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# Shaping a Process Model for Action Research

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## Abstract

Action research is an important qualitative research method that has significance in many practical fields, not the least of which is information systems. Not surprisingly therefore, a number of papers from the information systems literature have described the broad approach of action research, emphasizing the philosophical background as well as the dual concerns of practical problem solving on the one hand and furthering research interests and gaining useful knowledge on the other. However, there has been a lack of published papers in the literature describing a process and procedures that would contribute to and guide a rigorous action research project. This paper addresses this need, and as such, offers guidance to new researchers and to experienced researchers new to action research in terms of how to conceptualise and design an action research intervention.

**Keywords:** Qualitative research methods, Action research

## 1. Introduction

Action research is an important qualitative research approach, especially in disciplines in which the nature of knowledge tends not to be objective and nomothetic, but embedded in practice and contingent on social context. Given this, a number of authors have described and explained the philosophical underpinnings and background of qualitative research in general, and action research in particular (Burns 1994, Creswell 1994, Haralambos and Holborn 1990). In particular, many authors have argued that the particular characteristics of action research make it particularly applicable in applied disciplines such as information systems (Baskerville and Wood-Harper 1996, West et al. 1995). However, despite action research being a complex undertaking, particularly so for the new researcher, there have been few descriptions of the process and procedures associated with implementing an action research study: there is no “how-to-do” explanation of action research. This paper attempts to address that gap in the literature by providing a guide to the process of action research.

Although the paper describes and recommends guidelines for the process of action research, the process model articulated is not meant to be a rigid prescription. Rather, it is important that the process model be regarded as a broad framework and set of ideas and recommendations for a possible process for an action research study, not intended to limit or stifle the creativity and resourcefulness of the individual researcher. Accepted in this manner, it is hoped that the process model will improve the practice and rigour of action research without leading to the rigidity and inflexibility that might result from the over-specification of process and procedures.

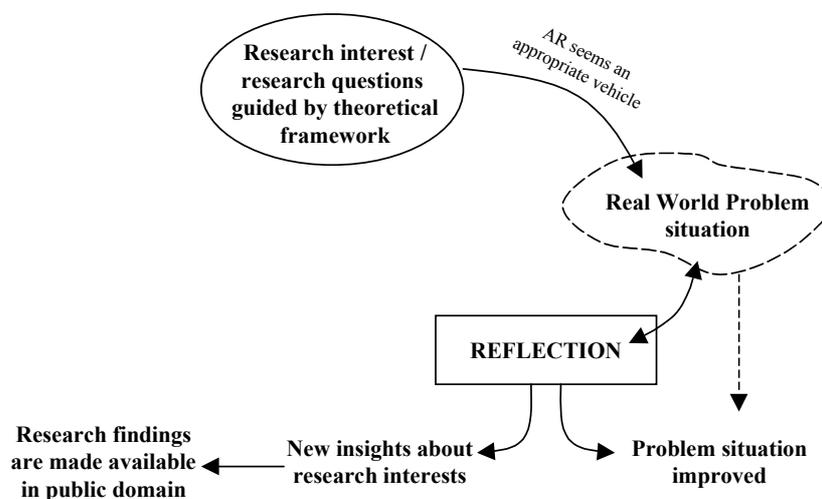
## 2. Defining Action Research

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 Research has thus been defined as a method involving *“bringing out ideas in practice as a means of improvement and as a means of increasing knowledge”* (Kemmis and McTaggart 1982). 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).

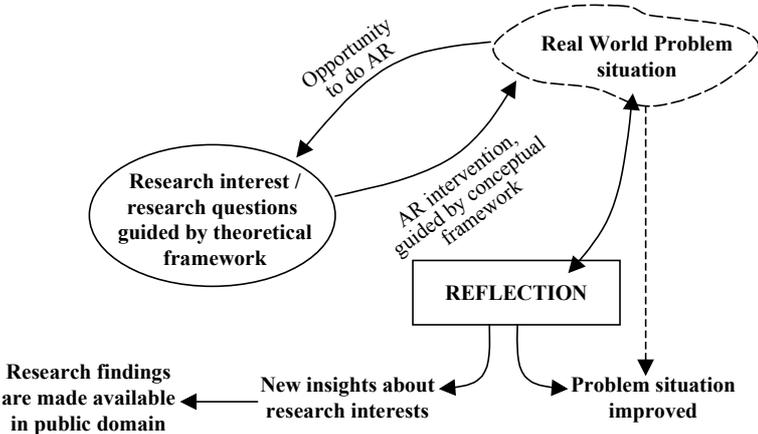
Given the articulation of action research in the paragraphs, arguably there are two broad ways (and obviously many more possible variants) of “doing” action research, and one approach which we would argue is totally unacceptable, and as such, could not be deemed to be action research. In Figure 1 below, the research interest precedes, and possibly initiates, the search for the occurrence of a real-world problem. Once a suitable problem has been identified, and hence a “site” selected, the researcher(s) and participants collaborate, defining and/or clarifying roles, responsibilities, objectives, expectations, and the scope of the intervention wherever practicable. Through informed action (action guided by a suitable conceptual framework) and reflection, satisfactory problem solving and research outcomes are achieved. The action research cycle is completed by lodging the research outcomes and new insights into the public domain for criticism (McNiff et al. 1996).

[Figure 1] “Research-Led” Action research



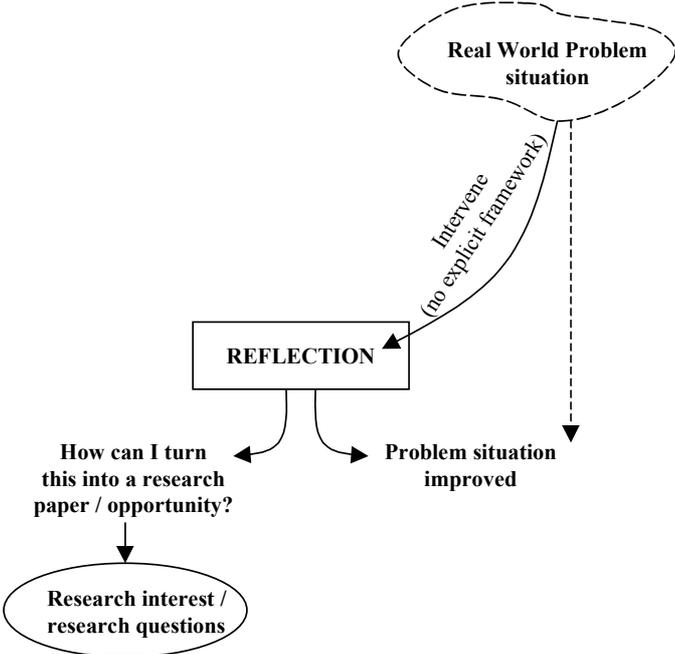
By contrast, in Figure 2 below, the opportunity of problem solving in the real world may initiate or shape research interests and questions, but once again through collaboration, informed action and reflection, satisfactory problem solving and research outcomes are achieved. Again, publishing those outcomes in the public arena for critical scrutiny completes the action research cycle.

[Figure 2] “Problem-Led” Action Research



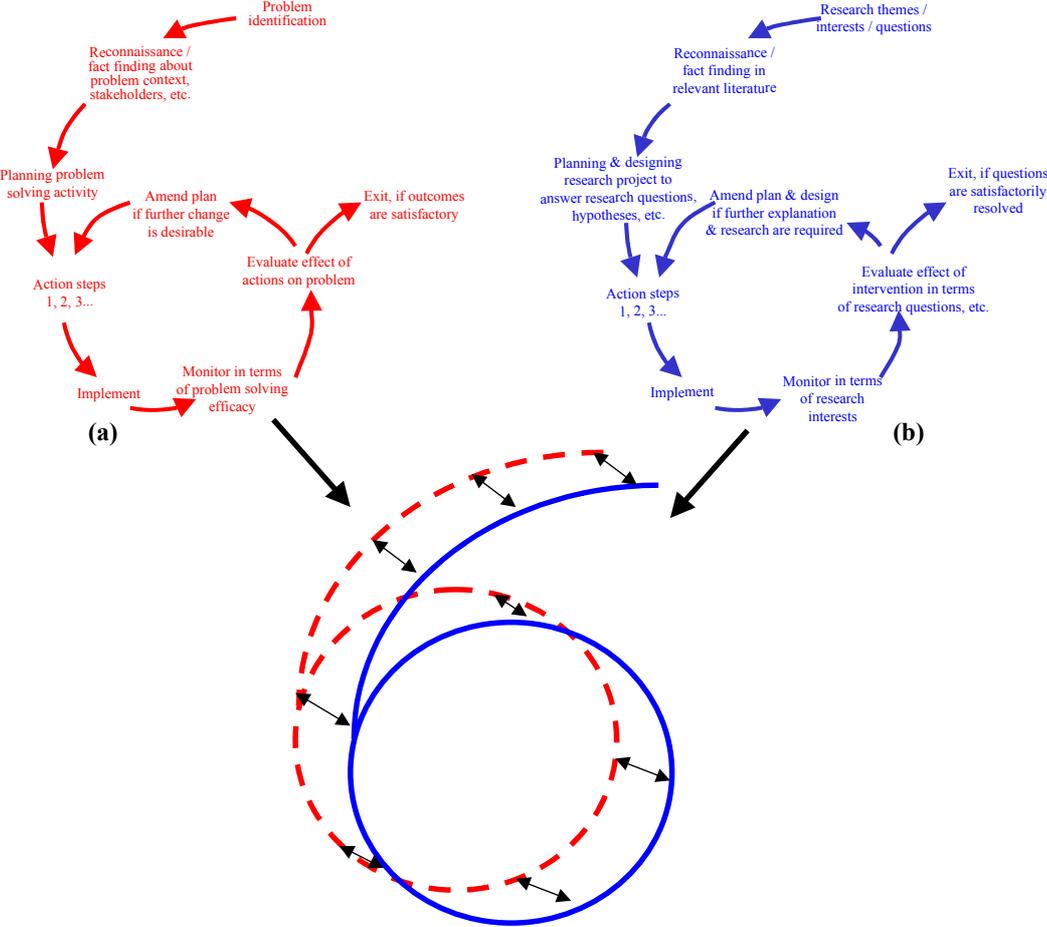
Both these approaches seem to have the potential to produce rigorous outcomes (given certain criteria discussed later in this section). However, of concern is the approach adopted in what we have called "post-hoc action research", where action in the real-world completely precedes any research interest (see Figure 3 below). Typical here would be the classic consultancy project, where doubtless intervention in and improvement of a problem situation has occurred, but in which action has not been shaped and guided by an explicit conceptual framework, nor has the intervention been subjected to critical evaluative reflection.

[Figure 3] “Post-Hoc” 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). 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.

A word of caution needs to be expressed at this juncture. In urging researchers to acknowledge the dual imperatives of action research, it must be remembered that this distinction between action and research is drawn at a conceptual or analytical level. At the practical level, researchers and participants engage in making changes to systems of human activity in all their richness and complexity, and thus, action and research become inextricably intertwined (Bannister et al. 1994).

### **3. Action Research in Information Systems**

#### ***3.1 Paradigmatic Considerations***

Selection of a research method or anointing one as “appropriate” in a particular discipline implies a need to consider both the detailed approach(es) by which data are to be collected and analysed, and also the philosophical assumptions on which these methods are based (Haralambos and Holborn 1991). Articulation of the philosophical stance of the researcher (as evidenced by choice of research approach) is important because it largely drives the values and beliefs as to the purpose of enquiry, as to what constitutes valid knowledge, as it does the selection of methods, tools, techniques and terminology for the conduct of the research (Kumar 1996). In the field of IS, as in all of the social sciences, there are essentially two competing paradigms or theoretical models, each of which represents a strikingly different view of the nature of social reality and consequently, of how understanding and knowledge can be gained through interpreting aspects of that reality (Cohen and Manion 1994, Shanks et al. 1993). These are known as the positivist or normative paradigm, which essentially drives the scientific method of enquiry (Cohen and Manion 1994), and the interpretivist or naturalistic paradigm which has become more popular in recent times in the social sciences (Burns 1994, Avison et al. 1999).

Traditionally, the predominant paradigm in the field of IS has been the positivist one (Orlikowski and Baroudi 1991, Myers 1994). The positivist approach to research is exemplified in the scientific method, which embodies the key assumptions and procedures by which scientific knowledge can be derived. All variants of positivism assume an objective world, knowledge about which may be validly generated through empirical investigation (Shanks et al. 1993, Burns 1994). Within this world, there are presumed to exist “*a priori fixed relationships*” (Orlikowski and Baroudi 1991:5) which can be isolated and measured, leading to the generation of nomothetic statements revealing causal relationships about phenomena of interest (Bryman 1989, Shanks et al. 1993). Determinism is an important concept in this paradigm. Events are viewed as having causes, and when these relationships are uncovered and understood, this provides the scientist with a means of predicting and controlling his / her environment. Thus a key concern of scientific enquiry is to formulate laws which account for observed phenomena (Cohen and Manion 1994). In the social sciences, therefore, the ultimate aim is to discover the laws which govern human behaviour (Haralambos and Holborn 1991). Observation is thus an important aspect of the positivistic approach to research, with empirical data, that which can be verified by observation, the only valid data which can be collected (Cohen and Manion 1994). Burns (1994:7) writes that “*positivists were very hostile to the supposed existence of things that can neither be seen nor heard*”. Through a controlled process of observation and analysis of objective (value-free) facts, laws governing behaviour were derived, with the main aim being to generalise from the specific investigation to the population at large (Cohen and Manion 1994, Haralambos and Holborn 1991). A final check on the validity of the new laws generated comes from the concern with replication. Replication enables checks to be made to ensure research findings are truly generalisable, and also serves to

ensure that the biases and predilections of the researcher have not influenced the research outcomes (Bryman 1989). The researcher should at all times be seen to remain distant and 'outside' the object of the research (Creswell 1994).

The interpretivist paradigm offers a very different view on the nature of scientific enquiry in the social sciences. Interpretivism has been defined as follows:

*“the systematic analysis of socially meaningful action through the direct detailed observation of people in natural settings in order to arrive at understandings and interpretations of how people create and maintain their social world”.*

(Neuman 1991, as cited by Shanks et al. 1993:35)

Interpretivists argue that the methods of natural science cannot appropriately be imported to the social sciences as people and the social artefacts they create are fundamentally different to the physical reality investigated in the natural sciences (Lee 1991). Thus, at the core of interpretivism, is the view that social reality is highly subjective, and is constructed and renegotiated through the interpersonal interactions of actors within a given context (Hughes 1990). The focus of investigation is the individual, and through the self-awareness of human beings and the power of language, understandings can be gained of the way certain phenomena in the social world are perceived and interpreted (Cohen and Manion 1994). The notion of laws governing human behaviour is rejected outright, as is the notion of an objective researcher (Cohen and Manion 1994). Given that knowledge is derived from the perceptions, interpretations, and judgements of human actors interacting within a social context, research becomes a highly subjective activity (Burns 1994, Cohen and Manion 1994), with the researcher actively engaged in the field of study, and admitting that his / her values and biases are inextricably linked to the context of the research (Orlikowski and Baroudi 1991, Creswell 1994). Interpretivist research, then, aims firstly to explain the meanings attributed to certain behaviours by actors in the situation, secondly, to allow others an insight into the reality of those actors, and thirdly, to highlight subtleties of responses and behaviours given a particular context (Shanks et al. 1993, Burns 1994). It is concerned with context-dependent outcomes, and thus generalisation to a wider population and replication are not possible (Burns 1994).

While the positivistic approach to research in the natural sciences has had relatively few critics, there have been numerous concerns voiced about this approach when applied to human behaviour and the social sciences. Amongst the concerns voiced are that human individuality and the ability to think and make choices must be extremely limited if they are viewed as being governed by a series of laws (Burns 1994). Haralambos and Holborn (1991:707) provide an apposite description of the limitations of the positivist position in terms of the social sciences:

*“The natural sciences deal with matter. Since matter has no consciousness, its behaviour can be explained simply as a reaction to external stimuli. It is compelled to react in this way because its behaviour is essentially meaningless. Unlike matter, people have consciousness. They see, interpret and experience the world in terms of meanings; they actively construct their own social reality...People do not react automatically to external stimuli as positivists claim. Instead they interpret the meaning of the stimulus before responding to it.”*

Also of concern is the fact that with a positivist approach, historical and contextual conditions play no part in the formulation of laws (Orlikowski and Baroudi 1991). Yet in the social sciences, it seems not unreasonable to postulate that social contexts, shaped by both history and

elements of politics, culture, interpersonal interactions, time, and so on, have a direct bearing on our ability to truly understand organisational phenomena, and hence on our ability to make improvements in practice.

In the field of IS, there has been some acknowledgement that the behaviour of sociotechnical systems can be best studied and understood through direct intervention and involvement in that system (Kock et al. 1998), and hence, IS researchers have for some time now been exhorted to consider interpretive approaches, and specifically action research as a suitable candidate research approach amongst the repertoire of methodologies embraced by the discipline (West et al. 1995). Action research, after all, boasts many features which would tend to suggest it is ideally suited to study aspects of the planning, development and implementation of information systems within their human, organisational environments. Research objectives and questions which suggest that the research be conducted in a real-life organisational setting without contrivance, which suggest that organisational politics, culture, time and the like may well all, to some extent, impact upon the research, seem ideal candidates for action research.

### ***3.2 Abandonment of “Scientific” Enquiry***

That it lacks scientific rigour is another ‘popular’ criticism of action research. Amongst the concerns voiced about action research with respect to its lack of scientific rigour are the following:

- with action research, it is difficult, if not impossible, to make causal connections and explanations (Avison and Wood-Harper 1991, Eden and Huxham 1996);
- with action research, particularly with single-iterations of action research, it is difficult to generalise results (Marshall and Rossman 1989, Denscombe 1998);
- there is a contingent nature to the knowledge generated or theory developed (Burns 1990, Cohen and Manion 1994, Baskerville and Wood-Harper 1996, Kock et al. 1998);
- the lack of impartiality of the action researcher may lead to researcher bias (Avison 1993, Kock et al. 1998);
- data gathered may lack validity and the potential exists for manipulation of the researcher to occur (Bryman 1989);
- it is difficult, if not impossible, to replicate the action research study, and hence, to replicate its findings (Burns 1994, Remenyi et al. 1998);
- the sample used in action research is often restricted, and may thus be unrepresentative (Cohen and Manion 1994).

Adopting action research as previously 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).

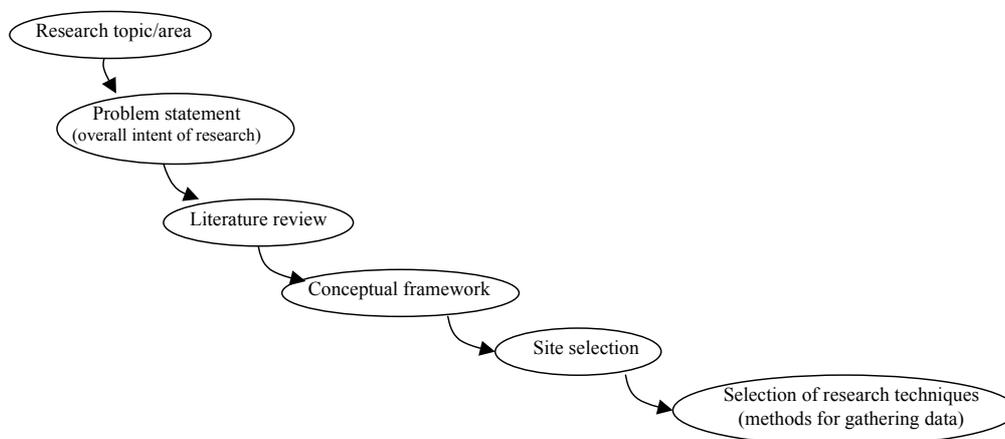
Rejecting the basic tenets of science does not seem, in itself, to be problematic. However it does mean that the clearly articulated guidelines, procedures and requirements associated with

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.

### 3.3 Alternative Models of Enquiry

Models of the process of scientific enquiry are relatively common (see Kumar 1996, for example). It seems reasonable to assert that qualitative research is generally less well supported in terms of offering well-defined processes and procedures by which to conduct a research project. Glesne and Peshkin (1992) offer some support for the would-be qualitative researcher in describing a broad approach to guide any qualitative study (see Figure 5).

[Figure 5] A Generic Qualitative Enquiry Framework



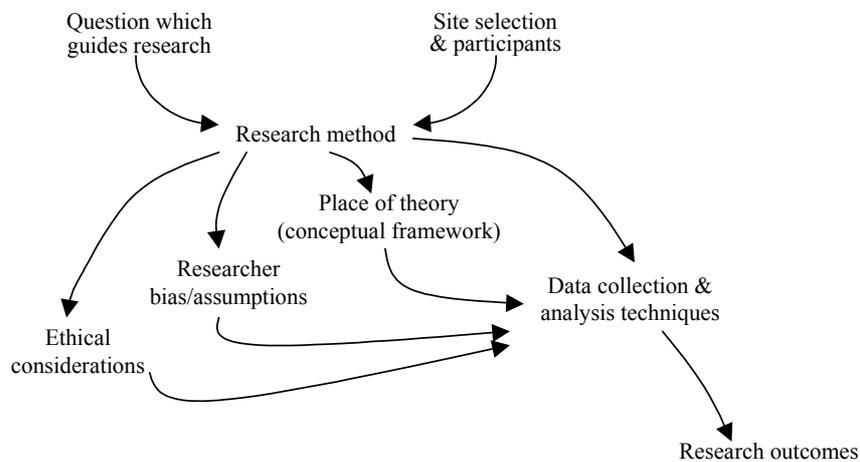
Source: Adapted from Glesne and Peshkin, 1992

While this model offers some insights for researchers, it seems of limited value for a couple of important reasons. First of all, while it offers guidance to what might be described as the “pre-research” activities, the researcher is left very much to his/her own devices once a suitable site has been selected. Secondly, with specific reference to action research, it makes no separation between the research interest and the problem solving interest that were earlier argued to be key components of any conceptualisation of action research.

Further insights into qualitative research design are provided by Janesick (1994), who, in likening qualitative research design to choreography or dance, suggests a three-phase process of warm-up (establishing research questions, site selection, selection of research method, etc.), total workout (data collection and initial analysis, meanings and perceptions of participants,

etc.), and cool-down (exit from setting, completed data analysis, reflection, publication of research outcomes). A cognitive map elucidating the process of Janesick (1994) is captured below in Figure 6.

[Figure 6] The Make-up of Qualitative Research

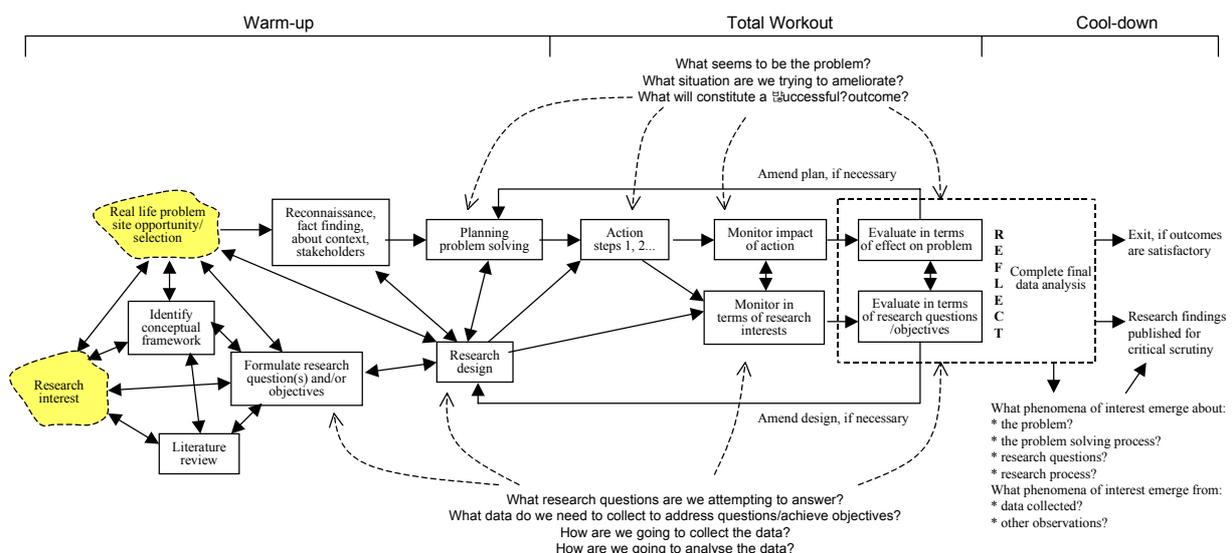


Source: Janesick, 1994.

#### 4. Process Model for Action Research

There have been few known attempts to capture a useful model of the action research process. By adopting the three-phase model of Janesick (1994), and bearing in mind the possible conceptual separation of action and research, the following is an attempt to capture the richness, complexity and interconnectedness that characterizes action research.

[Figure 7] A Process Model for Action research



The warm-up stage of action research involves the firming up of a research interest to the point of articulating an appropriate research design, achieved through a very messy, fluid, iterative “worrying”, involving an examination of the relevant literature, identifying an appropriate conceptual framework, formulating research questions and/or objectives, and indeed, even

challenging the appropriateness of action research itself, potentially each one of these elements causing impacts on or moderating the others. The outcome of this phase of “worrying” would be a thoughtful, considered, rigorous research design for the action research project. In addition, the warm-up stage involves identifying an appropriate problem context, reconnaissance and fact finding about that context, culminating in planning the problem intervention.

There is a close and important relationship between the problem solving oriented steps of reconnaissance, fact finding and planning action, and the research oriented steps of identifying the conceptual framework, formulating the research questions and designing the research. The research design, the research questions and the conceptual framework all lead to preparations for the conduct of the research in such a way as to lead to appropriate evidence to be collected, processed and analysed so that the research questions can be answered. Without such research-oriented planning of the problem solving process, the researchers could slip into a process close to the post-hoc type of “action research”. The problem solving steps in the action research cycle are infused with research-oriented actions which are designed to collect appropriate data so as to enable informed speculation and conclusions regarding the research questions.

During the total workout stage, the researcher is actively intervening in the problem situation. Thus, the focus switches to the action(s) to be implemented, the monitoring of that action, and then evaluation and reflection on the impacts and outcomes of that action. At all times during this stage, the researcher needs to be regularly revisiting questions such as “*What seems to be the problem(s)? What situation are we trying to ameliorate? What will constitute a successful outcome?*”, for example. The responsibility of the researcher to strive for positive outcomes from the participants perspective(s) is a priority in action research, and hence our insistence that the issues of the participants are never far from the researcher’s mind.

However, the researcher has responsibility also to progress his/her own research objectives, requiring that, while taking action during the total workout phase, the research design is also being implemented. This means that some actions are taken that are guided by research concerns and questions. Some of this research-oriented action may involve interviews, some may involve recording observations of relevant behavioural sequences, while others may involve perusing and checking relevant documents, for example. Some of these actions will be more or less determined by the early stages of the warm-up stage of the action research study, in particular, the research design step. However, some of these actions, although broadly guided by the research questions, will involve related issues and concerns that emerge as relevant and interconnected during the total workout phase. Thus, in progressing the research objectives throughout the total workout phase, the researcher must regularly re-poses questions such as “*What research questions are we attempting to answer? What data do we need to collect to address these questions? How are we going to collect the data? How are we going to analyse the data?*”, and thus carefully monitors the implementation of the research design concurrently with taking action in a real world problem situation. Evaluation of and reflection on the problem solving activity and the research activity as data is analysed is also a key component at this stage.

Reflection on the entire process from a range of perspectives continues during the cool-down phase. The major activity has now been completed, and the important stage of finalising data analysis, reflecting on the success (or otherwise) of the entire undertaking, and on the learning that may have occurred along a number of dimensions as a result of the intervention must now take place. The final responsibility of the action researcher is to communicate the results to an

appropriate audience: the research outcomes need to be published to facilitate scrutiny by other researchers and practitioners, and from this, to thus encourage critical review and debate.

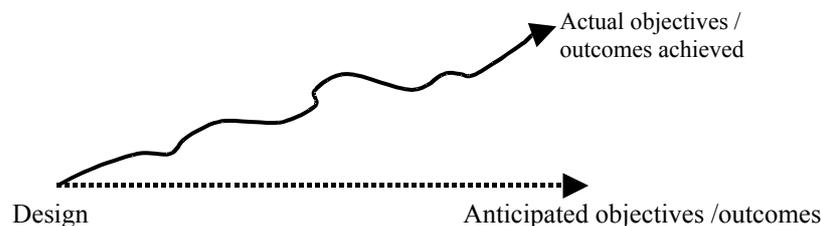
## 5. Reflection on the Process Model for Action Research

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, but does not accommodate the process of pure consultancy. The model stresses the iterative nature of action research, arising from 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.

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. Indeed, our expectation in providing this process model for action research was that it would encourage and promote insight, creativity and thoughtfulness amongst other researchers about the conduct of action research.

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. So, for example, it is highly unlikely in an action research study, that the anticipated objectives and outcomes will all be achieved, any more than the objectives and outcomes that are achieved will perfectly match those anticipated at the outset of the study. The actual trajectory of the study is likely to be much more messy, the contingencies that have to be dealt with en route too numerous and sometimes insurmountable for it to be reasonable to expect that outcomes and learning can be pre-defined and all stated objectives achieved (see Figure 8).

[Figure 8] The Uncertainties of Action Research



The model is not intended as a step-by-step approach which must be doggedly implemented, although it is acknowledged that there is the temptation, when confronted with boxes and arrows, to do just that. Rather our advice to the would-be action researcher would go along the lines of:

- consider the model
- consider your interests (and context if known)
- try using the model: argue its strengths and weaknesses
- adopt those elements which help

- have no compunction about doing something different, provided you are certain you can produce rigorous research.

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. We would love to think of it forming the basis of many intense discussion amongst researchers as they grapple with the issues of designing their action research studies.

## 5. 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 a process model for action research, 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, 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 two 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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