

ACTION RESEARCH: A GUIDE TO PROCESS AND PROCEDURE

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ABSTRACT

This paper grows out of concerns about the conduct of action research in the field of Information Systems (IS). While action research has many attributes that would suggest it was ideally suited to an applied discipline such as IS, there are no well articulated processes or procedures to guide the action researcher. By virtue their rejection of many of the tenets of positivistic enquiry, action researchers also by definition reject the well-established processes and procedures that guide the conduct of quality, rigorous, positivistic research. This becomes problematic only when one considers that there is comparatively little available to take its place. This paper attempts to address this apparent vacuum in processes and procedures underpinning action research, and offers three elements to help build rigour and quality into an action research study. These three elements include developing a framework to support quality and rigorous action research, reconceptualizing action research as being comprised of both problem solving and research interests, and articulating a process model for action research to guide the action researcher. Using these three elements to support understanding and decision making is suggested to be the first step in articulating a process and procedures for the conduct of action research interventions.

INTRODUCTION

For a number of years, action researchers have extolled the virtues of action research, particularly for an applied discipline such as information systems (West et al. 1995, Avison 1993, Baskerville and a and Wood-Harper 1996). Indeed, it is fair to say that the outcomes of action research studies have already had a significant impact on the understanding and practice of diverse aspects of the field of Information Systems (IS) (Avison et al 1999). Despite this, there is a sense in which action research has not been as widely embraced by other IS researchers as its proponents might have welcomed, if it is assumed that the comparative dearth of published action research cases provides a reasonable indication of its rate of uptake (Lau 1997). A number of reasons for this may be proffered. Stowell et al. (1997) and Lau (1997) point out that there is little guidance for the researcher on how to conduct action research. McKay and Marshall (1999) argue that there has been scant attention paid to the

reporting of the action research process itself (as opposed to the context and content of the action research study), and question whether there has been sufficient academic scrutiny of the action research process and its underpinning data collection and analysis techniques. If action research is to be accepted as a serious vehicle for the conduct of research in IS, then it would seem reasonable that steps are taken to improve the practice of action research.

In this paper, the authors discuss some of the concerns and challenges underlying the conduct of action research studies, and consider reasons for these concerns. They identify three elements, which taken in concert, arguably provide considerable help and insights for the would-be action researcher. These three elements include developing a framework to support quality and rigorous action research, reconceptualizing action research as being comprised of both problem solving and research interests, and articulating a process model for action research to guide the action researcher. Prior to doing that, it seems appropriate to briefly define action research for the purposes of this discussion, as it tends to be a very broadly and loosely defined concept, encompassing a range of research and problem solving activity.

DEFINING ACTION RESEARCH

Action research is, quite literally, a coming together of action and research, or rephrased, of practice and theory. Thus, there are two thrusts in action research: one is concerned with practical problem solving in real-world situations, of improving practice, and/or of ameliorating a situation in the real-world regarded by some stakeholders as being problematic. The other dimension to action research, however, is concerned with research, or the development of new knowledge. Thus, through the real-world intervention, the action researcher aims to gain further insights, or generate new theory or knowledge in a particular area (Elden and Chisholm 1993, Shanks et al. 1993). Action taken, however, should be guided and informed by some theoretical framework appropriate to the researcher's interest and also to the context in which it is to be applied (Checkland 1991, Baskerville and Wood-Harper 1996). Prior to the intervention, the respective roles, responsibilities, expectations and degree of involvement of both researcher and problem owner should be clearly established. So too should issues concerning the scope of the intervention be resolved. Both researcher and problem owner are actively involved in the intervention (and indeed, in some action research interventions, may be the same person), each bringing a necessary set of knowledge and skills to the intervention (Hult and Lennung 1980). Action research should result in win-win outcomes: for the problem owner, the problematic situation should be better understood and in some way ameliorated at least, while for the researcher, new theories should be generated or tested (Susman and Evered 1978). Adopting action research as described, therefore, implies a rejection of many tenets of more traditional approaches to research which are embodied in the scientific method. The methods of natural science are viewed as both problematic and indeed, inappropriate, when applied in "human" disciplines such as IS, for intelligent human agents can (and tend to) take action which can effect both the phenomena under study and the outcomes of the research (Checkland 1991). "Facts" in a social context are viewed as being given existence by as well as interpreted within some socially constructed framework of understanding (Avison 1993). Hence, any scientific or systematic investigation of a social context cannot be regarded as value-free (Elden & Chisholm 1993), nor can it be divorced from the situational and historical context in which it is given meaning (Hult & Lennung 1980).

Rejecting the basic tenets of science does not seem, in itself, to be problematic. However it does mean that the clearly articulated guidelines, procedures and requirements associated with quality, rigorous positivistic inquiry are also rejected. While supporters of action research would have few qualms about this, the challenge they are confronted with is finding any sort of appropriate guidelines or

processes with which to replace them (McKay and Marshall 2000). Establishing rigorous and appropriate procedures for action research, however, does seem important if action researchers are to respond to their critics both from within and outside of their own ranks. Concerns that action research is just like consultancy, that it lacks rigour and validity, and that it is impossible to generalise or replicate action research findings, for example, need to be addressed if it is to assume its place as an appropriate research method to advance the discipline of IS (McKay and Marshall 1999a). For action research to gain widespread respectability and acceptability, arguably there is a need to conduct and publish high-quality, rigorous action research studies (McKay and Marshall 2000). This remains a considerable challenge however, when one reflects on the fact that there are few guidelines on how to conduct action research, few published papers illustrating the action research process (as opposed to the content of an action research study), and few criteria by which to assess the merits of a particular action research study.

THE CHALLENGE OF CONDUCTING ACTION RESEARCH STUDIES

Given the articulation of action research in the previous section, arguably there are two broad ways (and obviously many more possible variants) of approaching action research, and one approach which we would argue is totally unacceptable. In Figure 1 below, the research interest precedes, and possibly initiates, the search for the occurrence of a real-world problem. Through informed action and reflection, satisfactory problem solving and research outcomes are achieved.

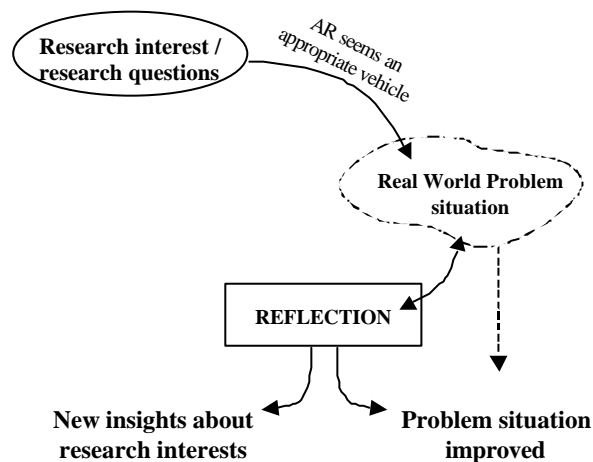


Figure 1: One Approach to Action Research

By contrast, in Figure 2 below, the opportunity of problem solving in the real world may initiate or shape research interests and questions, but once again through informed action and reflection, satisfactory problem solving and research outcomes are achieved.

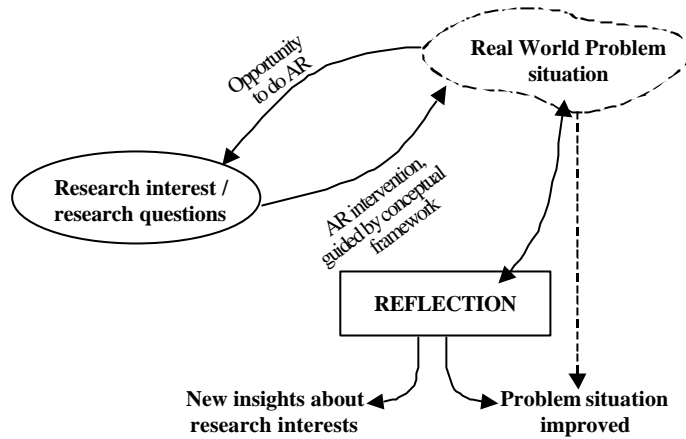


Figure 2: A Second Approach to Action Research

Both these approaches seem to have the potential to produce rigorous outcomes (given certain criteria discussed later in this section). However, of concern is the approach adopted in what we have called "post hoc action research", where action in the real-world completely precedes any research interest (see Figure 3 below).

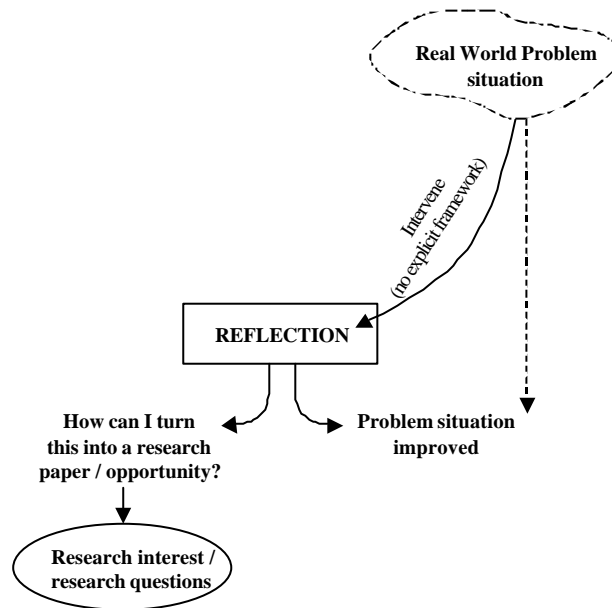


Figure 3: Consultancy Masquerading as Action Research

Rejecting this third model helps us to address those critics who assert that action research is just like consultancy. While Figure 3 bears all the trademarks of consultancy, Figures 1 and 2 imply a quite different approach. What emerges quite clearly in Figures 1 and 2 is the dual imperatives of the action researcher to improve real-life situations, *and* to generate or test new knowledge. By clearly and specifically acknowledging this duality, and taking account of both interests in the overall planning and design of an intervention, it arguably helps the action researcher to think more clearly and thus to act more carefully and reflectively, and also with more awareness of the essence of action research and its concomitant responsibilities (McKay and Marshall 1999b). So, the first element offered to help the would-be action researcher to clarify their thinking about action research is:

1. Reconceptualise action research as being composed of two interconnected cycles of interest: a problem-solving interest, and a research interest.

This notion is captioned below in the Figure 4.

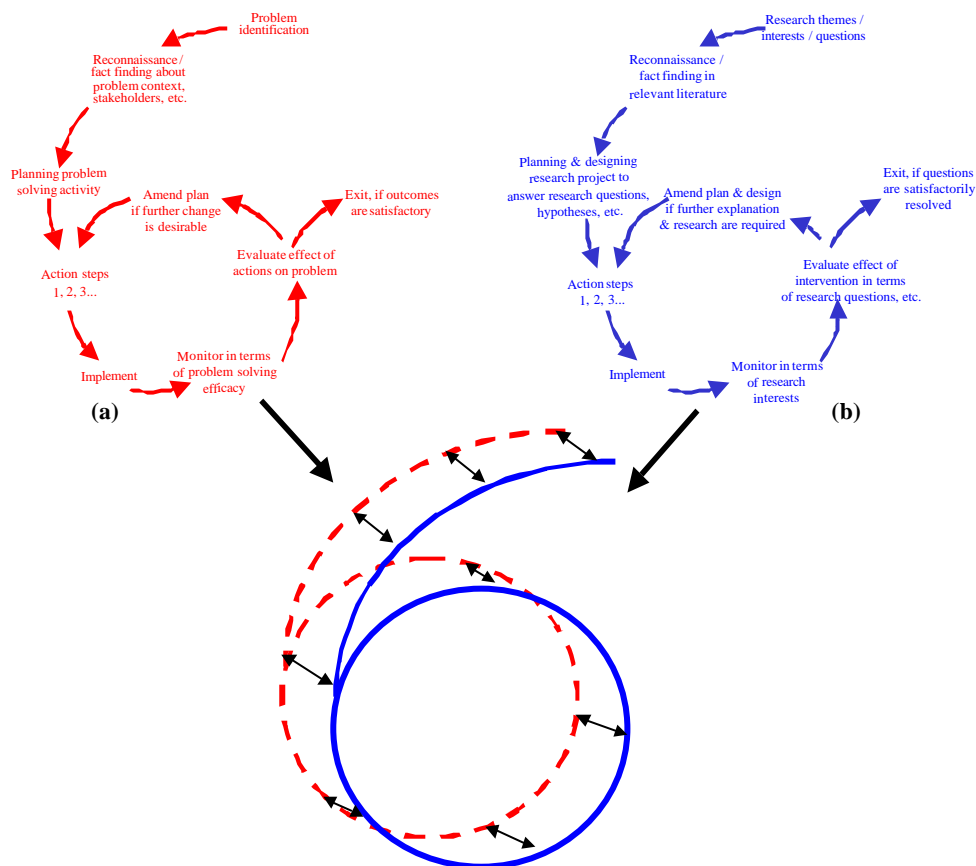


Figure 4: The Dual Imperatives of Action Research

This seems important in that the adoption of this dual cycle view in both our thinking and practice of action research dispels the criticism that action research is just like consultancy. We would suggest that consultancy is not dissimilar to the problem solving interest in action research (see Figure 4(a)). Action research which is deemed to be just like consultancy may be found to be lacking in its attention to the research interest cycle (see Figure 4(b)). However, if we explicitly add and clearly acknowledge the research interest of action research, then action research is obviously not the same as consultancy, and the research interest cycle offers a mechanism for action researchers to clearly differentiate their activities from those of consultants. Furthermore, we would assert that thinking about action research as though it were composed of two cycles makes it a lot easier for the action researcher, particularly the less experienced researcher, to ensure that they are doing research, and are not inadvertently trying to masquerade consultancy or problem solving as research.

The second element proffered to improve action research practice is a framework designed to enhance quality and rigour in action research. The framework proposed (attached at the conclusion of this paper) has been constructed around the four categories suggested by Straub et al (1994) as being

fundamental to quality considerations of any piece of research, positivistic or interpretivistic, and contains a number of questions to challenge the thinking of an action researcher.. These four categories are as follows:

- *Conduct of the research* – This is concerned with issues of quality related to how the research has been conducted, whether it is positivistic or interpretivistic research. Appropriateness of methods and techniques used for the research questions and research context would be included in this category.
- *Conceptual significance of the research* – This category is concerned with topic selection, the use of appropriate theory, coverage of the significant literature, and contributions to knowledge in the discipline. Also considered here would be future research initiatives growing out of the study in question.
- *Practical significance of the research* – This reflects the applied nature of the IS discipline, and is an assessment of whether the research can be linked to real-life issues and challenges facing IS practitioners. Being able to have some impact on practice is of importance in this category.
- *Presentation of the Research* – The category reflects the professionalism of the reporting of the research, and is concerned with elements of expression and structure, particularly as they affect the intended audience for the research.

The categories actually embrace many of the criteria established for qualitative research (see Guba and Lincoln 1989), but add additional considerations as well. Each of these categories will be considered in turn, with an attempt to justify the inclusion of the various questions.

Conduct of the Research

The criteria in this section reflect our concern that action research must be presented and judged to be rigorous research, without being forced into the positivist requirements of rigour. Influential in developing the questions in this section was the work of Eden and Huxham (1996) and Guba and Lincoln (1989). Given our concerns that above all else there must be transparency of process, with the process revealed adhering to the bulk of the characteristics (tenets) of action research, then this too was included in this section along with considerations of the credibility, transferability, dependability, and confirmability of the research. Justification of the choice of research method as an appropriate vehicle for the conduct of the research also seemed to need representation in this category. We also chose to include a criterion on researcher skill in this category. This seemed to be justified, given the direct involvement of the researcher in action research. Researcher skill, it was felt, would impact on the way the research was conducted, and hence at least to some extent on the research outcomes and quality.

Conceptual Significance of the Research

The interest in this category revolved around the use and development of theory throughout the action research intervention. The criteria of the use of an explicit theoretical framework had already been captured in Conduct of the Research, so it was not repeated here. However, the new dimension included in this category was that the theoretical framework selected could be shown to be linked to the relevant academic literature in the field. In this category we also attempted to capture the development of new knowledge or theory from the action research intervention, and the fact that the action research study should lead on to future research and thus play a part in the development of a corpus of knowledge in a particular field.

Practical Significance of the Research

This category (despite its small number of criteria) is regarded as being of great importance to both action research and the IS community. The problem solving interest of action research requires that the researcher (with the participants) attempts to ameliorate a real-world problem, and thus, being of some practical significance seems to be a fundamental requirement of action research. IS researchers have also been exhorted to acknowledge the applied nature of their discipline, and to engage in relevant research, research that makes a difference to practice (Keen 1987). So the criteria in this category were aimed to ensure that the action research intervention would potentially help practitioners and alleviate problems experienced in the IS discipline. We use the word 'potentially' deliberately, because the issue of whether practitioners choose to take up the ideas of the research seemed to us to lie outside the responsibilities of the action researcher, provided of course, that the researcher has made a reasonable attempt to disseminate the results of his/her research to appropriate audiences.

Presentation of the Research

In some senses, potential criteria for this category have been subsumed into the proceedings categories in the framework. The category was retained to emphasise the need to identify various potential consumers of the research (IS practitioners, IS academics, etc.) and to make an effort to present and disseminate the research findings to these consumer groups in an appropriate way. It is acknowledged, however, that on some occasions, the full extent of the action researcher's effort to publish and talk about his/her results may be unknown.

The framework is designed to help inform and shape the design of an action research study, and also to help the subsequent conduct of the research. Being cognisant of many of the issues and requirements of an action research intervention arguably would help to produce more rigorous and credible outcomes. Thus the second element offered to help the action researcher in improving the rigour and quality of the research is:

2. Adopt the framework for rigour and quality in action research. Use the questions to constantly challenge and reflect on your actions.

The third element offered to improve action research is a process model. Models of the process of scientific inquiry are relatively common (see Kumar 1996, for example). While there have been attempts to articulate a generic process for the conduct of qualitative research (Gorman and Clayton 1997, Berg 1998, for example), few attempts have been made to create a useful model of the action research process. While these models of the qualitative research process form an invaluable starting point for the scoping and design of action research study, important characteristics of action research, particularly the direct intervention of the action researcher, and the responsibility to facilitate or engage in real-life problem solving, means that some of these qualitative research models fail to capture the multifarious requirements of action research.

Janesick (1994) likens qualitative research design to choreography, where specific "steps" emerge through complex movements amongst issues such as research interest, research questions, theoretical perspective, site (and participant) selection, and so on. In terms of action research, then arguably the "warm-up" phase of the dance involves fluid and recursive considerations of the following issues and activities (see Figure 5).

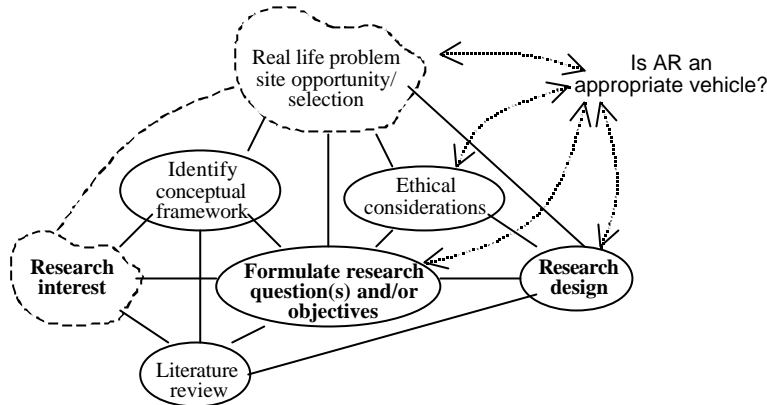


Figure 5: The "Warm-up" Phase of Action Research Design

Figure 5 suggests that research questions and research design emerge through complex interactions between a number of considerations. Despite a temptation to regard the outcomes of these interactions as fixed and definite, Gorman and Clayton (1997) suggest they should be likened more to a broad research strategy, providing a framework or set of parameters which then delimit the subsequent research activity. A key consideration during the refinement of the research question, research design, site (and real life problem) selection and considerations of suitability, and so on, needs to be the very fundamental issue of whether action research is indeed an appropriate vehicle for the conduct of the research. Action researchers need to be clear and certain that given their interests, objectives and questions, and their theoretical perspective that their chosen approach is the most appropriate.

Having established research questions and/or objectives and designed the research intervention, the action research project can be commenced. Throughout the process, the researcher needs to bear in mind the dual imperatives of action (to ameliorate a real-life problem situation) and research (to generate new understandings and insights). Figure 6 is an attempt to capture the richness of the action research process.

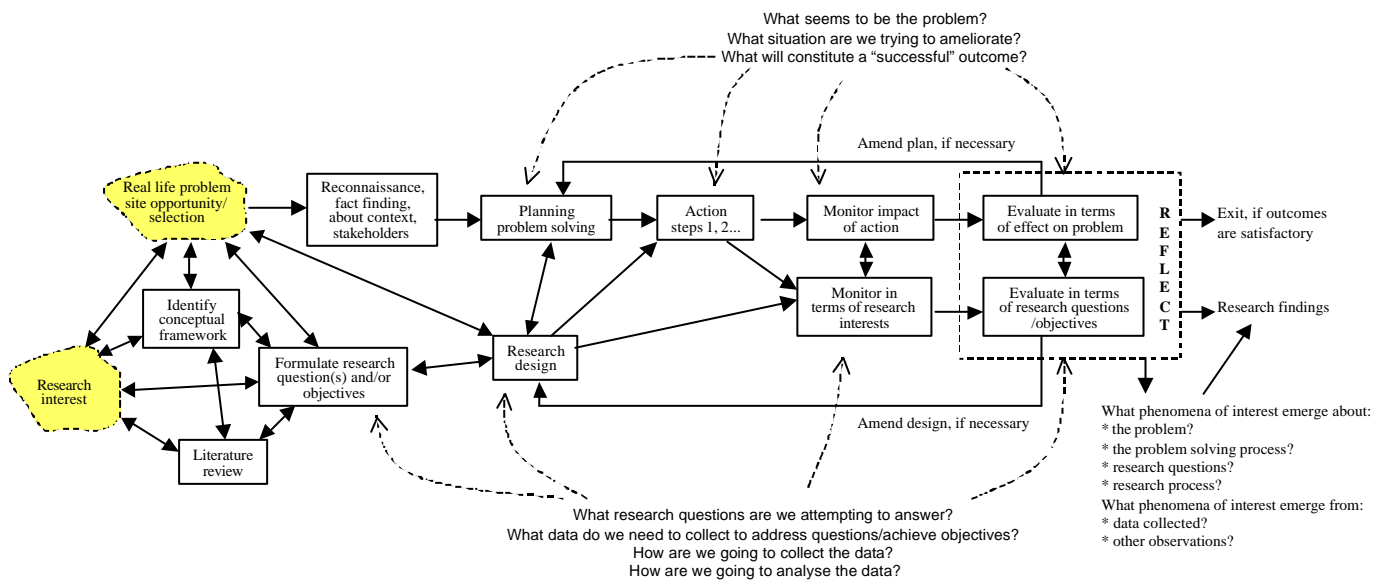


Figure 6: A Process Model for Action Research

Essentially the process recognises the dual imperatives of action research, but attempts to emphasise the close interconnections between these two interests. It also tries to accommodate both the acceptable approaches to action research as illustrated in Figures 1 and 2. The model stresses the iterative nature of action research, arising from a careful evaluation of the process and actions undertaken. The emergent nature of action research is also recognised, as the model encourages reflection on a range of issues associated with the content and context of the problem, the nature of the problem solving process, the research questions and process, and from data gathered and observations made by the researcher as an active participant in the action research process. Thus, some of the anticipated objectives will be achieved and outcomes realised, but emergent outcomes from a range of concerns and possibilities will almost certainly result from an action research study. In addition, it must be acknowledged that complexities in the real world will almost certainly conspire to render some objectives unattainable. Figure 7 below (adapted from Mintzberg and Quinn 1996) illustrates this point.

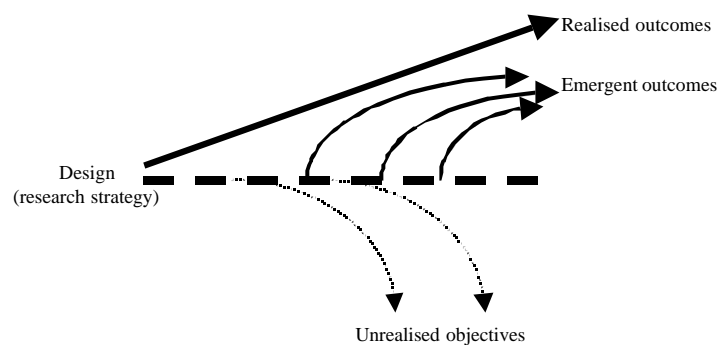


Figure 7: Outcomes from an Action Research Study

The process model of action research is offered as a guideline, a suggestion on how a researcher might proceed. Perfectly acceptable variations are envisaged, and there is no intention here of limiting the creativity and resourcefulness of the researcher. Secondly, it is acknowledged that real-life is seldom as neat and predictable as this model might imply, nor is it as easily compartmentalised. Inevitably, contingencies will arise which will serve to moderate the action research process as the intervention unfolds. This process model, then, is a tool to help structure thinking: it is a device to challenge the decision making of the researcher, and to try to help the action researcher cope with all the complexity and uncertainty of the real-world. It is not intended as a step-by-step approach which must be doggedly implemented. Thus, the third element offered to help the action researcher is:

3. Use the process model of action research to help you design rigorous research, and to support the management of complexity throughout the action research process.

CONCLUSION

This paper has acknowledged the concerns of some authors about the conduct and the quality and rigour of action research. Indeed, of concern is the risk that action research will not enjoy the uptake that it deserves unless committed action researchers can clearly demonstrate the rigour and reliability, and achieve widespread acceptability of action research within the IS community. In response to these

concerns, the authors have proposed three major elements, which a potential action researcher can adopt and apply to gain insights into the requirements of the action research process, and on those steps and considerations that can be taken in the design and conduct of action research in order to improve the quality and rigour of the research outcomes. First of all, researchers are encouraged to think of action research as composed, at a conceptual level, of two interconnected cycles of interest. Arguably this encourages greater awareness throughout the intervention of the need to attend to both the problem solving activity, and to activities more associated with the research process. Secondly, researchers are offered a framework of questions to challenge and support the decision making and actions with respect to the design and conduct of the research. Thirdly, a flexible process model of action research was suggested to help would be researchers to consider the intricacies of action research, and to make appropriate decisions therefore about the conduct of their research. The authors argue that these three elements in combination offer significant support and guidance to the action researcher, and are a step towards developing a widely accepted, well-articulated process and procedure for action research.

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