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ABSTRACT

The workings of a research group trying to implement the concept of wait time in high school classes were examined, with comparisons drawn between policy constraints on the researchers and policy constraints on the teachers who were their subjects. Focus is on the development of research ideas; the subjective meaning of the research as work to the individuals; the research group's interactions, leadership structure, decision making process, and interactions with their teacher-subjects; and the interactions of the larger social context, including policies at the local, state, and national levels. Field notes, publications, and interviews were used to study the research process. During the study, researchers seemed to undergo a paradigm shift from viewing teachers as controlled by state authorities, with behavior modifiable by positive reinforcement, to viewing them as active participants in the research process. Teachers seemed to welcome the new role, but needed time away from teaching to involve themselves in the research process. The world of teachers was relatively more isolated and rigid than that of researchers with regard to constraining organizational policies. To be successful, collaborative attempts to relate the worlds of policy, research, and practice must consider the implications of these differences in the worlds of teachers and researchers. (SLD)

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The Interaction of Research, Policy, and Practice:  
A Case Study of a Research Group  
Attempting to Implement Wait Time

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## Introduction

Wait time has been described as the penicillin of education--having numerous positive effects on student participation and attitudes, yet no unwanted side effects. Yet training teachers to use wait time in their teaching has been notoriously difficult (Shulman, 1987). This investigation studies the inner workings of a highly successful research group (in terms of standard criteria of generating publications, presentations, and securing national funding), who are attempting to implement wait time in high school biology and chemistry classes in a study funded by the National Science Foundation. The policy constraints on their activities are compared to the policy constraints on their teacher-subjects' lives, and implications for translating research to practice are drawn.

Becoming "reflective practitioners" has been a growing theme in recent years in the area of teaching (Schon, 1983). Yet, rarely do we study our own research process. Recent authors have pointed out the need to do so (Smulyan, 1987), so that we may come to better understand the complex interrelationships between research, policy, and practice. The present study is a year long participant observation study of the lives and activities of a group of educational researchers collaborating on a nationally funded research investigation. The study focuses on: (1) the development of research ideas, (2) the subjective meaning of the research as work to the individuals, (3) the group's interactions, leadership structure, decision making process, and interactions with their teacher-subjects, and (4) the interactions of the larger social context including policies at

the local, state, and national levels.

#### Related Literature

Educational research is typically presented as a linear process of problem formulation, literature review, design, data collection, analysis, and interpretation. Implications are derived, and sometimes implementation of research findings in the schools is attempted. This idealized version has been criticized as obscuring the complexities of educational research as a process of human interaction (Georges, 1980). Punch (1986) and Kirk and Miller (1986) likewise recommend documenting the history of a research project, as this can shed important light on data collected. Smulyan (1987) particularly stresses how the collaborative process between researchers and teachers affects the resulting project and outcomes. She found that the research "processes were much more complex than the implementation of a set of guidelines" (p.11).

Williams (1981) studied a group of qualitative researchers who conducted Case Studies in Science Education and found that "who people are--their motives and their personalities--helps determine how they define their purposes as researchers, how they react to constraints in the research setting, and how they gather and process information" (p.96). Regarding policy, Williams found that "constraints were differentially communicated to the researchers, who received them and reacted to them in unique ways" (p. 104). Whereas his study was retrospective, involving interviews with and observations of the researchers several years later, my study involves participant observation and interviewing

of an ongoing research group's collaboration.

Amabile (1983) argues that in studying creativity, we have tended to focus on individuals rather than on conditions conducive to creativity. She points out that policy constraints play an important role in influencing creative output. Flexible organizational structures that bend with innovation, a climate conducive to generating new ideas, an established process for developing new ideas into products, support from higher management, and a low level of supervision and evaluation enhance creativity. Decreasing outside stress, increasing external support, and active work on developing creative heuristics may enhance creativity. She points out that modern science requires collaboration. In a research study of 115 scientists, she reports the four most important factors for realization of creative potential were "(1) high responsibility for initiating new activities, (2) high degree of power to hire research assistants, (3) no interference from administrative superior, and (4) high stability of performance" (p. 167). This framework serves as a backdrop for looking at the creative process in the lives of the researchers and teachers. The present study focuses on a line of research from both the researchers' and teachers' perspectives, and examines the policy constraints in the lives of each role group.

#### Method

Several hundred pages of field notes collected from October until June (on an average of ten hours per week), from observations of researchers interacting with teachers, consultants, graduate students, and each other, form one part of

the data. Several hundred pages of documents including papers and publications, prior staff meeting minutes, and master's theses coming out of the laboratory, are another data source. An "intellectual autobiography" documenting the literature I reviewed and its influence on the methodological decisions I made was recorded as recommended by Kirk and Miller (1986). Observer comments on field notes, and analytic memos on emerging themes were recorded. As a participant in the laboratory, I joined in staff meetings, and conducted interviews of teacher-subjects, to better understand the role and impact of this line of research on their practice.

In the second phase of this study each of the four researchers, their secretary, the group's data analyst, and three graduate assistants who had worked in the laboratory were interviewed to determine the role of the research in their lives, and to test, verify, and refine emerging themes from phase one of the investigation. Data was coded according to the approach delineated by Bogdan and Biklen (1982) and a partial category system evolved. Emerging themes regarding the nature of the collaborative process, the roles played by the various participants, a typology of how the researchers thought about their teacher-subjects, and how policies in the contexts of the teachers and researchers shaped the research, are discussed.

## Results

### Policy and the Researchers' and Teachers' Perspectives

The Researchers' institution. Initially, I began this study because I was curious about how such a large research project was located at a primarily teaching institution, with a common

perception that if you do research "it comes out of your own hide." In interviewing Tom, Associate Dean of Graduate Studies and co-director of the project, I once asked how such a large research project came to be at a primarily teaching institution. He replied that the present administration was very supportive of research, though this wasn't always the case. The president of the college had held a reception for the group after they had won an award. Much of Tom's travel money is contributed by the graduate office. Tom conveyed that he felt that this institution was the perfect location for creative research--having fewer constraints than at a larger university, yet being large enough to allow for drawing on expertise from various disciplines. Nathan, co-director of the project, also conveyed that the institution was the right size to be interdisciplinary. He also felt that having an interdisciplinary team facilitated group cohesion. He commented, "We have no professional jealousy, being from different departments. We aren't competing for the same moneys for merit or anything else." In other contexts, institutional policies regarding merit might impose an unintended stress on collaborative relations.

Collaborative cohesion vs. isolation. Intensive observation of formal staff meetings and informal contacts between the researchers in and out of the laboratory yielded a picture of a highly collaborative and dedicated group. Staff meetings were almost unbelievably harmonious, each individual attempting to both contribute and solicit opinions of others. Divergent opinions were freely expressed and listened to. All of the

primary researchers have had some background in interpersonal communication skills (two as psychologists and two as values clarification teachers) and implement this to a high degree. I kept waiting for this facade of harmony to crack, and to some degree it did. Some interpersonal issues were kept beneath the surface, the group choosing to overlook them. But in general, the level of collaboration and communication was high. The staff strove to decrease role differentiation and achieve integration of individuals of different status, from undergraduates to deans. This occurred to a higher degree than in many settings. Graduate students in particular, were actively involved in all phases of the research process. One researcher summed it up when she said, "Nobody just collates papers, we all collate papers." Nathan, in his interview, commented that he felt the group members were alike in many ways. They were not very diverse, and that was a strength. They could author different sections of a paper, for example, without a break in style.

In contrast, the isolation of today's teachers has been well documented (Lortie, 1975). The teachers in the wait time study also expressed frustration at not having time in their lives to collaborate with colleagues. The greatest strength of the Classroom Interaction Research Laboratory's new Teachers as Researchers program, as reported by the teachers involved, is the opportunity to come together with their peers to share ideas. Mary, a teacher who was a graduate assistant in the laboratory for a year, compared staff meetings in the public schools--with pre-set agendas and little time, to the staff meetings in the laboratory--where people shared the personal things they had been

doing and often deviated from what was planned. She said, "In the public schools you didn't have time to keep it going for two hours. In the lab there was sometimes set agendas for staff meetings, but it evolved as we went along. I had the luxury of being real flexible."

Flexibility vs. rigidity. The researchers, in contrast to the teachers, had much flexibility in determining what they would do and when they would do it. Though they had laid out a ground plan in the initial NSF proposal, they have had time and resources for adding to and deviating from that ground plan. One of the pervasive tensions in the group focused on whether to follow a straight and narrow path, or to pursue the multiple new fascinating directions that arose in the research process. Bob, the group's data analyst, said that this flexibility was the group's greatest strength yet their greatest weakness. He commented that the research is not theory based, "rather the researchers are enamored with procedures." In his interview he commented that, "I feel I'm not responding to structure, I'm providing structure. That gives me infinitely more power than a data analyst ought to have." On the other hand, "It is fun to be with the group because they spend so much of their time saying, 'What if?'. They generate neat ideas. I think that I've grown in that environment in the way I think about things more than in any other research environment."

In staff meetings, James, a researcher and also chair of the psychology department, often served to focus the group on what they had set out to do. Pat, the fourth primary researcher,

commented in a meeting, "We've got 14 million variables but where are we going? We can generate all kinds of interesting side graphs, but what do we really want to know. There are an awful lot of paths we can go down, but we obviously can't go down a million of them." The group had many options regarding what direction the research would take, who would do what when, and how it would be best accomplished. A teacher's agenda is much more constrained by the public school context, where the student population, daily schedule, and curriculum are mapped out by state and district policies. A state mandated curriculum is chunked into 36 to 48 minute class periods and taught to assigned groups of students.

The research group was able to be flexible and responsive to the data, and to the teachers they worked with. When they were not able to train teachers to increase their wait times in the first part of the study, for example, they deviated from their original plan of having teachers become wait time trainers, and instead invited teachers to become teacher researchers on problems of their own choosing. This represented a major change in the way they conducted their research. The researchers evaluated the linear model they had been using to attempt to change behavior and determined to move to a collaborative model in order to effectively engage teachers in the process of incorporating research into practice. Their perspective on teachers shifted, and new roles for the teachers and researchers were created. The researchers had great flexibility in hiring graduate assistants, in allocating funds for consultants, and in determining what they would do, when and how they would do it.

The most pervasive policies were broad and over-arching--e.g. the conference schedule, the college schedule, and the funding agency deadlines--and though these had ultimate impact, they did not determine the researchers day to day actions in the way the state curriculum and a 36 minute class period constrains a high school teacher's daily actions.

For example, the teachers who were interviewed about their views on wait time universally reported that though they saw value in the concept of wait time, the reason they didn't attempt to sustain three second pauses after posing a question, was because they felt a tremendous pressure to get kids through the curriculum at a fast pace to prepare them for the New York State Regents Examinations. These teachers reported that if they spent even two class periods "off task" in discussion of content, they would not get through the mandated curriculum and their students would be penalized. These teachers were "driven by the regents" and perceived their job definition to be that of covering the content at a brisk pace. Teachers felt frustration at their lack of control over their own actions, and felt that they did not have nearly enough time to cover the content they were expected to cover.

Foresight vs. presentism. The researchers were ultimately responsive and responsible to several policy constraints including funding agency guidelines, conference schedule deadlines, and the college schedule. Meeting deadlines for paper and report submissions, and grant proposal submissions for future funding, required great foresight and long range planning. For

example, proposals would be submitted in August, and papers written in January of the next year, for papers to be presented in April. Initial planning for future laboratory studies began at least one and a half years before the end of the current grant. Speculative discussions of possible future directions of the line of research were frequent. Foresight was integral to the survival and growth of the laboratory.

In contrast, the teachers reported that the bulk of their time was spent solving immediate problems and concerns--grading today's papers and running dittos for tomorrow's assignments. This presentism has been documented in the literature (Lortie, 1975), and was very salient in the lives of these teachers, who reported that all of their time was consumed with the daily demands of preparing to teach five classes. They voiced the need for released time for teachers who were involved in research projects during the academic year.

Multiple acts to juggle vs. one prescribed role. The researchers' lives involved integrating multiple and sometimes conflicting roles. They had to learn to respond to constraints of a variety of institutions--funding agencies, professional organizations, and the college--that were not necessarily coordinated with one another. Certain times in the laboratory became extremely stress inducing, for example when a conference or grant submission deadline coincided with when final reports were due for department chairpersons and deans.

Whereas conflicts within the group were relatively rare, there were often conflicts between an individual's role inside vs. outside the laboratory. Two of the researchers were promoted

during the course of the grant (one to associate dean, and one to department chair), and the added pressures of dealing with a new position with more responsibilities sometimes led individuals to be away from the laboratory more than they wanted to. Meeting college policy constraints and deadlines, e.g. submission of annual reports, was sometimes salient in determining what went on in these researchers' lives. At other times getting out conference and grant proposals, or gearing up for multiple conference presentations, drove activities in the laboratory. Juggling multiple roles was a pervasive requirement of being a researcher. Staff also reported that they were trained to perform multiple roles in the research process--roles which were to a high degree self-determined in response to the "demands of the situation." Staff on the research team were selected to work together. In contrast, teachers were less likely to determine the role they would play, nor were they generally selected for their fit with a team.

Typically, teachers responded to pervasive but integrated policies of the school. Though there were federal, state, district, and school policies operating, these were more likely to be coordinated rather than conflicting (at least ideally), and were locally interpreted in a more uniform fashion. The most constraining policies teachers reported that influenced their actions were, (1) the New York State Regents Examination, which determined the content, scope and pacing of their curriculum, and (2) the scheduling constraint, typically involving too short a time period for the amount of content expected to be covered, and

too many classes to teach. Teachers felt their role was highly prescribed by these two constraints.

#### Summary

In order to better understand the complex relationships between research, policy, and practice, this investigation sought to examine a line of research from the perspectives of the researchers and their teacher-subjects. The role of policy in facilitating and constraining researcher and teacher activities was discussed. During the course of the study the researchers seemed to undergo a paradigm shift--from viewing teachers as "driven by the Regents," their behavior being modifiable by positive reinforcement ("supportive intervention"), to a view of teachers as active decision makers and essential partners in a collaborative research investigation. The teachers seemed eager to take on this new role of discovering what it means to be a teacher researcher. However they also expressed a need for some time away from the pressing demands of day to day teaching, in order to successfully involve themselves in the research process. The description that has been presented portrays the worlds of the researchers and the teachers as being at opposite ends of several continuums. The world of the researchers involved collaborative cohesion, flexible responsiveness, foresight, and the need to juggle multiple acts. Policies from various organizational levels had long term impact, without severely constraining daily activities. In contrast, the world of teachers involved relatively more isolation, rigidity, presentism and a prescribed role. Policies such as the Regents Examination and the school's daily schedule severely constrained the scope

and range of daily activities. Without considering the implications of these differences in the worlds of teachers and researchers, our attempts at trying to collaborate in relating the worlds of policy, research, and practice are likely to be doomed to failure.

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