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Forms and foundations of action research[1]

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(Chapter 2 in: Arwin van Buuren, Jasper Eshuis and Mathijs van Vliet (eds). 2015. Action Research for Climate Change Adaptation. Routlegde: London)

Abstract
With action research becoming an accepted scientific methodology, many different approaches to action research have blossomed. This chapter discusses forms and foundations of action research. It also defines how we see action research in this book and describes its main current forms and how they can be distinguished. The authors differentiate between levels or intensities of action research. Additionally, this chapter reflects on the scientific quality of action research by dealing with the issues of recoverability, ethical considerations, and normative aspects with regard to action research. The chapter concludes with a framework for analysis which is used in the empirical chapters of this book.

Introduction

As described in chapter 1, the core philosophy of our research approach can be described as developing a powerful combination between practice-driven research and theoretically informed scientific research. Practice-driven research means that we take guidance from the stakeholders in our case studies as the primary source of questions, dilemmas, and empirical data regarding the governance of adaptation, but also collaborate with these stakeholders in testing insights and strategies, and evaluating their usefulness. The purpose is to develop effective, legitimate, and resilient governance arrangements for climate adaptation. The ambition is to achieve scientific quality by placing this co-production of knowledge in a well-founded theoretical framework, and by involving partners working on climate adaptation in the field.

With action research becoming an accepted scientific methodology, many different approaches to it have blossomed. This chapter discusses the forms and foundations of action research, with the aim of clarifying its theoretical foundations. The next section gives an overview of the historical development of action research. The third section defines how we see action research in this book. In the fourth section, we distinguish its main current forms. The fifth section contains levels or intensities of action research, and the sixth section reflects on its scientific quality by dealing with the issue of recoverability. Then the chapter deals with ethical considerations and normative aspects with regard to action research. The chapter concludes by presenting the analytical framework used in the empirical chapters of this book.

[1] This chapter is based on a research report by Huntjens, Termeer, Eshuis, & van Buuren (2011) titled *Position paper on collaborative action research: foundations, conditions and pitfalls*. This research report was developed within the research programme, Knowledge for Climate.

Background, roots, and theoretical sources of action research

Action research has a rich history with several origins. It can be traced back to the social experiments that Kurt Lewin carried out in the 1940s (Lewin, 1946). Lewin's research on organizational change and social democracy explicitly aimed at social action. Other origins of action research can be seen in the Marxist idea that the main goal is not understanding the world but rather changing it (Reason & Bradbury, 2001). Paulo Freire's work on counter-hegemonic knowledge development together with oppressed people is one of the early forms of action research rooted in Marxist ideas (Freire, 1970). It has informed later participatory research aimed at emancipation and liberation of the underprivileged. Such research has been developed and implemented in, for example, participatory rural appraisal, educational research, and feminist research in different fields of practice (Reason & Bradbury, 2001). Another main source of action research is psychotherapy, where it has been used to develop forms of mutual inquiry and self-help. Within the fields of organizational change and leadership also, there is a history of action research. Under the flag of action research and action science, scholars such as Argyris (1985) and Torbert (1989) have built upon Lewin's work. More recent publications show that action research continues to be used in a wide range of disciplines and fields of research. Among others, scholars in organization studies (*engaged scholarship*, Van de Ven, 2007), social studies of science (Stirling, 2008; Wynne, 2006), and education studies (Stringer, 2004) are increasingly giving attention to how to engage problem holders in research projects.

In theoretical terms, action research draws on many sources. It builds on critical theory, humanism, feminism, constructionist theory, systems thinking, and complexity theory (cf. McIntyre, 2008; Reason & Bradbury, 2001). For example, critical theory informs action research in the sense that it aims at social change, and that it addresses power relationships influencing both practitioners and researchers in their practices and institutions (see e.g. Kemmis, 2001). Constructionist theory has added the idea that people learn most effectively by doing, and engaging in action. Constructionist theory stresses that learning is about constructing ideas by the one who learns, rather than teachers transmitting knowledge to pupils. Systems thinking is a grounding of action research when it comes to propagating holism and critiquing reductionist approaches (e.g. Checkland & Holwell, 1998; Flood, 2001). Systems thinking has revealed that solving problems in (complex) systems requires an understanding not only of the separate components of the system, but also of their interrelationships and their relation to the whole. Feminist theories have added to emancipatory goals of action research through their focus on making structures of domination visible and aiming to raise consciousness about those structures among men and women (McIntyre, 2008).

Influenced by the abovementioned theoretical sources, action research has developed into a sophisticated research approach, applied in many disciplines with a rich variety of methods and tools. In the next section, we describe in more detail what action research exactly is, and how it can be distinguished from other research approaches.

What is action research?

Towards a definition of action research

As stated in chapter 1, in action research the researcher enters a real-world situation with the aim of improving the situation and acquiring knowledge (Checkland & Howell, 1998). Although there are different strands of action research, such as action learning, action research, action inquiry, participatory action research, and collaborative action research (Eden & Huxham, 1996), all of them share the aim of building 'theories within the practice context itself and testing them through intervention experiments' (Argyris and Schon, 1989, p. 86).

A useful overall definition of action research is provided by Waterman et al. (2001, p. 4):

> Action research is a period of inquiry, which describes, interprets and explains social situations while executing a change of intervention aimed at improvement and involvement. It is problem-focused, context specific and future-orientated. Action research is a group activity with an explicit value basis and is founded on a partnership between action researchers and participants, all of whom are involved in the change process. The participatory process is educative and empowering, involving a dynamic approach in which problem-identification, planning, action and evaluation are interlinked. Knowledge may be advanced through reflection and research, and qualitative and quantitative research methods may be employed to collect data. Different types of knowledge may be produced by action research, including practical and propositional. Theory may be generated and refined and its general application explored through cycles of the action research process.

Action research aims both to contribute to the practical concerns of people in a problematic situation and to further the goals of social science simultaneously (Gilmore et al., 1986). In other words, there is a dual commitment in action research to study a system and concurrently to collaborate with members of the system in changing it in what is together regarded as a desirable direction. The twofold ambition of developing practically relevant and scientifically sound knowledge requires the active collaboration of researcher and client, and thus it stresses the importance of co-learning as a primary aspect of the research process (Gilmore et al., 1986). Action research involves utilizing a systematic cyclical method of planning, taking action, observing, evaluating (including self-evaluation), and critical reflecting prior to planning the next cycle (O'Brien, 2001). Therefore, both qualitative and quantitative methods can be used.

As clarified above, an important aim of action research is to develop actionable knowledge (Coghlan & Brannick, 2002). Several elements in action research help to provide knowledge that is relevant for policymakers. Firstly, the involvement of practitioners facilitates good access to the field and helps to gather rich data relatively easily, thus enhancing its usefulness (see e.g. Steins 1999). Further, practitioners may help to formulate relevant research questions and demarcate the research object in such a way that it fits with their needs. Because data are gathered in context, the research results are bound to be valid in that context.

Differences from, and similarities with, other research approaches

We can further clarify what action research is by contrasting it with other research methodologies and with consultancy. As Table 2.1 shows, action research has several similarities with case studies (Blatter & Haverland, 2012; Yin, 1984) and ethnographic

research (e.g. Burawoy et al., 1991; Wacquant, 1995). It shares with those methodologies the element of the research being carried out *in situ* (in the midst of the action). It shares with ethnography and participant observation the element of the researcher participating in the activities and developments that are being studied. A main difference from both approaches is that action research aims to contribute to social action, but this is not necessarily a goal in case studies and ethnographies. These two aim at understanding and knowledge development, but they need not be aimed at actionable knowledge. Another difference is that in action research not only does the researcher participate in stakeholders' activities, but also stakeholders participate in research activities.

Table 2.1 Differences and similarities between action research, case studies, ethnography, and consultancy

	Action research	**Case study**	**Ethnography**	**Consultancy**
***In situ* research**	Yes	Yes	Yes	Yes
Aim of social action	yes	No	No	Yes
Researcher participates in action	Yes	Sometimes	yes	Yes
Stakeholders participate in research	Yes	No	No	Sometimes
Scientific method	Yes	Yes	Yes	No

Differences from, and similarities with, consultancy

In practice, many types of consultancy projects use methods and tools for action research, but they do not necessarily use (or merit) the label of action research. The toolbox for action research (Huntjens et al., 2011) includes quite a number of methods and tools that are also used in a non-action research context, albeit not embedded in an action research methodology, as practical tools for knowledge elicitation and/or process facilitation by consultants, policymakers, NGOs, and other practitioners. Hence, it is useful to identify some important differences and similarities between action research and consultancy.

One of the major similarities between an action researcher and a consultant is that both have an intense relationship or interaction with a problem holder (e.g. client or customer), compared to researchers who deliberately distance themselves from the problem holder. There are three possible relationships of an action researcher/consultant with the problem holder:

1. The action researcher/consultant examines the situation and provides the client (the problem holder) with solutions;
2. The action researcher/consultant helps the client (the problem holder) by jointly taking measures that are expected to have an effect;
3. The action researcher/consultant intervenes independently to solve the problem for the client.

The main differences between consultancy and action research are:

1. Consultancy does not have the aim of scientific knowledge development by testing scientific assumptions or by developing theoretically sound knowledge;
2. Consultancy does not usually involve the use of a scientific research methodology that aims to ensure the recoverability and validity of the research;
3. Consultancy does not aim to have an effect in the scientific community.

Five approaches to action research

Within the family of action research, there are different orientations towards the main goal of action research (empowerment, transformation, social action in general), the role of those involved (from practitioners to co-researchers), the role of critique (focus on critique or on appreciation and positive development), and the degree to which the research is evaluative (from inquiry to evaluation). These different orientations can be traced back to five main approaches to action research: (a) cooperative inquiry, (b) participatory action research, (c) action inquiry, (d) appreciative inquiry, and (e) learning evaluation (cf. Edelenbos & Van Buuren, 2005; Ludema et al., 2001; Reason, 2003). In the sections below, we draw extensively on the work of Reason and Bradbury (2001). We draw extensively on Edelenbos and Van Buuren (2005) to explain learning evaluations.

Cooperative inquiry

In cooperative inquiry, everybody involved in the research is a co-researcher and also a co-problem holder. As a co-researcher, everybody involved has a role in generating ideas, designing and managing the research, interpreting the results, and drawing conclusions (Reason, 1999). As co-problem holders, everybody engages in the activity under research (Reason, 1999). Cooperative inquiry can be applied as a form of democratic research with the explicit aim of cooperative inquiry to make research a democratic activity, giving both the practitioners and researchers a say in the research. As Reason (1999, p. 207) argues, it can be used to help 'ordinary people regain the capacity to create their own knowledge.' In that case, co-inquiry aims at emancipation. However, co-inquiry can also be used for more pragmatic purposes such as the enlargement of the research capacity or the enhancement of actors' learning by their being actively involved in the research process. The most important feature of cooperative inquiry is that the divisions between researcher and practitioners or between researcher and problem holder become blurred.

Participatory action research

Participatory action research (PAR) stresses political aspects of knowledge development (see e.g. Reason & Bradbury, 2001; McIntyre, 2008). It aims at conscientization and enlightenment, but it also goes further in aiming at empowerment and liberation from oppression (Fals-Borda & Rahman 1991). Researchers conducting action research in the PAR tradition explicitly choose sides. They do not aim to take a neutral or objective stance. One starting point of participatory action research is that it aims to improve the position of certain (disadvantaged) groups in relation to institutionalized power. In the field of climate change, participatory action research could, for example, aim at giving certain groups that tend to be overlooked or suppressed a say in climate change projects, for instance farmers, fishermen, or citizen groups. It often has an explicit ideological goal. A second characteristic of PAR is that

it starts from the lived experiences of people (Reason, 2003). The (experiential) knowledge of the groups being researched is highly valued. This brings us to the third starting point of genuine collaboration, which is rooted in the traditions of the people involved. Thus the traditions, interests, and ideas of the research participants are to be respected and honoured.

Action science

Action science and action inquiry aim to develop effective action in the sense that they contribute to the transformation of organizations and communities (Reason, 2003). An important issue in action science is identifying 'the theories that actors use to guide their behavior' (Reason, 2003, p. 273). In the context of governing climate change, this could refer to, for example, the policy theories that actors use (theories about the relations between the problem, the means or policy instruments, and the outcomes). Therefore, the action researcher tries to discover both the *espoused theories* that actors claim to follow, and the *theories-in-use* that are actually being followed. The theories-in-use can be reconstructed by reflecting on action. Argyris and Schön (1978) have argued that such reflection can be aimed at action strategies (single-loop learning) but also at the mechanisms and variables that underlie action (double-loop learning). As is the case with other forms of action research, action science takes place in the midst of the action developed by the organizations and communities that are being studied.

Appreciative inquiry

Researchers engaging in appreciative enquiry start with *unconditional positive questions* in order to gain understanding of successes and best practices (Ludema et al., 2001). Appreciative inquiry thus differs from critical approaches that are problem oriented and focus on deficits. Similar to other forms of action research, appreciative inquiry aims to contribute to social action. Different from other approaches in action research, it assumes that the most effective way of contributing to social action is to inquire into moments of exceptional enthusiasm, excellence, innovation, and beauty (Cooperrider & Srivasta, 1987; Ludema et al., 2001). The idea is that positive elements are crucial to the vitality of organizations and networks, and, by researching and understanding those, one can effectively understand, sustain, and enhance such vitality (Cooperrider & Srivasta, 1987; Ludema et al., 2001). Focusing on critique and problems is seen as a detour, which also runs the risk of being demotivating. Appreciative inquiry asks questions such as: What do you value most about your organization? What are best practices within your programme? (Ludema et al., 2001).

Learning evaluation

Learning evaluations aim to improve policies and projects as they unfold during implementation (Edelenbos & van Buuren, 2005). Thus, learning evaluations are an ex-durante form of evaluation, differing from ex-ante or ex-post evaluations (cf. Scriven, 1991). In the context of governing climate adaptation, an advantage of ex-durante evaluation is that it is suitable for monitoring policies during implementation, thus providing information that can be directly used to adapt the on-going policy process. Learning evaluations have a function of assessment, but also learning. Crucially, learning evaluation is a participative form of evaluation; users (the evaluated) and executors of evaluation (the evaluators) shape the

evaluations in close interaction and consultation. An important element is the existence of frequent cycles of observation, conclusion, and (re)action. Observation and conclusion are not the end of an evaluation. A dominant element in the role of an evaluator is to be a *reflective practitioner* (Schön, 1983). The evaluator is closely involved in the policymaking process, and in a way is even part of it. The evaluator does not relate to his/her environment in an impersonal manner. In uncertain and unique situations, for which standard solutions are not available, he/she needs to contribute in a reflexive way to this policy context where he/she is part of the policy practice. The evaluator is in constant interaction with the actors he/she is evaluating. They must respond to the intermediate conclusions, after which the evaluator will determine their effects. Alkin (1990, p. 74) calls this *situated responsiveness*. This makes learning evaluation a type of action research. Action researchers are clearly oriented towards helping the policy practice they investigate and making a contribution to its improvement together with the actors involved (Stringer 2004; Wadsworth, 2001).

Choosing an approach to action research

The approaches summarized in Table 2.2 all have their merits, and it may not be easy to determine what approach to choose when one is considering action research. An important criterion is the goal that one is trying to realize through action research. Important questions are whether the main goal is emancipatory or not. If it is, PAR is a suitable option. If the main goal is evaluation, learning evaluation may be fitting. If one is aiming at reflection and reflective learning, action science, but also forms of PAR and learning evaluation, would be appropriate. Another important criterion pertains to stakeholders' preferences or capacities regarding their willingness to participate in action research, and their willingness to critically reflect on on-going practice (this may be related to political sensitivity, but also to actors' institutional positions).

Table 2.2 Main differences between five approaches to action research

Approach	Main goal	Key characteristic
Cooperative inquiry	Can be democratization or pragmatic	Division between researcher and practitioner becomes blurred
Participatory action research	Conscientization, enlightenment, and emancipation	Aims to improve the position of disadvantaged groups
Action science	Identifying the theories that actors use to guide their behaviour	Reflection on action strategies (single-loop learning) and mechanisms that underlie action (double-loop learning)
Appreciative inquiry	Contribute to social action through enthusiasm and stressing positive elements	Draws on positive developments (instead of critical reflection)
Learning evaluation	Evaluation and learning	Constant interaction between evaluator and evaluated

In practice, a mix of the approaches will usually be developed to fit the specific goals and preferences of the actors involved.

Levels of action research

Not only are there various approaches to action research, there are also different levels of intensity with regard to action research. This intensity has to do with two factors:

- the extent to which researchers and practitioners interact with one another, including the width and the depth of interaction (cf. Edelenbos & Klijn, 2006);
- the extent to which researchers are actually involved in their object of empirical study.

With regard to the level of interaction, we distinguish two main dimensions: the width of interaction and the depth of interaction (cf. Edelenbos & Klijn 2006). The width of interaction refers to the question of with whom the researcher interacts. The wider the interaction, the wider the selection of types of actors with whom the researcher interacts. Loosely based on Fung (2006), the following widths of participation can be distinguished: interaction with only selected expert administrators and/or elected representatives, interaction with selected professional stakeholders of all kinds, interaction with selected professional stakeholders and lay stakeholders, interaction with self-selected stakeholders (open to all). For the depth of interaction, we distinguish four levels:

1. information: researchers inform practitioners about their research plans and about their results;
2. consultation: researchers consult practitioners about their main choices and about the validity of their results;
3. co-decision: researchers and practitioners jointly decide about research questions, methods, and the way in which the results are formulated;
4. co-production: researchers and practitioners work together in developing and executing the research process from beginning to end.

Although variation is possible in the field of action research, it is fair to say that the minimum level of interaction before we can speak about action research is consultation. In the case of researchers merely providing information, practitioners have no actual say in the research, and therefore this cannot be considered action research. In many cases, co-decision is necessary to realize real forms of collaboration and effective interaction that maximize joint learning.

Regarding the extent to which the researchers are involved in practice, we can distinguish between five levels, as set out in Table 2.3.

Table 2.3 Levels of involvement during action research

Level	Action		Explanation
	Width of interaction	Depth of interaction	
Level 0 (not action research)	Selected co-researchers	Observation	There is no actual intervention but only (unobtrusive) observation of what is going on

Level 1	Selected expert administrators	Participatory observation	Researchers take part in the practices they observe, but they do not explicitly intervene in the situation to change practices and processes
Level 2	Selected professional stakeholders (incl. administrators)	Reflection	Based upon their observations and analysis researchers give their feedback to practitioners in order to improve practice
Level 3	Selected professional and lay stakeholders	Intervention	Researchers develop theory-based interventions in order to test hypotheses and assumptions
Level 4	Interaction open to all actors (self-selection by actors)	Experimentation	Researchers develop theory-based interventions in order to test hypotheses and assumptions

Genuine action research implies more than observation. However, there is huge variety when it comes to the other levels. There are many forms of collaborative investigation like brainstorming sessions, focus group meetings, and group model building. Learning evaluation can be seen as a form of collaborative action research on the level of reflection. Reframing is a clear example of intervention as level of involvement; and experimentation as a method reflects the most far-reaching level of involvement.

Determining an appropriate role for the action researcher

Directly linked to above considerations is the importance of an appropriate role for the action researcher. Upon invitation into a domain, the outside researcher's role is to implement the action research method in such a manner as to produce a mutually agreeable outcome for all participants, with the process being maintained by them afterwards. Accomplishing this may necessitate the adoption of many different roles at various stages of the process (adapted from O'Brien, 2001), including those of planner, leader, catalyst, facilitator, teacher, designer, listener, observer, synthesizer, and reporter. Also, different roles can be divided within a researcher team. For example, one researcher may take up a role as facilitator of a change process, whereas another researcher from the same team may fulfil a more reflective or supervisory role. According to O'Brien (2001), the main role of an action researcher is to nurture local leaders to the point where they can take responsibility for the process. This point is reached when they understand the methods and are able to carry on when the initiating researcher leaves. In many action research situations, the hired researcher's role is primarily to take the time to facilitate dialogue and foster reflective analysis among the participants, provide them with periodic reports, and write a final report when the researcher's involvement has ended (O'Brien, 2001).

It is necessary to think about that dual role and to carefully negotiate entry into the situation and the researcher's role in relation to that of participants. Work to effect change and 'improvement' (as judged by people in the situation) can then ensue, with the researcher, however his or her role is defined, also committed to continuous reflection on the collaborative involvement and its outcomes (Checkland & Howell, 1998).

Recoverability

However, action research remains an academic endeavour and thus has to correspond to academic standards. Traditional requirements for scientific knowledge development seem not to be applicable in a situation in which researchers strive for application-oriented knowledge. Natural science's strong card is repeatability, meaning that, in any scientific work (i.e. based on repeatable analysis published in a peer-reviewed journal), the research carried out needs to repeatable by interested outsiders. Because action research is often developed in complex situational contexts, where actors engage in active processes of interpretation and construction of reality (Ruggie, 1998), the research results are valid in that specific context. Moreover, during the process of action research, open dialogue may unlock untapped knowledge, generate new skills and know-how, produce higher quality reasoning for more legitimate policies, and create new, more collaborative interrelationships among the parties to the deliberation (Elster, 1998). This will make the repeatability of actors' behaviour unlikely, and action research less reliable than lab experiments. Nevertheless, action research may have a stronger truth claim than mere plausibility by making action research recoverable (vs. repeatable). Hence, action researchers need to be rigorous in their action research methodology, leading to scientifically sound research. Recoverability will help to justify the generalization and transferability of results from action (or case study) research. Recoverability is based on a declared-in-advance methodology (encompassing a particular framework of ideas) in such a way that the process is recoverable by anyone interested in subjecting the research to critical scrutiny (Checkland & Howell, 1998). Hence, a seriously organized process of action research can be made to yield defensible generalizations. In summary, action researchers investigating social phenomena must at least achieve a situation in which their research process is recoverable by interested outsiders. In order to do this, it is essential to state the epistemology (the set of ideas and the process in which they are used methodologically) by means of which the researchers will make sense of their research, and so define what counts for them as acquired knowledge (cf. Checkland & Howell, 1998).

Ethical considerations

Because action research is carried out in real-world circumstances, and involves close and open communication among the people involved, the researchers must pay close attention to ethical considerations in the conduct of their work. On the basis of work by Winter (1996), O'Brien (2001), Eversole (2003), Termeer and Kessener (2007), and Werkman et al. (2009), we draw attention to the following considerations.

Influence of stakeholders on the research

Action research aims to intervene in practice. This makes it even more important to give stakeholders a say in the research. Thus, it is important to consult the relevant stakeholders and take into account their preferences. The principles guiding the work should be accepted in advance by the stakeholders. As Winter (1996, pp. 16–17) puts it 'All participants must be allowed to influence the work, and the wishes of those who do not wish to participate must be respected.' O'Brien (2001) argues that decisions made about the direction of the research should be collective. To this we would like to add that, in a governance context, it may not always be possible to gain consensus regarding every step in the research. More important

than realizing consensus in every step is that the parties involved agree on the way of deciding on important issues (who should be involved, should the decision be taken by consensus or by majority, and so forth).

Transparency

Interlinked with the issue of giving stakeholders a say in the research is the idea that stakeholders should be able to follow and monitor the on-going research. Thus, an important consideration is that the development of the research should remain transparent to the stakeholders It may require extra efforts from the actors involved to ascertain that all actors actually have access to the information generated by the process, for example in the case of actors who have no direct access to scientific libraries or particular internet sources. In addition, researchers should be clear and open about the nature and aim of the research process, including personal preferences and interests (O'Brien, 2001).

Ownership of the research and the research products

Ethically, it is relevant not only that researchers should gain permission and consult stakeholders about decisions directly pertaining to the on-going research, but also that stakeholders should be asked for permission if researchers want to collect or use data for purposes other than the specific action research on which they are working. Also, descriptions of others' work and points of view must be negotiated with those concerned before being published (O'Brien, 2001).

Confidentiality

The researcher has responsibility for maintaining confidentiality (O'Brien, 2001). This means that, unless the problem holders explicitly agree otherwise, it should not be possible to discover their identities on the basis of research reports or other research outputs.

Room for reflection

Action research implies that the researcher engages in the processes that he/she is studying and that the researcher is committed to, and involved in, action that adds to problem solving in practice. Although the researcher must be committed to facilitating change and dealing with practical problems, it is important that the researcher plays a role that is different from the role of practitioners, otherwise the added value of the researcher becomes less. Researchers may be of value at times when they bring in new ideas and they are able to reflect on the on-going processes. One condition that facilitates such reflection and feedback by researchers is the opportunity to distance themselves physically and mentally from the on-going processes on a regular basis, for example by regularly leaving the field and returning regularly to their university campuses.

Framework for analysis

On the basis of the above, we conclude this chapter with the framework used to position the action research in the following chapters.

[Table 2.4 about here]

Table 2.4 Framework for analysis

Main goal	Depth of interaction between researchers and practitioners	Width of interaction between researchers and practitioners	Level of researchers' involvement
Theory development – action	Information	Selected co-researchers	Observation
Inquiry – evaluation	Consultation	Selected expert administrators	Participatory observation
Reflection – emancipation	Co-decision	Selected professional stakeholders	Reflection
Prescription – intervention development	Co-production	Selected professional and lay stakeholders	Intervention
Prescription – theory testing		Interaction open to all actors (self-selection by actors)	Experimentation

Table 2.4 shows how various the goals of action research can be, and how diverse the interaction between the researcher and practitioners can be. The empirical chapters explore how these variations work out to effect the development of scientific findings and the practice of the governance of climate adaption.

References

Alkin, M. C. (1990). *Debates on evaluation*. London: Sage.

Argyris, C. (1985). *Action science: Concepts, methods, and skills for research and intervention*. San Francisco, CA: Jossey-Bass.

Argyris, C., & Schön, D. (1978). *Organizational learning: A theory of action perspective.* Reading, MA: Addison Wesley.

Argyris, C., & Schön, D. (1989). Participatory action research and action science compared: A commentary. *American Behavioral Scientist, 32*(5), 612–623.

Blatter, Y., & Haverland, M. (2012). *Designing case studies: Explanatory approaches in small-N research.* Basingstoke: Palgrave MacMillan.

Burawoy, M., Burton, A., Ferguson, A. A., Fox, K. J., Gamson, J., Gartrell, N., Hurst, L., Kurzman, C., Salzinger, L., Schiffman, J., & Ui, S. (1991). *Ethnography unbound: Power and resistance in the modern metropolis*. Berkeley, CA: University of California Press.

Checkland, P., & Holwell, S. (1998). Action research: Its nature and validity. *Systemic Practice and Action Research, 11*(1), 9–21.

Cooperrider, D. L. & Srivastva, S. (1987). Appreciative inquiry in organizational life. In R. Woodman & W. Pasmore (Eds.), *Research in organizational change and development: Volume 1* (pp.129–169). Greenwich, CT: JAI Press.

Coghlan, D., & Brannick, T. (2002). *Doing action research in your own organization*. London: Sage.

Edelenbos, J., & van Buuren, M. W. (2005). The learning evaluation. A theoretical and empirical exploration. *Evaluation Review, 29*(6), 591–612.

Edelenbos, J., & Klijn, E. H. (2006). Managing stakeholder involvement in decision-making: A comparative analysis of six interactive processes in The Netherlands. *Journal of Public Administration Research and Theory, 16*(3), 417–446.

Eden, C., & Huxham, C. (1996). Action research for the study of organizations. In S. R. Clegg, C. Hardy, & W.R. Nord (Eds.), *Handbook of organization studies* (Chapter 3.2, pp. 526–542). London: Sage.

Elster, J. (Ed.). (1998). *Deliberative democracy*. Cambridge: Cambridge University Press.

Eversole, R. (2003). Managing the pitfalls of participatory development: Some insight from Australia. *World Development, 31*(5), 781–795.

Fals-Borda, O., & Rahman, M. A. (Eds.). (1991). *Action and knowledge. Breaking the monopoly with participatory action research*. London: Intermediate Technology Publications.

Flood, R. L. (2001). The relationship of 'systems thinking' to action research. In P. Reason & H. Bradbury (Eds.), *Handbook of action research: Participative inquiry and practice* (pp. 117–128). London: Sage.

Freire, P. (1970). *Pedagogy of the oppressed*. New York: Herder and Herder.

Fung, A. (2006). Varieties of participation in complex governance. *Public Administration Review, 66*(Issue supplement s1), 66–75.

Gilmore, T., Krantz, J., & Ramirez, R. (1986). Action based modes of inquiry and the host-researcher relationship. *Consultation, 5*(3), 160–176.

Huntjens, P., Termeer, C., Eshuis, J., & van Buuren, M. W. (2011). *Collaborative action research for the governance of climate adaptation – foundations, conditions and pitfalls*. Key Deliverable 1A, Theme 7: Governance of adaptation. Dutch National Research Programme Knowledge for Climate, 2011.

Kemmis, S. (2001). Exploring the relevance of critical theory for action research: Emancipatory action research in the footsteps of Jurgen Habermans. In P. Reason & H. Bradbury (Eds.), *Handbook of action research: Participative inquiry and practice* (pp. 91–102). London: Sage.

Lewin, K. (1946). Action research and minority problems. *Journal of Social Issues, 2*(4), 34–46.

Ludema, J. D., Cooperrider, D. L., & Barrett, F. J. (2001). Appreciative inquiry: The power of the unconditional positive question. In P. Reason & H. Bradbury (Eds.), *The handbook of action research* (pp. 155–165). Los Angeles, CA: Sage.

McIntyre, A. (2008). *Participatory action research*. London: Sage.

O'Brien, R. (2001). An overview of the methodological approach of action research. In Roberto Richardson (Ed.), *Theory and practice of action research*. João Pessoa, Brazil: Universidade Federal da Paraíba. Retrieved from: http://www.web.ca/~robrien/papers/arfinal.html

Reason, P. (1999). Integrating action and reflection through co-operative inquiry.*Management Learning, 30*(2), 207–226.

Reason, P. (2003). Three approaches to participative inquiry. In N. K. Denzin and Y. S. Lincoln (Eds.), *Strategies of qualitative inquiry* (pp. 261–291). Thousand Oaks, CA: Sage.

Reason, P., & Bradbury, H. (2001). *Handbook of action research: Participative inquiry and practice*. London: Sage.

Ruggie, J. G. (1998). *Constructing the world polity. Essays on international institutionalisation*. London: Routledge.

Schön, D.A. (1983). *The Reflective Practioner: How Professionals Think in Action*. , p.6 Still outstanding. London: Temple Smith

Scriven, M. (1991). *Evaluation thesaurus*. Newbury Park, CA: Sage.

Steins, N. A. (1999). *All hands on deck: An interactive perspective on complex common-pool resource management based on case studies in the coastal waters of the Isle of Wight (UK), Connemara (Ireland) and the Dutch Wadden Sea*. Published PhD thesis, Wageningen, Wageningen University.

Stirling, A. (2008). "Opening up" and "closing down": Power, participation, and pluralism in the social appraisal of technology. *Science, Technology & Human Values, 33*(2), 262–294. Doi: 10.1177/0162243907311265

Stringer, E. T. (2004). *Action research in education*. Upper Saddle River, NJ: Pearson/ Merrill/ Prentice Hall.

Termeer, C. J. A. M., & Kessener, B. (2007). Revitalizing stagnated policy processes: Using the configuration approach for research and interventions. *Journal of Applied Behavioral Science, 43*(2), 256–272.

Torbert, W. R. (1989). Leading organizational transformation. In W. Pasmore & R. Woodman (Eds.), *Research in organizational change and development* (pp. 83–116). Greenwich, CT: JAI.

Van de Ven, A. H. (2007). *Engaged scholarship: A guide for organizational and social research*. Oxford: Oxford University Press.

Wacquant, L. J. D. (1995). The pugilistic point of view: How boxers think and feel about their trade. *Theory and Society, 24*(4), 489–535.

Wadsworth, Y. (2001). Becoming responsive: And some consequences for evaluation as dialogue across distance. *New Directions for Evaluation 92:45-58.*

Waterman, H., Tillen, D., Dickson, R., & de Koning, K. (2001). Action research: A systematic review and assessment for guidance. *Health Technology Assessment, 5*(23): 1–166.

Werkman, R., Termeer, C. J. A. M., & Boonstra, J. J. (2009). Omgaan met 'gedoe.' In G. Smid and E. Rouwette (Eds.), *Actieonderzoek (Dealing with 'fuss' in action research). Ruimte maken voor onderzoekende professionaliteit (Making space for searching professionalism)* (pp.76–93). Assen: Van Gorcum.

Winter, R. (1996). Some Principles and Procedures for the Conduct of Action Research. In O. Zuber-Skerritt (Ed.), *Directions in Action Research* (pp. 9-22). London: Falmer Press.

Wynne, B. (2006). Public engagement as a means of restoring public trust in science: Hitting the notes but missing the music? *Community Genetics, 9*(3), 211–220.

Yin, R. K. (1984). *Case study research: Design and methods*. London: Sage.