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DATA-DATA: A Model for Practitioner-Researchers

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Data-Data: A Model for Practitioner-Researchers

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Abstract: This paper is about planning and conducting action research projects. It is written for practitioners who need a guide for doing a kind of inquiry that was once considered to be the exclusive domain of the academic and academics. It is also for academics who have broadened their concept of knowing, including how knowledge is constructed and whose knowledge it is. The author's model of action research is described and discussed in terms of how it integrates features of reflective practice and formal research methodology. A special focus is the practitioner's own involvement in his or her inquiry and the logical necessity of including himself/herself as a subject of their own inquiry. Called DATA-DATA, the model has been used by over 150 individuals who have planned action research projects that span a dozen or more applied fields of practice. Most of the researchers were post-graduate students in the social sciences and various professional fields of study. Examples of planned and/or completed action research projects are discussed.

Keywords: Action Research, Reflective Practice, Model

Introduction

FOR CENTURIES RESEARCH was assumed to be the exclusive domain of academics who lived in the noble seclusion of universities or in protected laboratories of large corporations. However, during the last half-century, and especially in the most recent couple of decades, a relatively new form of inquiry called *action research* has been adopted by increasing numbers of mainly non-academics. Examples can be found in business enterprises, primary schools, law offices, community agencies, private consulting firms, museums, community colleges and technical institutes, and in universities. What researchers in these diverse places have in common is a concern for knowing more about their practices and how they can be improved. However, non-academics have found themselves in new and sometimes conflicting roles as practitioners and researchers, especially when they approach their work as researchers in the generally accepted understanding of that role. From the conventional researcher's point of view, there are aspects of the dual practitioner-researcher role that pose a conflict of interest when practitioners serve as the subjects of their own inquiries. However, there is no logical way for them to be excluded from their own practices. This situation calls for an approach to doing action research that positions practitioners as legitimate subjects of their inquiries. The following is a discussion of this dilemma, followed by presentation of an approach to conducting action research that promises to ground the practitioner's inquiry in the unique context of his or her practice.

The New Researchers

The growth in action research reflects a change in the perception of how knowledge is created and who creates it. In a sense, this change is no change at all as people in the ordinary business

of life nearly always create ways to go on in their lives, sometimes in spite of the help provided by experts. The change is also a result of an increasingly better informed and confident practitioner community and a growing belief in the capacity of people everywhere to create new knowledge (Horton and Freire, 1990). Easier and more widespread access to information via the Internet and print sources has certainly enhanced our ability to conduct research. Non-academics are elbowing their way into journals and other printed and virtual outlets, sharing their ideas and research results with other practitioners as well as with academics. However, for most practitioners, doing action research remains an unfamiliar way of knowing. What is much more familiar is the closely related process of reflective practice.

By most definitions, action research involves some form of reflective practice (Quigley and Kuhne, 1997). Reflective practitioners certainly think about what they do as they practice, so it is clear that these two activities are interrelated. Practitioners may benefit from understanding how these two processes are actually interrelated, such that action research becomes a formal, systematic extension of informal and routine reflective practice. This relationship is the focus of the next section of this paper.

Reflective Practice and Action Research

Reflective practice is sometimes thought to be what someone does after they act, introspectively and alone, in “mindful consideration of one’s actions” (Osterman, 1990, p.134). However, reflective practice is more than simply thinking about what one is doing and what one should do next. Reflective practice “*involves identifying one’s assumptions and feelings associated with practice, theorizing about how these assumptions and feelings are functionally or dysfunctionally associated with practice, and acting on the basis of the resulting theory of practice*” (Peters, 1991, p.89).

Donald Schon (1983), whose seminal writing in the area informed my own and many others’ concept of reflective practice, defined it this way:

When someone reflects-in-action, he (sic) becomes a researcher in the practice context. He is not dependent on the categories of established theory and technique, but constructs a new theory of the unique case. His inquiry is not limited to a deliberation about means which depends on a prior agreement about ends. He does not keep means and ends separate, but defines them interactively as he frames a problematic situation. He does not separate thinking from doing, ratiocinating his way to a decision which he must later convert to action. Because his experimenting is a kind of action, implementation is built into his inquiry (p.68).

We reflect *on* action as well as *in* action. Indeed, reflecting on action may be more familiar of the two, as reflecting is usually thought of as after the fact, or following action. In both instances, reflection is grounded in one’s practice. Formal theory may be a part of the equation, but theory is not necessarily from the outside of the practitioner and his or her practice. For Schon, it is primarily the practitioner’s own theory that drives his or her actions. I agree that reflective practice is an informal inquiry into one’s practice, driven by the practitioners’ practical theory and practice context. This is what practitioners do to inquire into their practice without necessarily invoking the aid of systematic and formal research procedures. However, reflective practice may be seen as a necessary component of a more formal

and systematic inquiry into one's practice, or action research. Here is how I define action research: *Action research is a systematic and critical study of one or more aspects of their work by practitioners, their aim being to make changes in their work based on the results of their inquiry. Action research focuses on the practitioner-researcher's own theory of practice, against the background of how his or her practice is situated, organized, and carried out. Individuals, groups, or organizations may undertake action research, and benefits may accrue to the researcher (ers) or their research may be conducted in order to benefit others.*

Certain features of this definition of action research stand in contrast to my definition of reflective practice. In both, practical theorizing is involved, as is the notion that action is tied to one's practical theory. However, my concept of reflective practice was built around individual practice, whereas, at some level, action research usually involves other people. For example, Marshall and Reason (1994) identified the following aims of action research that involve three different audiences:

All good research is *for me*, *for us*, and *for them*: It speaks to three audiences...It is *for them* to the extent that it produces some kind of generalizable ideas and outcomes...It is *for us* to the extent that it responds to concerns for our praxis, is relevant and timely...(for) those who are struggling with problems in their field of action. It is *for me* to the extent that the process and outcomes respond directly to the individual researcher's being-in-the-world (112-113).

Torbert (2001) presented a similar distinction in goals and audience in what he called first, second, and third-person dimensions of inquiry. First-person research addresses the researcher's own life. In second-person research, the researcher engages with others in some form of joint inquiry into their mutual interests. Heron and Reason's (2001) co-operative inquiry is an example of second-person action research. Third-person research aims at developing the capacity to do first or second-person inquiry by wider communities and groups. The work of Gustavsen (Toulmin and Gustavsen, 1996) is an example of this type of action research.

So, action research is not limited to what a lone practitioner can do, if it is indeed possible for a practitioner to be entirely alone in his or her actions. Conducting research with people, and not on people, is the hallmark of a form of co-operative inquiry called participatory action research (McTaggart, 1991). In fact, this emphasis on "withness" rather than on "aboutness" (Shotter, 1998) is what an increasing number of action researchers consider to be distinctive of action research in general – resulting in a collaborative, cooperative form of inquiry (Heron and Reason, 2001).

My definition of action research also adds the element of context, inclusive of the situation in which theorizing is done and further action is undertaken. It is impossible to separate action research from the context that helps shape one's action, no matter how cogent the practical theory of the person(s) involved. Although there is a sense in which actors cannot fully know the background of their actions as they occur (Shotter, 1998), it seems reasonable to take background into consideration in any formulation of a practical theory.

These three features of reflective practice and action research – practical theorizing, context, and systematic inquiry - join a fourth feature that ties the whole enterprise to the practitioner doing the research. This is examined next.

The Researcher as Subject

In doing conventional research that is largely framed by a positivistic worldview, we have learned to distance ourselves from the reality that we seek to understand, to objectivize it, and to seek a way to generalize findings to other situations similar to the one that serves as the focus of our inquiry. Such a stance suggests that researchers are not involved with the subjects of their inquiries. Even in some forms of qualitative inquiry, researchers often seek the participation of other researchers in the analysis of their data, so that their own views are kept in check and researcher bias is kept to a minimum. It is as if the reality of people's lives is already there, fixed, determined, patterned, awaiting the discovery of the researcher's unbiased, objective discovery. It is as if the researcher is not a part of this reality.

This viewpoint frequently carries over into action research. The result is often a conflict between the researcher's worldview and his or her everyday reality. It is ironic that those who wish to understand better what they do in their practice would attempt to take themselves out of that practice and its context. Clearly, this is impossible, but the influence of the positivistic way of thinking should not be underestimated. Most of us came to embrace this viewpoint after years of formal education, and some of us have reinforced our view by engaging in conventional research. It is extremely difficult to let go of an objectivistic view and to conduct research as an involved subject of one's own inquiry. The obvious question is how we can remain "objective" and be personally involved? The answer is that we cannot, so we need to get on with studying what we do while at the same time accounting for how our framework and involvements influence our accounts. Indeed, our own point of view is a part of how we understand our practice (Ragland, 2006) and our task is to subject this point of view to further examination (Peters, 2005). Bradbury and Reason (2001) address issues of validity and quality of action research with the express intention of opening such issues for discussion among action researchers and critics alike. The inclusion of the researcher as subject is thus the fourth element of action research embedded in the model described in the following section of this paper.

Data-Data

The DATA-DATA model of action research was developed to guide my action research and that of other practitioners who might find it helpful in their own practices. The model consists of eight cyclic phases of action and reflection leading to a plan for designing and conducting an action research event. Each phase of the model corresponds to a letter in the acronym: In the first part, or DATA1, D = Describe, A = Analyze, T = Theorize, A = Act. In the second part, or DATA2, D = Design, A = Analyze, T = Theorize, and A = Act. DATA1 essentially represents *reflective practice*, and DATA2 represents the more formal methodological aspects of research and the process of re-examining and possibly revising one's practical theory in the light of findings. In other words, the focus of DATA1 is on what a practitioner might do to informally or formally reflect on his or her practice, but in DATA2 the focus shifts to what a researcher might do to formally and systematically inquire into some aspect of his or her practice. Taken together, DATA1 plus DATA 2 constitute a model of action research. Approximately 150 practitioners, representing a variety of practical settings, have used this model. The majority have been students in action research courses and participants in workshops who have used it to formulate plans for doing research in a variety of settings,

although I have no way of knowing how many of them actually carried out their proposed projects. However, approximately 16 practitioners in higher education, business, and community development have used the whole of the model to plan and conduct action research projects. All who have used part or all of the model have contributed significantly to the model's integrity and usefulness. I am indebted to all of them.

The reader should keep in mind the following features of my discussion of DATA-DATA: First, for ease of presentation, I sometimes use the terms "practitioner" and "researcher" to represent both individuals and groups or organizations. When the discussion moves from DATA1 to DATA2, I refer to the person or persons involved as practitioner-researcher(s), since the practitioner in the first instance adopts the role of researcher in the second instance. Third, the model is intended to serve what Marshall and Reason (1994) refer to as first, second, and third-person research. Fourth, the phases of DATA-DATA are discussed as if the information appropriate to each phase might be written in the form of a proposal, and subsequently, a written report of completed research. Fifth, the phases are cyclic and can be repeated as many times as needed. While the model has a linear aspect, the phases should be considered as moving in a back and forth manner.

There is an additional feature of reflective practice and action research that needs elaboration here, as it helps set the context for a discussion of the details of DATA-DATA. This feature has to do with what prompts a person to engage in the process in the first place. Textbook approaches to problem solving, decision making and research methodology – all related to the processes involved in the systematic, stepwise but cyclic process of DATA-DATA – generally begin with a problem or need identification or a procedure for defining the problem or need. What is usually lacking in such approaches is an account of the circumstances or background that helps shape the problem or need, including the role of people who have the power to define the problem or need in the first place. The day-to-day lives of practitioners and researchers aren't nearly as cut and dried, as textbook models would have them to be. Our lives are messy and sometimes chaotic, and we make decisions, react to situations and take actions without the benefit of a well-defined problem statement or an uncontested understanding of needs, wants, and desires. We react to situations that we sometimes help create, and our practice situations are usually fluid and change even as we react to them. This is why the following guide begins with an identification of the "stimulus" for beginning a cyclic action-reflection process.

I'll refer to this feature as the stimulus for reflection, or what moves the practitioner to take an initiative aimed at changing his or her practice in the first place. I assume that the practitioner has a reason for acting or is moved to act by something in his or her practice situation, even if his or her reasons or the situational factors are not entirely clear and easy to identify. In my experience and in experiences reported by other action researchers who have used the DATA-DATA model, the practitioner may be moved to reflect on his or her practice by one or more motivators. For example, the practitioner may have a vague sense of something that needs his or her attention (e.g., a teacher has a feeling that her classes are not going well); by an outright failure in one's attempt to try a new approach to doing their work (e.g., employees revolt against a manager's handling of a reorganization plan); a practitioner may receive a mandate to make a change in his or her practice but is uncertain about how to carry out the mandate (e.g., a counselor may be stymied by new ethical guidelines mandated by her organization); or the practitioner may simply want to do something different to make her job more interesting and effective. In other words, the practitioner

faces no requirements, no identifiable problems or issues. He or she merely has an interest in trying something new in hopes that his or her job is “better” in the long run (e.g., a teacher thinks offering a traditionally face-to-face course in an online format might enable her to reach a different audience of students). These are only examples of many such factors associated with a practitioner’s motivation to start a cycle of action and reflection and sometimes an action research project. Whatever the motive, reflection usually begins as a reaction to some aspect of practice or its context; including the practitioner’s own dispositions and ideas. This reaction is a stimulus for further action that can set a cycle of actions and reflections in motion.

Putting the Process in Motion

The approach begins with perceived need to act. From there, DATA-DATA provides for continuous reexamination of what the practitioner thinks is going on and what might be an appropriate response to the situation they face. DATA-DATA adds discipline where it is needed to help the practitioner thoroughly understand his or her own assessment of the situation, especially how their own point of view is involved in their assessment. The approach requires the practitioner to take one or more steps back to look at how they perceive the situation (Ragland, 2006). However, the approach is not intended to place the practitioner in an endless loop of self-reflection. Its iterative phases of action and reflection move the process along by requiring the practitioner to continually build the next act on what he or she learns from the previous one, even as they may cycle back and forth among the phases of DATA-DATA.

The DATA-DATA approach should therefore be seen as a guide to both informal and formal aspects of reflective practice and systematic research. The first DATA is the reflective practice component and the second DATA is the research aspect. Henceforth, I’ll refer to these as DATA-1 and DATA-2, respectively. Together, the two constitute and overall approach to action research.

Engagement in the earliest phases of DATA-1 should lead to the practitioner achieving a clarification and improved understanding of his or her practice, particularly the aspects of practice most closely associated with his or her motivation for acting in the first place. A rich description and analysis of the situation and context of particular aspects of practice should lead to the specification of one or more practical questions that prompt the formulation of an approach thought to be capable of answering the practical questions. This question(s) is “answered” by the practitioner’s theory of what might work to satisfy the question and why. This is followed by a plan of action, essentially the details of what would be needed to put one’s theory into action.

In DATA-2, the practitioner-researcher identifies his or her research questions(s) and provides the details of a formal inquiry into the practice, guided by his or her practical theory. Detail is the key word here, as a design and procedures discussion is rarely over-specified. Once data are collected according to the research plan, the data are analyzed and the results are interpreted in terms of the practical theory developed in DATA-1. The purpose here is to “test” the practical theory and identify how the theory ought to be modified, if at all, in light of the research findings. Once tested, a revised practical theory serves as the basis for decisions about what to do next in practice, and the whole cycle of action and reflection begins anew.

The phases in DATA-1 are Describe, Analyze, Theorize, and Act. The details of DATA-1 phases are as follows:

D = Describe: As discussed above, a stimulus for action may consist of any of a number of factors associated with the practitioner's practice situation, his or her personal or professional interests, or external factors that sometimes leave the practitioner with little choice but to act. This is at best a preliminary identification, and the way a stimulus is described may change as subsequent phases of DATA-DATA are developed.

In the Describe phase, the practitioner identifies the details of the situation or context in which his or her practice occurs. The essential question to be asked in this phase is a *What?* question; i.e., "What is my experience with my practice in the situation in which I practice?" No attempt is made to judge the experience or the situation or to reason why either exists in its current form. This will occur in the next phase.

For a practitioner to describe his/her situation with as little evaluation as possible at this point in the process, it is recommended that they take a phenomenological stance toward the situation (A good discussion of phenomenological stance can be found in Pollio, Henley, and Thompson, 1997). The goal of the Describe phase is to seek clarification of the situation and the primary task is to obtain a rich description of the practice situation, for the description will be used as background for the phases to follow. As a result of continuous reflection and action, this background will likely be described differently in later phases of DATA-DATA, especially if the practitioner's actions result in a change in his or her practice. The phenomenological approach is intended to help keep at bay the practitioner's presuppositions and judgments regarding the problem, issues, opportunities, or other interpretations of the situation that can lead to a premature decision to approach a "solution" one way or another. The idea is to base such decisions on a fully developed description before moving on to later tasks. However, it is very easy to jump to a conclusion about what "the problem" is at this point. After all, we have learned that research is based in problems, and we must have one, or so it seems (Quigley and Kuhne, 1997). A problem is what the problem solver says it is (Winograd, 1980), so the practitioner names the problem. Practitioners need to be patient and seek first to understand the situation that describes their practice. There will be ample opportunity to identify a problem, if any, later in the process.

It is also sometimes helpful to enlist the assistance of one or more colleagues at this phase. Ask them to ask a simple question: "What stands out for you in regard to (a selected aspect of the practice)?" Colleagues need to stay out of the description and merely offer prompts to elicit multiple responses, in order to gain the richest possible description of the interviewee's practice (See Kvale, 1983, for help with this kind of interview).

A = Analyze. In this phase, practitioners examine their assumptions about the situation and reasons they attach to the way they practice in the situation. The essential question is a *Why?* question; e.g., "Why am I experiencing my practice in this manner?", or "Why is the situation as I am experiencing it?" The why question gives the practitioner an opportunity to more fully explore his/her practice, concerns, doubts, interests, ideas and feelings about the practice.

The Analyze phase is closely tied to the Describe phase, but should not be seen as merely an elongated version of the Describe phase. Mistaking one phase for the other usually occurs when the Describe phase is laden with justifications and accounts or the Analyze phase consists of details of a description, devoid of the practitioner's assumptions and reasons. The practitioner can again enlist someone to ask questions about the practice, this time

aiming for the practitioner's reasoning or explanation for the situation described in the first phase. Reasons, while not necessarily causative in nature, can provide the practitioner with an even richer understanding of his or her practice.

It is in this phase that the practitioner is able to tentatively identify the problem, issue, or initiative that will serve as the focus of further effort. By this point in the process, the practitioner will likely have gone through several versions of such a focus, but DATA-1 is designed to actually encourage such reasoning and action. The first two phases of the model force the practitioner into a back and forth, critically reflective mode (Cunliffe, 2002), hopefully in the interest of producing a more satisfying answer to the question, "What is going on and why?"

At this point, the practitioner should be ready to pose some practical questions based on his or her analysis, and begin to develop an idea of what it would take to answer those questions. Such questions take the form of "How can I solve this problem?" Or, "What would be the best approach to dealing with my practical situation now that I'm more aware of what is going on and why?" In theory, something will work, and it is here that the practitioner has the opportunity to explore his or her options in a "What if?" manner.

T = Theorize. In this phase the practitioner lays out the approach that will be taken to make a change in his or her practice. This is an expression of the practitioner's practical theory of aspects of the practice he or she wishes to change. The theories might be augmented by consideration of formal theories and/or others' practical theories that are assumed to have special relevancy to the situation. The essential questions to ask here are both *What?* and *Why?* questions; i.e., "What am I going to do (about the problem or issue, or to take the particular initiative identified above)", and "Why this way and not other possibilities?"

A = Act. Here is the point at which a detailed plan of action is necessary to operationalize what was stated in more general terms in the **T = Theorize** stage. The essential question is a *What?* question: "What specific steps would I need to take to apply my practical theory in this situation?" This means that the practitioner will identify tasks to be completed, a schedule to be followed, and who will do what and when they will do it, even if all of these details are the responsibilities of the practitioner alone. For example, a professor might theorize that students in some subject areas would learn more by engaging with her in collaborative learning, even though collaborative teaching and learning is something new to her as well as to most students. In such an instance, she would ensure that her syllabus reflected those changes in sufficient detail to guide what she will do in scheduled class sessions. Her plan of action would be reflected in the syllabus and class notes.

The act of writing an action plan can serve as a basis for reflecting on one's practical theory; i.e., what in theory ought to work might prove impossible when the plan is fully visible. For example, in detailing the kinds of teaching and learning tasks called for in choosing a new collaborative approach to teaching, the professor might realize that she is not sufficiently skilled as a facilitator, and therefore must spend considerable time studying the collaborative learning process and how it is facilitated before making it a part of her teaching activities. Such a discovery can lead the professor to reflect on how collaborative learning is to be understood and how her philosophy of learning and teaching might or might not be consistent with what she theorizes is an appropriate mix of teaching activities in her classroom. Once she deals with her theory to her own satisfaction, she may choose to try certain collaborative activities and not others, and go on to implement them in some part of

her teaching program, informally reflecting on the results and making adjustments as she goes along.

Re-cycling to Describe or Transitioning From DATA-1 to DATA-2

It is here that the practitioner can choose one of four options: 1) abandon the plan; 2) postpone it for later consideration; 3) implement the plan as a part of his or her practice; or 4) implement the plan with the intent of formally studying it. To formally study some aspect of one's practice is to engage in some form of action research. Thusly motivated, the practitioner then moves to DATA-2.

The phases in DATA-2 are Design, Analyze, Theorize, and Act.

D = *Design*. This is the phase in which a practitioner-researcher identifies what he or she desires to know about the practical theory. The essential question is a *What?* question: "What do I wish to find out about what I plan to do?" The answer to this question will identify one or more aspects of the practitioner-researcher's theory that he or she wishes to "test" through action and formal inquiry. The design phase is essentially the same as what is involved in planning other kinds of research that involve stating research questions and/or hypotheses that will be addressed or tested in a study. However, whereas in conventional research formal theory and/or previous research results serve as the impetus for hypotheses or questions, in action research it is the practitioner's own theory that prompts the practitioner's research questions..

Based on his or her research questions, the researcher also selects the procedures for collecting and analyzing data. The essential question is a *How?* question; i.e., "How will I seek answers to my research questions?" A range of design options is available for consideration by practitioner-researchers, including, for example, case study designs, surveys, experimental designs, ethnographic strategies, and phenomenological studies. Data analysis options include both qualitative and quantitative procedures. In short, all of the methodological options available to researchers doing other kinds of research are available to action researchers. The task faced by any researcher is to choose the design and procedures appropriate for the research questions and the type of data being collected.

A = *Analyze*. This is the phase in which data are analyzed. The techniques for analyzing data are usually specified in advance of this phase, along with the design decisions and according to the assumptions of statistical tools that may be selected in advance. Once again, the full range of data analysis procedures are available to the action researcher, as long as these procedures are appropriate to the kinds of data collected. The essential question here is a *What?* question; i.e., "What do the results say in response to the research questions?" The results presented at this point, and the interpretation of findings is made in the phase that follows.

T = *Theorize*. Here the researcher interprets the findings in terms of the practical theory developed in the first DATA. The essential question is a *What?* question, as "What do the findings mean in terms of my theory of practice?" It is likely that the action researcher's findings will result in a "re-theorizing" of his or her initial practical theory. Since his or her original practical theory was couched against the situation presented in the Describe and Analyze phases of DATA-1, it is likely that re-theorizing will enable the action researcher to gain a better understanding of the background conditions of the initial practice as well.

A = Act. This is the action step in which the practitioner-researcher turns back to his or her practice and moves on in terms of what he or she has learned from reflecting on their revised theory. They are now in position to go on with their practice better informed, perhaps a little more skilled, and changed to some extent as students of their own practice.

Summary

The DATA-DATA model is meant to serve as a guide to doing action research. It is inclusive of features of reflective practice, and it provides for the extension of this informal process into practitioners' choice of more formal and systematic modes of inquiry. The model gives practitioners a structure for planning and conducting their research. It also engages them in special way of knowing in their practice. This way of knowing requires practitioners to include themselves in their research, especially as they will be unable to escape the strongly reflective pull of the first few stages of the process. The process begins with a preliminary identification of what prompted the practitioner to want to make a change in his or her practice. Next, the practitioner carefully describes the situation and why the situation as it is. With one or more practical questions in hand, the practitioner sets forth his or her practical theory of what will work to answer these questions and develops a detailed plan of action that operationalizes their practical theory. So far, the steps taken in DATA-1 are a form of reflective practice. At this point the practitioner decides whether or not to put the plan into play. The practitioner may choose to put the plan into play and devise ways to systematically study what happens when his or her practical theory is realized. In this case, the practitioner moves to the formal research phases of DATA-2. An extension of the plan of work in DATA-1 is now necessary. This feature of action research demands a clear statement of research questions, hypotheses or objectives, careful specification of procedures for identifying the types of data needed, how they will be collected and analyzed, and how they will be reported. Once carried out, the practitioner can use the results of research to re-examine his or her practical theory laid out in DATA-1. This test of the practitioner's practical theory is ultimately intended to serve as the impetus for his or her next actions. This is the point at which a new cycle of action and reflection begins.

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