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ARTICLE

The cyclical process of action research

The contribution of Gilles Deleuze

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ABSTRACT

Action Research is normally described as both a cyclical process and a participatory (democratic/egalitarian) undertaking. This article does not seek to contest the idiosyncrasies and pragmatics of the cyclical process involved in action research. Rather, it seeks to enrich it by developing further the idea of action research as a process that engages with problems and learning in the act of creating change. To do this we draw primarily on aspects of the work of the French philosopher, Gilles Deleuze. Deleuze has argued that all learning is essentially a direct apprentice-type engagement with the problematic nature of the material or project under consideration. We argue that an explication of what Deleuze means by this can augment our understanding of the contingencies involved in both the participatory and cyclical dimensions of action research. To give explanatory substance to Deleuze's potential contribution to action research, we use illustrative moments based on a hypothetical scenario of the development of a large piece of waste-ground into a community gardening project. We seek to connect aspects of Deleuzian philosophy to the cyclical process of action research to show the dynamic relationship between action researchers and an action research project. Our argument is that in doing this, an understanding of the variables involved in the cyclical process of action research may be enhanced.

KEY WORDS

- action research
- an apprenticeship to signs
- Deleuze
- minoritorian
- problems and solution
- the actual and the virtual

Introduction

Action Research is both a polyvalent and controversial concept. It is polyvalent in that it accommodates many different theoretical approaches along with a diversity of socio-cultural and political motivations. It is controversial because it is perceived by many in the professional and academic research communities as not adhering to the methodical standards that regulate scientific research. It thus risks being marginalized when it comes to the allocation of funds, or the acceptance of action research reports (Winter, 2003).

This article takes the value position that action research is a worthwhile activity. The article does not seek to add to what has been described as action research's 'promiscuous [. . .] sources of theoretical inspiration' (Reason & Bradbury, 2001, p. 3). Rather it seeks to add a new dimension to, and way of thinking about, the cyclical process underlying action research and its relationship to problems and learning.

Action research has been influenced and shaped by many different disciplines within the social sciences and beyond. Consequently, its epistemological basis is diverse (Elden & Chisholm, 1993). Researchers and practitioners from different backgrounds apply a wide spectrum of theories, models and approaches to understand, explain, or develop their concept of the action research process (Winter, 1998). A number of authors have engaged in establishing taxonomies categorizing features of this approach (Chisholm & Elden, 1993; Elden & Chisholm, 1993; Grundy, 1988; Rapaport, 1970; Waterman, Tillen, Dickson & de Koning, 2001; Zuber-Skerrit, 1995).

Winter (1998) argues the relevance of theory in action research on four levels. First, action researchers use, develop, or build on theory in the process of doing action research. Second, the theory in use in action research projects is shaped by the research process, the research topic, and the reflections of the different professions involved. Third, explicit theories are used to speculate on the hypothetical meanings of what the people involved perceive. Fourth, theory may be shaped by politics of an emancipatory or empowering nature.

The common denominator of most of these categorizations is that the action research process is often motivated by theoretical standpoints as well as grounded in participatory practice. Contextual factors as well as the people involved determine the extent to which research projects are theory-driven, practice-driven, or carried out in a theory/practice balance (McMahon, 1999; Winter, 1998).

This article will unfold as follows. This introduction will be continued with a reminder of Lewin's basic account of the cyclical process of action research. In the section that follows, the hypothetical scenario of a community garden project will be introduced as will be certain aspects of the work of Gilles Deleuze. In particular four aspects of his philosophical thought, it will be argued, can enrich

and augment our understanding of what happens in the cyclical process of action research. This will reflect back on Lewin's account of the cyclical process in a manner that opens it up to new insights worthy of consideration.

The action research cycle

Kurt Lewin is widely attributed with coining the term 'action research' (Hart & Bond, 1995; Rapaport, 1970). Lewin described action research 'as a way of generating knowledge about a social system while, at the same time, attempting to change it' (Lewin, 1945, as quoted in Hart & Bond, 1995, p. 13). Thereby, Lewin established two basic components of action research – generating knowledge and changing social systems. In order to do so, Lewin proposed a cyclical process that constitutes an essential feature of every modern approach to action research (Waterman et al., 2001).

As Lewin's fundamental ideas in this area are as valid now as when they were first published, it is worth quoting him at length to describe the action research cycle.

> Planning starts usually with something like a general idea. For one reason or another it seems desirable to reach a certain objective. Exactly how to circumscribe this objective, and how to reach it, is frequently not too clear. The first step then is to examine the idea carefully in the light of the means available. Frequently more fact-finding about the situation is required. If this first period of planning is successful, two items emerge: namely, an 'overall plan' of how to reach the objective and secondly, a decision in regard to the first step of action. Usually this planning has also somewhat modified the original idea.
>
> The next period is devoted to executing the first step of the overall plan . . . this second step is followed by certain fact-findings . . . This reconnaissance or fact-finding has four functions. First it should evaluate the action. It shows whether what has been achieved is above or below expectation. Secondly, it gives the planners a chance to learn, that is, to gather new general insight. Thirdly, this fact-finding should serve as a basis for correctly planning the next step. Finally, it serves as a basis for modifying the 'overall plan' . . .
>
> The next step again is composed of a circle of planning, executing, and reconnaissance or fact-finding for the purpose of evaluating the results of the second step, for preparing the rational basis for planning the third step, and for perhaps modifying again the overall plan. (Lewin, 1948, p. 205f)

A closer look at different conceptions of the action research cycle, however, shows varying descriptions of this process. With regard to the heterogeneity of the action research cycle, Bob Dick notes that 'certain more-or-less similar steps tend to recur, in more-or-less similar order, at different phases of an action research study' (Dick, 2000, p. 3). The variations of the action research cycle presented in the literature include circles of action, spirals, varying combinations of circles and

spirals and flow diagrams (Kemmis & McTaggert, 1988; McNiff, Lomax & Whitehead, 1996; Zuber-Skerrit, 1995). Moreover, different approaches use different phases within a cycle, these phases do not necessarily build on each other linearly, they may overlap and their order is described to vary. Still, the rationale underlying these cycles has not changed since Lewin first described it in the mid-1940s (Lewin, 1948). Although the cyclical approach was identified as one of action research's key characteristics, applying the cycle in practice is a significant challenge for most researchers and practitioners. A systematic review of the literature suggests that it is difficult both to make out and describe the cycles in a real world, and to frame the single steps of a cycle (Waterman et al., 2001).

This article seeks to make a contribution to the understanding of the learning and problem-solving process that permeates the cyclical process of action research and with which the various theoretical approaches engage. This is not to dispute the various contributions that have sought to represent the pragmatic and often highly contingent nature of the cyclical process. On the contrary, it is to enrich our understanding by looking at the cyclical process in a different way. Before turning to this however, we now summarize our hypothetical scenario, beginning with the rationale for not using an actual example of action research.

Rationale for using a hypothetical scenario

Intuitively it would seem both appropriate and productive to use an actual example of an action research project to illustrate the Deleuzian aspects that follow. It is important therefore that we explain why we have resisted this option in favour of aspects of a hypothetical scenario. First, to have used an actual example would have been to impose Deleuzian ideas onto events that had already occurred, including the thoughts, feelings and actions of those involved, and that would not, in our view, be ethically sound. Moreover, in terms of accuracy, it would also be contrived. We are seeking to introduce ideas for the future. Such is the purpose of the article.

In this respect, the article is largely theoretical, and indeed experimental in that it seeks to introduce new ideas into the image of thought that informs the very process of action research. It gives us a certain freedom to introduce ways of thinking that may be generic to the cyclical process of any action research project. That is our thesis. In using aspects of a hypothetical scenario to illustrate key Deleuzian ideas, we are talking more in terms of a metaphor or an image that, in our view, would be faithful to any AR project. To this end, we use the image of a community gardening project implicit in which is the cultivation of change and growth. Thus, from time to time, we shall refer to the following scenario:

In a small rural town or village, there lies a large piece of waste ground, overgrown with weeds interspersed with stone and stubble. The site of an old

sawmill, the land has lain unused for a number of years. The landowner has made it known that he has been approached by the local authority to use the land for commercial development, including a large car park. This is controversial, and meets with resistance. A group of local women and men (henceforth referred to as 'the group') approach the landowner for permission to develop the waste ground into a market garden. The proposal is a market garden as a community project. A meeting is arranged between the landowner, representatives from the local authority, and the group. Both the landowner and the local authority are sympathetic to the idea of a collaborative community project. The local authority agrees to fund the project.

Introducing Gilles Deleuze

Gilles Deleuze (1925–1995) is now increasingly recognized as one of the most innovative and important philosophers of the 20th century. His extensive opus, including his collaboration with the political psychoanalyst Felix Guattari (1930–1992), spreads across the whole spectrum of the humanities from philosophy itself, and through philosophy to art, literature, ethics, politics, cinema, architecture, music, science and indeed life and learning through the embracing of problems. In spite of the dazzling array of topics covered by Deleuze, however, certain of his supporting philosophical ideas have specific aspects that we think are directly relevant to the cyclical process of action research. It is these we shall focus upon in the following sections. Prior to that, it is important to explain that these aspects are to be seen in the context of Deleuze's core philosophical ideas concerning the nature of reality.

Interactive dimensions of reality

Deleuze, a poststructuralist philosopher, developed an open-ended system for thinking about and engaging with reality, an innovative variant of transcendental empiricism that cannot be fully unpacked here (see Colebrook, 2002; May, 2005; Patton, 2000; Rajchman, 2000; Williams, 2005). A brief indication of its relevance to action research is provided.

For Deleuze, reality has two interactive dimensions, the actual and the virtual. The actual is life in its diversity of manifest forms – cells, genes, atoms, trees, stones, people, sensations, affect, thoughts, consciousness, actions, viruses, solar winds, action research projects. However, the actual is obviously not a given or static state of affairs; rather it is continuously becoming actualized. Let us visit our hypothetical scenario. There we notice that, although the project has not yet started, the waste ground seems different than it was before. It is the same ground in the actual but it is not *actually* the same ground. It is different not in terms of

representational identity (this familiar patch of ground); rather our Idea (*community garden*) of the patch of ground continuously becomes different through the multiplicity of elements affecting our being and thinking: *Not only may the stones seem more numerous and the colours more intense, the ground is now part of an Idea fraught with problems and potentialities that were not there before. The ground is not the same and no two people are thinking about it in exactly the same way*. Another way of putting this would be to say that what returns in the manifest expressions of Idea and ground is not the same, but the multiplicity of difference. Now, conventionally, we would seek to explain this return of difference in terms of cause and effect relations between different representational identities in the actual. *The ground is different because it has been raining*. While Deleuze accepts the inevitability of such actual-to-actual causal accounts, he also wants us to think beyond representational explanations or interpretations of events. Even from one moment to the next, nothing ever returns the same; not fundamentally or radically different necessarily, but not exactly the same. It is to explain this notion of the return of difference in a creative context that takes us to the virtual dimension of reality (Deleuze, 1994; Deleuze & Guattari, 1994).

The concept of the virtual seems at first strange, or indeed mystical and unnecessary. It is the transcendental side of Deleuze's transcendental empiricism. To say that it is transcendental is not to say that it is outside of history in the sense of a God or Universal Being existing independently of the actual. Rather, to say it is transcendental is to say only that it is beyond or outside the grasp of consciousness. It is in this respect that the virtual is not a realm of actual identifiable things (representational identity – *this ground, this group, this project*); it is the background of contingent potentialities from which singularities (or the multiplicity of elements) return into the objects and substances of the actual, including conscious thoughts and feelings. Thus, and again, the virtual, although real, is beyond the grasp of consciousness. Yet what returns from the virtual in the process of actualization is determined by how we relate to and what we affirm in the actual – hence transcendental *empiricism*. The wasteground could have been turned into many different projects. Affirming the potential of a community market garden in the actual affected the participants' conceptualization of the waste ground. *The waste ground is now a series of problems and plans to be attended to. It is not the same as it was before for ground or group*. Actual things and events are also related to one another through the creative potentiality of the virtual and not just causally between themselves. *We thought of all possibilities but we never expected this to happen.*

Thinking is actual but thought itself is virtual. We can never get behind the reality of thought to determine what we will think next (Patton, 2000). We never experience the same thought or feeling twice in exactly the same way. We can influence what thoughts will return, although we cannot predict with certainty *how* they will return. The virtual is not beyond the influence of creative action in

the actual. The virtual is not superior to the actual in a hierarchical sense. Rather it is immanent to the actual as part of the reality of life. It is immanent to the actual as a process of differen*c*iation (the return of difference) in a continuous process of reciprocal determination between the actual and the virtual (Deleuze, 1994).

The actual, the virtual and action research

We can investigate and intervene in things without giving thought to Deleuze's account of the virtual, but if we take the virtual into account, it opens up a whole new way of thinking, feeling and acting that can be transformative and life-affirming. To hold fast to causal conceptions of the actual is to limit what we may become. It is to block off the infinite potentialities that the virtual always holds for something new, for the creation of life-affirming difference. As Keith Ansell Pearson puts it:

> The human condition refers not to an existential predicament but to accrued evolutionary habits of thought and patterns of action, which prevent us from recognising our own creative conditions of existence, and which restrict the domain of praxis to that of social utility. (Ansell Pearson, 2002, p. 10)

Applying Ansell Pearson's quote to action research, it appears at first as if a distinction is being made between, on the one hand, purely instrumental action research projects with limited ends of social or economic utility, and on the other, projects whose purpose is more emancipatory in nature. This distinction, although valid and important, is one that we do not particularly wish to pursue, for both are subsumed in an 'actual–virtual' dialectic. The underlying point being made here is that any engagement with the project (*some in the group are starting to think 'organic'*) can interact with all and any other singularities in the virtual in varying relations and infinite potentialities of new connections that will return to (be expressed in) the actual (*thinking 'organic' when buying raw materials; thinking about the ethical dimension of relations in the group and the garden*). Keeping in mind that the relation between the virtual and actual is one of reciprocal determination, a certain sensitivity to the varying relations of a project can lead to new insights, to Ideas and problems that continue to interact with the virtual. This point, in our view, lies at the very heart of action research, for it can lead to transformations resulting from new connections that have been made and experimental actions conducted – to echo Ansell Pearson's point above, a breaking free from habitual tendencies to representation and identity (without abandoning them altogether); to seek new ways and forms of becoming that are transversal to identity, that cut across and change the nature of events and things. *By invitation, the local press have reported on the project and have agreed to sponsor a herb section of the garden. But will it last?*

There is a second important point to be made here. When Deleuze speaks of the virtual as a realm of singularities in varying relations and infinite potentialities, this is not to be identified with the merely possible. Thus the return of difference is not merely the return of different possibilities in relation to the outcome of an event (*we expected one of these things to happen but we weren't sure which*). When singularities interact in the virtual and differenciate into the actual, something, not just different from before, but also new may emerge; something creative that was not already contained as a possibility. Obvious examples of this are to be found in language, literature and the arts as well as in science (see May, 2005). For Deleuze, this principle applies equally to the whole of life; there is no predetermined limit on what we may become or how we may engage with problems and create events. There is no intrinsic necessity to the way things are at the moment. It is the way things have turned out. They could have turned out differently. And still could become different, hence action research projects that seek to *actualize* something that was not there before.

It seems that this way of thinking, this image of thought that entertains the Idea that any action research project has both an actual and virtual dimension opens up the cyclical process in a manner that enriches its forms of linear representation. In the sections that follow, the rather abstract account above will be given a pragmatic context by extrapolating four further aspects of Deleuzian philosophy that will not only give a more concrete sense to the relation between the background of the virtual and the immediacy of the actual, but will also seek to enrich the cyclical process of action research, while remaining coherent with its basic principles described above. It should be emphasized that the four aspects that follow are all inextricably linked in that none are independent of, and none make sense without their *simultaneous* relation to the others. The four aspects are as follows: 1) the majoritorian and the minoritorian; 2) the relation between problems and solutions; 3) an apprenticeship to signs; and 4) a reciprocal dialectic of continuous becoming.

The majoritorian and the minoritorian

The concepts of the majoritorian and the minoritorian are used by Deleuze and Guattari to *make* distinctions between, on the one hand, that which privileges a fixed identity or term of reference (the majoritorian) and, on the other, that which is open-ended in its creative forms of becoming (the minoritorian) (Colebrook, 2002; Deleuze & Guattari, 1988; Patton, 2000). Thus the 'minoritorian' in Deleuzian terms is not to be understood in terms of identity or number (as in ethnic minorities, for example). Orthodox research (for want of a better term) is largely majoritorian in the sense that it has a fixed identity represented in terms of protocols and recognized methods. As Colebrook (2002, p. 104) puts it, some-

thing (in this case orthodox research) is majoritorian in that it is 'capable of excluding those who do not fulfil the criteria'. Action research is potentially minoritorian in the sense that the minoritorian 'has no fixed standard or norm' (Colebrook, 2002, p. 104). But a word of caution is needed here. If attempts are made to consider action research as a research undertaking alongside more conventional methods, then this is a majoritorian distinction, because action research is seeking to assert its own representational identity. There is nothing intrinsically wrong with this, but the concept of the minoritorian *in the process of action research* is lost in such comparisons. Let us explain this further. One of the unique features of action research is that the cyclical process is both fluid and grounded in creative action rather than being a series of well-defined steps that are rigorously adhered to come what may. In other words, the cyclical process is not exclusionary in the sense that if one does not adhere to well-defined protocols then one is somehow not doing action research, or, for *that* reason, is doing it badly – such would be majoritorian. Put in summary form, the majoritorian relies on the fixed expressions of identity that continue to affirm it (*this is a randomized controlled trial*). The minoritorian, however, in the process of an action research project, is imbued with a dimension of creativity that is open to new connections that change the nature of its own becoming. Thus it is not action research as a concept that is minoritorian by definition, or indeed by comparison to more orthodox methods of research, for they may also have their minoritorian moments. It is the so-called cyclical process itself which is *potentially* minoritorian.

Thus far, all we seem to have done is to re-describe the unpredictable contingencies of the cyclical process of action research by means of a Deleuzian concept, that of the minoritorian. However, the point is one that takes us beyond representational expression (*this is the procedure and these are the criteria*) to one that involves engaging through direct action in what Deleuze refers to as 'minor science'. Again, 'minor science' is not to be understood as minority science, or second rate or inferior science. As a link to the next section, we may say that minor science, as an exemplar of the minoritorian, operates in two related ways. First, and as noted, it is a process of creative action for change in a direct engagement with the substance of the project. Deleuze and Guattari, in this respect, use the 'conceptual persona' of 'the friend' (Deleuze & Guattari, 1994, p. 62f). The carpenter is the 'friend' of wood. The philosopher is the friend of the concept, working with its elements in ever creative ways to create new concepts and change established ones (Deleuze & Guattari, 1994; Patton, 2000). Deleuze and Guattari also use the example of stonemasons (Deleuze & Guattari, 1988; also Bonta & Protevi, 2004). To this we would add gardeners, and indeed action researchers. Minor science doesn't simply investigate (although it does do that); it seeks to create and change as it goes. A stonemason works directly with stone to bring about creative difference between a heap of stones and the becoming of a well-crafted stone dyke. Such can only be done by engaging with stone, by

becoming the friend of the *problem* of stone in the cyclical process of initial planning, subsequent chipping, shaping, placing, evaluating, changing, and the continuous becoming of a stone dyke. Similarly a gardener engages directly with earth and plants, by *becoming* the friend of the *problem* of cultivation. This notion of 'becoming' in relation to action research is one that we deal with further below in the fourth and final Deleuzian aspect.

Second then, and as the above brief examples illustrate, minor science's direct engagement with problems is not without sense, method and thought. In Deleuzian terms, stone is the problem in which stonemasonry emerges, just as the emergence of gardening would not be possible without the problem of stony earth and recalcitrant growth. It is this Deleuzian concept of 'problems' that brings us to the second aspect, that of the relation between problems and solutions.

The relation between problems and solutions

As Lewin (1948) states of the cyclical process of action research, 'planning starts usually with something like a general idea'. This may lead to circumscription of the general objective which the idea represents, followed by fact-finding to finalize an overall initial plan of action. We want to re-examine this by suggesting that the process of action research begins not only with a general idea in the positive sense of a desired outcome but rather with the sense of a problem, the Idea of a problem that has both actual and virtual dimensions. While this may appear as somewhat pedantic, the distinction is important because Deleuze uses the concept of problems and Ideas in a different way:

> Neither the problem nor the question is a subjective determination marking a moment of insufficiency in knowledge. Problematic structure is part of objects themselves, allowing them to be grasped as signs, just as the questioning or problematising instance is a part of knowledge allowing its positivity and specifity to be grasped in the act of *learning*. (Deleuze, 1994, pp. 63–64, emphasis in the original)

Thus a problem in Deleuzian terms is not the conventional concept of a lack, nor an obstacle to be permanently overcome. A problem is not that which thought and action must resolve into permanent negation. Rather it is that which gives rise to thinking and, in relation to Ideas, is part of the very context in which thought itself occurs. Thus, for Deleuze, a problem is not negative (which is not to say it is pleasant). It is a form of knowledge, an Idea that interacts with the virtual. This is not simply a trivial play on words where a problem becomes an 'opportunity'. Rather:

> [. . .] a problem is an attribute of the genesis of the act of thought and the use of faculties. In other words, when thinking emerges and changes, it is necessarily accompanied by problems. When faculties, such as sensation and understanding

> emerge and create themselves, they do so with problems that they cannot rid themselves of but only live with well or poorly. (Williams, 2003, p. 131)

Every problem has a virtual and an actual side that relates to Ideas or questions that engage with the problem. An enacted solution to a problem will bring some aspects of the problem into clarity, and throw other aspects into obscurity (Williams, 2003). By this we do not mean that solutions are not important or that they necessarily fail in their circumscribed intention; rather, solutions will change the nature of the problem as a form of knowledge in the return of difference in the dialectic between the virtual and the actual. Thus a problem in Deleuzian terms is always more than a field of possible solutions. Returning to our scenario, note how the Idea of growing flowers and vegetables and the problem of uncultivated ground are one and the same. The Idea of the community garden project is both actual and virtual. The plan is to dig up the ground, remove stones and weeds, till the soil and make it suitable for planting. So let us say that this is done successfully as a solution to the problem of waste ground that was part of the Idea of change and growth. But this solution, although successful on its own terms, also changes the nature of the problem in that it throws some aspects of the problem into obscurity (*we no longer think of stony ground*) and brings others into clarity. As noted previously, a debate arises as to whether or not the garden should be cultivated using only organic methods and resources. In this manner the problem 'connects' cultivation to conditions both actual and virtual. The Idea of organic methods is discussed within the group in ways that bring in ideology, ecology, the political, capitalism, efficiency, profit and loss, personal preference. Then, as this problematic debate takes its course, a new solution is suggested, one of compromise: why not divide the now fertile earth up into allotments and let each of the participants have their own ground, organic or not? What started as an Idea of the problem of a car park, and transformed into the Idea of growing flowers and vegetables, has now extended into the perpetual problem of the individual and the collective in which the Idea of the ground has now returned. The Idea of the community project has faded into obscurity; individual difference has been brought into clarity. The problem now connects to a whole set of conditions that, at the beginning of the project, were virtual, potential, but have now been actualized through what has been affirmed and what has not. This obviously has implications for the 'participatory' dimension of action research, and we are coming to this in the next section.

In this respect, the relations between problems and solutions enfold and embrace the whole cyclical process of action research at every stage. Although above we said that action research begins with the sense of a problem, it is not simply the starting point. In a dialectic with the virtual, its continuous becoming in differenciation is omnipresent. The whole cyclical process of action research is to continuously become the friend of the problem.

Problems invite solutions as much as solutions solve and change aspects of

problems. The ethical pragmatic of this point is not only that of not being discouraged when things appear to go wrong, or do not work out as expected in an action research project. It is also to recognize that the differenciating nature of the problem in its eternal return can also be a positive thing in that it both allows and necessitates the important dimension of learning in creative ways that are new. However, this obviously doesn't happen by itself. It is this that takes us to the third Deleuzian aspect, that of an 'apprenticeship to signs'.

An apprenticeship to signs

Deleuze's notion of an 'apprenticeship to signs' carries within it interrelated elements of meaning. 'Signs' refer to the elements of the unfolding of events, both virtual and actual, with which the participants engage as part of their learning in the cyclical process of an action research project.

> Learning is essentially concerned with *signs*. Signs are the object of a temporal apprenticeship, not of an abstract knowledge. To learn is first of all to consider a substance, an object, a being as if it emitted signs to be deciphered, interpreted. (Deleuze, 2000, p. 4, emphasis in original)

The concept of 'apprenticeship' in this context does not mean 'novice' or 'beginner' in the conventional sense (although it may include that). As Deleuze in the quote above indicates, it refers to the educative aspect of an action research project, or the necessary aspect of learning that must occur in the researchers for the project to progress. There are three interrelated dimensions to this. The first is that an apprenticeship to signs embraces a *necessary participative* engagement with the substance of the project rather than 'bystander' or 'objective observer' status. Thus, as regards learning, it is not 'do as I say', but rather 'do with me' (Deleuze, 1994, p. 23). This relates to the minoritorian aspect of becoming the 'friend' of the problem of the project through direct engagement. 'One becomes a carpenter only by becoming sensitive to the signs of wood, a physician by becoming sensitive to the signs of disease' (Deleuze, 2000, p. 4). Or in the case of gardening: *although the earth is heavier when wet, it is easier to dig and plant and weed. When something has been fed, it is more accommodating.* Of course, direct engagement refers not only to 'hands on' but also to the overall management of an action research project, and we now come to this.

The second dimension of an apprenticeship to signs is that this continuous engagement is feedback rather than 'results' orientated as it might be in more majoritorian forms of research activity. It is this that takes us to the use of feedback for the purposes of evaluation and taking stock as part of the cyclical process. As Lewin states, 'It gives the planners a chance to learn, to gather new general insight' (Lewin, 1948, p. 205f). It is because the participants in action

research learn by doing, or connecting, rather than simply as detached investigators that this form of direct feedback is possible. Lewin (1948, p. 205) refers to this aspect of learning as 'reconnaissance or fact-finding'. This, although doubtless challenging in practice, seems straightforward enough as a prescription. However, as a link to the third dimension of Deleuze's account of an apprenticeship to signs, we want to enrich the idea of 'reconnaissance' by suggesting that it is not simply to survey, or discover facts based on continuous feedback, important as that obviously is. It is also, as the etymology of the word suggests, to re-study, to think again and, importantly, to give birth to new thought. Thus an apprenticeship to signs is not simply a sensitivity to signals in an action research project that something has changed – *a number of participants are canvassing for organic methods in the garden* – or that something has caused something to happen: *their determination to succeed in this has split the participants into two camps which has resulted in talk of individual allotments*. It is rather the wider question of its significance in a dialectic between the virtual and the actual, the overall context in which the event has occurred. Let us go on to explain this further.

> [. . .] problematic Ideas are precisely the ultimate elements of nature and the subliminal objects of little perceptions. As a result, learning always takes place in and through the unconscious, thereby establishing the bond of a profound complicity between nature and mind. (Deleuze, 1994, p. 165)

We saw in the previous section that solutions, while progressing elements of the project, also change the nature of the Idea which the problem instantiates in its eternal return. Another way of putting this would be to say that nothing returns the same, or, only difference returns. But, and importantly, there are aspects of this difference that are prior to signification (not yet given meaning). Here we are emphasizing that learning how to perform skills in the garden, or being sensitive to what is happening in the overall management of the project, will always involve elements of learning as a type of apprenticeship to signs that has no prior skill or content. Of course 'there has to be an actual identifiable side to our relation to problems, Ideas and pure differences' (Williams, 2003, p. 136). However, there is an aspect of this form of learning from feedback that is necessarily experimental, an aspect that has no prior knowledge or content and in which new connections have to be made – perceived, felt, thought (Rajchman, 2000). Because every Idea has both a virtual and an actual dimension, and because the return from the virtual to the actual is always one of difference, there will be occasions when the problem returns in such a way that *it has no solution that is already stored in memory* (Williams, 2003). Thus the necessity for a sensitivity to signs which, in this sense, is always a form of experimental apprenticeship. 'But this [. . .] risks remaining buried in us if we do not make the necessary encounters' (Deleuze, 2000, p. 26).

> Deleuze is careful to distinguish knowledge as the learning of something, of a skill or facts, say, and learning as a process of apprenticeship with no fixed objective content. This absence of content is conveyed in the sense of the term 'apprenticeship to signs' or to problems and Ideas. To learn is to learn how to be sensitive and to respond creatively to signs and problems, as things that necessarily go beyond what is known or what can be done in a given situation. This sensitivity and creativity are linked – no sensitivity without creation (*You can only sense signs by doing and by doing something different*). (Williams, 2003, p.135–136, parentheses and emphasis in the original)

Thus an apprenticeship to signs in its actual sense of connectivity to the elements that emerge in the project, and subsequent experimentation, becomes necessary to see what may be brought into clarity from the background of the virtual. This has important implications for the participatory dimension of action research as no two people learn or think in the same way.

> We never know in advance how someone will learn: by means of what loves someone becomes good at Latin, what encounters make them a philosopher, or in what dictionaries they learn to think [. . .]. There is no more a method for learning than there is a method for finding treasures, but a violent training, a culture or paideïa which affects the entire individual. (Deleuze, 1994, p. 165)

This is what connects the continuous becoming of an action research project, the Idea of the project, and the relation between its problems and solutions, to the participants. An apprenticeship to signs refers not only to events in the market garden, or issues about the market garden as something 'outside' of the gardeners, but also to the return of difference that emerges in the gardeners themselves – *in relation to the issue of organic methods, why do some of us feel this way while others feel differently*?

Different elements in the return of an event will individuate different people in different ways, such that people might agree to the same thing for different reasons. Thus consensus is a concept the elements of which conceal the return of difference. By this we mean not necessarily irresolvable differences of opinion but a difference of learning, of becoming. An apprenticeship to signs will draw this 'participatory' issue out into the open by simply affirming the fact that no one learns in the same way even if they are agreed on the same Idea of a good garden. *It was finally agreed that organic methods be tried for the first two years. This arose after discussion in which it was discovered that most felt unhappy about individual allotments because the original spirit of community was lost. Collaboration was preferred to what, in the case of allotments, may develop into competition.* The point here is twofold: first, that individuals are experimenting with themselves as well as with the project; second and, in our view, significantly, there are many occasions when action research is not only useful, but *actually necessary*. This takes us onto our fourth and final aspect, that of a reciprocal dialectic of continuous becoming.

A reciprocal dialectic of continuous becoming

The notion of a reciprocal dialectic of continuous becoming between the researchers and the project carries within it elements of all the Deleuzian aspects so far discussed. We explain this by means of Figure 1 below.

In Figure 1, the central circle represents the contingency of the cyclical process of action research as described by Lewin and others. The outer items are the Deleuzian enrichers of this process, inviting us to look at it differently, but without compromising it. In this way a reciprocal dialectic refers not only to the becoming of the project (the community market garden) as engaged in and progressed by the participants. To explain this, let us take the Deleuzian enrichers one by one.

First, as we saw with reference to the 'minoritorian', the reciprocal dialectic also refers to the participants themselves, to *their* continuously 'becoming market gardeners' through direct engagement as part of the project, and through every part of it. Second, in a 'relation between problems and solutions' that constitutes the continuously differentiating Idea of the garden there is always something new to be learned, often requiring new connections and experimentations not already stored in memory. Third, this advocated 'an apprenticeship to signs', a certain sensitivity in relation to what should (and what should not) be affirmed (acted upon), a sensitivity to signs contained in the whole event both virtual and actual. Fourth, this is to say that the 'reciprocal dialectic of continuous becoming' is not only that between gardeners and garden in the actual, it is also that between the actual and the virtual. What returns from the background of the virtual will

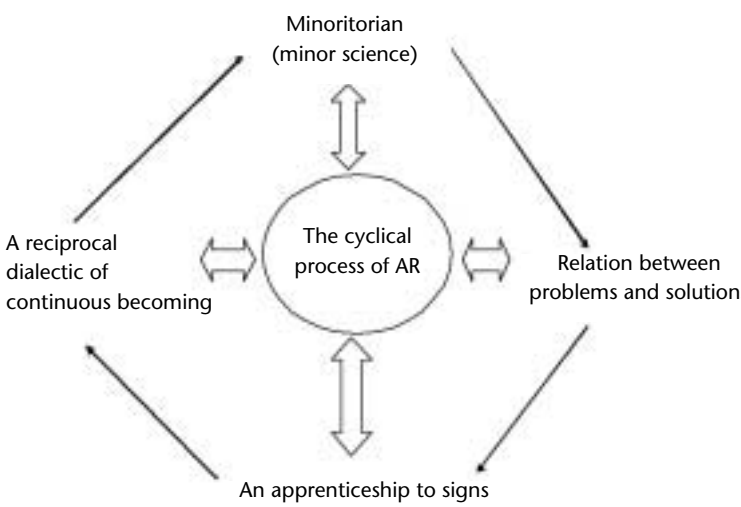

Figure 1 A Deleuzian enrichment of the cyclical process of action research

be contingent upon what is affirmed in the actual, both in the garden *and* in the gardeners themselves. This, as noted previously, will bring elements of the Idea of the project into clarity while throwing other elements of the total event into obscurity in the background of the virtual. So in terms of the cyclical process of action research, what we have here is less a series of stages (although they *must* still be cognitively present), but rather a qualitative flow of duration into which the stages are subsumed.

In summarizing this, it is appropriate to use the concept of 'cultivation'. It is through this reciprocal dialectic of continuous becoming that the garden cultivates the gardeners as much as the gardeners cultivate the garden, for better or worse. This point cannot be overemphasized, for it is what connects a sensitivity to signs to the relation between problems and solutions as the project progresses in minoritorian fashion. As stated above, this is what makes action research not only useful but also necessary. It is through this reciprocal cultivation that garden and gardeners emerge together as one and the same action research project, 'thereby establishing the bond of a profound complicity between nature and mind' (Deleuze, 1994, p. 165). We take the view that this principle, although diverse in its detail, will be the same for any participatory action research project. Deleuze's idea of the 'complicity between nature and mind' is worth exploring further. It calls into question the notion that an action research project and the action researchers are two distinct things in that the Idea of the project exists in the minds of the researchers, which is then applied to the substance and materials of the project. Staying with our image, while it would seem obvious to state that the market garden, on the one hand, and the gardeners on the other are separate things, this would be to misunderstand what Deleuze is inviting us to consider. To hold to the view that the action research project and the action researchers are somehow separate is a false and rather dogmatic distinction grounded in the passive acceptance of representational identity – *the project, the action researchers*. Rather, an action research project refers to everything that is going on and affirmed in the actual, and to everything that then returns from the virtual to the actual – thoughts, feelings, sensations, plants, stones, growth, arguments, sadness, flowers, slugs, bees, rain, theft, pride, hurt, weeds, plans, birds, landowners, local authorities, dreams, achievements and disappointments. In an action research project, the concept of mind involves more than any individual person or thing.

Conclusion

This article has sought to experimentally connect certain aspects of Deleuzian philosophy to the cyclical process of action research. This connection was established in ways that do not contravene the latter's traditions or accumulated wisdom, but in ways that seek to enrich it. We have used the image of a com-

munity market gardening project as it is our view that every participatory action research project is a living phenomenon. Like a market garden it answers back, can be recalcitrant or facilitative, just as the action researchers themselves can be, not only between themselves, but also by those who oppose them. In a market garden there is always something to be done, just as in the market gardeners there is always something new to be learned, felt, thought and sensed. In this respect, we invite the consideration that all participatory action research is akin to a dialectic of reciprocal cultivation and determination between participants and project. To paraphrase Deleuze, a bond between nature and mind, where nature is anything that exists, and mind, as part of nature, is anything that thinks. This is not to mystify or indeed romanticize the cyclical process of action research. For each it is different, not just across different projects but also within them. Neither is it to promote the 'fetish of participation' for the ends of compliance, unwitting domination or an increasingly neo-conservative economic rationality. It is to promote a way of thinking that, true to action research itself, seeks to bring about creative change beyond the fixed and dogmatic identities of a 'captured earth'. *It occurred to members of the group that their initial feeling of happiness involved something more than the community gardening project; at last something creative was happening in this place.*

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