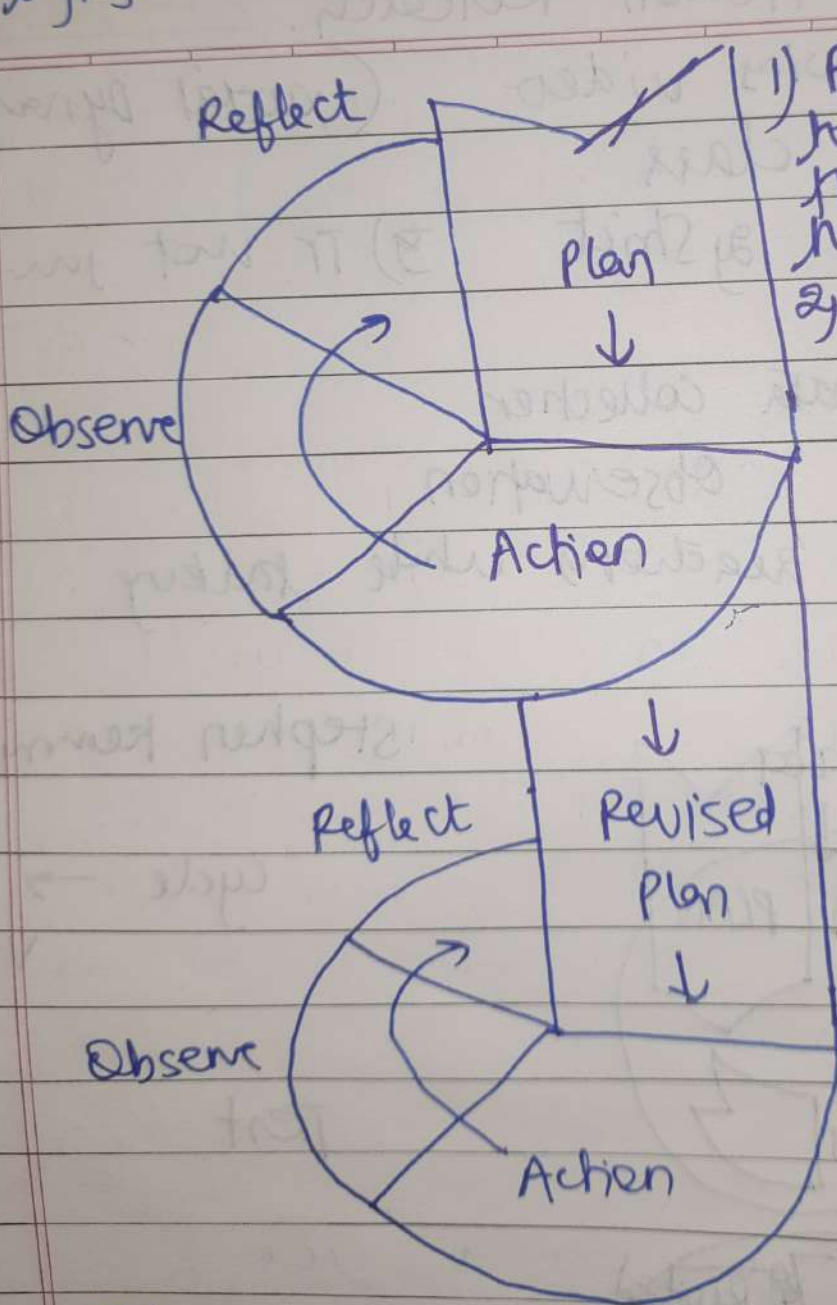


8) A teacher noticed that students were not trying to improve their work.

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1) First thing I would try to build rapport with the children & understand their problems. I would include more of formative assessment

Plan:

1) I found that students didn't understand the

Plan

1) I would increase more of formative assessment after teaching & help the students to identify the gaps in their work & measure their own quality of work. Eg: Assignment, small tests, & give them constant feedbacks. From this, the students may understand where they lag & focus on areas of improvement. ~~which~~ It would give me an idea what area is to be worked upon. Also recognize their strengths & give them opportunity for further mastering.

2) Achieve <sup>small</sup> make class interactive. 2) Would give tests on science lessons in the class. <sup>ask</sup> some higher order questions to see their application knowledge. Small assignments for letting them find their own solutions.

3) Observe <sup>period of</sup> after 15 days or so, the teacher tries to observe how students are responding. Some students are doing their test well & giving good response with assignments, & there is mixed response.

4) Reflection giving tests & assignments proved to be

I would try to provide with & understand include more assessment

understand the explained to e in clear



effective in some cases. But students will feel frustrated if they have tests & assignments frequently. So I need to revise my plan.

II 1) Revised plan  
After ~~the~~<sup>each</sup> class, I would spare 10 mins for evaluation using different strategies like games (making 3 rows according to class) & ask questions, also regarding their surroundings related to the topic taught, show articles or teaching aids & ask questions related to it, discussion / debate etc related to the topics taught. ~~to~~ All this is to clear the concepts of science which did not require their much effort in the ~~class~~ exam.

2) Action  
Do various activities as per the revised plan as it is suitable for the topic. Also encouraging the students who do not participate frequently.

3) Observation  
Maximum class participation of students & enjoying the process.

4) Reflection  
This way of intervention proved beneficial. Hence I would continue to act in similar manner & may improve on the activities as per the requirement.

Q. From this case study identify the types of validation- Self Validation(SV), Peer validation(PV) and Learner Validation(LV). Some I have done with colour coding, if u can identify more , do so

Consider the ethical implications in the case study

Erzberger's Dilemma

Erzberger, like most of the teachers in the group, has had her primary training in physics and not in education or the social sciences. As she engaged in action research during the 1991-92 school year, she repeatedly wrestled with what I am calling Erzberger's dilemma.

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But Erzberger is an empiricist. She wants to know whether what she is doing differently this year is more effective than what she has done in the past. That is, by embracing new forms of pedagogy and assessment, are her students learning at least as much physics content as before while coming to a better understanding of how physics relates to their everyday lives?

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... here are some of the questions that I have. I'm one of the people who keeps asking, "Well is this really research? How do I know if my students are learning any better? How do I know if I've changed? How do I know if the students have changed?" Coming from a physics point of view, I keep asking, "What is the data? How do we really know if we're doing anything better or not?" In physics we see research more as controlled experiments, variables and data, and so forth, which is not what we're trying to do with this (Erzberger, 1992).

To Erzberger the best way to answer this question would be through careful collection and analysis of data. However, her training in the physical sciences has led her to conclude that there is no way that she could have the faith in the data that she could collect in her classes that she would have in data from a physics experiment. She is aware that there are too many variables in her teaching, classes, and students to do the sort of controlled experiment, or even a statistical analysis, that would satisfy her demands.

And so she is faced with this dilemma: She would like to do more than the monitor and adjust that is Schön's (1983) reflection-in-action. She wants to come to a better understanding of her

educational situation so that when she changes the way in which she teaches physics from year to year, she has a basis from which to make those changes. She wants to base her decisions on what and how to teach on an understanding of what is happening with her students in her classroom. But this understanding seems always just out of her grasp. It is not there when all that she has to rely upon is her casual observations and her reflections on those observations. And when she attempts to be more systematic in her reflection -- to engage in systematic, self-critical inquiry -- it serves her no better. The data that she collects, or that others collect for her do not meet the warrants for validity that she expects from her work in the physical sciences. She is caught in a void between the uncertainties of the observations made in practice and the demands that she puts on propositional statements before she will accept them as knowledge. The dilemma that she is faced with is that she wants to inquire into her practice to gain a better understanding of her educational situation and to get better at what she does, but yet finds teacher-research, and particularly action research, inadequate to the job.

Why should she attempt to be more systematic? What does she gain from interviewing students or analyzing tapes of her lessons? **Self and Learner Validation**

It is important to note that although I have singled her out for the purpose of describing and analyzing this dilemma, it has not been unique to Erzberger. It has been an aspect of the ways of thinking about research of many of the science teachers I have worked with as action researchers. I will attempt to examine Erzberger's dilemma by first trying to understand her need to know through a review of the ways in which others have sought to validate knowledge generated through that research, and then posing an alternative epistemology of teacher-research.

PeerV  
alidat  
ion

The physics teachers met every three weeks, usually in one of their homes, to talk about their teaching, their knowledge of physics, to engage in a systematic inquiry of their teaching, and to eat dinner. It was during these meetings that Andria Erzberger, a member of the Physics Teachers Action Research Group, began to ask questions about the nature of action research.

### **THE NEED TO KNOW : Developmental and Ethical Concepts of this research**

The need to know is there for Erzberger and other teacher-researchers because they are seeking both new understandings of their educational situations and valid reasons for their actions. This is due to the developmental and ethical aspects of their research. My calling this process developmental is based on the assumption that at later times, the teacher will be "better at" or "smarter" about what she does. And implicit in the ethical aspects of the research is that the educational situation for the students will improve and that they will be treated with respect and consideration. The need to know suggests that if there are no internal checks to the validity of the data and analysis, there will no ways for the conscientious teacher to confirm that her actions will result in her development or will be ethical. Teachers



feel a need to know in order to pursue right practice --they are concerned about what to do, and how to do it, to increase the intellectual, political, and moral growth of particular students in particular situations. This need to know sometimes leads teachers to seek out the methods of traditional educational researchers to warrant their beliefs.

I include in traditional educational research studies that are experimental, quasi-experimental, or survey, and case studies including those modeled after ethnography. Within this tradition, ways in which the validity of both quantitative and qualitative data can be maximized have been described by many writers. Many of these methods and techniques have been used by teacher-researchers. Some teacher-researchers make use of quantitative as well as qualitative data (Feldman, Mason, and Goldberg, 1992). However, when accepting the methods of educational researchers they are most attracted to qualitative methods. Erickson (1986), Eisner (1991), and Lincoln and Guba (1985) have described ways in which ethnographic and other varieties of qualitative research can be warranted. In her recent piece on Validity in action research, Watkins (1991) has shown how Lincoln and Guba's guidelines can be used to assess the validity of teacher's research. Although some have questioned the warrant to claims of validity made by qualitative researchers (Phillips, 1987), these methods have entered the mainstream of educational research (Gage, 1989). While strict adherence to these methods to seek warrants for knowledge claims might satisfy Erzberger's need to know, there is a limit to the resources that she has available for implementing them. Therefore her efforts could only approximate them, which brings the knowledge claims into question for her.

## **THE VALIDITY OF ACTION RESEARCH**

Proponents of teacher action research have not left the question of validity and warrants for knowledge claims unexamined. They are aware of the difficulty in laying on to teachers' work and lives the additional role of researcher (Goodson, 1991). Elliott (1991) has addressed this issue of validity of data, if somewhat obliquely, in his book *Action research for educational change*. Under the rubric, "Developing the next action steps," Elliott recommends that the following be remembered when a teacher-researcher monitors the effects of his or her actions:

- (a) One needs to use monitoring techniques which provide evidence of how well the course of action is being implemented.
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- (c) One needs to use a range of techniques which will enable one to look at what is going on from a variety of angles or points of view (Elliott, 1991, p. 76).

That is to say, first, one must collect data which can be used to evaluate the implementation of the actions; second, that it is important to collect data that will provide evidence for the

existence or non-existence of unintended effects; and lastly, that the teacher-researcher should triangulate the data to gain different perspectives on the situation. It is not clear how this list differs significantly from the methods of traditional educational researchers.

Altrichter and Posch have identified four quality criteria for action research:

1) Consulting alternative perspectives: "Are the understandings gained during a research process confronted with the perspectives of other persons concerned or other researchers?"

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4) **Practical compatibility**: "Are the research process and the instruments of investigation structured in a way that can be used by professional practitioners for the further development of their practice without an excessive additional expenditure of time (Altrichter and Posch, 1992, unpagged)?"

Although this list corresponds to a high degree with criteria lists for qualitative research (Erickson, 1986), there are some significant differences.

The first is that of **ethical justifiability**. This difference is not nearly as great as it would have been before the institution of human subjects boards and the need for their approval became a part of scientific research projects. Even so, what Altrichter and Posch are suggesting goes beyond that. **Their claim is that ethical considerations must be an integral part of all aspects of teacher-research.** One example of this is in the acknowledgment that ownership of data is an ethical issue (Elliott, 1991; Simons, 1987). In order to ensure against the misuse or misinterpretation of sensitive data, Elliott (1991) suggests the following:

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The third difference, and possibly the **most significant**, is that of **testing through practice**. Again, contemporary traditional researchers have been moving more in this direction. The development and informal testing of hypotheses during the data collection process has become an accepted part of qualitative research. For teachers, this is operationalized as the collection and analysis of data, and **the generation and testing of hypothesis while teaching**. The problem, again, for Erzberger, is how to do this in a way that adequately tests the hypotheses with limited data about a highly particularized and fluid situation.

An understanding of the educational situation arises in a way through what might be thought of as a conversation or dialogue with that situation. **The teacher might ask, "What is the question that my students are answering when they behave in that way?" Or, "What question I am answering as I go about my practice in this way?"** The actions of the individuals who lie within the horizon of the educational situation are answers to questions being asked by that situation. **Learner Validation(LV)**

**We respond with our actions that result in a shift in horizon and a modified, apparently new educational situation.** **When Andria Erzberger asked her students to find out what their parents learned about physics by experiencing the class vicariously through their children,** that action was in response to a question posed by the educational situation in which she was immersed. **To come to an understanding of that situation she must begin a reflective dialogue with it --by first** **trying to determine the question to which her action was an answer to.** **Self- developmental teacher-research proceeds in this way through discourse with the situation being lived to gain a better understanding of it and to improve practice.**

It is in this way that it is reminiscent of Lather's catalytic validity. The validity of teachers' self-developmental action research arises from their discourses with their educational situations that leads to a change in their understanding of those situations. From those new understandings comes a transformation toward the shared revisions of the situations. And so, in Lather's words, **the teachers are "coming to know reality in order to transform it."** For Erzberger, this means that her need to know has been misdirected. While it is important what the students have learned, how their attitudes towards science have changed, and whether they are thinking in new ways, **an assessment of students in those domains will not gain her the new understanding of her educational situation that would allow her to shape it and the educational situations that she shares with her students so that their horizons change in the ways that Erzberger desires.** By paying careful and critical attention to her practice within her



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Learner Validation(LV)

[` http://people.umass.edu/~afeldman/ActionResearchPapers/Feldman1994a.pdf](http://people.umass.edu/~afeldman/ActionResearchPapers/Feldman1994a.pdf)

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