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ABSTRACT

This report on action research projects conducted by student teachers as a part of their preservice teacher preparation program focuses on how action research improves the understanding of educational practices by the practitioner-researchers themselves. Two major topics are discussed. First, specific types of claims about the impact of action research on teachers' understandings are identified from selected projects conducted in the United States, the United Kingdom, and Australia. A description of the methodologies used to collect supporting data is included. The second major topic of the paper is a description of the "Action Research on Action Research" project now underway at the University of Wisconsin, Madison. Action research has been used in the University's elementary student teaching program for several years as one way to provide opportunities for growth in the ability to reflect systematically on one's own teaching practice. A comprehensive review of the literature on the impact action research can have on teacher thinking introduces the main body of the paper. (JD)

Action Research and Teacher Thinking:

The First Phase of the Action Research on

Action Research Project at the University of Wisconsin - Madison

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Overview

In the United States and elsewhere, there has been a recent "rebirth" of various forms of educational action research. A survey of the literature reveals hundreds of short articles as well as lengthy project reports and many abstract, theoretical analyses. Definitions of action research vary greatly, but there are some distinct commonalities. Perhaps, in its broadest sense, the term "action research" refers to research conducted in a "field" setting and involving those actually "native" to the field, usually along with an "outsider", in the solution of problems of practice[1]. Further, the actual issues to be researched are those identified by the participants themselves, not by "experts". The intended outcomes of action research are sometimes seen as three-fold:

> to improve the rationality and justice of their [the participants'] own practices, their understanding of these practices, and the situations in which these practices are carried out (Carr and Kemmis 1986: 162).

Numerous claims about the benefits of participation in action research have been made by advocates of the approach. These relate to the three perceived functions of action research. One set of claims is concerned with the contributions of action research to the improvement of educational practices, while another addresses the improvement of the situations in which those practices occur. It is the third set of claims, those related to the improvement in the understanding of educational practices by the practitioner-researchers themselves, that is the primary area of concern in this paper.

Two major topics will be addressed. First, specific types of claims about the impact of action research on teachers' understandings will be identified from selected projects conducted in three countries, and the methodologies used to collect supporting data will be described. While not all of the projects to be included here identify themselves specifically as action research (i.e. the

various forms of "Interactive Research and Development" - IR &D; Tikunoff and Mergendoller, 1983), we can identify enough features in common with action research, (e.g., collaboration. multiplicity of goals, and full teacher participation in the entire research process) to warrant their inclusion. A full analysis of similarities and points of divergence between IR & D and action research, such as the emphasis on "cycles" or "recursiveness" or the "democratic impulse" associated with the early action research work of Kurt Lewin and salient in much of the Australian action research work, is beyond the scope of this paper.

The second major topic for this paper is the description of the "Action Research on Action Research" project now underway at the University of Wisconsin - Madison. Action research has been used in the elementary student teaching program for several years as one of several ways to provide opportunities for growth in the ability to reflect systematically on one's own teaching practice. Until now we have not engaged in "systematic reflection" ourselves on the impact that action research might or might not have on the quality of student teacher thinking. Our review of the literature on action research and the development of teachers' understandings, essentially our "reconnaissance" phase, gave us some basic categories through which we might look for changes, and the methodologies used in the studies provided a starting point for our own analysis. The description of the project and its initial findings will be followed by a discussion of our "reflections" on the actions taken thus far in our teacher education program, and an outline of our new "general idea" .

Action Research and Teacher Understanding:

A Survey of Several Recent Projects in the U.S., the U.K., and Australia

In almost every report of an action research project, claims are made by researchers and/or facilitators about the value of action research in promoting changes in teacher thinking. Griffin, for example, notes in the preliminary findings of the Interactive Research and Development on Teaching (IR & DT) project that for research team members:

> Every person interviewed noted in some fashion that the interaction had caused professional growth, greater understanding of important issues, a higher and more powerful level of reflection on work activities, and a sharper attention to the complexities of classroom interaction (Tikunoff, et al., 1979a: 48).

Elliott (1980: 321), in his description of the outcomes of the Ford Teaching Project, describes yet another type of change in teacher understanding:

> ...some of our teachers became increasingly aware of the gaps between their aspirations and practice, while at the same time claiming they lacked the freedom to do much about it.

Two high school teachers from Australia comment on the effect of their experiences in an action research project:

> Using action research in your teaching gives you a different outlook on teaching and yourself. You move beyond thinking about content to be taught, to how children learn. You also become involved with different ways of coping with children in classrooms. Your teaching becomes more developmental in that you are working on new ideas and looking forward (Henry, et al., 1984: 11).

Finally, the Collaborative Action Research project at the University of New Hampshire, offers the following summary of the outcomes for teachers:

> Teachers participating in collaborative action research become agents of their own change. Teachers can use action research to grow personally and professionally, developing skills and competencies which empower them to solve problems and improve educational practices. Moreover, not only do teachers identify practical theories that apply to their own idiosyncratic settings but they also can formulate these practical theories as general hypotheses which have the potential for universal applicability (Oja and Pine, 1983: 21).

Claims about the impact of action research on teacher thinking are as varied and complex as these examples suggest. As far as we could tell, no one had ever examined these kinds of claims for: 1) the discovery of patterns of changes which exist across individual projects, 2) the kinds of evidence which exists in support of these claims, and 3) the extent to which the evidence seems to support the claims. Preliminary to the examination of the impact of action research on the thinking of our own students (as part of the reconnaissance phase of our own project), we examined several major projects conducted by others in the U.S., U.K., and Australia for evidence related to changes in teacher thinking through action research.

Included in our analysis were journal articles and official reports from three major Interactive Research and Development projects (e.g., Tikunoff, et al., 1979a; Huling, 1981; and Jacullo-Noto, 1984) and the Collaborative Action Research project at the University of New Hampshire (e.g., Oja and Ham, 1984) in the U.S. , The Ford Teaching Project (e.g., Elliott, 1976-1977) and the Classroom-based Inservice Teacher Education Project (e.g., Day, 1985) from the U.K., and several Australian projects reported in Deakin University's Action Research Reader (Kemmis, et al., 1982) and by Henry (1986).

The intent of the literature survey was neither to validate or refute the specific claims made by researchers, nor to be exhaustive. Rather, the purpose was to examine those areas of teacher thinking which are addressed in the projects in an effort to find patterns and to develop categories related to changes in teacher thinking which would inform our own analysis. Based on this analysis, a series of categories that clarify and describe those qualities of thought that could be, or are believed to be affected by action research, were developed. These include: 1) changes in teachers' definitions of professional skills/ roles (including attitudes toward research); 2) increases in teachers' feelings of self-worth and self-confidence; 3) changes in teachers' "developmental stages" and/or "stages of concern"; 4) increases in teachers'

awareness of classroom events; 5) changes in teachers' dispositions toward reflection; 6) increases in teachers' awareness of and/or changes in specific educational beliefs; 7) development of greater congruence between teachers' "practical theories" and practices and/or greater awareness of and more coherence in teachers' "practical theories"[2]; and 8) a broadening of teachers' views on teaching, schooling, and society.

Each category will now be discussed, using descriptions and examples from the projects to illuminate consistencies and inconsistencies within the categories. Following these descriptions of the various kinds of changes in teacher thinking which have been associated with action research, there will be a brief discussion of the methodologies used in the projects to arrive at the determinations of impact.

1) Professional skills/roles

Action research has often been seen as a "professional development" opportunity for teachers (Elliott, 1980; Tikunoff and Mergendoller, 1983). Yet contrasting notions of what it means to be a "professional" are apparent in the claims of the U.S. and U.K. projects. For IR & D and for Collaborative Action Research, the primary focus was on developing both positive attitudes toward and skills necessary for research. Pre/post self-perception questionnaires, as well as audiotapes of team meetings, logs, direct observation, and interviews revealed that:

> All members of both teams, through observation and self reports, can be said to be more knowledgeable about, skillful in, and sensitive to research and development issues as a result of their ,participation in the implementation of IR & DT (Tikunoff, et al., 1979b: 454).

One of the goals of developing this facility with research seems to be a concern with the "gap" between much of the existing educational research and actual teaching practices. Participation in action research is seen by some to provide an opportunity to learn about research and thereby become more receptive to it

(Huling, 1982: 1). As one teacher commented, "What stands out in my mind is that the word research no longer is scary" (Oja and Pine, 1983:84).

The IR & D findings also addressed the problem of isolation. Teachers were found to have become "more aware of roles other than one's own" and there was an increased level of "collegiality" (Tikunoff, et al., 1979b: 52). Participation in the projects gave teachers "a rare chance to come to know colleagues in a different and very gratifying light" (Tikunoff, et al., 1979b: 415).

In the work of the Ford Teaching Project, a differing notion of "professional knowledge" was employed. Elliot (1980: 236), commented:

> ...the idea of a professional practice can be analyzed into two components. First, it involves a commitment to ethical values; hence the term "profession". Second, it involves the possession of expert knowledge. The crucial question is how the relationship between these two components of professional practice is conceived.

The expert knowledge of such a professional is seen to have three components: self-awareness in the classroom, understanding of the institutional, social and political structures constraining self-awareness, and understanding the structures constraining freedom of action in the classroom (Elliott, 1980: 323). Since this definition contrasts so strongly with the U.S. definition, and since it corresponds more readily to other categories, data relating to it are included later in the text. It is, however, interesting to note that in Elliott's work the development of specific skills in research is not mentioned.

2) Self worth/ self confidence

In this category, too, differences in claims about the effects of action research on teachers are quite pronounced. Participants in the IR & D projects were said to express increased confidence in their professional skills, and as a result, to enjoy heightened self-esteem (e.g., Griffin, et al., 1983b). The pride in the projects was seen to be a factor as well. Oja and Pine (1983:431) report similar findings related to "personal and professional growth", based, too, on teachers' comments:

> I now sense that I have some respect, some importance not only as a classroom teacher, but beyond that...Research is an important part of my life now - the process more that the project.

It is interesting to note that these feelings of "personal and professional growth" were seen by at least one of the research teams as being much more valuable than the actual outcomes of the project, in part as a recognition of perceived obstacles to implementation (Oja and Pine, 1983).

In contrast, the work in the U.K., suggests an entirely different function for self-confidence. It is the "ability to tolerate losses in self-esteem" (Elliott, 1976-77: 18) that seemed to have a profound effect on the projects' results. Elliot further suggested that:

> To tolerate losses in self-esteem, it becomes necessary for them [the participants] to get satisfaction from their performance in extra-professional situations. We had little success with those teachers whose personal identity was inextricably linked with their professional role in the classroom.

Evidence of a more facilitative role for self-esteem can be seen in the work of Day (1984: 78). Interviewing participants two years after a project, Day was informed:

> of how the changes they had made in attitude as well as practice were being sustained - they felt that they trusted more of their own ability not only to find, but to evaluate and modify their personal solutions to the teaching problems which they encountered. In effect they felt that they had achieved a new critical standard with regard to themselves as teachers.

Self-esteem, then, was not based on particular achievements or participation in a "process", but on establishing the long term habit of self-examination, which, in turn is predicated on the ability to suspend one's ego-involvement with the classroom. Thus, in the U.S. projects, self-esteem is seen as an outcome of participation in action research, while in the U.K., it has a facilitative function.

3) <u>"Developmental stages"/ "stages of concern"</u>

Only two of the studies make claims in this area. Defining the "innovation" as "the use of research findings and practices in your teaching", Huling (1982)

found "higher levels" indicative of "concerns" with "consequences" for students, "collaboration", and "refocusing" to be present in her "treatment" group (p.14), according to the "Stages of Concern" questionnaire. Her goal was to examine "the teachers' continued use of research in their teaching after completion of the project" (p.3).

Oja and Pine (1983) used developmental stage scores of teachers not as evidence of change, but as predictors of participation patterns within the teams' projects. Although they do note some "horizontal decalage" - becoming "more proficient at operating within" a given stage (pp. 171,173), overall "there was no major gain in pre to post testing". They noted that "slight decreases pre to post are expected and often occur with these developmental tests (Oja, 1984: 18). Thus, evidence is presented from both projects indicating a degree of success in effecting changes in teachers' "stages" as a result of participation in action research.

4) Classroom awareness

There are several projects that claim an increase in classroom awareness as an outcome of action research. Findings related to this topic can be found primarily in the Ford project and in the Australian work. McTaggart (1982a: 101), for example, claims:

> ...these teacher-researchers know more about what is happening in their classrooms and schools because they have begun to observe in an organized way the action they have taken, the effects it has produced, and the circumstances in which these occur.

Evidence for this exists at the level of teacher comments from several projects, the first from Collaborative Action Research and the second, of a slightly different character, from the Ford project:

> In the classroom, John [a teacher-participant] felt he was more 'conscious of what he was doing' and felt that what he was doing in the classroom and the project was "right" (Oja and Pine, 1983: 172).

> ...the process of validation of the research questions and ... the collection of data in their classrooms made them more aware of their own practices and called into question the appropriateness of those practices (Tikunoff, et al., 1979b: 423).
>
> The project has made me far more aware of what I in fact do and say in the classroom, and how these actions affects the work done. This awareness has befitted me as a teacher (Rumsby, n.d.: 12).
>
> I felt that we were growing more aware of the children's individual needs during this time and were forming worthwhile relationships. These relationships seemed more open and natural and confidence seemed to be growing (Hurlin, n.d.: 27).

Salient in these quotes are several factors. Professionalism and confidence seem to come from the teaching, rather than the research aspect, and from the match between beliefs and practices. There is also a clear emphasis on growth in understanding of children. Creek (a teacher in an Australian project) expands upon these factors, and adds a note on the research skills issue:

> My understanding and appreciation of the kinder-grade 2 children has been pleasantly awakened...My awareness of the personal element in the classroom has increased...I now have a greater appreciation of the feelings of those children who don't manage to achieve...
>
> Working within a framework has heightened my awareness and increased my knowledge of my teaching and the classroom. It provided the means of justifying the theory which guided my practice as well as the practice itself...
>
> Rigorous recording has helped me to understand what is happening and how it has happened...Recording has provided me with an understanding of what is currently happening when compared with the past (Creek, 1982: 111-112).

An increase in classroom awareness, then, can be seen to be both a greater consciousness of one's actions and a broader understanding of the needs of children.

5) Disposition toward reflection

The idea that action research will help teachers to become more inclined to step back and evaluate their work is evidenced in several ways. First, focusing on changes in self-evaluation, a greater disposition to reflect can be seen in interview statements and in team meetings transcripts:

> By the end of the project, teachers expressed a greater willingness to communicate their concern and experiment with solutions. They attributed this to their better understanding of school issues and their growing belief in their own ability to address the problems which arose (Oja and Pine, 1983: 71).

> Another level of response regarding IR & DT and alteration of practice was the reiteration by teachers of such comments as "I'd better think this through again," "I wonder if I could be classified as that kind of teacher?" and "Do you suppose the kids see me that way?" While not directly indicative of change in practice...this reflective mode is not believed to be typical of teachers. IR & DT, consequently, appears to be conducive to the adoption of a more reflective stance regarding practice than might be expected (Tikunoff, et al., 1979b: 424).

Another aspect to the issue of disposition toward reflection lies in the openness to feedback from others. Elliott (1976-77) ties his notion of the "self-monitoring teacher" to such an openness. and claims that 25 of the original 40 in the project "had made some progress" in this area (p. 6). How that was ascertained in unclear.

A final way to determine the impact of action research upon "habits of reflection", would be to look at the long term results. In this area, little information is available, but some of the most intriguing evidence comes from Day's (1984) work. Besides the earlier reference to interviews with teachers two years after a project, Day cites the comments of "Steve", five years after the project occurred:

> Close reflection upon habit became an irradicable habit...For me this experience accelerated a process which I hope, but cannot be sure, would have taken place anyway. I was enabled to move out rapidly from my comfortable rationales and from the coping strategies which often mark the plateau of many teachers at an early stage in their careers (p. 80).

As we can see, evidence of changes in teachers' dispositions toward reflection does exist in several of the projects.

6) Assessment of/ changes in beliefs

Anticipation of changes in "personal beliefs", the IR & DT project administered pre and post, a "Beliefs about Teaching Questionnaire", but

information from that inventory is not found in the project report. The information that is more readily available is related to more general claims:

> Participants of IR & DT...moved beyond...conventional boundaries into worlds of practice they had not previously experienced, realms of ideas which they previously had not addressed, and systems of belief which were different from the ones which characterized their work lines (Tikunoff, et al., 1979b: 409).

Among these "worlds of practice" the participants were exposed to were the belief systems of their colleagues which led to a greater "awareness of educational options and possibilities". This was interpreted to mean that changes were possible, and that it was feasible that they could do research.

It is in the work in the U.K. and Australia, though, that the most articulate testimonies of particular teachers are heard. Day's (1984) "Steve", for example, said:

> I feel much surer of what the fundamental attributes of a good teachers are in my own mind - without all this navel gazing I would have stayed in my neatly ordered, mechanistic universe for a good while longer (79).

McTaggart (1982a: 101) concludes:

> ...these teacher-researchers have begun to develop more articulate rationales for what they are trying to achieve and how it might be done. In many cases they have engaged colleagues (and sometimes parents and students) in discussions about their practice in order to develop a clearer understanding of how others perceive what is happening.

Three different kinds of evidence - survey, observation, and testimony of participants - were used to document the effects of action research on changes in teachers' beliefs.

7) "Practical theories"

Perhaps because of a differing emphasis, claims about the effects of action research on teachers' "practical theories" are made only from outside the U.S. projects. Day (1984: 77-78), for example, describes:

> One teacher stated that the work had provided her with the time to think about, question and even change her methods and the frame of reference in which to make decisions and formulate ideas. She now has a cohesive theory of action.

By focusing on identifying discrepancies between teachers' intentions and their practices, both the work of Day and Elliott in the U.K. and the Australian projects seem to be able to claim greater coherency in teachers'"practical theories" as a result of participation in action research:

> In studies of the organization of remedial reading, practitioner have come to understand the contradictions of withdrawal practices that preserve rather than overcome the labelling of students as in need of "remediation"...(Kemmis, 1985b: 39).
>
> An important part of the action-research process is...the clarification of the problem by making the practitioners' "theories-in-action" explicit, and showing how the situation in which it operates cannot accommodate it (Elliott 1985:244).

Claims about the impact on the development of teachers' "practical theories" or about the improved continuity between teachers' beliefs and practices as a result of action research, seem to be a characteristic of the U.K. and Australian projects. Contrastingly, the U.S. projects seem to focus more on identifying those factors affecting their overall goal - the promotion of greater use of research through changes in teacher attitudes and skills.

8) Broadened views on teaching schooling and society

This category, not surprisingly, produced the widest spectrum of claims. The IR & DT project, for example, listed "increased cosmopolitanism" and "clarification of the complexities of schooling" as "intervention outcomes" (Tikunoff, et al., 1979a: 53). Both of these relate to a perceived "looking outward" beyond the immediate environment to other resources. Cited as evidence was the example of a teacher who at first regarded ERIC as "somebody you knew who could help us" and later referred to a desire to do an ERIC search (Tikunoff, et al., 1979b: 416). The "reaching out" idea was also noted in the log entries and audio-tapes as a change from reliance on "conventional wisdom" - "I think that's a good idea", to more emphasis on "prior research and/ or expert testimony" (p.417,455).

The IR & DS project, perhaps because of its broader focus, produced a more convincing example:

> The concern for children's writing was a focused inquiry but it was informed by sharpened understanding of student differences, teacher preferences, system rules and policies, parental expectations and curricular demands. The analysis of this team's meetings demonstrate this more complicated, comprehensive and useful view of schooling (Griffin, 1983a: 14-15).

As noted earlier, one of the teams in the collaborative action research study also confronted broader institutional issues. For that team an awareness of institutional constraints did not lead to attempts to change the situation, but to an emphasis on achieving goals of personal and professional satisfaction within the existing situation. One teacher commented:

> I think that I've grown more accepting of people and their differences and I see more of an ability to compromise and to work with people who I don't necessarily socialize with or philosophically agree with, but I'm much more able to realize that there is a greater good for being together as a group...(Oja and Pine, 1983: 174).

Another aspect to this change in teachers' perceptions of educational institutions was assessed by the "Organizational Environment Assessment Instrument", which dealt with decision-making, cooperation, support, and communication within the school. From this assessment, a shift in perception of decision-making processes from "top-down" to "multi-level" was apparent. Although the authors noted that the major factor involved was probably the hiring of a new principal, they also claim that this "better understanding of the workings of the school" (Oja and Pine, 1983: 50) was, in part, a result of participation in action research.

Evidence from project reports, personal testimony, and observer comments was used to substantiate claims about the broadened view of teaching, schooling, and society produced by projects in the U.K. and Australia. Like their counterparts in the U.S., constraints on change are noted. These included exam syllabus demands, as well as pupils' habits expectations, and abilities (Day, 1985). Unlike some of the U.S. work, however, there is more emphasis placed on altering the situation to at least minimize constraints. Of the Remedial Reading Group project in Australia, for example, it was noted that:

> Participants are becoming more sensitive to the political issues within the school and knowledgeable/diplomatic in coping with these issues (Kemmis, et al., 1982: 190).

The issue of recognizing and reacting to constraints on changes is very noticeable in the work of the Ford Teaching Project. Iredale (undated), for example outlined what he saw as the limitations and restrictions to promoting a vision of teacher as "resource" rather than "supervisor". These included administrative limitations, legal obligations, boundaries set by exams, and community values. Rather than accept these constraints, he described the process of change in his own work and discussed the ethics of a vision of teacher as "reformer".

Elliott (1985: 244-245) outlines the process and role of action in fostering not only an awareness of social structure, but also facilitating social change:

> Stage one may, with respect to educational action-research for example, involve developing explanatory theories which focus on the constraining influences of institutional, system, and societal factors on teachers' freedom to foster educational values in classrooms. The process to action-research can bring the realization that certain gaps between theory and practice cannot be closed until something has been done to change these contextual factors. In this case, action-research may move from reflection on pedagogical strategies into reflection on political strategies undertaken to change "the system" in ways which make educative action possible.

Although there is some evidence to support the claim that action research does help teachers to broaden their understanding of teaching, schooling, and society, examples also indicate that such understandings focus primarily on constraints, rather than solutions.

The previous literature review has outlined the impact action research can have on teacher thinking. Substantial evidence for various claims of changes in teachers' understandings of their work and their situations was gathered through a variety of methods. These included pre and post questionnaires and other forms of documentation over time such as logs, audiotapes, observations, and periodic

interviews. Another source of information was the individual project reports themselves. This review confirmed for us the need to match the methodology used to understand changes in student teacher thinking to the goals of our program. Since we emphasize the development of the student teachers' own understandings of their work, and not the acquisition of particular research skills or the promotion of a more positive attitude toward educational research, we decided to focus our attention on those data-gathering methods which were most likely to reveal information related to our goals. The interview, audiotape, and analysis of written reports, as will be seen in the next section, were chosen as most appropriate.

The Action Research on Action Research Project at the University of Wisconsin-Madison

The use of action research as a vehicle for promoting inquiry about teaching during preservice teacher education is not a new idea. During the 1950's, many inservice teachers in the U.S. were engaged in action research projects and several reports appeared in the literature of attempts to introduce action research to student teachers (e.g. Beckman, 1957; Perrodin, 1959). As interest in action research has reemerged in recent years, teacher educators have once again begun to incorporate action research into the preservice teacher education curriculum in the U.S. and abroad (e.g. Lind, 1984; DiChiro, et al., 1987; Zeichner and Liston, in press).

The reasons for wanting to introduce action research at the preservice level are quite understandable given the emphasis on teachers as "reflective practitioners" in the current U.S. debate on teacher education (e.g. The Holmes Group, 1986) and the highly influential role of Stenhouse's (1975) notion of "teachers as researchers" in the U.K. and Australia. Several recent papers have stressed the importance of establishing habits of self-monitoring in initial

teacher education. Teachers could enter the profession with the dispositions and skills to learn from and improve their teaching in ways that will best allow for their continuing professional development over a career (Biott, 1983; Ruddick, 1985):

> the growing emphasis and support for teachers as researchers in their own schools and classrooms, underlines the challenge for the initial training institutions to produce new teachers with the dispositions and skills to engage in systematic analysis of their own work and join colleagues in collaborative monitoring of the school curriculum (Biott, 1983: 152).

The action research work which has been initiated at the preservice level has been quite varied. For example, sometimes prospective teachers have moved through the action research process individually (Zeichner and Liston, in press) and at other times teams of student teachers have worked collaboratively on common problems (Lind, 1984). Sometimes pupils have been involved in an active way in student teachers' action research projects (Biott, 1983). At times student teachers who are engaged in action research are placed in classrooms with cooperating teachers who are themselves practitioners of action research (Perrodin, 1959), but most often they are not. Some teacher educators have very broad limits with regard to the kinds of problems which are acceptable for investigation. Other teacher educators provide more specific guidance for students and place limits on the topics which are acceptable foci for action research (DiChiro, et al., 1987). Some university personnel have been engaged in action research with regard to their own practice, seeking to provide role models for the kinds of inquiry which they seek to encourage in their students (e.g., Noffke, 1985, 1986). It should also be noted that in a few of the cases where teacher educators have claimed to involve prospective teachers in action research, the inquiry process used does not embody the commonly accepted characteristics of action research, such as a focus on one's own practice (Conen and Alroi, 1981).

For the past several years, some teacher educators who work in the elementary student teaching program at the University of Wisconsin-Madison have been using action research as one of several vehicles for helping students become more reflective about their teaching and the situations in which their teaching is embedded. One of us is a supervisor of student teachers in this program and the other is the Co-ordinator of the program. After several semesters of giving student teachers the option of completing action research projects, we decided to require all students in the supervisor's section to complete action research projects during the Fall of 1986, so that we could more systematically examine our use of action research in the program. In essence we initiated an action research project on our use of action research with student teachers. Data were gathered from several sources: (1) seminar sessions where action research was introduced and discussed and where student projects were presented were audiotaped; (2) student teachers were interviewed once at the end of the semester in an attempt to assess the impact of action research and to gather student teacher suggestions about how to improve the ways in which we introduce, structure, and guide the action research projects; (3) the written reports of the student teachers' action research projects were carefully analyzed to determine the characteristics of the research which was produced and to assess (as was done in the interviews) any changes over time in student teacher thinking. All ten of the student teachers agreed to let us use their reports for these purposes. Seven were interviewed at the end of the semester by the second author and one other supervisor in the program. These data then formed the basis for revisions the following semester in how action research was utilized in the program.

It is important to note that action research has been employed in this instance as one of several approaches to stimulating "reflective teaching" by student teachers and as part of a broad strategy of an "inquiry-oriented" student teaching program. All student teachers in the program are required to engage in some form of structured inquiry about teaching and the contexts in which it is

embedded, during the practicum. In addition to action research, the inquiry component of the program has included journal writing, ethnographic studies, analyses of school curricula and the processes of curriculum development, and the use of Berlak and Berlak's (1981) "dilemma language" to structure classroom observations[3]. Zeichner and Liston (in press) have described the philosophy and curriculum of the student teaching program in some detail. Our attempts to use action research as a vehicle for structuring inquiry about teaching are consistent with many other aspects of the program which seek to develop in student teachers those orientations (e.g. openmindedness, responsibility, and whole-heartedness) and skills (e.g. of observation and reasoned and principled analysis) which are constitutive of reflective action. Currently, two of the ten sections of the course reflect an emphasis on action research as a method for structuring inquiry. In addition several other supervisors have initiated action research projects on their own supervision as a prelude to introducing action research to their student teachers. All of this is very different from many instances in preservice teacher education where action research has been introduced to students within the context of a program which lacks an inquiry-oriented emphasis.

The Introduction of Action Research

Action research was introduced to the ten student teachers in their seminar during the third week of a fifteen week semester. A booklet of readings, compiled especially for this course, was provided to students. This reader included excerpts from McTaggart, et al., Action Research: A Course Guide (1986), information regarding ways in which data could be collected from Brennan and Williamson's (1981) Investigating Learning in Schools, Charles Hull's (1985) "Pupils as Teacher Educators", and examples of action research projects completed by two Australian inservice teachers. During this seminar session the supervisor

gave an overview of the cyclical action research process outlined in Kemmis and McTaggart's (1982) Action Research Planner (plan, observe, act, reflect), and provided several additional examples of specific issues which have been pursued by teachers. During this introductory session several points were stressed: (1) that action research is done to improve one's own practice and understanding of that practice, and to improve the situation in which that practice is carried out; (2) that action research projects for this semester should be focused on things that students think they can do something about; (3) that action research projects should be focused on issues that are meaningful and important to students; and (4) that the seminars will be used in part to foster collaborative action research activities (e.g., helping each other plan a focus, decide how the inquiry will proceed, thinking about what was learned, etc.). The supervisor also spoke about her own action research work (including this project), describing for students why she became involved in action research, and what she learned from previous action research projects on her supervisory actions during conferences. The group also spent some time during this and the following seminar helping each other find general areas within which action research projects could be developed. Students handed in interim reports describing their progress after another four or five weeks and wrote a report of their entire project at the end of the semester. The supervisor worked with students individually and in the seminar group in the role of action research facilitator and in some cases helped students collect data for their projects.

The Students' Projects

The students essentially followed the steps outlined in The Action Research Planner in the completion of their action research projects. This particular conceptualization of the "moments" of action research follows the commonly accepted phases in the spiral of plan, observe, action, reflect, but it breaks each of these steps into several subphases in an effort to guide the inquiry. For example, the planning phase has been divided into the following steps:

identifying a general idea, reconnaissance (or deciding where to exert an effort), describing the field of action, defining the first action step, planning for the monitoring of the first action step, timetabling the first action step, and formulating the general plan of action.

The action research projects of the ten students were quite varied in a number of respects. First, students pursued a wide variety of issues through action research. Examples of the projects emphases included efforts to increase the independence of primary grade children during writing activities through the use of inventive spelling, to improve cooperation in small co-educational classroom groups, to more actively involve pupils in learning across the curriculum and to stimulate more pupil thinking, to compare pupils' reactions to the use of concrete materials and workbooks, to change from a teacher-centered style of teaching to a more pupil-centered style with more pupil interaction, and efforts to promote a wider and less stereotyped selection of activities during choice times in a primary grade classroom.

All of the student teachers except one focused on a clearly identifiable issue and pursued it through at least one cycle of action research. In that one instance, the student pursued so many different issues at once that it was hard to determine the particular emphasis. Most of the students completed only one cycle of action research, but a few students completed two cycles. In the cases where more than one cycle was completed a spiraling effect was evident, where the student's conception of the issue changed as a result of insight gained from the first cycle. For example, in one case where the initial focus was on promoting more boy-girl interactions in small groups, the issue was enlarged in the second cycle to that of promoting more cooperative small group behavior in general.

The students proceeded through the action research cycles for the most part individually. In one case a cooperating teacher and her student teacher worked jointly on all phases of the project and the cooperating teacher continued working on the project the following semester. Collaboration sometimes occurred

either in the data gathering or reflection phases of the projects. In some cases cooperating teachers and the supervisor assisted in the collection of in-classroom data which were used as part of the project. Several students talked about their projects with their cooperating teachers, although the teachers were not directly involved, and all students shared and discussed their projects during seminars. In one instance, a reading methods professor, not directly connected to the course, helped a student plan specific activities to address a particular problem she was working on.

Students also employed a wide variety of data gathering devices during the course of their projects. For example, students and/or their "critical friends" audiotaped specific whole group lessons or simultaneous discussions within small pupil groups, kept logs of student activities, administered surveys to pupils concerning their reading interests or attitudes toward gender issues, analyzed student work samples and tests, and conducted structured classroom observations of such things as pupil interaction patterns.

Reflections on the Data

One purpose of our project was to examine our own practice as teacher educators with regard to the use of action research. Both the written reports of the students' projects and the interviews at the end of the semester were analyzed to determine ways in which we could improve our own practice. There were several characteristics of the action research projects which were problematic in relation to our intentions and goals. First, although all of the students, with the exception of one, gathered data specifically to inform their inquiries, many students did not use these data in their written reports to support the insights and arguments they set forth. There were many instances where claims were made (e.g. regarding changes in pupil attitudes or behaviors) but the specific data in support of these were not explicit in the reports.

Another problem evident in a few of the reports was that students sometimes focused on gaining a greater understanding of pupils, but did not focus as much

as we would have liked on their own teaching. For example, students did not always focus on how their teaching strategies may have affected children's actions or how their teaching could be changed in order to influence pupil behavior and attitudes. Several students also had difficulties in gaining an understanding of the issues and questions underlying their general concerns and focused primarily on the surface level symptoms with little discussion of why they were focusing on a particular area. Another student produced a quite perceptive retrospective analysis of many aspects of her student teaching experience, which was consistent with the overall goals of our program, but did not incorporate any plans for how her own actions might be planned in the future. A final concern about the projects was with regard to the issue of spiraling. As mentioned earlier, only two of the ten students completed more than one cycle of action research. We felt that we needed to find a way to enable the students to experience the changes in perception which come from pursuing an issue through more than one cycle[4].

In the interviews conducted at the end of the semester, we asked students to describe their feelings about the value of the projects they had conducted and to make specific suggestions as to how we could do a better job of introducing and supporting action research during the student teaching semester. First and foremost, the students addressed the problem of time. Students generally felt that they needed more time to complete their projects, given all of the other demands made upon them this semester, both within and outside of the classroom. Many of the students initially reacted to the action research as just another university assignment done to please others but of little use to what matters - their teaching: "At first I thought, oh no, another paper - when am I gonna find the time for this - how can I get out of it?" All of the students came to realize the value of the project in helping them to become better teachers. They saw more clearly by the end of the semester the difference between action research and more typical university assignments, which are not generally as directly

connected to one's own concerns and practices. We realized, though, that we needed to more adequately address the issue of work and personal stress during student teaching.

Several students expressed a desire to get started on their projects earlier in the semester so that they could more easily find a meaningful focus and develop it. A few of these students, though, commented that they saw problems involved in doing this earlier than the third week because of their prior need to acclimate themselves to their placements. One student suggested introducing action research prior to the student teaching semester so that there would be less need to provide introductory kinds of assistance as students were beginning to develop their projects.

Most of the students found the examples of action research projects which were given to them in the readings and in seminar very helpful. Students also found the discussions about specific projects in seminar and the interim report useful in helping them to shape and develop their own projects. A few students, however, suggested the need for even more examples of topics which teachers have pursued though action research and examples of student teacher (as opposed to experienced teacher) projects.

Changes in Our Practice

As a result of our reflection upon students' comments and the written projects, several changes in our use of action research during student teaching were made during the following semester. First, we have tried to address the need to help students focus more on a particular and limited area and on the questions underlying their concerns in a way that maintains meaningful and focused inquiries and which does not violate students' control over the projects. In order to provide greater assistance in the areas described above, more structured opportunities for small and large group discussions of the projects and other issues have been built into the seminars this semester. The supervisor has also continued her emphasis (in her role as an action research facilitator) on helping

students probe the questions connected to their concerns (e.g. "Why are you interested in having kids participate more?") The requirement of an early interim report on the project has been retained.

More emphasis than before has also been given to data gathering and to the issue of drawing conclusions from data rather than from more subjective, hermeneutic reporting. Additional time has been devoted to the specific methodological issue of triangulation in action research. Students have been given more examples of data collection strategies and more time has been devoted generally to the discussion of data collection and analysis in seminars. Also, examples of student teacher action research projects have been given to students along with the examples from experienced teachers' projects. Our goal is to utilize the projects produced as the examples provided to students during future semesters.

We also realize than we need to do more to address the issue of "overload" during student teaching. Although the action research projects are only one aspect of this problem, we need to think carefully about the structure of this inquiry project in relation to such issues as particularly stressful or demanding times during student teaching, possible overlapping with other assignments, the preparation which is given to cooperating teachers which could facilitate the inquiry process, etc. Zeichner and Liston (in press) have noted that one critical requirement in this inquiry-oriented student teaching program is to be able to reduce demands made upon students in other areas (i.e. teaching) so that inquiry is supported as a legitimate and worthwhile activity during the experience. While some of the demands and stresses upon students are outside our control (e.g. the financial burdens and outside employment schedules of many of the students), we could do a much better job than currently in establishing a climate within the schools where student teachers work which is more supportive of their inquiries into their teaching.

The Impact of Action Research on Student Teachers' Thinking

In addition to our focus on own own practices as teacher educators, we were also interested in increasing our understanding of the impact of our efforts on student teachers' development as teachers. We examined our interview data and project reports for evidence of how action research might have influenced students' thinking. There are several changes which are evident in the reports and interviews. First, three of the written reports indicated that students had developed more elaborated and differentiated definitions of their areas of concern. Two of those students who initially were thinking in terms of changing from the total absence of a particular practice in their classrooms (inventive spelling, active pupil participation in lessons) to an across-the-board adoption of these practices, began thinking by the end of the semester more about the appropriate times to introduce these innovations. For example, the student whose concern was with increasing children's independence in writing through the use of inventive spelling began to think more about how particular children, words, and activities would affect her decisions about the use of this practice. A more elaborated definition of a concern was also evident in the case of a student who after an initial cycle of action research began to see an initial concern with boy-girl interactions as part of a much larger problem of promoting cooperative behavior in small work groups.

Students indicated to us in the interviews that the action research experience had a variety of effects on the ways in which they think about teaching. These effects concerned both the specific things that students felt that they had learned from the projects and the more general implications which may have stemmed from experiencing a way of analyzing one's own teaching. Beckman (1957: 372) argued on the basis of his work with student teachers at Wesleyan College thirty years ago that:

> The value of the experience is broader than the specific understandings which a student derives from a particular project. It involves a practical induction into teaching with a viewpoint of experimenter. It provides the framework for developing sympathetic attitudes toward research and the methods of making "common sense" judgments valid. It strengthens the skills of critical analysis which a professional teacher requires.

There are several indications in our interviews that the action research projects helped establish "habits of reflection" about one's own teaching consistent with Beckman's claims[5]. For example, students told us:

> I've become more reflective about teaching. I take the time now to sit down and think about what I did during the day, whereas before it was - I won't do that today, I'll do it tomorrow.

> It points out to you and says, OK look, you as a teacher are in the classroom, but you can also step back a little bit and take this time to concentrate on an issue and see what you can do.

In addition to this feeling by most student teachers that they became more convinced of the value of stepping back from one's teaching and analyzing it, students also told us that they became aware of ways to gather information about their teaching that they hadn't thought about before. For example:

> it shows you ways to be reflective and I think it showed me how to get information from the students. I had never thought about giving them a survey about how they feel about gender issues.

There were also many indications in our data that students, as a result of the structure and focus provided by action research, became more aware of their own practices and of what was happening generally in their classrooms. One student, for example, who noticed for the first time during her project that the children were skimming basal stories just to answer the questions rather than reading them thoroughly, claimed that "it made my awareness more acute as to what was actually going on in the classroom." Other students felt that their projects made them more aware of how kids actually learn and of the gaps between their beliefs and classroom practices. One student felt that her project forced her to confront the question of the limits and rights she has as a teacher to impose things on kids.

Finally, one student in particular emphasized the ways in which her action research project had expanded her awareness in two specific areas. This student, who developed more informal and open-ended assessment procedures for a group of children, felt she had become more aware of the limitations of standardized tests and of the her own erroneous views about how well children in the "low group" can learn.

> I realized some of my biases toward working with low-grouped kids and that I had tended to believe stereotypes that low children simply can't learn...I feel differently now about the low group than I used to - I changed my opinions. I thought they couldn't learn as fast and now I realize they can.
>
> I was basing a lot of my assumptions on the standardized tests...I think they should maybe test kids a little more often and use different methods of testing other than standardized tests. More open-ended testing.

As we reflected upon these data concerning the impact of the action research projects on student teachers' thinking, we began to think about how we could improve upon the quality of the evidence that we were able to gather on this issue. This first cycle of our "action research on action research" has provided us with some evidence of changes in student teacher thinking as a result of participation in action research, similar to the kinds of evidence accumulated by others.

The final section of the paper will discuss some of our ideas about how we can improve the quality of the evidence which is accumulated related to the impact of action research on teacher thinking in future cycles. As student teachers and teachers participate in action research, many other factors are involved which are not uncovered through conventional methodologies. We are interested in exploring new ways of describing the dimensions of teacher thinking which may help illuminate new areas of growth for student teachers through action research.

Reflections: Toward a Reformulated General Idea

Our first cycle did provide evidence for changes in student teacher thinking at least in part as a result of both participation in action research and in the overall "inquiry-oriented" teacher education program. The findings do correspond to those in the literature review, especially terms of increased awareness of classroom events, greater disposition toward reflection, increased clarity of specific beliefs, and a broadened view of teaching, schooling, and society. Missing in our findings was the emphasis on research, the concern with self worth/ self confidence, the development of "practical theories", and the use of stage theories to "locate" our student teachers' development on a pre-established and at least implicitly heirarchical scale. The "silences" in our findings do not imply a refutation of other work, but as in the literature review, differences may reflect the particular goals of the various action research projects. In terms of our methodology, the audiotapes of seminars, structured interviews, and project report analyses do not significantly differ from many of the qualitative methods used in other studies. In our project, as in others, there seems to be a lot of evidence that action research can have an impact upon teacher thinking, and that the particular nature of the impact can be seen as a reflection of the intentions of the projects themselves. Whether action research is seen as an "intervention", aimed at bringing a particular set of views to the teachers, or as a means to develop and extend the teacher's own views seem to be one critical factor.

A major question remains, directing us toward new and interrelated foci for subsequent cycles in our "action research on action research". Our project was conceived as an action research project <u>on</u> action research. To us, that means that a major task of our project, that of ensuring that our work is research <u>for</u> teachers and not <u>on</u> teachers (Kemmis, 1985a), remains. That task has both epistemological and methodological (and therefore also ethical and political) aspects. Each will be discussed in turn.

Drawing on the work of Gilligan (1982), Oja and Pine (1983) noted problems in the interpretation of the responses of some of the female teachers included in their study. In particular, the women's more "context specific" decision-making and their concern with communication, tended to place them at "lower" levels: "...women are often scored lower because their concern for communication comes across as caring for others, a characteristic of the [lower] Conformist stage" (167). As indicated above, our intent does not lie in identifying the stages in a linear model of teacher development. However, such comments, together with the recent scholarship on feminist epistemology and moral development (e.g., Belenky, et al., 1986; Noddings, 1984), do serve to remind us of the necessity to be more responsive to the fact that, as elementary teacher educators, our research participants are primarily women. This leads us to the realization that alternative interpretations of the "ways of knowing" need to be explored, especially in relationship to those areas teachers themselves describe as somehow changed through participation in action research. Describing changes in thinking may be less a matter simply of identifying "growth" or "development" than exploring the dimensions of perceived learnings as the teachers themselves experience them.

The issue here is, in part, one of defining and interpreting the meaning of teachers' actions during the research process. The IR & D and Collaborative projects categorize teachers' comments and behaviors according to categories determined apart from the participants themselves. The establishment of "research-related" or "non-research related" talk (including "other personal and professional supportive, personal irrelevant, professional irrelevant", etc., Tikunoff, et al., 1979b: 60), or the determination of participant "profiles" according to "stages" (Oja and Pine, 1983), is done without the consideration that the interpretation of actions and statements by the actor/speaker her or himself, may be entirely different, reflecting a different vision of the situation. Such interpretations, including our own system of categories of

changes, return the analysis from action research as being "for" and/or "with" teachers (e.g., Jacullo-Noto, 1984: 209; Kemmis, 1985a)to the view of educational research as being "on" teachers.

Emergent, then, from the epistemological issue of how to interpret the changes teachers experience through participation in action research, are the intertwined issues of methodology and authority. Pine (1981:28) and Elliott (1980) have referred to the importance of a "dialogic" relationship in the interpretation of action research. There is a correspondence between this call for a mutual interpretive process and recent writings on qualitative methodology (e.g. Scott, 1985), especially that on interviewing. While Oakley (1981: 45) notes that an interview that goes beyond establishing rapport, to a more "interactive" process, holds out "gain in terms of collecting more information in greater depth", such procedures also raise political and ethical questions. Finch (1984:81) discusses the issue of "trust" in an interview, and its "exploitative potential":

> ...the approach to research - and particularly to interviewing which this [a non-heirarchical relationship] requires can easily be broken down into a set of "techniques", which can then be divorced from the moral basis in feminism which Oakley adopts. These techniques can be used to great effect to solicit a range of information...which is capable of being used ultimately against the interests of those women who gave it so freely...

Ethics in research refer not only to protection of the legitimate rights of participants in any "intervention", but also to questions of how the data are derived, how they are to be used, and by what framework they are to be interpreted. There is a contradiction, then, between the need for access to a broader range of student teacher thoughts, and the possibility of resultant manipulation. In order to extend our understanding of changes in student teachers' thinking, a research methodology needs to be employed that is responsive to both the knowledge need and the political possibility. Ensuring that the interpretive framework and conclusions are subjected to critique by all participants would be a prominent aspect to such a methodology, one that holds

out possible benefits, both to adequate theory building, and to all participants. It is the relationship between issues of knowledge and issues of ethics that will form the "general idea" of our next action cycle.

Notes

1. It is important to recognize that the plan, act, observe, reflect cycle occurs naturally in the daily work of thoughtful teachers. The difference is that in action research, teachers conduct these activities more carefully and systematically than they would normally do, ideally over a series of cycles.

2. Our use of the term "practical theory" follows Elbaz's (1983) definition of the term as the complex, practically oriented and socially derived frames of reference and perspectives through which teachers actually shape and direct the work of teaching.

3. For a discussion of the use of Berlak and Berlak's (1981) "dilemma language" with student teachers, see Hursh and Zeichner (1984).

4. McTaggart (1982b) refers to action research which stops after one cycle as "arrested action research" and argues that significant improvements in practice, understanding, or situations will be unlikely to occur unless the process is extended over a number of cycles.

5. One important test of whether these "habits of reflection" have indeed become more established as a result of participation in action research is whether students continue to use this strategy as inservice teachers. While we do not currently have data on this issue, we do plan to interview students during their early years of teaching. We do know however, that one student teacher who had been introduced to action research a few semesters ago in another supervisor's group has voluntarily joined a classroom action research group in a local school district.

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