dilts, R., and A. Bartlett. (eds.) “Ten Years of IPM Training in Asia - From Farmer Field School to Community IPM”. FAO, Rome. Available at: <http://www.fao.org/docrep/005/ac834e/ac834e04.htm>

Note: for additional bibliography on experiential learning and action research, see section 3.2.

## 3.2 *Learning theories*

### 3.2.1 How do we learn?

How do we learn? How should we teach? These are simple questions that have caused debate for thousands of years, and given rise to many theories. But they are also important questions, if we wish to be efficient and effective at learning ARD.

If you ask someone how they “know” something - the formula for calculating the area of a circle, for example – they might say that they had been instructed, that they had learned from a teacher, or that they had read it in a geometry textbook. Of course, not everybody believes everything they read or are told, especially if it conflicts with what they already know or believe. If you ask someone how they know how *to do* something – ride a bicycle or even give a convincing lecture to students, for example - they might well say that they learned by experience - having a go, by trial and error, until they got good at it.

Of course, some people are more adventurous than others. Some people do not like to try and fail. The Irish author George Bernard Shaw is reputed to have said, “A man learns to ice-skate by staggering about making a fool of himself. Indeed he progressed in all things by making a fool of himself”. Young children, for example, are often less self-conscious and seem to learn to skate, as well as learn different languages, more easily than adults. It seems clear, therefore, that there are different ways of learning, and that different types of people learn best in different ways depending on what it is we are learning, our age, or even our personality. Some of these different ways will be briefly explored in the following sections.

### 3.2.2 Pedagogy and Andragogy

“Pedagogy” is often considered to be the profession of teaching. But it has come to be associated with certain styles of teaching. The word itself is derived from the Greek “*paedagogus*”, who was a slave who took a boy to and from school (“*agogos*”, meaning leader, and “*paidos*” meaning child). Although the ancient Greeks might have placed more value on other ways of learning (such as through experience, see below), a more authoritarian way of teaching was developed in the monastic schools of Christian Europe in the Middle Ages (7<sup>th</sup> to 12<sup>th</sup> centuries AD), where the emphasis was on instruction or transfer of knowledge from one who knows (the instructor), to one who doesn’t (the student). Pedagogy is therefore often regarded as the technique of teaching children. Even more specifically, it is now often associated with the more instructivist or teacher-directed approach still often used with children – even when this approach is applied to adults.

However, and as became increasingly recognised during the 20th century, adults do not necessarily learn effectively through an instructivist or pedagogical approach. Adults are more independent and responsible for their own actions. They are often motivated to learn by a desire to solve immediate problems or improve skills needed for work and leisure. Adults also have accumulated experiences and knowledge, into which new knowledge and skills need to be integrated.

In 1970, Malcolm Knowles therefore introduced the term “andragogy” (“*andros*” meaning adult) as “the art and science of helping adults learn”. Contrasting pedagogy and andragogy is sometimes regarded as a false dichotomy. Nevertheless, for illustrative purposes the two different approaches of pedagogy and andragogy are contrasted in Table 3.1 below:

**Table 3.1 Contrasts between pedagogy and andragogy**

<b>Pedagogy</b>	<b>Andragogy</b>
The learner is dependent – the teacher determines what is learned, when it is learned, and how learning is evaluated.	The learner is more independent – the teacher encourages this independence and guides the learner.
The experience of the learner is not considered to be significant -teaching methods are didactic.	Experience is valued as a rich resource for learning – and forms the basis of discussions and problem solving, etc.
People learn what society expects them to – the curriculum is standardised.	People learn what they need to – the curriculum is organised around their needs.
Learning themes are organised around abstract disciplines.	Learning themes are organised around experiences, problems and/or expected competencies.

From this table, effective adult learning principles can be emphasised:

- Self-concept - let the learner know why something is important to learn.
- Experience - relate the learning content to the learner’s experiences.
- Readiness – help the learner to overcome inhibitions, behaviours and beliefs about learning.
- Orientation – show the learner how to direct her/himself through the information.
- Motivation - recognise that learning will not occur until the learner is motivated and ready to learn.

**Table 3.2 Instructivist and constructivist learning approaches**

<b>Instructivist</b>	<b>Constructivist</b>
Knowledge is transferred to the learner through instruction by a knowledgeable "authority" – the teacher.	The learner constructs new knowledge by relating new information to prior knowledge and experience.
Knowledge is objective – a “given”: it is external to the learner.	Knowledge is socially constructed through dialogue and consideration of multiple perspectives.
Learning – through “study” - is an individual process.	Learning – through dialogue - is a group process.
The teacher is responsible for, and controls the learning process through sequenced, hierarchical learning objectives	The learner takes responsibility for learning according to personal need. Teachers become guides rather than dispensers of knowledge
Evaluation is against set standards.	Evaluation of learning is through observation and dialogue

Another, yet related way of contrasting learning approaches is to refer to “instructivist” and “constructivist” approaches (see Table 3.2). Instructivist approaches refer to the more authoritarian approaches, with transfer of knowledge analogous to filling an empty vessel. Constructivist approaches recognize that new knowledge needs to be integrated with existing knowledge, and also that learning is often gained through dialogue and consequent exploration of different ideas and progressive understanding. As can be seen from the two tables, there is quite a degree of similarity between the instructivist approach and pedagogy, and between the constructivist approach and andragogy.

### 3.2.3 Experiential learning

*“One must learn by doing the thing; though you think you know it, you have no certainty until you try”.* (Sophocles, 495-406 BC)

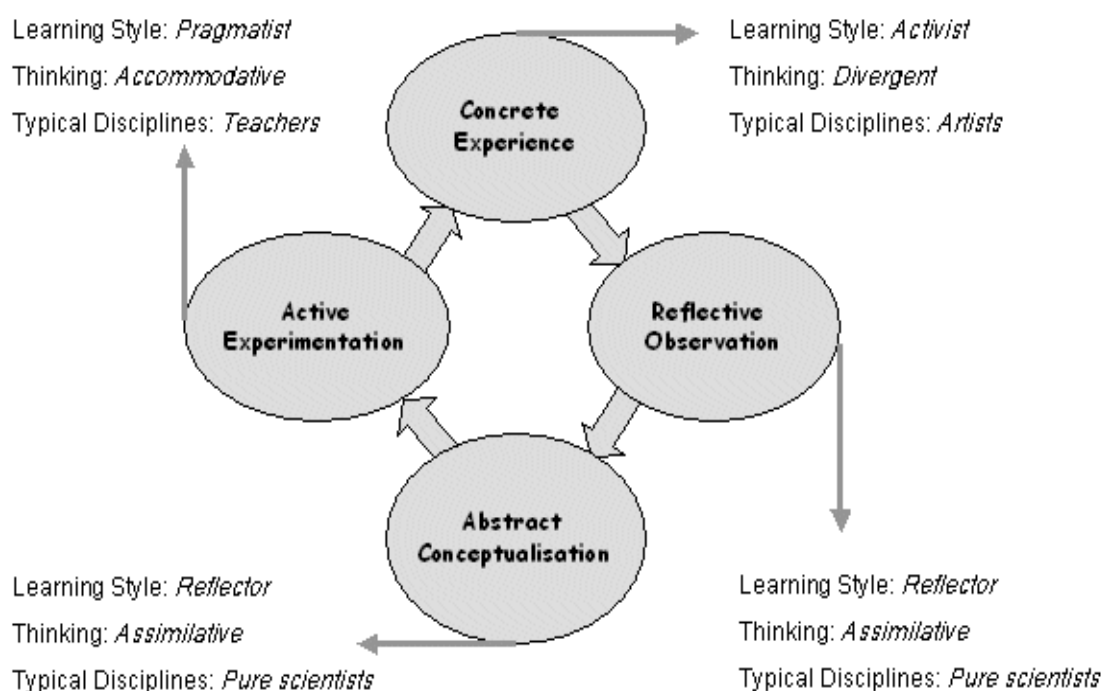
*“Tell me, and I will forget. Show me, and I may remember. Involve me, and I will understand”* (Confucius, 551-479 BC)

*“Knowledge is experience, everything else is just information”.* (Albert Einstein, 1879 – 1955).

These 3 reported quotes demonstrate the importance that many thinkers, ancient and modern, have given to learning through experience, or “experiential learning”. At its simplest, experiential learning can occur after any unstructured or unintentional experience. However, it can also refer to more developed theories of how people learn, which can then be used to develop more structured and effective learning programmes such as the ARD “learning cycles”, described in this resource book.

David Kolb described the process of experiential learning in his cyclical model. He suggested that there are 4 different but linked sub-processes that interact over a period of time (which may be minutes or months) to achieve learning. In this learning cycle, direct (“concrete”) experience is followed by reflection on what happened, then the formulation of a general rule or conclusion (conceptualization), followed by more experimentation that gives rise to new experience etc. (see Figure 3.1).

**Figure 3.1 Kolb’s learning cycle**



Peter Honey and Alan Mumford developed this model to suggest that different learners have different and individual “learning styles”, that is, they have a preference or are stronger in one or other of the component learning processes. People that like to learn, or learn more effectively, from concrete experience are referred to as “activist” learners. Similarly, “reflectors” learn more from reflective observation, “theorists” from abstract conceptualisation, and “pragmatists” from experimentation. Others have also developed similar learning style “typologies”, and have designed tests (“learning style inventories”) to help individuals identify their respective strengths and styles, and hence derive learning processes that play to those strengths or balance the needs of a group where different individual learning styles are prevalent.

Kolb himself and his colleagues also went further and related his learning cycle and learning styles to different and contrasting types of knowledge identified by Hudson and by Piaget:

- Linking concrete experience and reflective observation represents *divergent* thinking. People with this learning style tend to be strong in imaginative ability, good at generating ideas and seeing things from different perspectives (i.e. “systemic” or “systems thinking – see section 4.4), and interested in people. Such thinking is often found in people such as artists.
- In the opposite quadrant connecting abstract conceptualisation and active experimentation, *convergent* thinkers are strong in the practical application of ideas, applying deductive reasoning to specific problems (e.g. the “systematic thinking” that is required for logical frameworks – see section 7.6), may be unemotional and perhaps with narrow interests. This type of learning style or thinking is typically found in applied scientists.
- Relating reflective observation and abstract conceptualisation represents *assimilative* thinking and inductive reasoning, typified by a strong ability to create theoretical models that relate to abstract concepts rather than the more day-to-day affairs of people. Such thinking is often found in more basic or pure scientists.
- Linking active experimentation and concrete experience represents accommodative thinking. People with these traits are strong at doing things, tend to be more risk takers and solve problems intuitively.

Kolb’s model and the linkages between actions, types of thinking or knowledge and disciplines represent considerable generalizations, and the model has been extensively criticized from many different perspectives. Nevertheless, it does indicate the value of bringing the strengths of different types of thinking and different disciplines together in a broad social learning process such as ARD, as well as underpin the basic ARD “learning cycle” as well as approaches such as “action research and learning”, etc.

#### 3.2.4 Participatory learning methods

Much is written about participatory learning methods, for both classroom situations (at schools and tertiary institutions) and training of professionals (in-service learning). The context discussed here is the professional skills development programme, using participatory learning methods to enhance learning to improve one’s practice. This is because continuous professional development is more than engaging the learner in the process; it also includes learning from others such as is the case in ARD.

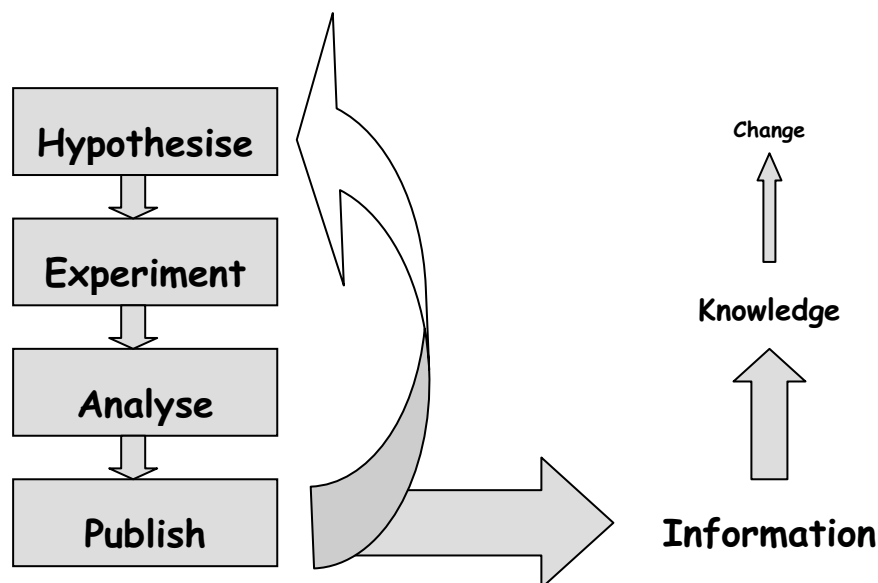
The word participation in this case, stands for “the action or state of taking part with others in an activity”. The fundamental basis of all participatory learning methods is that “learners” are active participants instead of passive listeners or readers. There are different means of participation in order to improve professional practice. Participation is promoted particularly in adult education due to the understanding that passive listening during didactic sessions is unlikely to change behaviour. By contrast, active participation during interactive sessions

influences subsequent practice. In agriculture, participatory learning methods, with focus on complex and real decision-making processes, are well suited to integrate the knowledge of relevant scientific evidence - the “*what*” - with the appropriate “*how*” and “*when*” in the local context. Knowledge building and behavioural change takes place by participation in collaborative research, organisational development processes, and interactive education activities. Participatory learning methods and intellectual interaction between professionals, which integrate scientific evidence within the context and content of concrete experience, are an effective part of professional development. In addition, these methods increase the joy of learning!

### 3.2.5 Action Research and Learning

“**Conventional**” scientific research, as considered here (to contrast it with action research) can be a linear or cyclical process leading from the formulation of some hypothesis, through experimentation, to analysis of the results leading to some conclusion concerning how things are or new hypotheses (see Figure 3.2). These findings are then usually published in an appropriate professional journal

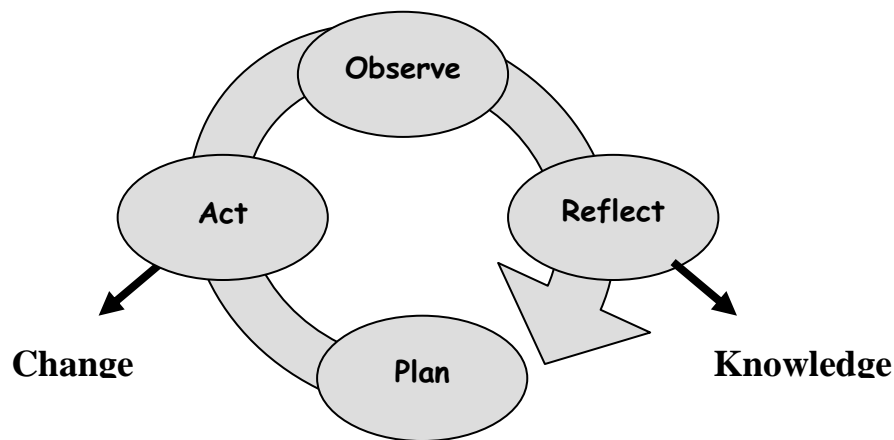
**Figure 3.2 The conventional scientific research process**



The main output of this process is information (represented by the publication). This information may lead to knowledge (in the sense that someone uses the information to do something differently), which in turn may lead to broader outcome – beneficial change among a particular group of stakeholders or society. But equally it may not: the information may remain unused or “on the shelf”. As the publications themselves (in terms of number and reputation of the publishing authority) often form the basis of evaluating professional capabilities, the scientist may have little incentive to ensure that the information is useful or used.

**Action research**, by contrast (see Figure 3.3), is specifically intended to lead to action (improvement, development) as an outcome, in addition to research (knowledge, understanding). The understanding allows more informed change, and at the same time understanding is improved by observing and reflecting on the results of the action carried out (as Kurt Lewin is reputed to have said: “If you want to know how things are – just try to change them.”). ARD promotes research (for new understanding) that clearly leads to joint planning and actions by all concerned.

**Figure 3.3** The action research process



Action Research tends to be cyclic, participatory, and qualitative:

- Action research is cyclical in that it is based on Kolb's learning cycle described above. It is also iterative in that the cycle is repeated, with new planning based on the lessons learned through reflection of previous experience and actions.
- Action research is participatory because needs to involve the people who are likely to be affected by the change. This allows the understanding to be widely shared and the change to be pursued with commitment.

Action research tends to be mostly qualitative, in that it focuses on the actions and behaviour of people, and these actions are not often amenable to more formal scientific quantification and analysis.

### 3.2.6 Bibliography – learning

#### 3.2.6.1 Acknowledgements

This section was written by Richard Hawkins, Colletah Chitsike and Thembi Ngcobo, using sources cited below.

#### 3.2.6.2 References

Atherton, J. S., 2009. "The experiential learning cycle" Available at: <http://www.learningandteaching.info/learning/experience.htm>

Dick, B., 2002. Action research: action and research. Available at <http://www.scu.edu.au/schools/gcm/ar/arp/aandr.html>

Smith, M. K., 1999. "Andragogy". The encyclopaedia of informal education. Available at: <http://www.infed.org/lifelonglearning/b-andra.htm>

#### 3.2.6.3 Further reading

##### Internet gateways

Learning from Experience (The Kolb's own website on experiential learning). <http://www.learningfromexperience.com>

"Experiential learning articles and critiques of David Kolb's theory" by Pickles T., and R. Greenaway. Available at: <http://reviewing.co.uk/research/experiential.learning.htm>

Action Research Resources, maintained by Bob Dick.  
[www.uq.net.au/action\\_research/arhome.html](http://www.uq.net.au/action_research/arhome.html)

“Action Research”, maintained by Martin Ryder, University of Colorado.  
[http://carbon.cudenver.edu/~mryder/itc/act\\_res.html](http://carbon.cudenver.edu/~mryder/itc/act_res.html)

“Action Research” Maintained by Emerging Technologies.  
<http://www.emtech.net/actionresearch.htm>

“Constructivism”. School of Education at the University of Denver, maintained by Martin Ryder. [http://carbon.cudenver.edu/~mryder/itc\\_data/constructivism.html](http://carbon.cudenver.edu/~mryder/itc_data/constructivism.html)

### **Publications**

Allen W. (2001) “The role of action research in environmental management”. In: Working together for environmental management: the role of information sharing and collaborative learning. Available at: [http://learningforsustainability.net/research/thesis/thesis\\_ch3.html](http://learningforsustainability.net/research/thesis/thesis_ch3.html)

MacIsaac, D., 1996. “Introduction to action research: A simple outline of the basics” Available at <http://physicsed.buffalostate.edu/danowner/actionrsch.html>

McNiff, J. (2002) “Action research for professional development: Concise advice for new action researchers” by Available at <http://www.jeanmcniff.com/booklet1.html>

Matthews, M. R., 2000. “Constructivism, Epistemology and the Learning of Science” Editorial in the special issue of Science and Education, Vol. 9, pages 491–505, Kluwer Academic Publishers.

### 3.3 Organising an ARD Learning Programme

#### 3.3.1 ARD competencies

In addition to the “normal” disciplinary or specialist professional capacities that are commonly developed through higher education, ARD requires competencies in a range of analytical and process skills (“meta-disciplines”) as well as a “professional ethos” that enables and encourages interaction with people of different gender, race, social class or perspectives concerning development.

1. **Disciplinary or specialist disciplines** include, for example:

- Techno-productive disciplines – crop and livestock breeding, protection and production, etc;
- Natural resource management disciplines – soil science, fertility and irrigation management, watershed conservation, etc;
- Micro-economic disciplines - cost benefit, profitability, and value chain analysis, etc;
- Macro-economic disciplines - analysis of policies, regional comparative advantage, national competitiveness, etc;
- Social disciplines – analysis of stakeholder interaction and organisation, information flow, social/ gender analysis of power differences, etc.

Most professionals are specialised in one area or another of these disciplines. A good “ARD practitioner” should know enough about the others to know when additional specialist expertise is useful.

2. In addition to specialist disciplinary skills, the ARD practitioner also needs **crosscutting or “meta-disciplinary” skills** that enable such specialist knowledge to be applied. Such skills include:

- Process facilitation – encouraging communication between different stakeholders or social groups, team management, promoting decision making, conflict management, etc;
- Systems analysis - the capacity to visualise complex entities as systems at various organisational levels, analyse interactions between the components of these systems, and between these systems and their environments, etc;
- Planning – the ability to define objectives, analyse future scenarios, develop multi-stakeholder action plans and individual business plans, monitoring and evaluation frameworks, etc;
- Epistemological awareness – understanding the value systems of others, learning how to learn, knowing how to promote action learning, etc.

3. In addition to these specialist or cross-cutting skills, everyone who works with other people (and that includes ARD practitioners) needs **social or “soft” skills** that are linked to a certain professional ethos:

- Motivation – the desire to improve one’s own performance, to continue learning, re-evaluate beliefs, cross inter-personal barriers, etc;
- Emotional intelligence - empathy, sensitivity, self awareness (of strengths and weaknesses), self confidence and self regulation, etc;

- Being a “team player” – the willingness to value and appreciate the contribution of others, and work with them to produce an overall result that could not have been achieved through individual efforts.
- Possess valuable attributes for rural innovation- ability to communicate and form trusting relationships, ability to listen & effectively give and receive feedback, ability to effectively manage conflict situations, ability to identify, prioritize & solve problems, ability to plan & implement change, ability to effectively participate in groups, ability to lead others individually and in groups.

Developing these competencies requires more than simply “training”, “courses” or “workshops” where information is transferred to individuals. Beyond even knowledge of key concepts and analytical skills, learning has to result in improved abilities to communicate, and to manage processes such as facilitation of individuals and groups. Such learning requires changes of behaviour and attitudes that are usually well entrenched in individuals by the time they are practicing professionals.

### 3.3.2 A framework for learning ARD

On the basis of the above theory, our appreciation of the ARD competencies required, as well as the experience gained by ICRA over 25 years, we suggest that a framework for learning in ARD needs to include the following characteristics:

- **Situated in real-world challenges.** The challenges posed by rural innovation, change and development are complex. Different stakeholders hold different ideas about what should be done. Interaction between these stakeholders is crucial. Motivations are not always simple, or open. In such a situation, stakeholders are not neutral observers or analysts, but actors with roles and interests to defend within the whole innovation “system”.

Learning about such a system can only take place in a real world environment, where these different interests are in play. Even a “case study” approach cannot replicate the complexities encountered or offer opportunities for trying, reflecting upon and hence improving communication and facilitation skills. We believe therefore that learning about ARD is best organised around a shared “research and development challenge” or agreed “entry point”, which serves as a “platform” where stakeholders can come together on the basis of mutual trust and clearly defined institutional roles and commitments. This means locating learning within ongoing programmes and projects – with all their organisational and operational constraints.

- **Multi-stakeholder interaction.** Complex problems in the real world are rarely solved by a simple technological “fix”, or by the efforts of one discipline, institution or stakeholder alone. Partnerships and action research teams comprising representatives of the main stakeholders therefore need to include the disciplines necessary to analyze the situation, and the institutions with the power to change it.

Working with other disciplines and stakeholders provides its own challenges. Each discipline, institution or stakeholder has its own contribution to make, but also its own culture and value system. Understanding the contributions of others and their ways of looking at things is fundamental in ARD partnerships. The ability to communicate, a willingness to learn from diverse viewpoints, and a way to realise what has been learned are important features of ARD learning.

- **Teamwork.** Higher education is a process that tends to select and reward individuals who are happiest working alone. Having spent years studying alone, producing individual thesis etc, the newly graduated professional is suddenly expected to work as a team member - and it often does not come naturally.

Learning how to be an effective team member, and lead effective teams, is a vital skill in ARD. Learning in small groups is also more effective for most people than learning alone. The opportunity to participate and contribute is greater in small groups of 5-6 persons than larger groups or a classroom where a person can easily hide (or go to sleep). Ideas are exchanged, consolidated, and one's own knowledge is therefore more effectively constructed in a small group that maximises social learning.

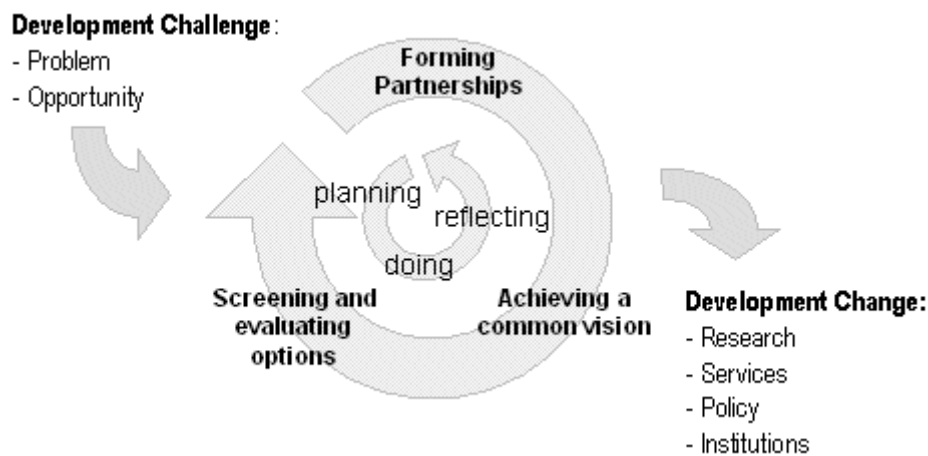
- **Action research learning cycles.** Everyone has a different learning “style”. However for most people – particularly adults – learning from experience is undoubtedly important. As seen in section 3.2 above, Kolb expanded on this in his influential theory of the “experiential learning cycle” (concrete experience – reflection – abstract conceptualisation – active experimentation).

A similar cyclical process of plan-act-observe-reflect-plan, etc forms the basis of most theories of “action research” or “action learning”, so called because it places emphasis on research and learning as a way of modifying action, and not just as a means of generating knowledge per se. As ARD is aimed at improving action through changing behaviour, the construction of action research cycles within ARD learning programmes is particularly critical.

### 3.3.3 The ARD “Learning Cycle”

To put these key principles into practice, ICRA and the ARC have organized learning in ARD around a “learning cycle”. This action learning process consists of two integrated cycles: an "action cycle" and a "learning cycle".

**Figure 3.4 The ARD Learning Cycle**



The **action cycle** (outer) consists of three stages:

1. **Forming partnerships** with other organizations or individuals who share a common "development challenge" - a complex development problem or opportunity;
2. **Achieving a common understanding** of this challenge - synthesizing the perspectives of different stakeholders, understanding the wider context of the challenge, defining what changes these stakeholders want to see in the "system";
3. **Screening and evaluating** the different options or activities carried out to improve technology, service delivery to rural people, and policy and institutional changes that further enable innovation and the improvement of rural livelihoods.

The **learning cycle** (inner) also consists of three stages:

1. **Planning** - where a team representing the main stakeholders or partners collectively decide what to do and how to go about it;
2. **Doing** - where the team and/or partner institutes collectively or individually implement the agreed activities; and
3. **Reflecting** - where the team collectively evaluates what it has done, how effective this has been, and how to further improve effectiveness in the future

We see these as cycles of iterative stages, rather than as a linear process because all development practitioners are already involved in these processes, and because the different stages are not clearly separated but iterative. At any stage, it may be necessary to form new partnerships; as options are evaluated, the understanding of the partners increases, and so on. Similarly, planning, doing and reflecting are always done simultaneously, even if one of these activities might be more prominent at any given time.

#### 3.3.4 Integrating theory and practice

The ARD learning cycles implemented by the ICRA and the ARC, including in the in-service programmes conducted by the ARC-ATTA in South Africa, have consisted of 2 distinct phases:

1. **“Knowledge acquisition” workshops**, where participants have been exposed to new ideas and improve skills. Understanding concepts (e.g. “systems”), allows participants to appreciate the rationale for different research and development approaches (e.g. “sustainable livelihoods analysis”, “value chain development”) that may be relevant to the particular research and development challenges faced. Skills developed include both “soft skills” (i.e. those needed for working with others, such as communication, facilitation, leadership, etc) and also the more traditional “hard skills” of research methods and analysis (such as stakeholder analysis or “logical framework” analysis).
2. **Fieldwork or project work**, where teams of participants address a particular “research and development challenge” which is shared by their respective partner institutions. Recent examples of such challenges in South Africa have normally been oriented around identifying economic and socially acceptable strategies for land reform farms, or focussing on particular aspects such as irrigation schemes, soil conservation measures or livestock production. The expected outcome of this fieldwork includes the definition of research and development plans/proposals that can be implemented by the partner institutions, as well as institutional and policy measures that can support these efforts. In general, the more this fieldwork can be “embedded” in the ongoing and joint projects of the partners, the better.

The challenge in integrating these 2 phases into an effective ARD learning programme is to determine the length of these phases, as well as the iteration between them. Usually, the practical administrative and logistical factors are as important as the more ideological considerations of learning needs.

An in-depth coverage of the different themes relevant to ARD (see below) requires a knowledge acquisition period of several weeks or even months. It is more difficult to get professional participation in an in-service programme of such a length, compared to a more formal academic programme leading to a diploma or MSc, for example. In the ARC in-service ARD programmes conducted in 2004-2007, the knowledge acquisition phases have varied from (a total of) 7-8 weeks – which is about the minimum required for an effective programme that gives a broad understanding of ARD.

The second issue is how to iterate the knowledge acquisition workshops with the fieldwork:

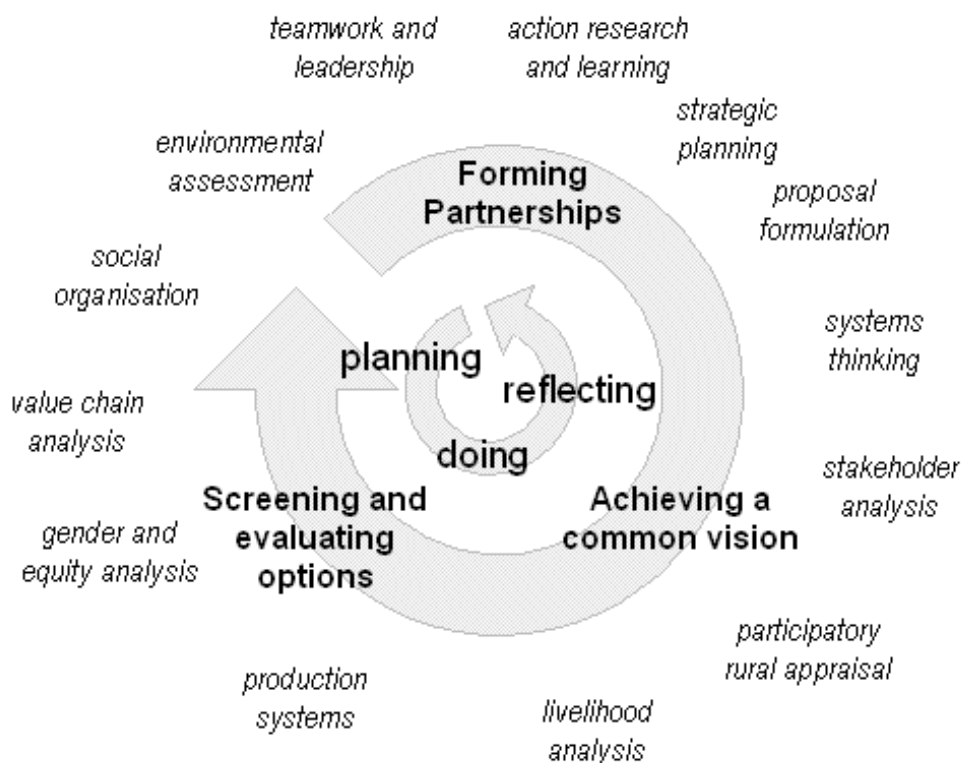
- The simplest option is to have one knowledge phase, covering all the necessary and relevant themes, followed by one fieldwork phase (perhaps with a final, short evaluation workshop). The advantage of this arrangement is the simpler logistics of having all the participants at one venue for one period, as well as the focussed attention by the team on the fieldwork during a defined period. The disadvantage is that it is more difficult to immediately apply lessons learned to the field, and the difficulty that many individuals and institutions have in being away from the field and “normal” duties for many weeks at a time.
- Having more, shorter, workshops interspersed with more, shorter fieldwork periods, allows new ideas to be more immediately applied to the field, and more opportunities for reflection and exchange of experience between teams during the subsequent workshops. Also, it is usually easier for participants to be away from the office and/or home for shorter periods of 1-3 weeks. If the time period between workshops is longer (e.g. several weeks or months), the danger is that momentum in fieldwork and learning is lost, and personnel changes may result in team composition changing.

### 3.3.5 Organising ARD learning workshops

#### 3.3.5.1 ARD themes

A number of conceptual and methodological “themes” are relevant to ARD. Some of these are included in Figure 3.5 below. These themes can provide the focus for workshops or sessions within workshops, according to the particular needs and priorities of learning groups.

**Figure 3.5** ARD themes



These themes are explored further in the different chapters of this resource book.

#### 3.3.5.2 Learning activities

Knowledge acquisition workshops can consist of the following activities:

1. **Presentations or lectures** by a resource person, often using slide-show technology or short videos. This is a familiar and often used way of exposing learners to new ideas, concepts and methods. Lectures and presentations are a traditional and familiar format to most resource persons, who may have pre-prepared resource material. They allow plenary discussion and questioning to clarify individual points as these arise. However, participants have no control over the pace or content – they may find the material uninteresting, or less relevant to their needs. Normally only a few learners in a large plenary group participate in discussions. Either the presentation loses some listeners, or it is pitched to the needs of the slowest person in the group, when others may get bored. Presentations - especially in a darkened room, those with less audiovisual material or plenary discussion, and especially when longer than 30 minutes – can be a very effective way of putting people to sleep! Their effectiveness can depend very much on the presenter, and the incorporation of audio-visual material, and maintaining a lively discussion that involves all those present.
2. **Individual study**, reading pre-prepared resource material such as that included in this book, allows participants to go at their own pace, and at a time convenient to them (if given the material with sufficient anticipation). However, it is not easy for learners to clarify points that are not clear to them from the material, and it is not always easy to select material with the right degree of relevance, clarity and brevity. Such study needs to be complemented by group activities where new concepts or methods are discussed or utilised in practice, and when the relevant issues can be explored through peer discussion. The study group method was used in the 2007 in-service learning for preparations of tests and assignments.
3. **Exercises or tasks in small groups** are effective as a learning activity because the opportunities for individual participation (discussion, questioning, and clarification) are greater than in large plenary groups. There are two general types of small group activity:
  - Discussion arranged around thematic case studies. These can be “primary case studies”, where group members discuss, probe or analyse their own individual experience, or “secondary” case studies where group members analyse a written case study. The disadvantage of “secondary” case studies is that they require considerable preparation if they are to be relevant, short and yet contain the detail needed for analysis.
  - Group exercises, where participants carry out a task or role-play designed to illustrate a particular lesson. Such exercises are especially used for developing teamwork and “soft-skills”. A valuable aspect of such tasks is that the combination of physical and mental activity, which suits many “activist learning styles (see section 3.2 above) and keeps energy levels high. Examples of such exercises can be found in books such as “Participatory workshops: A sourcebook of 21 sets of ideas and activities” and “A trainer’s guide for participatory learning and action”, etc.
4. **Fieldwork planning and reflection** form an important component in action learning cycles where “knowledge acquisition” is integrated with research and development projects or fieldwork, as advocated in this resource book.
  - In the planning sessions, it is important for teams to specify the objectives and expected outcomes of the following fieldwork, as well as the activities, individual responsibilities and resources needed. Appointments will also need to be arranged with other stakeholders where interviews (individual or group) are planned.

- In the reflection sessions, it is important to compare what actually happened with what was planned – what went well, what went less well or not as expected, and what should be done differently next time in similar circumstances.

In the in-service ARD learning cycles organized by the ARC and ICRA, the time allocated in “knowledge acquisition” workshops has been roughly 1/3 to presentations / individual study, 1/3 to small group exercises and 1/3 to fieldwork planning/reflection. Of course, this has varied according to the specific circumstances and thematic content of each workshop, as well as the facilitation styles of different resource persons. Nevertheless, this ratio seems to provide a reasonable balance of learning activities that accommodates the different styles usually present in a mixed group.

### 3.3.6 Organising ARD fieldwork

#### 3.3.6.1 *Embedding fieldwork in ongoing R&D programmes*

In organizing the fieldwork for an ARD learning programme, 2 principles are important:

1. Integration with the ongoing research and development priorities of participating institutions that are interested in developing capacity for ARD. If the theme is not of interest to the individual and institutional participants of the learning programme, it is unlikely that they will be motivated to participate in the fieldwork. Typically, these institutions and/or individuals will develop a preliminary set of objectives or “terms of reference” for the overall learning cycle in general and for the fieldwork in particular.
2. Involvement of stakeholders. If successful collective action is to be achieved – the aim of ARD – then relevant stakeholders must be actively involved in the fieldwork of any learning cycle. This has implications for the design of any learning programme, because the stakeholders in any rural development challenge represent very diverse institutions (from farmer groups, to local government, private businesses, government research and development organisations, etc.). Participants in a learning programme or operational field team drawn from these diverse organisations will themselves differ considerably in terms of field experience, academic ability – and their perspectives on the R&D challenge formulated. This diversity adds considerably to the “richness” and effectiveness of the ARD learning experience, but makes it more difficult to organise workshops and supporting material in a way that is suitable for all.

Fieldwork in an ARD learning programme is organized around the 3 stages of the action cycle described above.

#### 3.3.6.2 *Fieldwork is done by teams*

Fieldwork also requires effective teamwork, with team members fulfilling the following roles:

- Representing institutional/stakeholder interests.
- Contributing with disciplinary or expert knowledge and skills.
- Coordinating the team: motivate and direct team members towards achieving the expected outcomes; monitor progress, etc.
- Documenting progress, findings and lessons learned.
- Moderating team discussions: stimulate information exchange (seek opinions and information), clarify, summarise, facilitate decision-making, etc.

- Arranging logistics. Arrange and manage accommodation, transport, equipment, interpreters, support personnel, etc.
- Maintaining team harmony. Reduce tension, support, comfort, hear complaints, mediate in conflicts, etc.
- Managing information (text, data and graphics).

Of course, not every individual in the team has to fill all of these roles, but all of the roles need to be filled by someone if the team is to be effective. The topic of effective teamwork is explored further in Section 2.3 of this Resource Book.

In a learning team, it is also helpful to have someone who acts as a reviewer or mentor (a “reviewer” implies that someone is assessing the team; the role of a “mentor” is more to support the team on the basis of previous experience). Depending on the circumstances of a particular learning programme, the role of a reviewer or mentor might be to:

- Support the team in achieving its expected outputs and outcomes; review team progress and suggest modifications to expected outcomes and activity plans.
- Identify weaknesses in teamwork and suggest solutions; mediate or arbitrate (see section 2.5), when necessary, between conflicting interests within the team.
- Review written outputs and suggest improvements.
- Promote reflection by the team of its activities and outcomes, and to consolidate lessons learned from the experience; identify learning needs and suggest ways in which this learning can be achieved.
- Assess team members for purposes of academic qualification – if appropriate.

### 3.3.6.3 *Professional skills development*

Fieldwork integrated within ARD learning cycles provides the opportunity for the development of certain key skills required from a professional. These include the facilitation of multi-stakeholders processes, presentation skills, interpersonal skills and report writing. As the team assists stakeholders to jointly analyse the research and development challenge, insight and tact in facilitating the dialogue between and amongst the relevant stakeholders is required. Throughout the fieldwork, ARD team members have ample opportunity to develop presentation skills, by presenting to stakeholder groups, to fellow participants and to programme coordinators. They specifically develop interpersonal skills; as they deal with conflict arising amongst the groups, manage themselves and others. If the knowledge acquisition workshops are carefully planned, the integrated fieldwork should reinforce the concepts and methods learned through their immediate application in the field. These skills are used in investigating R&D priority issues, and reports on these experiences should be compiled in the form of appraisal or planning reports.

### 3.3.6.4 *Role of the reviewer/mentor*

It is important that ARD learning teams are supported by a reviewer. This reviewer plays an important mentoring and coaching role as he/she guides both the process of the ARD team, as well as the contributions of individual members to the overall process and outputs. The reviewer’s role should be specifically directed to promote learning of the team on the application of the ARD approach, on professionalism as well on engaging with multi-stakeholders:

- Ensuring that the team achieves the objectives of the participating stakeholder organisations (the “terms of reference”), and that the team

directs its effort towards concrete outputs that allow these organisations the best chance of successful follow-up;

- Reviewing the team’s planning and implementation of ARD activities;
- Advising the team and individual members regarding improvements of their planning and application of ARD and team processes, as well as their outputs;
- Assisting the team to arrive at important decisions regarding the focus of the fieldwork (formulation of the problem in a systems context, establishing boundaries of the “system of interest”, identification of important relations for analysis and action, prioritising development and research options);
- Assisting the team’s write up and editing of the report;
- Providing individual support to team members, mediating and arbitrating on behalf of the participating stakeholder organisations in internal conflicts that the team is unable to resolve on its own;
- Submitting a summary of strong and weak points of the team’s process and report, as well as lessons that participating stakeholder organisations should draw from these.

Those who have been through a similar ARD team process themselves are often in a good position to perform this function of “team mentor”.

### 3.3.7 Bibliography – ARD learning programmes

#### 3.3.7.1 *Acknowledgements*

This section was written by Richard Hawkins, Juan Ceballos Müller and Colletah Chitsike (ICRA), and Thembi Ngcobo (ARC).

#### 3.3.7.2 *References*

Chambers, R. 2002. Participatory workshops: A sourcebook of 21 sets of ideas and activities. Earthscan, London. A draft version is also available online at:

[www.unssc.org/web1/programmes/rcs/cca\\_undaf\\_training\\_material/tot05/resources/fun%2021%20sourcebook%20for%20facilitators.pdf](http://www.unssc.org/web1/programmes/rcs/cca_undaf_training_material/tot05/resources/fun%2021%20sourcebook%20for%20facilitators.pdf)

Pretty, J.N., Guijt, I., Scoones, I and J. Thompson. 1995. A trainer’s guide for participatory learning and action. IIED, London.

### 3.4 Case studies: the in-service ARD programmes of 2004-2007

The ARC, with support from ICRA, has organised three in-service ARD learning programmes in South Africa during the period 2004-2007. While each of these programmes has been designed around the key principles and ARD learning cycle described above, they have differed in how they have integrated theory with practice, and the degree to which they have achieved functional stakeholder participation.

#### 3.4.1 The “centralised in-service training model”

The first two programmes organised by the ARC, during 2004-2005, were mainly designed to improve ARD skills of staff of the ARC and provincial departments of agriculture (PDAs), as well as research and development plans that could support PDA programmes and the development of the 2<sup>nd</sup> economy.

The 2004 ARD learning programme consisted of a single 7-week “block” of “knowledge acquisition” workshops at a central location (Pretoria) for the 24 participants, followed by 1 week to prepare the fieldwork carried out by teams of participants in 4 different provinces (Mpumalanga, KwaZulu Natal, Free State and Northern Cape). At the end of the fieldwork, a final plenary 1-week evaluation workshop was held in Pretoria to reflect on the fieldwork results and evaluation of the overall learning programme (see Table 3.3 below).

**Table 3.3 Organisation of 2005 in-service ARD learning programme**

Weeks	Main Activity
	Communication with each PDA to develop TOR for fieldwork.
2	Initial knowledge acquisition workshops – preparation for first field visit
1	First field visit; meetings with PDAs and provincial task teams and local farmer groups.
5	Main knowledge acquisition phase, including planning for field phase in week 7.
6	Main fieldwork phase: group and individual interviews, surveys, analysis, report writing.
1	Review and evaluation of fieldwork

The fieldwork was based on problems or opportunities developed into “terms of reference” by the PDAs prior to the learning programme. The output of the fieldwork was intended to be an analysis of the problem situation and a concrete research and development plan that could be followed up by the ARC research institutes and the respective PDAs. The theory workshops were based around the themes described in Figure 3.5 above, and designed to give participants the knowledge of concepts and research methods needed to carry out the fieldwork. Practical exercises during the knowledge acquisition were oriented towards the preparation of the fieldwork.

The 2005 ARD in-service learning programme was broadly similar in design to that of 2004, except that during the 3<sup>rd</sup> week of the workshop phase, the teams of participants visited the respective PDAs and the municipalities/communities concerned to discuss the TOR and familiarise themselves with the area.

The advantages of this programme design were:

- The intensive focus on acquisition of knowledge and skills afforded by the continuous workshop phase.
- The relative uniformity of academic standards amongst participants allowed an academic grading system of participants.
- The simpler logistical arrangements (compared to the 2007 programme described below), which were mainly under overall control of one organisation (the ARC).

The corresponding disadvantages and more disappointing outcomes noted were:

- Participants (especially the ARC participants) were chosen by their institutes on the basis of training opportunity, rather than with a view to participating in and giving follow-up to the R&D topics identified by the PDAs. Hence participants often allocated to field studies with little relevance to their own work and geographically distant from the field study location. Most of the participants of the teams were not in a position to remain engaged with the themes after the learning programme ended.
- The specification of the research and development themes by the PDAs did not adequately take into account the perspectives of other stakeholders (including the communal farmers). The field studies remained more “consultative”, (commissioned to do a study), than participatory in the sense that local farmers had little control over the process and outcome.

The relatively long duration of the overall programme (mostly considered as a training course by participants and their sponsoring institutes) was a disincentive to participation by busy professionals with ongoing research and/or development projects to go back to.

#### 3.4.2 The “provincial hub model”

The 2007 ARD in-service learning programme, decentralised to the Limpopo Province, was designed to overcome some of the disadvantages inherent in the design of the 2004 and 2005 programmes. A considerable effort was made to integrate the programme more with the R&D priorities of the Limpopo province through the PDA, local universities (University of Limpopo, University of Venda) as well as the ARC. To do this, a provincial stakeholder “platform” or “hub” was created, with representatives of each of these major institutions. The main themes identified as focus for the programme and participant teams were rehabilitation of irrigation schemes, soil conservation, and indigenous knowledge system.

The theory workshops and fieldwork were programmed in a more iterative way, with three workshop phases integrated with 3 subsequent fieldwork phases. In this way, it was hoped to apply the concepts and methods learned more immediately, as well as give more time in the workshops to reflect on field experience and plan subsequent activities. “Programme breaks” were also scheduled after the fieldwork phases to give participants time to attend to their other projects (see Table 3.4).

Lessons learned from the implementation of the 2007 ARD learning programme were that:

- The time taken to explore the problem situation was greater than anticipated, with considerable and conflicting differences in the perspectives of the different stakeholders involved (mainly the PDA and the local farmers). Arriving at a “common understanding” and shared development objectives took up much of the field work, with less time available for in-depth analyses of the livelihood systems from the different agronomic, social and economic perspectives and exploration of different development strategies with farmers and local households.

- Integrating the plenary workshops with the fieldwork in 3 phases allowed more time for exchange of experience between the learning teams, reflection and planning, as well as tailoring the knowledge acquisition to the needs of the teams. However, the additional phasing of programme breaks resulted in loss of momentum of the learning programme and fieldwork.
- As with the 2004 and 2005 programmes, integrating participants from both research institutes (generally with degree or postgraduate qualifications) and from local departments of agriculture (generally with diploma level qualifications, but often more field experience), caused some difficulty with determining the depth to which new concepts, research methods and analyses should be explored in the theory sessions.
- The differences in administrative procedures between the different agencies involved caused some friction in terms of building inter-agency teams to tackle joint R&D themes.

In terms of learning, participants evaluated positively the in-service ARD learning programmes of 2004-2007. However, it proved difficult to form genuine and inclusive stakeholder platforms organised around common concerns. The difficulties of bringing disparate stakeholders together to a “level playing field”, and achieving collective action towards a common goal should not be underestimated.

**Table 3.4 Organisation of 2007 in-service ARD learning programme**

Weeks	Main Activity
	Preparation: communication with the Limpopo PDA, provincial universities (U of Limpopo, U of Venda) and ARC Research Institutes to develop a provincial “hub” (working group) and identify priority R&D themes of joint interest and identify participants. Initial preparation workshops with identified participants to explain objectives and programme.
2	Initial knowledge acquisition workshops (teamwork, participation, and stakeholder interaction), preparation for first field visits.
3	Initial fieldwork phase, to explore R&D objectives and expected outcomes of fieldwork with main stakeholders (local farmer groups, village and municipal governments).
4	“Programme break” – where participants focussed on their other projects and individual responsibilities.
3	Second workshop phase, review of field experience, knowledge acquisition (livelihood analysis, analysis from agronomic, social and economic perspectives); planning for following field phase.
4	Second fieldwork phase, to evaluate local livelihoods in relation to objectives, identify development strategies.
4	“Programme break”.
2	Third workshop phase: review of field experience, knowledge acquisition (project planning and proposal development); planning for final field phase.
3	Third fieldwork phase, to evaluate local livelihoods in relation to objectives, identify development strategies, draft final reports and concerted action (research and development) plans.
1	Report writing; review and evaluation of field studies

### 3.4.3 Acknowledgements

This section was written by Richard Hawkins, Juan Ceballos Müller and Colletah Chitsike (ICRA), and Thembi Ngcobo (ARC).