FINDING OUR WAY INTO THE HALL OF MIRRORS: COMBINING ACTION SCIENCE AND REFLECTIVE PRACTICE

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1. INTRODUCTION

What many practitioners of public policy making are confronted with nowadays is a world filled with uncertainty, differences and interdependence (Hajer and Wagenaar 2003). It has become harder and harder to predict the future, let alone steer it. Now what can we rely on, as actors – including groups and organizations – if we want to make sense of events with which we are confronted? What can we rely on if we are engaged in controversial, politically sensitive, complex policy processes in which groups and organizations form networks? Some would opt for ways to manage complex networks (Kickert, Klijn and Koppejan 1997), bringing in the desire to steer through the backdoor. In this paper we take a more radical stance. We start from the idea that practice might gain from becoming more reflective. Reflective practitioners (Schön 1983), solo or in groups, will try to combine their action with a reflective stance. Their actions will not follow rigid rules, but involve 'experimentation on the spot' in order to set problems in a way that makes them solvable or at least incorporate more of their multi-sidedness in their handling. Since it is hardly the case that all public policy practitioners engage in such reflective practice, encouraging them to do so might well improve the kinds of processes mentioned above. Put simply, if more reflective practice in the end will lead to more sustainable solutions, then we should also enhance the processes that lead to reflective practitioners.

In order to stimulate reflective practice effectively, scientists could involve themselves in action. This strategy, known as action research (Lewin, 1948; McNiff & Whitehead, 2006) or action science (Argyris et al., 1985), implies that scientists 'try to understand the world by trying to change it' (Lewin, 1948). In fact, this means that the scientist tries to work side by side with the reflective practitioner, adopting a similar reflective stance. It implies partly giving up the ideal of a neutral, detached, independent scientist. In addition, the boundary between scientists and practitioners, between theory and practice, could be crossed by both scientists *and* practitioners involved. It is a two-way street. In action science as we see it, the practitioner also gets a say in the research process. Although traditionally action science refers to entering into practice in order to simultaneously learn about practice under study and help practitioners to learn, the study itself now also becomes an object of inquiry. Not only does the scientist bring something different to *the policy field*, *the policy field itself* (and we should think of it in active terms) also brings something special to the study. This means that scientists and practitioners complement each other. Together they form a *community of inquiry*. At the same time the process we have in mind asks both parties to have similar competences and attitudes that foster science-practice cooperation. Finally, boundary maintenance can become more of a sensitive issue. All and all this results in what we like to call a *hall of mirrors*: practitioner and scientist enter into processes of policy making for complex societal issues in which they look at, comment, and change on their own practices and those of their practitioner/scientist collaborators.[2] In addition 'bystanders' such as the media and the general public look at, discuss, and subsequently influence the policy oriented practices of policy practitioners and scientists. Both action scientists and policy practitioners step into the messy policy issue in an effort to solve it. In doing so they see themselves and their behavior reflected through the eyes and reactions of other actors involved. This may be confusing because the signals and their interpretation can be fragmented and controversial, yet ignoring them can hinder the collaborative inquiry into the evolving policy practice. It is this caleidoscopic context in which we

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[2] We borrow this metaphor from Schön (e.g., 1987: 250-254), who used it somewhat differently. He used it to refer to a dynamic in which a teacher in a learning environment mirrors real world behaviour of a student, so the student can learn about his own behaviour. Here we twist and complicate the metaphor for use in doing policy oriented research.

assume action science to be capable of developing a reflective practice. As we understand it, action science is primarily aimed at informing action. But next to this, it will inescapably deliver new insights on 'how things work', solely for the purpose of knowing (more) about some kind of societal phenomenon. Policy oriented research can benefit from the capability of exploring 'how things work', conceiving options for intervention, and implementing and evaluating them. In our view, informing action and/or indicating potential ways of change may be of added value for finding solutions or approaches to deal with complex societal problems in the public policy domain.

The paper is structured as follows. The next two sections engage in the idea of a reflective practice and action science respectively. After that we describe how the two can be combined and which dilemmas we see in this fusion. Before we draw some conclusions we discuss the competences and attitudes that go with the approach.

2. REFLECTIVE PRACTICE

Perhaps the most prominent progenitor of the idea of reflective practice is Donald Schön. In *The Reflective Practitioner* (1983) Schön describes the concept of practice as "performance in a range of professional situations" (1983: 60). Practice additionally refers to "the preparation for this performance" and to "the element of repetition in performance". The question here is what reflection adds to practice. Answering this questions starts with the idea that reflection plays an important role in learning in context of professional practice. This proposition is articulated by Mink et al. (1993: 8) who indicate the value of critical reflection as follows: "to learn from our experiences we must become competent in taking action while simultaneously reflecting on that action. To effectively initiate, implement, and sustain transformation, we must reflect on the values behind our actions. We must be willing to reflect critically on what we are doing. Theories should guide practice, and then practice should inform theory. We should always be learning and analyzing as a way of organizational life". Preskill and Torres (1999: 101) state that many theorists agree that reflection is "a process whereby we carefully consider the knowledge, beliefs, assumptions, actions and processes that influence our behaviour in order to understand our experiences". This is similar to the description Argyris and Schön gave of effective organizational action (what they called Model II action) in their *Theory in Practice* (1974). According to them, practitioners in organizations should regularly evaluate (reflect on) the 'governing values' that guide their actions. Perhaps Biggs (1999: 6) provides us with the definition of reflection which is most appropriate for the public policy domain. He claims that "a reflection in a mirror is an exact replica of what is in front of it. Reflection in professional practice, however, gives back not what is, but what might be, an improvement of the original". Remember, public policy making is almost always about improving matters that are perceived to be undesirable. These (theoretical) observations underline the value of reflection for examining and questioning existing practices with the objective to identify possible improvements of readjustments in the light of evolving requirements in a changing environment.

The aforementioned definitions indicate that reflective practice, in line with the concept of action science, is a 'normative conception' that aims at producing knowledge in the service of practice, not solely on what is, but explicitly, on what might be. In addition both concepts tend to distinguish themselves from positivist research traditions, denominated by Argyris et al. (1985) as "mainstream science" or as "the model of technical rationality" (Schön, 1983). Schön (1983: 69) has the ambition of developing a 'rigorous' epistemology of practice "which places technical problem solving within a

broader context of reflective inquiry". Both concepts are commonly linked to the tradition of critical knowledge (cf. Habermas, 1984). Action science as well as reflective practice aim at producing practical knowledge, or reason in the robust sense, as it is "embodied in cognition, speech and action" (Habermas, 1984: 10).

The question what reflection adds to (already established) practice is also answered by Schön (1983: 56) who claims that "much reflection-in-action hinges on the experience of surprise". With this phrase Schön refers to the practical situations which call for reflection that is situations that are unknown and challenging for the practitioner. Situations in which practice-as-usual is effective do not call for reflection. This is supported by Issitt (2003: 180) who claims that reflective practice is "conceived of as an interactive process in order to face unique, uncertain conditions, so-called indeterminate zones of practice, for which there are no blueprints that can translate into straightforward solutions". In stable and familiar situations practice, mastered by the practitioner, does not need reflecting upon because its outcomes are acceptable, the action itself does not deliver problems and the theory-in-action is perceived to be appropriate.

Schön (1983) indicates that specialization and repetition in professional performance tend to undermine the practitioner's competence in dealing with surprises and uncertainties: "reflection-in-action....is central to the art through which practitioners sometimes cope with the troublesome 'divergent' situations of practice" (1983: 62). Schön continues by stating that "as a practice becomes more repetitive and routine, and as knowing-in-practice becomes increasingly tacit and spontaneous, the practitioner may miss important opportunities to think about what he is doing" (1983: 61). Schön advocates to accept reflection as a way out of this pitfall. Through reflection, the practitioner "surfaces and criticizes the tacit understanding that have grown up around the repetitive experiences of a specialized practice, and can make new sense of the situations of uncertainty or uniqueness which he may allow himself to experience" (1983: 61). This refers to the value of reflection while performing in practice, that is reflection-in-practice: "it is this entire process of reflection-in-action which is central to the 'art' by which practitioners sometimes deal well with situations of uncertainty, instability, uniqueness, and value conflict" (Schön, 1983: 56).

In 'processes of evaluation', action is reflected upon by assessing the outcomes, its nature and the intuitive knowing that constitutes it. For eliciting the contribution of reflection to the development of any kind of social practice, we have paraphrased Schön's line of reasoning (1983: 60-63): "based on a mostly implicit theory-in-action, practitioners act. The outcomes of this action are 'evaluated' and if found to be not accurate (enough), the action may be revised through an action-response. If the revised action has not improved then the practitioner may resort to theory-response, where instead of the action, the theory-in-action will undergo revision when basic assumptions and/or knowledge available to the practitioner were not sufficient for successful action". Schön (1983: 62) finally also argues that reflection-in-action is congruent with the pace and duration of the situations of practice. The objective of reflection-in-action varies with the constituting variables of practice.

Finally, Schön (1983: 62) includes "tacit norms and appreciations, which underlie a judgment, or on the strategies and theories implicit in a pattern of behavior". We argue that reflection-in-action may be directed to all aspects of practice, denominated by Wagenaar and Cook (2003), provided that these aspects match the characteristics of practices and their environments, such as ambiguity, uncertainty and 'volatility'.[3] Important here is the social aspect of reflective practice. Reflective practice will often involve many actors and will also depend on the relations between these

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[3] Policy analytical practice itself is also liable to be influenced and shaped by these dynamics (see e.g. Hajer & Wagenaar, 2003).

actors. If two parties in an organizational practice are withholding ideas and sentiments from each other, both parties end up encountering what they already know (Argyris and Schön 1974).

3. ACTION SCIENCE AS BASIS FOR REFLECTIVE POLICY PRACTICE?

Intervening in a community of policy practitioners calls for an action oriented approach. There are many different ways to define such an approach. Methodological concepts such as action learning (Revans, 1980), action research (Lewin, 1948; McNiff & Whitehead, 2006), action science (Argyris et al., 1985), and interaction research (Hendriks, 2003; Kensen, 2007) are used next to each other, referring to active interference with the object of study by researchers. In order to tease out the difference such approaches can make, in this paper we will not focus on the differences between these approaches, but on some basic ideas that are shared. Nevertheless we do want to point out that we find in the term action science the most appropriate label. The reason for this lies in the ambition of Argyris et al. (1985: ix) to not only aim for "knowledge that can be used to produce action, but also to contribute to a theory of action". This ambition is supported by Friedman's (2001: 160) definition of action science: "action science attempts to bridge the gap between social research and social practice by building theories which explain social phenomena, inform practice, and adhere to the fundamental criteria of a science".

Argyris et al. (1985: xii) claim that their ambition is derived from Kurt Lewin's idea that "one of the best ways of understanding the world is trying to change it". Applying knowledge to produce action therefore leads to understanding action itself and its impact on the community and the world (cf. Argyris et al., 1985). This leads to a theory of action, that is a general idea of what works, why and how. The attempt to reflect on, and if perceived necessary, change, the policy making practice should then lead to a better understanding of it. This may then lead to new knowledge that can establish more insightful attempt to change the existing policy practice. An iterative pattern of intervention, reflection, interpretation, and renewed intervention thus evolves.

In the thorough introduction to action science by Argyris et al. (1985), they emphasize that action science is an inquiry in social practice and that it is directed at generating knowledge to support and inform the social practice under inquiry. They characterize action science by distinguishing it from what they call "mainstream science" that is rooted in the widespread positivist traditions for conducting scientific research. Together with, for example, Susman and Evered (1978), Argyris et al. (1985) have made an assessment of the scientific merits of action research, contrasting it to the traditional, positivist traditions of scientific research. Argyris et al. (1985: 2) claim that "as a science that hopes to produce knowledge that can inform action, action science requires a conception of practical knowledge that goes beyond the common conception of choosing means to achieve predetermined ends". Action science gets close to practice in a way that mainstream science will never do, because…

> "… action science is an inquiry into how human beings design and implement action in relation to one another. Hence it is a science of practice, whether the professional practice of administrators, educators, and psychotherapists, or the everyday practice of people as members of families or organizations. Action science calls for basic research and theory building that are intimately related to social intervention. Clients are participants in a process of public reflection that attempts both to comprehend the concrete details of particular cases and to discover and test propositions of a general theory" (Argyris et al. 1985: 4).

The action science's uniqueness is further characterized by the acknowledgment that the interpretation of meanings cannot be reduced to detecting the regularities among events (Argyris et al., 1985: 5). Many scientific theories aim at the exact opposite. Action science attempts both to inform action in concrete situations and to test general theory, thus avoiding the well-known dichotomy between fundamental and applied science. But most importantly action science takes a normative position instead of taking a disinterested stance. In our view, a normative position tends to be unavoidable since it is the aim of action science to initiate change, and change is informed by at least some normative notion of direction. Argyris et al. (1985: 6) think that the value of the normative position of the researcher lies in the objective "to criticize what is from the perspective what might be". Action research as a critical social science "engages human agents in self-reflection in order to change the world" (Argyris et al., 1985: 6).

To avoid the situation that a scientist has a direct interest in solely determining what the direction of change should be, we propose that the desired direction is conceived in a collaborative effort with community members who may implement the intended change. Any normative claims of researchers should be evaluated through the normative views of the members of social practice, participating in the action science research project. Their normative views are (implicitly) vested in their assumptions on how to go about generated knowledge, in the light of their practice. Argyris et al. (1985: 235) indicate that these assumptions are often implicit and that researchers should "make them explicit, so that propositions can be evaluated in the light of them". Through 'checks and balances' between researcher and practitioners, normative positions with regard to the knowledge produced can be balanced, with the application of this knowledge in practice as ultimate guideline.

After this introduction to the concept of action science it is worthwhile to briefly linger on its connection with the theoretical perspective of pragmatism. Argyris et al. build on Dewey's theory of inquiry (1938), since that "was a model both for scientific method and for social practice". According to Argyris et al. (1985: 6), Dewey's observation that "science in becoming experimental has itself become a mode of directed practical doing" (1929: 24) indicates that scientific experimentation is nothing more than a specific case of "human beings testing their conceptions in action". Argyris et al. (1985: 7) claim that this refers to a pragmatist epistemology, connecting action science to the pragmatist perspective on (scientific) research.[4]

Argyris et al. (1985) acknowledge that the psychologist Kurt Lewin has contributed to the development of action science in a profound way through his idea of action research, a research concept that entails "examining social phenomena by changing them" (Lewin, 1948). Based on Lewin's ideas Argyris et al. provide a number of relevant 'traits' to organize and execute action science with the aim of developing 'a reflective policy practice':

- "action research involves change experiments on real problems in social systems. It focuses on a particular problem and seeks to provide assistance to the client system".
- "action research involves iterative cycles of identifying a problem, planning, acting, and evaluating".
- "the intended change typically involves *reeducation* (authors' emphasis), a term that refers to changing patterns of thinking and acting that are presently well

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[4] We claim that there is also a relativist stance to action science (see: Duijn, 2009, forthcoming). The relativist nature of action science is vested in the acceptance that knowledge about intervening (i.e. undertaking action) in a certain community of practitioners is localized in and restricted to this particular community.

established in individuals and groups. The intended change is typically at the level of norms and values expressed in action. Effective reeducation depends on participation by clients in diagnosis and fact finding and on free choice to engage in new kinds of action".

- "action research challenges the status quo from a perspective of democratic values. This value orientation is congruent with the requirements of effective reeducation, that is participation and free choice".
- "action research is intended to contribute simultaneously to basic knowledge in social science and to social action in everyday life. High standards for developing theory and empirically testing propositions organized by theory are not to be sacrificed, nor is the relation to practice to be lost".

The relevance of these 'traits' for developing reflective policy practices is obvious. Public policy making is about real social problems and evolves almost 'automatically' in iterative cycles of development, adjustment, and decline of problem solving strategies. And action science can support the re-education of both scientists and policy practitioners as they work together in communities of inquiry (see paragraph 4), by stimulating the development of new attitudes and competences for both types of professionals (see paragraph 5).

4. THE COMMUNITY OF INQUIRY AS 'DEVICE' FOR DEVELOPING REFLECTIVE PRACTICE

As indicated in the introduction we claim that if action science is capable of developing some form of reflective practice for policy making, scientists and policy practitioners should allow each other to change their practices while doing research to inform policy action. In interaction research it is more or less common that scientists get to say something about the practices of practitioners they are working with, but the other way around is, in our view, far less the case. We claim that practitioners should also get to say something about the way the action oriented science is organized and executed. Only in this way, a true community of inquiry can thus develop in which both scientists and practitioners can learn something. The next question is how the two types of professionals can work together in a community of inquiry. How can they truly organize and execute action science as "a two-way thing".

According to theories about action science there is no need for a division of labour between those who are expected to generate knowledge and those who are expected to apply it (cf. Friedman, 2001). I would state that in doing research from an action science perspective, a sharp distinction between those who produce and those who use knowledge, is out of the question. This statement is based on my conviction that the legitimacy and eloquence of practice oriented knowledge is strengthened by involving those who are expected to use this knowledge in the actual production of this knowledge (see also: Duijn & Rijnveld, 2007). The role of the scientist, in my view 'the embedded researcher', is to create conditions under which pracitioners can formulate and try out 'theories of practice' for the purpose of changing, or advancing it – or as Friedman (2001) claims for the purpose of learning. This means that the objective of action science is research in practice, and not on practice (cf. Argyris et al., 1985).

In general, science seeks the development of a community of inquiry "whose central activity is the creation of knowledge" (Argyris et al., 1985: 29). In the perspective of mainstream science, such a community of inquiry produces knowledge that then is transferred to those who are expected to use it, such as a community of practitioners. As described earlier a sharp distinction between science and practice has considerable

flaws. Therefore, when it comes to create knowledge to inform social practice, Argyris et al. (1985: 34) advocate to integrate the roles of producing and using through the active creation of "communities of inquiry in communities of social practice". Friedman (2001: 160) indicates that "the goal of action science inquiry is to help practitioners discover the tacit choices they have made about their perceptions of reality, about their goals and about their strategies for achieving them". The basic proposition of this stance is that by acquiring insight into these aspects of practice, practitioners can gain more control over their own practice. Friedman (2001: 160) claims that "if people can find the sources of ineffectiveness in their own reasoning and behaviour, or their own causal responsibility, then they possess some leverage for producing change". In this view knowledge is principally generated for gaining understanding and for solving practical challenges that are of concern in the community of practitioners.

5. ATTITUDES AND COMPETENCES FOR MEMBERS OF THE COMMUNITY OF INQUIRY

To participate successfully in a community of inquiry requires a particular attitude and skills from practitioners. According to Friedman, a central challenge is "to develop ways of more effectively teaching these competencies [..]" (Friedman, 2008). But what are the competencies and attitudes necessary to work successfully in a community of inquiry? Although it is "astounding how little is written in the texts of action research on the researcher's role and skills" it is clear that "it demands both practical skills in order to advance the solution of practical problems[..] and an analytical and reflexive mind [..]" (Levin, 2008). Based on our own experience as practitioners in various communities of inquiry, we explore what we believe could be relevant competencies and attitudes.

The analytical and reflexive mind
    A reflexive attitude requires curiosity from practitioners about their own convictions and beliefs of the given situation or problem (Marshal and Reason, 2007). Moreover, it demands of them an ability to monitor and interpret their own practice. To a certain extent practitioners should be able to surface their tacit ways of knowing. Even so, self-reflection is just a starting point for learning from other paradigms in the community of inquiry. When individual practitioners gain insight into the nature of other people's ideas, they have created the conditions to revise or expand their own interpretation of a situation. In action science literature, inquiry and advocacy are frequently mentioned as the necessary competencies to deeply validate information (Friedman and Rogers, 2008). By deliberately discussing their views and underlying reasoning with others, practitioners can advocate the validity of their own assumptions. Conversely, practitioners can inquire about the assumptions of others to improve their understanding of a situation. The dual process of inquiry and advocacy helps the community of inquiry to gain a shared understanding of reality. However, when the desire in the community to reach consensus about their own reality is too high, there is a risk of groupthink resulting in a lack of critically reflecting on common ideas. To avoid that pitfall, Heron and Reason advocate an attitude of "critical subjectivity" meaning that practitioners should be aware of their personal beliefs and develop them (Heron and Reason, 2001).[5] The authors have suggested various inquiry skills to improve the quality of inquiry and knowing (see also Heron, 1996). These skills are listed in the box below:

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[5] It is not only a matter of seeing what one does, but also of becoming aware of the consequences of one's acts.

> *Being present and open.* This skill is about empathy, resonance and attunement, participating in the way of being of other people and the more-than-human world. And it is about being open to the meaning we give to and find in our world by imaging it in sensory and nonsensory ways.
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> *Bracketing and reframing.* The skill here is holding in abeyance the classifications and constructs we impose on our perceiving, so that we can be more open to its inherent primary, imaginal meaning. It is also about trying out alternative constructs for their creative capacity to articulate an account of people and a world; we are open to reframing the defining assumptions of any context.
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> *Radical practice and congruence.* This skill means being aware, during action, of its bodily form, its strategic form and guiding norms, its purpose or end and underlying values, its motives, its external context and defining beliefs, and of its actual outcomes. It also means being aware of any lack of congruence between these different facets of the action and adjusting them accordingly.
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> *Non-attachment and meta-intentionality.* This is the knack of not investing one's identity and emotional security in an action, while remaining fully purposive and committed to it. At the same time it involves having in mind one or more alternative behaviours, and considering their possible relevance and applicability to the total situation.
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> *Emotional competence.* This is the ability to identify and manage emotional states in various ways. It includes keeping action free from distortion driven by the unprocessed distress and conditioning of earlier years.

Practical problem-solving skills

A strong driver behind action science is the quest for knowledge to solve practical problems in everyday life. There lies a strong emphasis on producing useful knowledge to guide action. In our practice, communities of inquiry have been embedded in larger structures such as project organisations and innovation programmes (see Duijn and Rijnveld 2007; Duijn et al, 2008). These were projects aiming at participative decision making with societal and political consequences. So we had to deal with issues of power distribution, democracy, representation, the *objectivity* (sic) of expert knowledge, dealing with the press and being trusted. In an interesting commentary on action research as the enactment of democracy, Peter Reason explains which issues are particularly salient (Reason, 2006). We use some of these issues to explore the skills and capabilities we believe practitioners (or at least some members of the research team) will need to perform as problem solving action scientists.

Power and politics.

When starting a participative trajectory in the public domain, this "often acts directly against the interests of those who hold power in social systems" (Reason 2006). Action scientists should be aware that engaging with the general public increases their legitimate basis for action, but meanwhile limits the democratic autonomy of elected officials. We believe that the foundation for dealing with political pressure is to engender trust towards decision makers. "Trust is the expectation that arises within a community of regular, honest, and cooperative behavior, based on commonly shared norms, on the part of other members of that community" (Fukuyama, 1995: 26). When dealing with power and politics, practitioners of action science should be able to express

their mutual intentions. In return, authoritative powers will have to believe in the capabilities of the practitioner to be able to help them solve often complex societal problems. Also, becoming part of the political arena means that action scientists have to be capable of negotiating their *action* in a political context.

Taking time.

Reason notes that "the process of drawing people together and creating a framework for collaborative work always takes longer than one imagines." We believe that the research agenda of the action scientists (publication deadlines, research targets) should never influence the pace of a collaborative research. All the same, in the real world various (political) processes are running simultaneously and sometimes try to influence the approach and/or the content of the collaborative project. To be able to deal with the issue of timing, action researchers should be capable of designing a robust process[6]. A robust process is rooted in ground-rules determined by participants and with a clear idea of different stages and deadlines. It gains strength when participants internalize the approach and become to see themselves as the owners of the collective process.

Tensions in facilitation.

To be able to engage in collaborative inquiry some practitioners need facilitation skills to run constructive group meetings. According to Kaner, the facilitator's contribution to a group process is "to support participants to do their best thinking." A facilitator encourages full participation, promotes mutual understanding and cultivates shared responsibility (Kaner, 2007). However, Reason argues that there is a "constant and fascinating tension between the organizing ability and facilitation skills of an outsider [..] and the community they are working with." (Reason, 2006). This tension comes for example from patronizing behaviour of the external facilitator or from rejection of the facilitator by the community. Although we do not want to underestimate the tensions in facilitation, we perceive the absence of researchers' facilitation skills as a larger barrier to practical problem-solving. When dealing with controversial policy issues, an unguided process may not be sufficient to reach actionable agreements that are likely to be implemented. To come to a solution in a situation with conflicting interests and values is "much more complicated than negotiation theorists suggest [..] and getting agreement in a multiparty situation often requires someone [..] to manage the complexity of group interaction " (Susskind, 2006: 270).

6. SOME CONCLUDING THOUGHTS AND QUESTIONS

Although our paper gives an answer to the question how we can support controversial, politically sensitive, complex policy processes, theoretically there are various ways to go about implementing that answer. In this last section we want to pose some questions concerning the relation between science and policy practice, that can become part of a wider discussion on the use of action science for creating learning processes of policy making and reflective practitioners *and* scientists. In our view, the following issues need to be dealt with:

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[6] One of our most appreciated colleagues, public policy mediator mrs. Susan Podziba, has taught us to accept that "it takes as long as it takes" when it comes to conducting action based policy oriented research on complex societal issues.

- What kind of background serves the scientist when becoming involved in a project as an action scientist? Does knowledge about the content help or handicap his practice?
- From what kind of scientific training might practitioners benefit in their role as scientists?
- Although power is always a sensitive issue that demands attention of the action scientist and practitioners alike, it is not the case that manifestations of power can be tackled at the start of projects. How should the action scientist deal with breaches of trust that are rooted in power struggles?
- When robust processes of joint inquiry like the ones described above are conducted, they may attract quite some media attention. How do we safeguard reflection when (political, public) pressure on a project builds up?

These are some questions issues we will be working on over the coming years. At the end of the paper it is time to get back at the metaphor of the *hall of mirrors*. We argued that it is necessary for both scientists and practitioners to find their way into the hall of mirrors. To be sure, once in the hall of mirrors they will have to find their way again. Reflective policy practice is a way out or perhaps through the hall of mirrors. The increasing complexity of public policy issues, partially induced by the fragmented and controversial nature of the context in which they emerge and have to be solved, in our view calls for more reflection while practicing. The added value of reflective policy practice is "that it can, at least attempt to try, to lift the practitioners up from the swamp of day-to-day practices, in an attempt to give meaning to the practical struggles, regaining track of the situation again and if necessary re-focus, and provide them with a perspective on where to move from here" (Duijn, 209: 239).

But starting to use action science is a long way from mastering it. A first step is to find out about some founding principles. What follows is necessarily involves a lot of reflective practice, in the practice of doing action science.

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