STAFF DEVELOPMENT: FACILITATING CHANGE WITHIN CLASSROOMS USING A CONSTRUCTIVIST APPROACH

by

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ABSTRACT

Staff developers are facing new challenges in the 1990's in British Columbia as secondary education is criticized not only for what it teaches, but also, for how it is being taught. This project addresses the very complex nature of improving the learning situation of students by focusing on staff development. This study documents the inservice, implementation and teacher responses to a model for staff development at a secondary school which included:

1. the introduction of new teaching strategies which supported learner-focused classroom practice
2. teacher collaboration and peer support
3. the theory of constructivism and its incorporation into classroom practice.

To gain some insight into teachers' perceptions of new teaching strategies and skills, collaboration, and a constructivist approach to classroom practice was one major research strand. Another strand of the research investigated the process of change as facilitated through staff development. Specifically, the intent of the study was to identify and elaborate on those factors which are liberating and prone to influence in a process known as staff development and to recognize those factors which are resistant and tend to act as barriers to change.
Data for this study was gained by following a study group of six secondary teachers from three curricular disciplines over a time period of three months. Group interviews during the study and individual interviews at the end of the study were collected and transcribed. The responses of the participants to the research questions are reported in detail in an effort to preserve the contextual influences. Through these responses the reader can enter into the individuals' thought processes as participants reflect upon their personal experiences with the challenge of change.

The findings of this study support and extend the literature on important components and influences to staff development. In particular, this study gained further insight into:

1. how a constructivist approach can be translated into a model of staff development

2. how influences, such as peer collaboration and peer support enhanced a change in classroom practice.

3. how a change incorporating a constructivist approach to teaching is more likely to be assimilated by an individual who has a transactional or transformational orientation to curriculum. A transmissive orientation to teaching acts as somewhat of a barrier to the conceptual change of a constructivist approach.

4. how the motivation and teacher satisfaction for participating in change is determined to a degree by perceived improvements in learning by students.
5. how all participants experienced change but the nature of that change was very individual, gradual, and incremental in nature along the continuum from teacher to learner-focused education.

The study concludes with recommendations for individuals planning staff development which incorporates the research findings.
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"Most words evolved as a description of the outside world, hence their inadequacy"

Hugh Prather

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CHAPTER ONE

THE PROBLEM AND ITS CONTEXT

Staff development is a process designed to foster personal and professional growth for individuals within a respectful, supportive, positive organizational climate having as its ultimate aim better learning for students and continuous responsible self renewal for educators and schools.


1.1 Educational Significance of the Study

Education in British Columbia is undergoing transition as it enters the last decade of this century, and prepares for an age of new demands and expectations. Many of the criticisms that have been leveled at education express concerns about an educational system that has remained essentially the same for over one hundred years - the product of the industrial age. As members of an information age, citizens and educators are aware that the demands on our youth have changed, and so must our system of education. British Columbia Ministry of Education's Year 2000 document proposes a framework for the future of education in British Columbia.
The Year 2000 document no longer sees public education as serving the needs of other institutions, such as our universities. Instead its recommendations recognizes the learner as the central and active participant in his/her education. "According to one widely accepted view of learning, the learning process involves individuals selecting from available information, and constructing meaning by placing the new information and experiences in the context of what the individual already knows, values, and can do." Year 2000 (1989) p 9.

For many teachers a move to a learner-centered, continuous progress model of education requires a shift in personal paradigms and a need to learn new methodologies that complement such principles. It is this process of change, as facilitated through staff development, that brings us to this study.

To design a model of professional/staff development that results in an improved learning situation for students is the challenge that staff developers must meet. By focusing on staff development, this project attempts to address the issues involved in the very complex process of improving the learning situation of students. This study documents the inservice, implementation, and teacher responses to a model for staff development at a secondary school which includes:

1. introduction of new teaching strategies
2. teacher collaboration
3. the theory of constructivism—both for the adult learners involved in the project and as a focus in lesson planning for students.

1.2 The Issues Surrounding Current Practice in Staff Development

There are many characteristics common to staff development programs that may be criticized as to their effectiveness in encouraging change in classroom practice. A number of issues became focal points in the planning for the project.

• The teaching/learning process, of both students and adult learners, often takes a form contrary to the widely-accepted view of how individuals learn. The constructivist theory of how individuals make sense of new information must permeate both how we teach and how we learn. It is disregarded when teacher inservice takes the form of lecture or direct transmission of knowledge. This format not only disregards the context and the conceptual framework of the participants, but also ignores the premise that the learner should be an active participant to their own learning.

• The one day teacher inservice is often inadequate, in both depth and scope. Characteristically, inservice takes the form of singular skill development such as classroom management or isolated
information (adolescent development) as often the time constricitions inhibit anything more complex (teaching strategies).

• Innovations, that teachers find attractive, often do not find their way into classroom practice, but are instead abandoned. The support in trying a new idea within the classroom is lacking. Day to day stresses, curricular demands and teacher isolation becomes a contributing factors to the demise of an innovation.

• The implementation of new ideas has a time commitment and a degree of uncertainty. Often these two factors will have an exponential effect resulting in abandonment of the implementation of the innovation. "For them, (many practitioners) uncertainty is a threat; its admission a sign of weakness" (Schön, 1984, p 29)

• The prior beliefs individuals bring to a learning situation and how these beliefs affect how individuals interact with new information is often ignored in inservice programs. Interaction with new information is dependent on the beliefs and personal knowledge that individuals bring to the situation. Often the new information may find conflict rather than acceptance. "Systems of intuitive knowledge are dynamically conservative, actively defended and highly resistant to change. They tend not to go quietly to their demise and reflection in action often takes a quality of struggle." (Schön, 1984, p. 29)
• The introduction of new behaviors and methodologies are important components towards changing attitudes or beliefs about classroom practice. Too often beliefs change as a result of acknowledging the value of practices not vice versa. "Significant change in teacher's beliefs and attitudes occurs after student learning outcomes have changed. These changes in student learning result from specific changes teachers have made in their classroom practices. Classroom practice changes may include: new materials or curriculums, modification of teaching procedure or new instructional approach. Learning outcomes changing include involvement in class session, motivation toward learning and the students' attitude toward class." (Gusky & Thomas, 1985. p 59)

• Teachers measure the 'success' of an innovation using a subjective system of measurement of learning outcomes of students. Gusky and Thomas(1985) report that teachers acknowledge the quality of an innovation as it relates to the learning outcomes such as the students' greater involvement in class sessions, enhanced motivation toward learning and improved attitude towards class. "Experienced teachers seldom become committed to a new program or innovation until they have seen that new practices work well in their classrooms with their students." (Gusky & Bolster, 1983, p 298)

• Teacher professionalism and autonomy directs us to take a new position towards professional growth. Since supervision of
instruction, evaluation of teachers, one-day inservice session, or new curriculum have minimal impact on classroom practice, a new model of staff development is needed. Garmston's challenge coaching provides us with an excellent approach to meaningful changes in practice. "The product is new teaching procedures across the disciplines in which students routinely engage in more higher order thinking than before...Teachers meet to identify the desirable knowledge, skills and attitudes for students. They brainstorm instructional approaches. Each commits to a personal plan. They implement, meet, share, revise and implement again." (Garmston, 1987, p22)

Wildman and Niles (1987) stipulate three conditions necessary for professional growth: autonomy, collaboration and time. Considerations to these criteria formed the foundation of the staff development project which attempted to encompass the complexities in designing and facilitating meaningful staff development at a junior secondary school in British Columbia. It was the intention of the project to reduce the discrepancy between the intent of staff development and its actual outcomes.
1.3 Identification of the Problem

1.3.1 Purposes of the Study

The primary purpose of the study was to gain insight into teachers' perceptions about the process of change as facilitated by staff development: how it impacted on teacher beliefs about the nature of learning and how it impacted on classroom practice.

The study will assess various components of the staff development project using teacher responses to identified issues concerned with the process of staff development. The study chronicles the inservice and personal responses of three teams of teachers from three disciplines as they were encouraged to work collaboratively and to use teaching strategies linked to a constructivist approach to teaching.

1.3.2 General Research Questions

The general research questions that guided this study included:

1. What are teachers' perceptions of a constructivist approach to classroom practice?

2. What are teachers' perceptions of peer support and collaboration with respect to impact on classroom practice?
3. What are teachers' perceptions of the introduced skills and learner-focused strategies?

4. What are some of the influences associated with a constructivist model of staff development that limit or liberate change in classroom practice as interpreted from the data?

1.5 Overview of the presentation of the study

Chapter 2 surveys the literature on staff development. Chapter 3 describes the design of the study. In Chapter 4, the antecedents, and outcomes of the participants of the study are presented. Chapter 5 addresses the research questions by summarizing the data and drawing conclusions as well as recommendations for the design of staff development programs which are better aligned with intended outcomes.
CHAPTER TWO

REVIEW OF THE LITERATURE

2.1 Introduction

This chapter reviews the features and components of an effective staff development model. The research which generated the proposal presented to the study group for their testing as to its applicability to the classroom setting is also discussed.

Although an abundance of literature supporting individual ideas of how to improve staff development exists, these ideas have yet to be formalized into an effective model for school practice. The staff development model generated and used in this study is one attempt to formalize an effective model and incorporated the following components:

1. teachers as action researchers
2. the understanding of adult learning and teacher culture
3. a constructivist approach to adult learning
4. collegial collaboration, discussion, and coaching

Also included is a review of the constructivist approach to teaching students with an emphasis on the research which supports the concepts which the study group put into practice.
2.2 Features of Staff Development Programs

"Teaching is a continual process of becoming rather than an easily accomplished occupational goal"

Rosenholtz (cited by Griffin, 1987, p. 31 )

Staff development is defined as the provision of activities designed to advance the knowledge, skills and understanding of teachers in a way that leads to changes in their thinking and classroom behavior (Smylie, 1988, citing Fenstermacher & Berliner)

Many educators have experienced staff development programs that tend not to change teachers' thought or actions within the classroom. Often, the recognizable dominant theme of staff development has been the rectification of perceived deficits in teachers' knowledge and skills. Griffin (1987) declared that this predominant mode of staff development is no more than an assurance to the public of a minimum level of teacher competence.

To address the concerns about the predominant form of staff development, educators need to clarify the types of staff development programs, and design programs according to the identified purpose. Smylie (1988), citing the work of Schlechty and Whitford, expanded on different forms of staff development. Identified were three functions of staff development:
1. "establishing" function. This form of staff development is of the type that introduces new programs, procedures or technologies, or promotes organizational change within schools or school districts.

2. "maintenance" function. Staff development of this kind promotes preferred modes of operation or administrative routines.

3. "enhancement" function. Enhancement staff development goals include improving the classroom instruction of individual teachers participating in the program.

Smylie, using the Schlechty and Whitford research as reference, declared that most staff development provided by schools and school districts was of a maintenance function. Smylie further conjectured that staff development of the establishing or enhancement form were less frequent, and less successful.

The majority of school professional days, mainly of the maintenance type, clearly do not fall within the definition of staff development in that they often do not lead to changes in teacher thinking or classroom behavior. Thus, it becomes increasingly clear that to attempt school and classroom reform, new models must be developed to design establishing and enhancing staff development programs that are less likely to fail at the onset, thereby leading to further discouragement and inaction.

In reviewing successful staff development programs of the enhancement function, Griffin (1987) identified that such programs had in common a combined measure of expert opinion, validated
accomplishment of program objectives and self-reported satisfaction of participants.

Griffin also expanded on some other features of successful staff development programs. Specifically, successful staff development programs:

1. were context sensitive in that they were connected to the schools and classrooms of participants.
2. had a knowledge base which guided activity. The knowledge was research-derived, theoretical, or value-oriented.
3. included participation and collaboration.
4. were ongoing, continuous and developmental. Typically, the staff development was not characterized by a single event.
5. were reflective and analytic of the objectives and methodology.

To achieve successful forms of staff development, beyond the maintenance function requires not only knowledge of these features described but also an understanding of some important principles and practices that directly influence the success or failure of such programs.
2.2 Critical Aspects Influencing a Model for Staff Development - Beyond the "Maintenance" Function

There is much information about possible influences which affect change in classroom practice. Incorporating the essential influences into a staff development model is the major challenge confronting staff developers.

Some of the essential influences of change incorporated in this staff development project included teachers as action researchers, the process of adult learning, personal readiness, and the process of collaboration. In this section each component is explored and related to the framework of the model for staff development.

2.2.1 Teachers as Action Researchers- a Method of Facilitating Staff Development.

"Teacher research provides an appropriate basis both as the focus of staff development activities and as a means of accomplishing staff development"

David Hopkins, 1987 (p 111)

Teachers have much to contribute as action researchers both in the feedback of educational research into classroom practice and in
identifying the characteristics of effective staff development which, then, creates a forum for change.

Action research is one approach to address concerns directed at what has often been referred to as the research into practice gap. Clinical forms of educational research have often been criticized for their lack of credibility with classroom practitioners. This lack of credibility may be a result of the contextual separation of the research and the classroom, the sterile nature of some quantitative research, or the differing conceptions of teaching held by teachers and researchers.

Action research, also referred to as teacher research, is the act undertaken by teachers to improve their own or a colleagues' teaching, or to test the assumption of an educational theory on practice (Hopkins, 1987). Central to this type of research is the practitioners' personal reflection which is brought to the classroom experience. It is this reflection, a critical analysis, which results in improved classroom practice. Action research, then, contributes not only to educational knowledge by relating clinical research to practical experiences, but also improves the participants' classroom practice through critical reflection.

Action research can be characterized by the following features:

1. It is practitioner oriented. It serves the practitioner by helping him/her to resolve problematic practical situations or to test proposals presented in the research literature.
2. It produces authentic and categorizable knowledge.
3. It adds to the practical knowledge base of the participants.
4. It encourages reflection and action by practitioners.
5. It is embedded in a contextual setting,
6. It has a greater emphasis of what is rather than what should be.

Through action research, the teacher approaches proposals from the research as a provisional specification worth putting to the test of practice, instead of an unqualified recommendation of effective practice. This shift in paradigm towards the purpose of educational research is liberating to the participants and moves them closer to an ideal of staff development which engenders the continual, ongoing and reflective nature of improving classroom practice. Learning now becomes experimental in nature, even to the teacher, with an emphasis on personal interaction with new information.

Action research, as might be used by staff developers will require an approach different from a practitioner working in isolation. Joplin (1981) described four major stages to the process she termed "action-reflection" and which can be used as a guideline for staff development through action research studies:

1. Focus - Participants are presented with the task.
2. Action - The practitioner uses skills and/or knowledge within the classroom.
3. Support and feedback- This acknowledges that the practitioner is not working alone but is surrounded by a human responsiveness that accepts personal risk-taking and stimulates the practitioner to continue the challenge.

4. Debriefing - Learning is recognized as that information which can be articulated and evaluated.

Action research may act as one approach to a staff development program which will initiate reflective practice while reducing the perceived research into practice gap. Action research which is characterized by uncertainty and reflection can be used by the staff developer to introduce recent research to practitioners with the purpose of enhancing classroom practice.

2.2.2 Adult Learning Within the Teaching Culture - Recognizing the Influences that Affect Change.

"The process of adult learning is transformative, not formative. Children are in the process of 'becoming'; adults are changing from one form to another when they participate in learning activities...their self esteem may be on the line"

P. Roy citing Cross, (1989, p 30)

Adult learning is frequently perceived as resistant within a teacher culture. For staff developers, the mandate becomes clear: to
address and understand the risks and uncertainties that the practitioners may experience during the staff development process.

Vandenberghe (1988) claimed that adults may resist or avoid learning new educational methods as their world is already organized. Vandenberghe further identified another concern of teachers that to adopt new methods takes time. Adult learning to take place then, must be grounded in relevant practical activities, such as new techniques (Roy, 1989) and have personal meaning to the participant (Vandenberghe, 1988).

Since, as Vandenberghe states, the adult learner's world is already organized, for learning to occur, the adult must 'experience' the subject. This means that staff developers must facilitate the interaction of new information with the participants' conceptual framework. It is the foundation of the constructivist approach that concepts derive their meaning through connections or relationships to other concepts. It is the individual conceptual framework that staff developers must give greater consideration when introducing new information.

In order to understand adult learning one must also understand the contextual nature of the adult learner within his/her teaching culture.

Culture, as described by David Ost (1989), is a socially transmitted pattern of behavior that is characteristic of groups of
people rather than individuals. Ost saw the teaching culture as serving two main purposes: to provide identity and to help individuals avoid anxiety and uncertainty. Any attempt to change the culture must include strategies that assist the population to cognitively re-define its identity or purpose while maintaining security. Ost further declared that there is no evidence that the teaching culture is desirous to change, creating another serious consideration for the staff developer.

A staff development plan must include addressing the needs that the culture defines. It must, to lessen the impact of uncertainty, ground the process in relevant and practical skill building, and to embed the new ideas in a practitioners' personal framework. Thus, there is a need to incorporate support systems to reduce the anxiety of uncertainty. There is a need to incorporate a process which includes small increments of change instead of a single expectation of catastrophic change. The resulting feelings of accomplishment act as a trade-off for feelings of uncertainty.

Gusky and Sparks (1983) stated that for staff development to be successful, care must be taken to illustrate how the new practices can be implemented without too much disruption or extra work. Their recommendations included organizing and presenting the information in small, incremental steps, clearly descriptive, with an emphasis on efficacy and practicality.

Staff developers may have to recognize that their greatest skill will be listening. Roy, speaking as a staff developer, reflected on the
importance of discussion to develop reflective behaviors among faculty members. "They helped me to listen carefully as [teachers] discussed their concerns. to give a sympathetic ear...to provide additional resources or ideas" (1989, p 29). Without establishing this climate of personal relationships within the staff development process, the participants will most certainly devalue the program to the status of 'another workshop'.

2.2.3 The Focus Stage of Staff Development- Using a Constructivist Approach to Foster Personal 'Readiness'.

"Incorporating an innovative approach is equivalent to reinventing the underlying idea with respect to one's own situation, norms and premises."

Uwe Hameyer (1982, p 364)

Stake (1987) concluded that educational reforms are often rejected, particularly at the secondary level. He hypothesized that the reforms were abandoned because the new teaching styles did not leave the teachers in command of what they considered to be critical responsibilities such as fostering student obedience and seeing adolescence as a time of preparation. Thus, the challenge that staff developers face is to provide a forum where practitioners can relate with new information. The interaction of an individual's personal constructs with the new information, then, becomes as important in
the process of staff development as the new material itself. Hameyer (1982) referred to this as the degree of 'readiness' with which a teacher can interact with the new material.

One premise of the constructivist approach to teaching asks participants to actively relate new information with the personal constructs that individuals bring to a learning situation. For introduced information to be realized in classroom practice means there must be a congruency between the teacher's belief system and the new information. Significant in terms of this belief system is the place where a teacher orients him/her self on a teacher-focused to learner-focused continuum.

Miller (1986) describes three orientations to curriculum - transmission, transaction and transformation- which are best thought of as being on a continuum. Transmission, as the name implies, is the transmittance of knowledge from practitioner to student. Knowledge is considered to be skills and facts and is presented using traditional methods. At the other end of the continuum is transformation. Whereas transmission deals with the direct transfer of knowledge, transformation would have as its prime function the holistic development of the child. Knowledge may in be the form of self-inquiry or may be more of a social nature. Somewhere between transmission and transformation is an orientation Miller refers to as transaction. The knowledge is the process. This would include inquiry and problem solving in general social contexts.
Hannay (1988) introduced metaphors to assist teachers in identifying their preferred orientation. To induce educational dialogue and reflection, the metaphors allow individuals to access their conscious as well as subconscious approach to education in a non-threatening, non-judgmental way, and engender in some individuals, upon reflection, a sense of dissatisfaction marking the beginning of readiness. As Umberto Eco (1983) described in his novel, *The Name of the Rose*, "through witty riddles and unexpected metaphors, though it tells us things differently from the way they are, as if it were lying, it actually obliges us to examine them more closely, and it makes us say: Ah, this is just how things are, and I didn't know it" (p 574)

Metaphors used in this way follow Driver and Oldham's (1986) model of a constructivist lesson- namely orientation, elicitation of ideas, and restructuring. New information may be assimilated if it is harmonious with the individuals' constructs. New information which is in disharmony with personal constructs will be negated. It is, then, the responsibility of the staff developer to approach the learning of the individual in a sensitive manner.

It is simply not effective to introduce new information without creating the chemistry for change. Values, norms and premises set the stage. The metaphors indicate the stage of readiness and the level of risk individuals are prepared to undertake. A staff developer must be aware that an individual who favors the transmissive
approach may have greater difficulty assimilating the constructivist approach to teaching than an individual with a transactional approach that already includes an appreciation for the learner's own viewpoint.

It is a participants' personal growth as represented by movement along this continuum on which staff developers should focus. To recognize that each individual is at his/her own stage of readiness and at different points on the continuum, is of paramount importance to staff developers who want individuals to gain from episodes of staff development. The new information, as presented during an episode of staff development, can no longer be single faceted but instead should include a multitude of ideas, incremental in nature and be meaningful in that it addresses each teachers' readiness. Teacher personal constructs will determine the entry point into the continuum of ideas, skills and/or strategies thereby making the staff development experience personally meaningful and fruitful for each participant.

2.2.4 Collegial collaboration- Adult Learning Within the Social Milieu.

Wildman and Niles (1987) cited several authors to support their belief that collaboration is an important component of professional growth. They believed collaboration expands teachers' levels of expertise by supplying a source of intellectual provocation
and new ideas. Collaboration allows teachers to exchange ideas and publicly test models instead of working in isolation. Collaboration places value on attempts at innovation, reassuring teachers that uncertainty is a characteristic of professional growth and not to be perceived as a weakness in teaching.

Wildman and Niles cautioned that it is the teachers who must decide on the specifics of the collaboration. "Control of collegiality, either externally or hierarchically, is antithetical to the basic concept. Professionals cannot be forced to be collegial." (p 8)

Garmston (1987) described a model of collaboration he referred to as challenge coaching. This process of challenge coaching includes identifying desirable knowledge, skills and attitudes for students, brainstorming instructional approaches, preparing a personal plan and making a commitment to it, implementing the plan, and meeting, sharing revising and implementing again.

Challenge coaching as defined by Garmston differs from other models of coaching. The Joyce (1987) model of coaching involves the practicing of a learned skill, observation of the lesson by a peer coach and technical feedback. The goal of Joyce's technical or peer coaching is the mastery of a skill; for Garmston's challenge coaching the goal is insightful, practical improvements to instructional design and delivery.
2.3 Research and Classroom Practice - the Challenges for the Teacher Participants

This research project might best be thought of as a study within a study. One critical aspect of the study, for the researcher, was the enhancement function in this episode of staff development. For the participants of the study, the focus was the practicality of new theories and teaching strategies proposed by the educational research. The research that was introduced to the participants is described in this section.

2.3.1 Constructivist theory into classroom practice

The work of Bruner (1960) and Ausubel (1968) has turned the attention of cognitive psychologists to the study of acquisition and retention of new knowledge as a function of existing cognitive structure within the learner (Merrill and Kelety, 1981). This attention to the conceptual frameworks that the student possesses was the basis for using a constructivist approach in the classroom. Further to this was the notion that the learner must construct his/her own meaning from the information and assimilate the information into his/her conceptual framework. In order to accomplish this, a teacher's role changes from teaching a body of knowledge, using a didactic or transmissive approach, to providing a
A constructivist approach means that teaching episodes:

a) recognize that students' prior ideas are critical and must be addressed
b) acknowledge that new knowledge is integrated, subsuming or replacing old information through conceptual change, and that this must be facilitated by the teacher
c) recognize that learning is not a passive activity, that it may cause some students intellectual conflict or dissatisfaction (Posner, Strike, Hewson and Gertzog, 1982).

Driver and Oldham (1986) proposed a model of a constructivist approach to a teaching episode. The main emphasis included:

a) orientation - motivation towards the topic
b) elicitation of ideas - students make prior ideas explicit
c) restructuring of ideas - conceptual capture and/or conceptual exchange.

The constructivist orientation to teaching may have a far-reaching effect on a teacher's approach to a lesson or a unit of lessons. The teacher's attitude to the approach will depend on the value of the constructivist approach he/she sees as compared to the presently practiced teaching approach, and its accessibility. Fullan
(1982) identifies two important attributes of innovations in classroom practice: value and technical soundness. Individuals will make judgments about the value and technical soundness of an innovation prior to implementing or facilitating the transfer of theory into practice. To this end there are two important factors:

1. During the in-service the teacher's own belief system must be revealed. The discussion should reveal instances when there may be conceptual conflict between the new ideas and the conceptual framework of the teacher.

2. Teaching strategies, skills, and the format of the constructivist lesson must be clarified.

2.3.2 Teaching Strategies

The traditional modes of discussion and lecture make it difficult to facilitate the constructivist approach. To believe in learner-centered education but to continue to use the predominant lecture and notes method of teaching creates an immediate contradiction.

In the past decade much effort has been dedicated to teaching strategies that complement a learner-centered classroom practice. Johnson and Johnson (1974) and Slavin (1978) have become the noted scholars in models of cooperative education. Novak (1977) has evolved the process of concept mapping. And the work of Joyce and
Weil (1986) regarding teaching strategies targets the learner as the individual who should be constructing meaning - not the teacher. These skills and strategies are gaining in popularity with teachers and these skills and strategies complement the constructivist theory.

It is important to identify and introduce teaching strategies that complement the constructivist approach if the staff developer's intent is that participants reshape their thinking about the approach to classroom practice being more learner-focused. As Fullan (1982) argued, implementation will fail if the new information cannot be seen as having value and if it is not considered to be technically sound.

Specific learning strategies have to be discussed, demonstrated and practiced. Certain skills such as cooperative learning, wait time and framing questions might also be incorporated into an effective staff development plan. If it is more desirable that teaching become more learner-centered, then a variety of experiences should be presented for assimilation by individuals at differing degrees of readiness.

The staff developer should emphasize that teachers attempting to put research into practice are taking risks. The preparation for entering into uncertainty is another important component of moving research into practice. This acknowledgement of risk, in itself, may result in some alleviation of the stress associated with not only experimenting with a new technique, but also having another individual possibly observe the situation.
2.4 Evaluation of the Results - Qualitative Research

In his comparison of typical evaluations, Stake (1987) recognized that qualitative research may lead to a wealth of information that can be evaluated in a number of ways.

One method of presenting the information is in the form of a case study. This form is descriptive in nature, and normally written from the perspective of the researcher/case writer collecting relevant facts of the situation. From this, the case writer sifts out significant facts, compares and contrasts information, and then draws generalizations.

Another conventional method of evaluation is to define the characteristics of the ideal and then comparing the characteristics of the actual case to the ideal. This methodology, like the case study report, focuses on the outcome and/or goals of the project.

A third form, response evaluation, specifically focuses on the process of the project. The researcher concentrates on the collection of data, that best address the issues of the study, by creating what Stake refers to as "foreshadowing question". The issues are identified, a formal list of questions is prepared and the observations are organized, analyzed and reported around these identified concerns. It is this model that is used in this study to determine the merits and shortcoming of a model for staff development.
How the 'success' of a model of staff development would be measured must also be determined. One criteria may be how much of the in-service information is transferred to the classroom, again emphasizing the outcome or product. Another criteria may be the amount of teacher satisfaction there is with the process and the product as expressed in the classroom. Another consideration to be addressed is the notion that teachers make the inferences about their own teaching from their perceptions of students' actions (Herber and McNerney, 1988).

This study correlates the success of the staff development model through teacher perceptions and their degree of satisfaction.

The use of naturalistic inquiry for program evaluation may be open to criticism from some quarters. Though the methodological rigor of statistical analysis of program effectiveness and teacher change may be absent, the benefits of this type of study outweigh this perceived deficit. A meaningful evaluation focuses on issues and, in so doing, will also opens the forum to contextual influences and their impact on staff development.

In addition, qualitative research may be perceived by the teachers as being more "user-friendly". The underlying purpose of this study is to prepare a document that can be understood by practitioners. If we seriously want to reduce the research into practice gap, we will have to present the research in a manner that practitioners can relate to and interact with. This brings us full circle
to a constructivist approach and the recognition that a constructivist approach is not limited to the pupils of the practitioner.
...two areas cited by Fullan and Park (1981) as barriers to change: teachers’ beliefs and teaching methodology. Through deliberating on alternative approaches and solutions, those involved have the opportunity to engage in reflective professional dialogue about such issues. This discourse might raise consciousness regarding personal practical knowledge and facilitate individual growth. We need to understand whether deliberation can foster growth and change, and if so, what strategies might facilitate the process.

L. Hannay and W. Seller, 1987

3.1 Introduction

The naturalistic paradigm was used for this study due to the complex and context-dependent nature of the staff development process. The purpose of the study was to facilitate research into practice by using a model of staff development which incorporated orientation and readiness to the new information, teaching.
methodologies, and peer support and collaboration. The following questions guided the research study.

1. What are teachers' perceptions of a constructivist approach to classroom practice?

2. What are teachers' concerns about peer support and collaboration in the process of moving research into practice?

3. What are the benefits and limitations of a model of staff development which has as its approach the teacher as an action researcher?

4. What are the teachers' perceptions, fears and anticipations about change in classroom practice?

3.2 Design and Context of the Study

This study interpreted the perception of a study group of teachers during the 1988-89 school year. The teachers of the study group were all staff members of a secondary school in British Columbia. The five teachers volunteered to participate in a study where the focus was the process of staff development. For the
members of the study group this meant exposure to recent educational research and an opportunity to change practice within in their classroom. The staff members were organized into three collaborative teams in three disciplines—science, math and English.

The participants were involved in 2.5 days of in-service which included demonstrations and practice of teaching strategies, discussions of new theories of learning, self reflections about approaches to teaching, and collaborative planning of a teaching unit. The study group was informed that they would be asked to comment on the value of the constructivist approach to classroom practice, as well as to comment about the role of in-service and peer support in the change process.

This model of staff development was designed to have four important components:

1. In-service, which included:
   a) reflecting as initiated through discussion of each participants' own approach to curriculum and teaching.
   b) becoming familiar with the theory of constructivism.
   c) isolating teaching strategies which complement the constructivist theory as well as demonstration, dialogue and discussion of those teaching strategies.
2. Collaborative planning:
   a) discussion of objectives of a unit
   b) planning the concepts and teaching strategies prior to teaching the unit

3. Feedback and discussion:
   a) during the teaching of the unit, sharing their reflections of the study.
   b) visitations and videotaping of lessons for reflection and sharing.

4. Evaluation by the individuals of the project:
   a) individual interviews,
   b) group discussion.

3.2.1 In-service

3.2.1.1 Day 1- Professional Day for the School Staff

The staff members and the members of the study group were exposed to a number of teaching strategies as described by Joyce and Weil (1986) on a designated professional day. Two staff members (both members of the study group) presented and demonstrated teaching skills and strategies acquired by attending the Joyce and Showers Summer Institute in 1988. Skills included cooperative
learning, framing questions and wait time. Strategies included mnemonics, concept attainment and inductive reasoning.

The professional day facilitators shaped the day around the proposition by Joyce and Showers that learning a new skill or strategy required modeling of the skill or strategy, thus allowing the participants to experience the powerful impact as a learner. The next important phase for Joyce and Showers was the practice of the newly acquired skill. The emphasis of the professional day was to model and then have participants develop a plan to practice these strategies within their classrooms.

3.2.1.2 Day 2: Professional Day for Study Group - Shifting Paradigms

The staff in-service day which focused on teaching strategies was followed by 1.5 days of in-service and collaboration time for the members of the study group. The purpose of this second phase of staff development was to familiarize the study group with the constructivist theory, and to have the collaborative groups plan units of lesson with this approach in mind.

During the first session, participants identified their preferred approach to teaching curriculum. Metaphors were used to open
discussion and to make each individual aware of his/her own conceptual framework about teaching.

The metaphors, presented to a U.B.C. graduate class in 1987 by Lynne Hannay of O.I.S.E., were developed to determine the orientation of an individual to the teaching of curriculum. The determination of an individual's orientation to curriculum would determine if the participant leaned toward teacher-focused or learner-focused education. This, in turn, would assist the staff developer to identify some difficulties for individual participants in making sense of or assimilating new information about a learner-focused classroom practice when the preference for the individual was teacher-focused.

In the next session, participants were formally introduced to constructivism through discussion of assigned pre-reading of research pertaining to a constructivist approach. The discussion focused on the application of constructivism within the context of their classroom and how it figured into their own conceptual framework of how students learn. Included in the discussion was a review of the one day in-service on teaching strategies; special emphasis was given to identifying teaching skills and strategies which were congruent with the constructivist approach.

During the third session of the same day the participants cooperatively planned a teaching unit. Each collaborative team determined the content objectives for the unit using a constructivist
approach to student learning. Some of the newly learned teaching skills and strategies would facilitate this objective.

3.2.1.3 Day 3: Professional Day for Study Group - Collaboration

During this last formal day of in-service the collaborative teams of teachers concentrated on preparing an action plan which included the teaching strategies and plans for a constructivist lesson. Each team also determined the degree to which they would collaborate during the teaching of the planned unit - from planned episodes of discussion to videotaping and observation of lessons.

Individuals were asked to keep a journal and to meet as a group, within a two week time frame, to discuss their progress with the teaching unit. Collaborative planning, reflection and feedback were all functions of the peer-support teams. Participants were informed that any requests for videotaping and/or class coverage for visitations to other classrooms were available on request.

3.3 Data Collection

The intention of the study was to document teachers' perceptions of the process of change as it related to their classroom practice. Several naturalistic techniques were employed including
journal entries, taped group discussions at intervals during the teaching of the planned units, and personal interviews.

The personal interviews, conducted by the researcher, followed a schedule of questions that allowed for observational and reflective information. The taped interviews were conversational in nature.

The researcher was also a participant in the staff development project and assumed an active role as a collaborative team member. This form of active participation was included to gain greater insight into the perceptions of change as it related to classroom practice.

3.4 Data Analysis- Responsive Evaluation of a Model for Staff Development

This study, complex in nature, focused on teacher satisfaction of both the product - use of new teaching strategies and skills, the incorporation of a constructivist approach to the understanding of how students learn - and the process of staff development including peer supervision and reflective practice. The teacher-research teams were informed of the specific questions that the study would address:

1. What are teachers' perspectives of the constructivist approach in classroom practice?
a) Will teachers find evidence that confirms some of the claims of the constructivist approach, that is, that students have prior ideas and conceptions which influence the way they assimilate new information?

b) What are teachers' perceptions about the practical application of the constructivist approach in the classroom?

2. What are teachers' perspectives of peer support and collaborative planning?

a) What are the benefits and limitations of the peer support model as it was established in this study?

b) Does peer support facilitate the transfer of in-service information into practice?

All the taped discussions were transcribed verbatim for analysis by the researcher. A session involving all of the participants was planned at the end of the project to discuss and further reflect on some of the common thoughts as determined from the individual interviews. This final session was also audiotaped.

The transcripts from the audiotapes of the individual and group sessions were used to support the interpretations of the researcher.
CHAPTER FOUR

RESULTS

4.1 Introduction

To reduce the research into practice gap means not only to change the model of staff development, but also to make critical changes in the presentation of research results. Stake (1987) emphasized the benefits of the naturalistic method of analyzing change in classrooms, complete with its contextual influences, ambiguity, uncertainty and conflict which are part of the ordinary experiences.

Stake felt that these "vicarious experiences" in their natural state, as quoted by practitioners will resonate with the experiences of other practitioners: "The readers can then weigh the given data against their own experiences and perhaps confront previous interpretations and temper convictions formerly held". Clearly Stake recognized that this form of looking at the results of research is not without its critics: "It is often....the expectation that some clever instrument, perhaps a three-color matrix of performance changes, will satisfy the critics that improvement is imminent."

For the naturalistic researcher Stake outlined some conditions including a need to focus and delineate the study, as well as to
present the data in more, rather than less, natural form. Hence this study identified research questions at the onset, and is concerned with change in practice, degree of satisfaction associated with the change, and the process of collaboration from the perspective of the practitioner. The information was ascertained through interview data and the personal reflections of the teachers involved in the research study.

Deliberately, the responses of the participants are reported in detail in an effort to preserve the essence and contextual influences that influenced the response. By using this approach it is hoped that other practitioners will be able to relate to individuals and their experiences, to find some information regarding their own practice, and perhaps to feel inspired to include some ideas in their self-managed professional development.

4.2 Participants of the Study

Five volunteers and the principal researcher formed three collaborative teams in three subject areas: science, English and mathematics. The teams collaborated and planned a single unit to be taught to a particular grade level of student. The collaborative effort and the study extended over six weeks.
4.2.1 Team 1 - Mathematics

James and Bob joined forces to participate in the study. Their reason for volunteering was the new curriculum in junior secondary math, which mandated academic streaming of students beginning at the grade 9 level.

James has a degree in mathematics and has twenty years of teaching experience in the area of math. Bob has a degree in social studies and has taught mathematics for two years.

It was determined that both James and Bob had a similar orientation to their subject area - namely a preference for the transmissive approach. Both individuals expressed a dissatisfaction with this orientation, but both felt that it was the only approach available to them in the area of mathematics.

4.2.2 Team 2 - English

The English department at this junior high school is recognized for their exemplary work. On provincial reading tests the students score higher than provincial and district norms. The department is chaired by a highly respected staff member who is also actively involved in the school at many other levels. Rose has taught English for 18 years, with the last 17 years at this school.
Kathy is a new member of the school staff. Her background is in physical education. The majority of her teaching load in physical education, with some courses in English. Kathy has no formal teaching background in English, although she did teach the subject in the previous year.

Kathy's orientation to curriculum was determined to be somewhere between a transmissive and transactional approach to curriculum. Rose's preferred orientation on the continuum was between a transactional and a transformational approach.

4.2.3 Team 3- Science

Barry, with a degree in science, has over 20 years of teaching experience: The majority of his experience has been at this junior secondary school.

Barry formed a partnership with the researcher, a science major, who, for the last few years, had been assigned as vice principal to the secondary school where the research project was undertaken. This team spent the most time in each other's classrooms as the researcher taught the unit to one of Barry's grade nine classes, while Barry taught the unit to his other two grade nine classes. During the four weeks of the study, Barry and the principal researcher experienced each other's classes, designed lessons and experimented with new teaching strategies.
It was determined that Barry's approach to curriculum on the continuum was between a transmissive and a transactional approach, while the researcher had a preferred transactional approach to curriculum.

4.3 Summaries for Individual Participants of the Study

To address some of the main questions of the research study the thoughts of individuals are elaborated under subheadings. However, the order of the subheadings as well as the subheadings themselves may vary for each case study to reflect the particular emphasis of each participant interviewed.

4.3.1 Case Study #1: Bob (Math)

4.3.1.1 Orientation to Curriculum

During the in-service, Bob chose the metaphor of medicine as that which best described his approach to curriculum. Specifically, the metaphor described curriculum as a dispensary: medical treatment is given under the ever present direction of a competent physician who recognizes that each patient is unique with varying
ills. On the continuum of teacher-focused to student-focused approach to curriculum, this metaphor strongly suggests a preference to teacher centered education. Bob expressed concern that although in his math class he tended to be teacher-centered, as the metaphor suggested, he would prefer to be student focused. Bob expressed frustration as he believed that his subject area confined him to his transmissive approach.

4.3.1.2 In-Service

Bob's experience with the project might be best summarized by his statement: "I guess the greatest limitation for me is in terms of trying to re-think how I'm going to do things. That's the big drawback. At this point how I'm feeling is still pretty loose and informal...I think during the next couple of months I'd like to experiment, try more strategies, and attend workshops."

Bob expressed his apprehensions about the in-service: "I think I had difficulty at the beginning with, I guess, the confusion of objectives in comprehending what the constructivist approach was, and what the cooperative approach was, in terms of cooperative teaching strategies or constructivist learning. I think that I was a little fuzzy to begin with on exactly where we were focusing on. It took a while to sink in that we're actually doing both things."

Although there was uncertainty, Bob showed his understanding as he continued throughout the interview to use many of the newer terms
and concepts introduced during the in-service, thereby verbally demonstrating his understanding through his personal anecdotes.

Bob also commented on the literature that supported the study as presented during the inservice. "I think there is a huge gap between theoretical educators and practical educators and that often there is conflict amongst the two. Certainly this is a perception I think of people who have been long separated from much of what goes on...much of that was brought back to mind, not so much by the study, but by some of the readings that you gave us. It blinded me..." Bob clearly gave the impression that the readings, rather than enlightening and inspiring him, actually acted as a barrier as he viewed the readings as recommendations from individuals not in touch with his world of teaching.

4.3.1.3 Skills/ Teaching Strategies

Bob expressed the greatest satisfaction with the classroom impact of the wait-time skill. "Basically I found it a really helpful technique. I really found the delay question technique (wait-time) a valuable tool although I find it really hard to use. I'm still forcing myself and there are lots of times when you want to pick up the pace."

Bob experimented with the inductive strategy of teaching and cooperative learning and concluded there was value in both within his classroom, although in both cases that value was not that which
was anticipated. "I really found the inductive activities helpful—again I'm focusing on the kids, to organize things and having them look at one another's organization."

Bob described one inductive lesson as one where students grouped numbers into categories of numeral types, but the anticipated numeral type that was to be the springboard for the lesson was not realized by the groups of students. Bob concluded "...I had hoped that the students would be able to ...inductively understand the concept of...types of numbers from the activity. They were not able to do that; however, it was after the activity, the post activity, it was really easy to explain the difference and to demonstrate the difference in terms of the number line...They were able to see they were using notation descriptives rather than value factors for their grouping and so it did help them in the long run construct concepts about what numbers were. Now whether or not we were totally successful at those goals, I don't think so. I mean, I think the kids inherently found the types of numbers difficult to deal with. Certainly our test results weren't as positive as we might have hoped but since then we've been able to use group discussions...I constantly refer to those (groupings of numbers) ...so although it wasn't necessarily in isolation a successful unit, it proves a valuable unit in a long run and the kids are still acquiring those skills and putting information together."

One significant change for Bob was the introduction of cooperative learning to his classroom practice: "I'm certainly
involving my classes in much more group work than I have ever
done and that's an important process" Bob is honest in saying that
the activity was one which emerged out of frustration: "After
evaluating the test scores I decided to re-test my students but this
time I put them into groups...it was something I did partly out of
frustration looking at the test scores...there was not a whole lot of
planning behind it but I just decided I really want to do this again
and see if I can figure out where the problems were and so I just
told them to form groups of threes."

Bob's main concern to cooperative learning was the "time on
task" for individual students and when asked about time on task and
motivation of the students for the hour he replied: "One hundred
percent. I can't think of another situation in class where this
occurred... If I had any reservations about group activities it was
keeping the intensity level up...there would be sluffers [sic] who
would basically let other people do (the work)...but that wasn't a
problem at all."

Bob also noticed significant improvements for average-to-
below-average students during the re-test: "Scores were
significantly better. There were increases of approximately 20-
30%...there were the people who had achieved in the low 80's the
first time they did the test. The second time they did the test there
obviously isn't much room for improvement...but he effectively or
she effectively was able to transfer the concepts that I hadn't been
able to do to that kid and (showed) a much better understanding
when they were intently focused on what was going on. It was the
groupness [sic] of the activity and the intensity of it which is why I'm
incorporating (cooperative learning)...Ideally one would want the
group test then the individual test. I haven't done that yet...I want
to see how that works and what sequence I want to use."

4.3.1.4 Collaboration

In an early group discussion of the project, and in the absence
of his partner, Bob expressed a concern that his partnership was not
involving the same degree of collaboration as some of the other
partnerships. This initially caused Bob some anxiety.

In one of the later conversations Bob discussed his perceptions
of collegial collaboration: "I guess I've always liked working with
other people. Sometimes I find that my inspiration tends to wax and
wane a lot when I'm working on my own...(collaboration) has a
positive effect in terms of revitalizing...I was positively disposed to
that kind of collaboration anyway and, generally, that worked really
well...particularly, I think, with something...that was so different
from the more traditional approach that I had taken. Sometimes I'm
not much of a risk taker. Having someone else trying, made me feel
more comfortable and you're able to discuss those instead of looking
at it or interpreting it afterwards as, you know, just my
failure...Finding solutions to the problems that to some extent we
created ourselves and working those out with someone else, that was
really good...There was less anxiety in terms of trying new things, less anxiety if something didn't work because you had someone you could commiserate with and figure out what went wrong. It wasn't just, 'I had a bad day'. There were other factors that you could focus on. I felt really positive about that whole process and in that action."

Bob also discussed the advantages and disadvantages of videotaping. During his only visit to his partner's class he was to videotape a cooperative learning lesson. Bob found that this activity interfered with his opportunity to observe the lesson: "As it turned out I found that running around with this video camera really interfered with my ability to focus on some of the things that were going on, trying to capture all of the moments...it worked well in terms of ...group dynamics, how those worked, problems the kids had with that particular activity. It was difficult for me to get the picture when involved with recording it, rather than just sitting back and watching how groups were doing things...I had some reservations about how valuable that was.

Bob summarized his partnership with James: "In terms of our collaboration, I mean, virtually, we talked about it every day. We would ask after each lesson how something went and what problems we were having and what strategy we tried to come up with to get around the problem, and what developed that was unforeseen. We developed a chart that worked out really well and we had all kinds of uses for it within the unit."
4.3.2 Case Study #2: Kathy (English)

4.3.2.1 Skills/Teaching Strategies

When asked about experimenting within her classroom with a more student-centered approach and new teaching strategies Kathy stated: "At first it bothered me, because I thought this was my old room, and how I've been teaching it. What if they don't get the right answers and I'm going to have to give it to them. I was really concerned about that, but then after a while I thought well, next year when they have grammar it's all going to be refreshed for them anyways and anything I've left out will probably be filled in. So I didn't mind it, in fact." Kathy needed to personally justify experimenting with alternative classroom teaching strategies. Just the fact that information was to be repeated next year, a safety net, allowed the participant to relax and experiment.

Kathy and her partner tried many different teaching strategies in the unit they designed for grammar. Kathy was excited as she expressed her enthusiasm over the unit and the results: "Grammar is usually the unit when marks drop...I finished last week and as far as marks go I gave almost exactly the same test as last year and the marks this year were much higher and I think I only had three or four in each class that didn't pass and those were kids that had
learning disabilities or were Severe Learning Disabled Program candidates."

Another teaching strategy that Kathy tried was concept attainment which, as she described her experience, had many references to how students learn and the constructivist theory, "I really liked it. It put more onus on the kids again...One thing about the concept attainment, some kids just don't let go (of a concept or misconception). When you've proven their concept wrong, they hang on to it even though it keeps failing. Time and time again they'll hang on so when you ask, 'O.K. What is it we're getting at?'- they just don't know. Even when you clarify it, they still hang on to it. We did verbs. We had positive examples connected with verb sentences and negative examples. They wouldn't let go. It would fail. There was no action in the sentence and they would see it but they'd ignore that. Once it was explained to them they'd (acknowledge)."

Kathy further elaborated on the process of concept attainment: "When we did concept attainment...the debriefing I asked 'how did you do it, what was your thought process, when did you see the light'...The kids were excited about saying what their process was, how we did this with this example, and 'how I knew it was wrong so I had to scrap it'. The kids were excited. It give them a chance to justify why they think what they do. The kids think, 'well you know, my answer may be wrong but this is how I thought it out.'
4.3.2.2 Constructivism

Kathy expressed very little uncertainty when discussing constructivism and its immediate use in her classes. Kathy found this move from the rigid "correct" answers more freeing not only to her students, but also to herself on a personal level. Kathy cited many indicators: "One thing I noticed with the project encouraging even wrong answers is that the kids seem a lot more secure about being there...more hands are up, I've noticed. So that's a really good thing that's come out of it...(my classes are) more student oriented rather than me standing up there saying this is the definition of a noun, write this down...they would come up with their own definition. So for both my classes the definition was slightly different. That's another thing that has changed for me, is I'm not so concerned about having the exact definition... I really noticed that the kids were feeling more comfortable in class and not worrying so much about wrong answers. I really liked that. I noticed a change in them from September. But now we get excited about things, when kids get it." For Kathy, the evidence was there of the benefits of this approach to classroom practice.

Kathy's concept of constructivism was also reinforced and better understood as she and her partner identified conceptions that students firmly held on to. In her own words she described conceptual exchange and identified misconceptions: "my task is not
to give them concept that I want them to learn but to change their old concepts so that they will replace theirs with mine... (a misconception identified was) nouns- getting them away from person, place or thing....beauty and wisdom are nouns too, and more abstract ideas that they don't think of. They don't know what to do with those words. They see them and they're not sure about them...I think I've gotten through to most of them."

When asked about the disadvantages of a constructivist approach within the classroom, Kathy responded that her greatest change was "not thinking that whatever I say is going to sink in... By the end of the grammar unit I was getting a little tired of so much group work. It's more difficult and its more exhausting for us, too. Sure the kids are working together but you're monitoring them, and what if the group is not heading in the right direction, you have to kind of turn them around..."

Kathy was positive about the transition from teacher-centered learning to students centered saying "I like it. The noise level goes up. I can hear it. It's constructive noise so I don't mind. Now I have to get them to relax again and listen when I'm talking, but they know what I'm doing in the class now, which I think is real positive for us. I like having them do more of it, maybe some students would make a comment like 'Why don't you just give it to us. It's easier that way.' I'd say ' No, because then I'm doing the work, not you.' (Students would respond) 'Yes, we know, we like that' Then they'd have to come into class and think everyday."
Further to the concept of moving from teacher-centered learning to student centered learning, Kathy reflected on the inservice: "It made me think, and probably made all of us think, where are we coming from when we're up there in front of the class. The big thing was, yeah, I have been very teacher oriented, not as much as with Physical Education I don't think, but with English. I guess that's the only way I know how to do it. Now I've got a new strategy and I know it works, to let the kids come up with the answers. So I know, I definitely know I'm changing on that scale that we put ourselves on. I'm starting to think it's the process of thinking instead of coming up with answers...I think it is comfortable for me. Maybe it's something that I've been looking for, or close to, for a long time."

4.3.2.3 Collaboration

Kathy was a third year teacher with no background teacher training in the subject of English. Kathy was a willing participant in the study, joining forces with a veteran of the English department. Kathy expressed some initial concerns about her background, feeling particularly vulnerable in her partnership: "At first ...you doubt yourself...I'm not competent enough to do this."

Kathy felt her partnership with Rose was extremely beneficial both in boosting her confidence and in her preparation of lesson. "It was more challenging to work with someone because they were
relying on you to do your part. Our unit was much better because you would be sitting there chatting and all of a sudden come up with an idea...It gives you a little more confidence, especially when Rose would say, 'Oh, that's a really good idea, I never thought of it' That makes me feel more sure of myself as far as my ability as an English teacher. I know I still have a lot to learn but I'm heading in the right direction."

Although the opportunity was there, Kathy did not visit her partner's class. The partners felt comfortable with exchanging information verbally: "We usually ended up talking after almost every lesson." When Kathy was asked about the option of going into each other's classrooms and why this partnership did not make use of that option she replied: "I don't think I would have minded. I get a little nervous and I think so does Rose so we didn't really force this on each other...I probably would have liked to bring a video camera in to video the kids. I felt we worked together just enough, without making it a super time commitment."

4.3.3 Case Study #3: Barry (Science)

4.3.3.1 Orientation to Curriculum

Barry was uncertain about the relationship between the partners at the beginning of the project and expressed some of his
concerns. Barry made several references to his transmissive approach to education and his concerns with partnering with an individual with a different approach. "What I was thinking when we first started the project, I was thinking, you are going to try working way down in the transformational and I'm going to be sitting up here in transmissive. I'm going to watch you and you are going to watch me and I was thinking 'Oh, I guess I'm supposed to be doing some of this too, right?' ... You were going to try, everything was going to be totally different and I would be the control model."

4.3.3.2 Skills/ Teaching Strategies

Barry and the researcher collaboratively worked in preparing an astronomy unit and observing each other's classes. In the researcher's opinion the most significant visible change in Barry's classes was an increase in wait-time, and in a greater involvement of the majority of students during a lesson. Barry also confirmed this observation during the interview: "...something like wait-time, yes I use that definitely more now that I did before. I'll continue to (use it). I would like to, it's always a case of expediency, how much you are willing to wait. But, by the same token, what I would like to make sure I do...I think it's probably something that is useful, it's very helpful to the kids and makes sure that everyone does stay involved and it's something that I think probably I tend to not use as well, even knowing that it is a good idea."
Barry experimented with cooperative learning and the teaching strategy of concept attainment and found some value in both techniques. "Concept attainment, that worked really well. I would think that would be certainly worthwhile as part of the classroom approach. That's one I would not use all the time...I taught that particular lesson and it was interesting for the kids, brought out a lot of information. I thought it was good."

About cooperative learning, Barry extensively discussed the advantages and disadvantages of this approach including: "There are some areas where I definitely prefer to use it, little projects that we do...the project that we were doing was basically data collection so there was not a great deal of thought involved. I'm not sure that the project that resulted from that necessarily worked better that what could have occurred just by saying to an individual I want you to go and do something. Not that they were bad, but I didn't see that they particularly really beneficial...When they are asked to work on something that is...higher level of thinking, you know, you give me your ideas on how this works and I'll give you my ideas and let's see if we can come up with a set of ideas...I find that works really well...anytime you have some kind of thinking process like that, I think that group work is really a distinct advantage." Barry identified what he considered to be a drawback of group work" one of the thinks that... some of the kids who are really dedicated, they want to
get high marks. Sometimes they really don't want to have to work with someone of lesser ability."

4.3.3.3 Constructivism

Barry saw the theory of constructivism as having some value, but saw only limited application within his classrooms. Barry elaborated on his views of the theory of constructivism introduced during the inservice: "I guess I was a little bit middle of the road. I thought it looked like it had some value. I wasn't gung ho, hey, I'm going to do this, right away. It looked to me like something that would be useful. I wasn't sure exactly how I would make that part of me and therefore wasn't sure to what extent I was doing to consider using it. That was at the very beginning. I thought as time went on I seemed to use it...That is to, even in a regular teaching situation to make sure that every once in a while you sit back and ask a little more for kids' impressions of what is going on, just to kind of make sure, even if you are using a transmission approach and you really are on the same wavelength as the kids....As I said, I think that it's even kind of a background thing now...We are talking about density in grade eight, I was thinking, 'I'll bet all kinds of these kids are really not guaranteed sure of what density is.' They really are not totally on track with the conception of density. I think maybe more so now...I probably consider using a little more of it. I
may just spend just a little bit more time to ask that question that will check to see what the kid is thinking...It's interesting too. I thought of this: in a topic like that there are certain kids who have really got a good impression and if you just go with that small group in the class who have a really good impression of what density is you are guaranteed you are going to be leaving out all these other kids"

Barry alluded to students having misconceptions in science. "There was certainly some signs of misconceptions and I guess with the solar system...because they had exposure to that in elementary school so it would seem that they do have certain notions that have been built up over the years...there was one girl who had as a vision of her solar system that the earth was in the center and ...all the planets were going around it, and way out here on the very outside was the sun...So, you can see where, at times, even when you spend a lot of time, and we spent a lot of time dealing with those very basic concepts and that girl still had this one...some kids really have obviously some deep seated notions of things that are very hard to change" Barry cited another example: "The question was what can collide with the earth and survive, or something like that. This was a matching question...so I asked her (about her answer of the sun) and she said 'the sun comes out every day.' So I said 'how often does the sun collide with the earth' and she said 'every day' She said everyday the sun collides, and I couldn't see where she got it...In that sense, maybe digging a little deeper into what do you think, before we start would certainly have some value because obviously if you
had such a strong, deep rooted view of what's going on, maybe you wouldn't consider what I considered a fairly simplistic concept. For sure, when you're rolling along and you're explaining how things are and what's going on, these kids are not accepting of it."

4.3.3.4 Collaboration

To Barry, the greatest benefit of the project was to watch another individual teach. Barry made several references to the benefits: "I found that it was a distinct advantage to be able to watch ...(someone) teaching the exact same area... I think that's something that could be of real value...Having a chance to sit back and do something you never get to do very often and that is to watch a colleague teach the same thing that you are teaching...gives you a chance to have a more objective view on what the kids are doing, how they are."

4.3.4 Case Study #4: Rose (English)

4.3.4.1 Orientation to Curriculum

Rose chose a metaphor which placed her on the high end of the continuum towards a transformational approach to curriculum. Rose acknowledged a change from teacher-centered to student centered is accompanied by insecurity. Rose described the personal exchange
that she had with another colleague about the project: "I was explaining to her (colleague) my feelings of insecurity and she said I think that's the sort of thing that teachers need to hear. The other thing that I think she really liked about what I said has to do with the fact that the teacher is no longer doing everything. It is the student's responsibility. It's the student doing the learning and suddenly the focus shifts from teacher to student. I think that's what she really liked and she said she was going to try that with her class."

4.3.4.2 Skills/ Teaching Strategies

Rose elaborated on the discomfort associated with changing approaches to classroom practice: "I think there is still that whole thing in there, that I realize, that I am not comfortable with it yet. Somehow or other, the old lecture method, I don't know, maybe it's because I have perfected those things...that I didn't use this time, so I think that I'm sort of trying to establish a balance of what of the old things I can bring back in here and what of the old things I should throw out and so there's a degree of discomfort... it's almost like being a first year teacher. And I feel that way to a certain degree. There's a security in doing things in the old way and it's not as secure trying out all these new things."

Rose attended a summer institute of teaching strategies prior to project, and later became part of a team to introduce new teaching
strategies to the staff at her school. Even so, Rose went into the study not entirely convinced that learning would improve and worried that possibly the learning would not be sufficient to give desirable test scores. Rose shared her anxiety: "I planned before giving the test to, just to make sure that they really knew it, I was going to sneak in a lesson using my old methods. But then I was sick and had a substitute come in and I thought, O.K., I'm going to allow the substitute to give the test. To my surprise, without having gone through that drill, without me being there to coach during the test, the kids did really, really well, to the point where I have 4 failures in three classes and two of those were new kids... their marks ranged from the high 50's to the high 70's out of 80. And no, there seemed to be very few at the bottom end."

Further to this Rose discussed the teaching strategies that she used. Specifically Rose described an inductive lesson: "They were doing prepositions. They were given prepositions without saying this is a preposition, prepositional phrases without being given a label. They would work with them. They would inductively come up with what these words do and then they would come up with a definition...they had also worked in pairs or in triads...When we finished the kids all knew what the concepts were but were not necessarily able to give me the definition of the term, but they really knew 'Oh, that's one of these kinds of words'."

Rose also expanded on her feelings towards experimenting with a concept attainment lesson: "The concept attainment one(lesson), I
think is definitely one that, initially, when we were first presented with it, was the one that I personally had the most difficulty with, and yet it seems to me as I watched the kids using that one, they learned the most. It gives them an exposure to words, language, whatever, all sorts of things, but I didn't realize it would be as beneficial as it is."

4.3.4.3 Constructivism

For Rose, the newly learned teaching strategies of concept attainment, inductive lessons, etc, as introduced to her during the summer institute by Joyce and Showers, and the world view of learning, constructivism, introduced during the inservice, were merging. Teaching strategies were becoming extensions of constructivism as indicated by Rose's thoughts: "I think that I'm very conscious of trying to incorporate those things that I got this summer into my classes. I think that constructivism is a part that was especially part of the inductive (teaching strategy). I don't even see them necessarily as being different. I see those two, same with the concept attainment- I mean that's exactly what that is. It asks the kid to bring his/her knowledge to it and to build from there. I don't think I view it as two different things." Rose further expressed the need for the teaching strategies: "If you're using the the traditional methods which is primarily lecture - how do you draw on 30 different backgrounds? I don't know". This thought repeated
It became evident that constructivism was clearly a part of Rose's beliefs about learning: "That was a real change in the way that I had done things. It was totally the opposite direction of how I had worked before. In the past when I had done that (grammar unit) we really worked on knowing the definitions and I emphasized if you don't know the definitions then you won't be able to apply it and you won't be able to figure it out. This time we took the examples and they had to work toward a definition and the result was they would always say, 'Can I give you an example of this kind of preposition', but they couldn't give me the definition. I was really excited about that. It made me realize, it made me realize, how stupid the definition is and my over-dependence on it."

Rose later described a poetry unit and the enriching experience it was letting students arrive at their own interpretation of the poetry instead of imposing the 'textbook-correct' interpretation. This was a new approach for Rose, and she found that this approach enhanced the students' own creativity since it placed value on all of their personal ideas and viewpoints. In addition, this led to an impromptu team teaching lesson on poetry with another colleague, and involved students in an exciting dialogue which supported the
notion that every person may have a distinct interpretation of written work.

For Rose the greatest misconceptions that she identified for the students was in their attitude towards the grammar unit: "In the beginning I think that they did come in with that whole idea that grammar is really difficult or that grammar had very little application. Now I think that as we went through the exercises, a lot of the kids began to realize that if they really want to use language precisely, they have to be able to master its rules. I think that they saw that and I think they also discovered, the majority of them discovered, that grammar is not a difficult thing to learn, because it wasn't, especially in the way that we had done it."

4.3.4.4 Collaboration

Rose and Kathy formed a collaborative partnership which resulted in a grammar unit that they both expressed a comfort and an excitement in sharing with other English teachers. Rose was asked about her collaboration with Kathy, particularly in the light that she was the subject specialist with years of experience to her credit. Rose replied" Kathy and I do things really a lot alike, and I really thoroughly enjoyed working with her. If there was a negative, it was the fact that Kathy sometimes bowed to my supposed vaster
experience...she was content to let me take the lead in things. But maybe I do that easily anyway."

However, Rose quickly affirmed that this was a minor detail in comparison to the benefits of collaboration:"We shared everything 50-50...she would do one thing, I would do another one, and then I especially liked, you know how you work with somebody and you have one idea and then the other person says well how about this and you just spark from one idea to another and you have a much better product."

For Rose there was another major benefit, and she was honest to say that without her partnership: "I would have cheated a lot more. I think that working with a partner kept me honest. I think I kept Kathy honest and I think she kept me honest... (for) concept attainment, I think both of us had the same experience that the really bright kids are the ones that had the most difficulty with it and that again is something that I think isn't exactly comfortable when you've got the really bright kids not shine like they usually do. So you think to yourself, well maybe I should do what I used to do, and, I think, that because I worked with somebody else and we had said we're going to do this, we did it. That is the bottom line of working with somebody else: I think they keep you true to your task."
Rose also had experience with an intensive week long inservice and practical applications of clinical supervision. Rose compared the two experiences: "When Bob and I did the supervisory skills, we never got beyond time on task... what else...? I think changing pace in the lesson and things like that, mechanically. Basically, what I view to be fairly mechanical things. Whereas I think in this one the expectation is that the mechanical things are taken care of and that you really feel with the kids learning and you think about how to create a better learning environment and how to make them learn better. That's what you are dealing with, not the mechanics."

Rose summarized the experience saying, "If it hadn't been for the project, I wouldn't have done the grammar unit this way and I really needed, I needed, to go through the whole experience and I needed to see the test results to show me...that (what) we learned really makes a difference."

4.2.5 Case Study #5: Jeff (Math)

Jeff chose a metaphor that identified his approach to curriculum as being a transmissive approach. Jeff collaboratively worked with Bob who had a similar approach. Jeff's reason for
joining the project was, as he said it, "after 20 years, or thereabouts, of teaching he wanted to have a change." To Jeff, the change in his classroom practice was affirmed by the comments of a student. Jeff described how a young lady, who previously had not been overly involved in class, came up to him after class after a series of lessons. Her comment was that she didn't know what was different but whatever it was she enjoying the classes.

Near the end of the project Jeff experienced an unexpected family crisis which took precedent over the interviews for the project. Since the project Jeff has enrolled in graduate studies in the area of math curriculum. Jeff and the researcher have been involved in exchanging information on constructivism and its application in the classroom.

4.2.6 Case Study #6: Margo (Science)

The intent of being involved in a collaborative team was to practice newly learned teaching strategies and see if they would assist a constructivist approach to teaching that had been difficult to attain using traditional methods of teaching. The second important reason for participating was to experience first hand the collaborative process.
4.2.6.1 Teaching Strategies

The researcher participated in the study as a collaborative partner to Barry in the subject area of science. The thoughts of the researcher were summarized during the group dialogue session after the project and individual interviews were completed. The tape of the dialogue reveals the following: "I was introduced to constructivism back about three or four years, and I just tried to play with it in my classroom but I didn't have any teaching strategies so I found I was really fighting, spinning my wheels... I started to believe yes, kids construct meaning and I had examples but I didn't have any teaching strategies to go with it so I always went back to a transmissive approach because it was the one I felt comfortable with. I was Miss Entertainment, kids on task and everything like this, but I was going through the frustration of having changed my thinking but not having a way of employing my changed thinking...I went to the teaching strategies (summer institute)...I don't just give students my knowledge."

Further to this is the thinking that the teaching strategies illuminate other methods for letting students create their own meanings. Cooperative learning allows students to exchange their perceptions and do perception checks. Concept attainment and inductive reasoning give students the opportunity to make sense of new information. The debriefing of a concept by a student,
associated with both techniques, enables the teacher and students to understand a thought process associated with an answer. Constructivism is a belief and the foundation from which all these new teaching strategies radiate. Finally, the long awaited bridge between research and practice was realized.

4.2.6.2 Collaboration

The collaborative process experienced was one that was encouraging of new ideas of the research, yet vacant in the anticipated sharing of the responsibility of the creative process. It became apparent early on in the study that the degree of collaboration was less than expected by the researcher. It can only be hypothesized that the feeling of "you try it first" might be due to either the differences between the two individuals in their preferred curriculum orientation or perhaps an attitude that the researcher "must know".

What did result from the collaboration was a change in practice for both individuals. For myself it meant trying new teaching strategies with a partner observing critically the technique and replicating parts of the lesson that had a perceived impact on learning. For my collaborative partner, there was a change in skill use such as wait time and an increase in educational dialogue as we attempted to understand and determine difficulties in learning new
concepts using a constructivist approach, in particular trying to identify misconceptions.
CHAPTER FIVE

CONCLUSIONS, RECOMMENDATIONS, AND IMPLICATIONS

5.1 Introduction

It is perhaps best to understand the scope of this research project by looking at it as a study within a study. At the core is the action research as conducted by teachers of the study group. Central to this action research is the approach to learning known as constructivism and some identified teaching strategies and skills that facilitate this approach to classroom practice. The constructivist approach is the foundation for many of the new innovations as interpreted from the guiding document for the future of education in British Columbia, the *Year 2000: a Curriculum and Assessment Framework for the Future*, (1989).

Enveloping the action research conducted by the study group of teachers is the study of the staff development process. The general problem that was addressed concerned the process of staff development: specifically, how to raise the level of staff development so that it enhances classroom practice. Specific inquiries addressed within the context of the general problem included teachers' perceptions of collaboration and peer support; teachers' perceptions
about introducing new classroom practices, skills and strategies; and
the impact of an individual's preferred orientation to curriculum play
on the process of collaboration and on the change toward learner-
focused classroom practice.

The study of both the staff development process and the
learner-focused orientation to education was embedded in a
constructivist orientation of individual learning. It was this
paradigm, that individuals make sense of new information relative to
their personal constructs, that was the common theme for the model
of staff development and the action research project for the study
group of teachers.

A secondary problem was to introduce the participants to
constructivism during the inservice and inquire if there was
evidence within their classroom practice that supported this view of
how students learn.

5.2 Discussion and Conclusions of the Research Findings

As complex as this study was, there were some significant
components and influences of the proposed model of staff
development as identified by the collected data. The research
question concerned with identifying some of the limiting and liberating influences to the process of staff development were all determined from the responses of the participants to the specific research questions about their perceptions of the constructivist approach to classroom practice, peer support and collaboration, and newly introduced skills and strategies.

Included in the discussions are the following conclusions:
(a) adult learners are unlikely to initiate change unless they see it as technically sound and of value; (b) teachers measure value as how well their students are achieving and participating in the class; (c) teachers have particular orientations to curriculum which may liberate individuals to accept new information or may act as barriers; (d) teachers participating in action research is one method to relieve the anxiety and resistance to implementing theory into practice thus allowing the research to be perceived as being experimental rather than prescriptive.

5.2.1 A constructivist approach to staff development: towards understanding the perceptions of individuals involved in staff development.

For significant planned change to occur teachers need to make sense of the new information. As Fullan (1982) briefly elaborates, "New experiences are always initially reacted to in the context of
some 'familiar, reliable construction of reality' in which people must be able to attach personal meaning to the experiences regardless of how meaningful they might be to others" (p 25). Staff developers must recognize that the innovation may not always be congruent with the personal paradigms of the participants.

Staff developers need to recognize that participants are all at different stages of 'readiness'. The stage of readiness may be thought of as the personal constructs that the teacher brings to the situation. One approach to determine the stage of readiness to the implementation of a learner-centered approach to classroom practice was to determine the participants' preferred orientation to curriculum. If staff developers can visualize that all participants have different entry levels on the continuum and that change can be defined as movement along the continuum, then change is no longer a specific measure, but rather incremental and developmental in nature.

The findings of this study support this approach to understanding change. James, Bob, and Barry were all determined to have degrees of a transmissive orientation to curriculum, favoring a teacher-centered approach to classroom practice. Bob and Barry clearly favored and implemented specific skills such as wait time and cooperative learning and felt challenged and satisfied with the perceived improvements in classroom practice.
Barry and Bob both made references to a constructivist methodology but the focus was clearly on introducing skills to classroom practice.

Kathy and Rose were both identified with orientations other than transmissive. Kathy, with a transactional orientation felt liberated by the notion of students making their own sense, and had a greater sense of her role as a teacher. Kathy indicated that she no longer believed that what she would say to a class would automatically be incorporated into their thought processes.

For Rose, with an orientation somewhere between transactional and transformational, the information about a constructivist approach enhanced her receptiveness to a newer approach to the teaching of poetry. For Rose there was a decreasing need to have each student understand one "correct" interpretation of a poem - instead each student interpretation was considered noteworthy. Rose directly correlated improvements in students' writing to her change in approach: an approach that recognized that every interpretation has its merits which in turn created a classroom environment that stimulated the creative process.

Prior to the study, and as my introduction to orientations towards curriculum, I was identified as having a transactional orientation. Although I had experiences which supported my beliefs that students construct their own meaning, I was routinely using my own preferred teaching strategies which were teacher centered to bring about a situation where students construct their own meaning.
The personal frustrations of having a readiness for change but not the methodologies to realize these changes indicated the importance of a staff development plan which includes a "technically sound" component as identified by Fullan (1982).

5.2.2 Methodologies - skills and strategies are important components to a staff development plan.

Each participant mentioned the value of new skills and strategies introduced during the inservice. It may be deduced that for most of the participants the new skills and strategies preceded their commitments to a constructivist approach.

All of the participants had an appreciation for the skills of wait time and cooperative learning. For the participants with the transmissive orientation, cooperative learning was marked with some apprehension. Cooperative learning, in its simplest form, creates an environment where students learn from each other. For Bob, this initially translated to an apprehension from a loss of classroom control and possibly a greater degree of students off task, or as he stated, "If I had any reservations about group activities, it was keeping the intensity level up." There was a concern expressed that some students would not learn because they would let other students do all the work. Bob was pleased with the results of cooperative learning when he saw that his fears were not realized, and that student involvement increased.
However, Bob quickly adapted cooperative learning into a structure of preparing for tests. During the study Bob gave information that would lead one to conclude that the classroom dynamics had shifted but very little along the continuum towards a more learner-focused classroom.

Kathy, although noting that the noise and energy of her classes increased, experimented readily with learner-centered approaches to teaching. Kathy's discussion clearly indicated a working knowledge of some new strategies, and her satisfaction with the changes: "I really liked it. It put more onus on the kids again."

The addition of methodologies to my own practice created a sense of challenge instead of frustration - for the first time I was feeling that my classroom practice was reflecting my belief that the development of a knowledge base is a process not an acquisition. The importance of learner-focused methodologies must be emphasized in the process of change towards a constructivist approach to classroom practice.

5.2.3 The teacher as an action researcher - liberating individuals to attempt experimenting with innovations. A factor influencing change.

The benefits of this approach in reducing the 'research into practice gap' were clearly recognizable in Kathy's and Rose's discussion. Both individuals experienced a feeling of uncertainty with the change in classroom practice and this was accompanied by the
uncertainty as to the effectiveness of the new teaching approaches. For Kathy, she personally justified experimentation with new approaches to her class by her recognition that components of the unit would be taught again at the next level. Rose had qualified her experimentation by admitting to herself that she would revert back to her preferred teacher-centered approach to education when reviewing the information for an upcoming exam.

The uncertainty associated with change by individuals in classroom practice appears to be accompanied by a qualification or justification for risk-taking. Something other than a chance to improve practice, or experimentation with theories and/or practices from the research literature, played a major role in individual's adoption of any new innovations.

For other individuals, particularly with a transmissive approach, an attitude of discovery through action research had a liberating effect. No longer was there an expectation of an acceptable and preferred goal to accompany the changes within the classroom practice. There would be no guaranteed results that if a skill or strategy was implemented that it would lead to improved learning. The final product of the study was not defined so that there would be no judgment of individuals.

As part of a collaborative team I found that my teaching partner and myself became comfortable with each other in the classroom quickly. The stresses of breaking the isolation barrier, and
still feeling comfortable with experimentation even if at times it resulted in less than desirable teaching episodes, were relieved by the attitude of both participants that the product was not predictable. During the interviews my partner revealed that he was concerned that our different orientations to curriculum would translate into classroom practice that was vastly different from his own. Yet, he introduced into practice most of the innovations that I proposed.

5.2.4 Teacher satisfaction correlates with student achievement

Improvements in student achievement appears to be one measure for whether an innovation has a practical application within a classroom. All the participants seemingly looked for improvement in student performance to justify the innovation.

Although Bob made references to his surprise that students were on task during a cooperative lesson, he saw the real value of the innovation was in the improvement of test scores.

Kathy commented that although she had a level of comfort with her shift in approach, it was the improved test scores that clearly indicated the value of the innovation.

For Rose, her commitment to the project was evident from the beginning. Yet Rose admitted that her intent had always been to review the recent unit using her traditional approaches as she had a
strong sense of uncertainty as to whether a more involved classroom necessarily meant improved learning. Illness prevented Rose from doing the planned review lesson and she was astonished at her students' achievement as measured by testing, without the benefit of this teacher directed review process.

The participants' satisfaction of the project appeared to increase after it was determined that there was improved learning for students as indicated not only by more involvement and participation but also by test scores. Prior to this measurement, participants expressed satisfaction with the climate of the classroom but were reluctant to commit to the effectiveness until measured by improved student achievement.

5.2.5 Peer support and peer collaboration

For different participants peer collaboration took on its own particular meaning. Supported by Garmston (1987) that teachers collaborating should have the freedom to determine the degree of their collaboration, there were no specifics given as to what form collaboration should take during the study. The only part of collaboration pre-determined was the planning time for the unit of instruction made available during the inservice, where the expectation was that the partners would plan the unit.

For Kathy and Rose, collaboration meant the initial intensive planning of all the lessons of the unit then dividing the work load to
create particular lessons for the unit. Collaboration included the
demonstration of a lesson (practice on a colleague in the staff room),
or discussion before and after the innovation was brought to
classroom practice. Ideas for improvement were exchanged between
the two partners after one had attempted the lesson.

For Barry and myself, collaboration meant loosely defining the
unit, exchanging some ideas initially, and being in each other's
classrooms. Barry would try the innovations after observing my
teaching of the lesson, improving upon some of the new teaching
strategies if we determined that adjustments would improve the
effectiveness of the lesson.

For Bob and James, collaboration meant preparing some lessons
together, exchanging information about the results of the lesson, and
at least on one occasion one of the partners videotaped a cooperative
lesson in mathematics.

It was clear from my own experiences that the degree of
collaboration cannot be mandated as it may infringe on the comfort
level of the partners. However, one proposal to be further
researched may include several defined models of collaboration from
which individuals may select. Perhaps in my own personal situation,
I was so sensitive to my partner that I encouraged little from him in
the planning of lessons and thereby found myself planning all the
new innovations. My partner, however, found great challenge in the
practice of skills such as wait time and was a willing partner to
follow my lead in trying new innovations. Whether this approach to
collaboration resulted from our different approaches to curriculum or whether it was a by-product of our personalities or a by-product of our relationship (researcher-teacher) is undetermined at this time. The question of whether having different orientations affects the form collaboration will take is a provocative research question worthy of further study.

5.2.6 Evidence that students bring their own constructs to a learning situation: support of a constructivist approach to teaching.

As reflected by the participants' dialogue this was the most challenging concept. Yet, for the researcher, it was the underlying thrust of every skill, strategy, and concept introduced during the research project. However, Fullan (1982) explains that this vision makes for the difference between educational bandwagons and effective educational change.

It was evident that a tangible, clearly defined skill such as wait time was preferred and seemingly incorporated into classroom practice by individuals with a transmissive approach to curriculum. The notion of a constructivist approach to learning was not supported to any degree in practice by Barry or Bill. Barry had to be prompted during the interview to define a constructivist approach.

Barry and Bill witnessed some misconceptions that students had, but for both participants it was not a priority for them and was
instead an interesting, but not particularly relevant, aspect of the project.

For Kathy and Rose, the notion of constructivism, was more readily incorporated into their personal realms. For Kathy and Rose it apparently liberated them from confines that they felt existed. Kathy revealed a comfort as her classroom practice more closely reflected her personal beliefs about learning. For Rose the necessity of "correct" interpretation of poetry gave way to a belief that there could be many interpretations all supported by the written word. Perhaps due to their subject area, English, the idea of misconceptions was less important than the idea that students make their own meaning of new information when involved with the creative process which dominates both of their teaching practices.

* * *

5.3 Conclusions

The primary aim of this study was to define some aspects of a model of staff development which would enhance classroom practice. As Fullan (1982) so aptly describes the planning of change:

A framework for planning and/or coping with educational change...does not lead to an optimistic scenario, because there are too many deep-rooted factors keeping things the way they are. I do not think that a detailed technical
treatment on how to plan for change is the most profitable route to take, although such a treatment may have some benefit. The most beneficial approach consists in our being able to understand the process of change, locate our place in it, and act by influencing those factors which are changeable and by minimizing the power of those which are not. All of this requires a way of thinking about educational change which has not been characteristic of either planners or victims of past change efforts. (p 88)

It was to elaborate on the personal factors which are liberating and prone to influence in a process known as staff development, and to recognize those factors which are resistant and tend to act as barriers to change that brought us to this study. To investigate a model of staff development meant introducing or elaborating concepts, skill, and strategies of effective classroom practice as defined by the educational research to the participants. The chosen area of educational research included skills, strategies and theories of education all related to a learner-focused education including wait time, cooperative education, inductive lessons, and the constructivist theory of how students learn.

The intent of the study was to gain some insight into the process of change and to determine the nature of the new ideas which found their way into classroom practice, and to ask how it was that these ideas found passage into practice, while other ideas were
essentially abandoned. Specifically, what was the teacher's perception of the role that collaboration played in changing classroom practice. What role did newly introduced and practiced skills and strategies have in the process of educational change? What impact did the theory of constructivism have as a way of understanding how students learn, and as a guide to our planning of teaching episodes? Which newly introduced idea, skill, strategy or theory was most easily incorporated into classroom practice, and which received resistance? Ultimately, can we effect change through a model of staff development which includes some of the identified claims of the research that classroom practice can be enhance by including ideas such as the teacher as an action researcher, collaboration of colleagues, and a constructivist approach to staff development?

This study identified that collaboration was an important component of the staff development. It also identified that participants will develop their own form of collaboration from discussion outside of the classroom to participation within the classroom. Further research may answer questions about the different forms that collaboration takes and whether this is a factor which impacts the degree of change within classrooms.

This study also began to illuminate a notion that learner-focused teaching skills and strategies may be very difficult to introduce into classrooms if the educators are of the transmissive
orientation to curriculum. This conjecture was also raised in a recent study of secondary schools conducted by Wideen et al (1990) that:

the pattern of instruction ... appeared to be one of 'teacher telling', recitation and seatwork. We do not suggest that teachers have created this situation by themselves. Years of socialization have promoted a concept that view teaching as a process of standing at the front of the room and presenting material. Moreover, the universities where teachers learn their content and pedagogy do little to demonstrate alternative approaches...(p 168)

This study clearly showed that there was resistance to the 'big idea' of the constructivist approach, and much less resistance to single dimension skills such as wait time. Strategies were somewhat in between, finding less resistance from individuals who had a transactional approach to curriculum. If it can be deemed as fact that in most classrooms there is a preferred 'stand and deliver' approach to teaching, this notion of a learner-focused classroom may meet with resistance in most junior secondary and secondary classrooms. Certainly, another very important idea illuminated by the study was that the skills and strategies preceded any acceptance or acknowledgement of the merits of the constructivist approach. Fullan (1982) explains this phenomena: "it is possible to change 'on the surface' by endorsing certain goals, using specific materials, and even imitating the behavior without specifically understanding the
principles and rationale of the change. Moreover, in reference to beliefs it is possible to value and even be articulate about the goals of the change without understanding their implications for practice."

(p 33)

Another aspect of the study that came to the forefront was that teachers would only see the merit in a newly introduced teaching skill or strategy if they saw improvement in the student's results on a test or exam. For most of the participants, the measure of the success of any new ideas or strategy was a test result and not any feedback from students about their enjoyment of a class or a teacher's own personal good feelings towards a teaching episode.

Finally, in terms of a staff development model, the notion of allowing the participants to define the form that their own learning would take through their own definition of collaboration, and the self reflection of their orientation to curriculum appeared to be accepted by the participants. Whether it enhanced the staff development process or not is difficult to ascertain from this study. What it did do was maintain the personal needs as determined by the 'teacher culture'. "...there are some deep changes at stake, once we realize that people's basic conception of education and skills are involved— that is, their occupational identity, their sense of competence, and their self-concept." (Fullan, 1982, p 33) The attention to these aspects of the process reinforced the identified needs of autonomy and professionalism for all the participants.
Learning is an active process. According to one widely accepted view of learning, the learning process involves individuals selecting from available information, and constructing meaning by placing the new information and experiences in the context of what the individual already knows, values and can do. Learning thus involves connecting new ideas to previous knowledge, often subconsciously. Opportunities to reflect upon one's beliefs and knowledge are important for successful learning. Sometimes, learning results in the individual changing his or her conceptual framework in very significant ways.


5.4 Recommendations and Implications

In British Columbia we are preparing for implementation of the Year 2000 document and recommendations. More than ever before teachers, administrators, and district educational staff will have to initiate and implement change in our schools. Firmly entrenched ideas of what we teach and how we teach will have to make way for
the new philosophies and ideologies. The focus on content-driven curriculum will share space with social concerns. The presently preferred teacher-centered curriculum will be transformed to learner-centered. The century old organizational structure of schools will now give rise to new innovations. Educators will be responsible for developing a more informed, new age curriculum for all students. A starting point to all this change will be the staff development process.

It is one thing to recognize the need for change, but entirely another situation to implement and facilitate change. Essentially, change will begin with individual teachers and staffs of schools. The greatest challenge, as perceived by many, will be the changes to junior secondary school programs as we now know them. The Late Intermediate Program introduced by British Columbia's Ministry of Education is an educational program for grades 4 to 10 which will have as its premise continuous progress of students and a de-emphasis of the boundaries that once differentiated subject areas. The mandate of the new program is learner-focused education. Integration of subject areas and teacher collaboration become more than just what should be but what will be. No longer can we assume that this will be a by-product of a political era. It is here and change is imminent.
Thus the research of staff development becomes timely. The models developed will receive many opportunities to be tested on different educational sites with different educational issues. Educators will be examining models and adapting the models to meet their needs. This project presents one of the models to be considered, adapted and tested. As the term research implies, and as the notion of research into practice directs, this is a model for facilitating a change process. There are no claims that the change will be the same for each participant. There is no claim that the change process is a one time cataclysmic event. There is no claim that the process is simplistic and prescriptive.

Recommendations are included to build on the strength of a tested model for staff development. The recommendations are the result of issues identified from the data of the study, and are consistent with research literature on staff development. Recommendations include:

1. Initially create an environment which promotes educational dialogue. Using a constructivist approach will mean the expression of the participants' individual ideas in a non-judgmental setting. To elicit these ideas and create a stage of readiness for change will be the new challenge facing staff developers.

2. Provide time for reflection. The use of journals, although it was encouraged, was not a preferred method of reflection for most of
the participants. All the participants found value in the group discussions and in discussions with their collaborative partners.

3. Provide an opportunity for peer collaboration. This is to recognize that learning is a social process, for both student and adult learners.

4. Provide a catalyst for experimentation and change. Involving participants in action research induces and supports a predisposition for change to classroom practice.

5. Prepare increments of change. To allow for individualized change will mean to include different elements to the total program so that it will be challenging to all individuals. Change is likely to be of an evolutionary, not cataclysmic nature.

5.5 Suggestions for Further Research

To research a staff development process of the enhancement function is to incorporate a number of abstruse elements. This study incorporated the findings of a constructivist approach to teaching, a constructivist approach to learning, teaching skills, teaching strategies, action research, and peer coaching and peer collaboration. Elaboration on any one of these topics becomes important in our understanding of the complex nature of change of classroom practice. However, there are some specific questions that this study raises including:
1. What are the limitations or benefits of partnering two individuals with similar orientations to curriculum versus the partnering of two individuals with differing orientations to curriculum? The partnering may prove to be an insightful look into collaborations that result in the greatest degree of change.

2. What forms can collaboration take and which forms are seen as the most effective in nurturing change within a classroom. From this study we have seen that each participating team defined their degrees of collaboration. Does an effective model of collaboration require classroom visits, or other specific designations about the form that collaboration should take.

3. How do we reduce the importance of test marks and scores as the indicators of the success of innovations in classroom practice? This mindset tends to stifle participants and is identified in this study as a very important aspect of the contextual frameworks that participants bring to any innovation.

5.6 Concluding Remarks

This study addresses some of the issues related to staff development and the complexity of improving the learning situation for students. The premises underlying this study are:
1. that it is important to provide a supportive environment for risk-taking as teachers rethink the approach to teaching as it relates to the way students learn.

2. that some uncertainty is more desirable and dynamic than constant knowing which is static.

3. that the teacher is a reflective practitioner

4. that collaboration and sharing is desirable to isolation

5. that professional dialogue is important to all aspects of the teaching profession including classroom practice.

It is a study which had as its primary objective the investigation of staff development and its role in facilitating change in classroom practice.

The recommendations from the B.C. Ministry of Education Year 2000 document looms before us, and staff developers may feel a sense of frustration as they recognize that not enough consideration has been given to the degree of change that is necessary for individuals to implement the suggestions. As an administrator facing the responsibilities of both the government mandate and the futures of our students, I am increasingly aware that a constructivist approach to education is not an approach that will be easily assimilated by our teaching population.

The Ministry recommendations have not included methodologies that complement learner-focused education. To date, the Ministry is still measuring achievement using standardized government exams and assessments. These two aspects alone tend to
contradict the findings of this study with reference to the change process.

The challenge for all staff developers is to improve classroom practice. Further to this, to improve practice to the degree that the Year 2000 document suggests, will require models of staff development that include attention to introducing new teaching strategies which complement a learner-focused education and teacher collaboration, as well as an understanding of the change process itself. Much is still to be learned.
REFERENCES


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APPENDIX

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CURRICULUM METAPHORS

INSTRUCTIONS: Listed below are five metaphors describing approaches to curriculum. Please read them carefully and then select one that best reflects your personal views.

A. THE METAPHOR OF MEDICINE

The Curriculum is a dispensary from which students receive medical treatments under the ever present direction of a competent and proficient general diagnostician. Each patient has unique and varying ills, but the diagnostician, using precise and scientific diagnostic techniques, prescribes the proper medicine. Many of the remedies developed by the specialist are self-administered. The diagnostician intervenes only when some problem arises with the treatment which has been prescribed, or when therapy is needed. The science of medicine rather than guesswork will be used to help each patient to mature to his fullest potential.

B. THE METAPHOR OF GROWTH

The Curriculum is the greenhouse where students will grow and develop to their fullest potential under the care of a wise and patient gardener. The plants that grow in the greenhouse are of every variety, but the gardener treats each according to its needs, so that each plant comes to flower. This universal blooming cannot be accomplished by leaving some plants unattended. All plants are nurtured with great solicitude, but no attempt is made to divert the inherent potential of the individual plant from its own metamorphosis or development to the whims and desires of the gardener.

C. THE METAPHOR OF TRAVEL

The Curriculum is a route over which students will travel under the leadership of an experienced guide and companion. Each traveler will be affected differently by the journey since its effect is at least as much a function of the intelligence, interests, and intent of the traveler as it is of the contours of the route. This variability is not only inevitable, but wondrous and desirable. Therefore, no effort is made to anticipate the exact nature of the effect on the traveler; but a great effort is made to plot the route so that the journey will be as rich, as fascinating, and as memorable as possible.

D. THE METAPHOR OF PRODUCTION

The Curriculum is the means of production, and the student is the raw material which will be transformed into a finished useful product under the control of a highly skilled technician. The outcome of the production process is carefully plotted in advance according to rigorous design specifications, and when certain means of production prove to be wasteful, they are discarded in favour of more efficient ones. Great care is taken so that raw materials of a particular quality of composition are channeled into the proper production systems and that no potentially useful characteristic of the raw material is wasted.
E. THE METAPHOR OF NATURAL RESOURCES

The Curriculum is the plan for developing and effectively utilizing the natural resources of human ability present in the student. The development of any one natural resource must be seen in terms of its effects upon the larger system. All resources that exist are by definition beneficial to humankind and should be carefully and respectfully developed. Some, however, are related to survival while others meet the non-material needs of humankind. Both of these should be developed with special care.
APPENDIX 2 - INTERVIEW QUESTIONS

1. What are teachers perceptions about the constructivist approach in practice?

Specific questions may include:

   a) What form does the constructivist approach take in practice (your classroom)?
   b) Was there confirmation in practice of the notion that students have prior ideas?
   c) Was there confirmation in practice of the notion of misconceptions?
   d) Was there confirmation in practice that concepts can be integrated, or exchanged with other concepts within the conceptual learner's framework?
   e) What are the strengths of using the constructivist approach to teaching a concept?
   f) What are the limiting factors associated with using the constructivist approach to teaching a concept?
   g) what adaptations have you made or are considering making to the constructivist approach to best make it fit your subject area?

2. What is the perception of teachers towards a lengthened inservice and collaborative planning?

Specific questions may include:

   a) The length and format of inservice - what recommendations are there for improvement?
   b) Early collaboration between the individuals of the peer support group - what hindrances were there?
3. What are the perceptions of teachers towards peer support- both from an personal experience and a professional development experience?

Specific questions may include:

a) How involved were you with the overall planning of the unit with your partner?

b) How was the daily time best used when meeting with your partner?

c) Did the collegial relationship extend into the classroom- ie visits?

d) Did the collegial relationship increase, or improve professional dialogue?

e) What are there benefits to peer support, if any?

f) What can you foresee as being some of the problems associated with forming a new partnership?

g) What was your prime focus in the collegial relationship?

h) Did peer support assist you in adopting a constructivist method of teaching as outlined in the inservice?

i) If your partner visited your classroom, how would you summarize this experience?

j) If you visited your partner's classroom, how would you summarize this experience?

k) If you have experience with clinical supervision, how would this experience compare?

l) What motivated you to begin this study, and continue with it to the duration?

m) What is your perception about the experience- would you embark on it again?

n) Does the peer support experience have value to an entire staff? Explain.
RESEARCH QUESTIONS - ANALYSIS OF AUDIORECORDINGS OF DAILY MEETINGS

a) Are aspects of the constructivist perspective to teaching lessons mentioned in the daily dialogue?

b) Are there other issues other than constructivism that tend to receive more discussion?

c) Are teachers reflecting about their own teaching during the daily dialogues? Are teachers able to verbalize some of their implicit knowledge about teaching during these dialogues?
M.M.: This is sort of informal, I have a lot questions but there's no A,B,C's, I'd rather just get your input and I'll start off with some of your viewpoints about what has happened over the last few weeks. When did you finish the project?

KATHY: I finished last week and as far as marks go I gave almost exactly the same test as last year and the marks this year were much higher and I think I had maybe 3 or 4 in each class that didn't pass and those were kids that had learning disabilities. I was really pleased with the marks and I told the class that. One thing I've noticed with the project encouraging even wrong answers is that the kids seem a lot more secure about being there and they don't, more hands are up, I've noticed. So that's a really good thing thats come out of it.

M.M.: Higher test scores, tell us some other things that contributed to higher test scores. Can you think of
anything you've been doing differently that you say Yes, I'm pretty sure that that has had an effect.

KATHY: I think working with their peers that there is a lot more group work and that they may have homework but when they come back the next day they have to discuss their answers with a person in the class. I ended up letting them work with people they wanted to work with and it was usually pairs. That was the best working combination? Because if a really smart kid was put with a not as bright kid the slower kid would just sit there because he didn't want to appear dumb.

M.M.: They felt better as long as they were together?

KATHY: Yes, and they were kind of slow together but a lot of marks improved and grammar is usually the unit when marks drop.

M.M.: So you pretty comfortable in the results? What sort of things would you do now that are different than the way you taught it before?
KATHY: More student oriented rather than me standing up there saying this is the definition of a noun - write this down. We would give them an exercise with different noun and they would have to tell you the word that is used and the noun is underlined and they would have to come up with their own definition. So for both my classes the definition was slightly different. That's another thing that has changed for me is I'm not so concerned about having that definition, as long as their close.

M.M.: Is your background in English.

KATHY: No, its Social Studies.

M.M.: So this English is new to you and also you're in a partnership. How did you feel when this was going on.

KATHY: At first I was really, you start to doubt yourself. Oh God, I'm not competent enough to do this but ... It was more challenging to work with someone because they were relying on you to do your part but our unit was much better because you would be sitting there
chatting and all of sudden come up with an idea. Where someone would see something and you know, she would see something in my lesson that, oh hey ... So it was nice to work with someone and I was more prepared for each class than I normally am and I think she felt the same way.

M.M.: Even though you are the rookie teacher here, because you are new particularly in terms of English, you found that collaboration had its own meaning to you and so if you had to define it, why was it successful and why did it make you feel good?

KATHY: It gives you a little more confidence, especially when Renata would say Oh, thats a really good idea, I never thought of it. That makes me feel more sure of myself as far as my ability, I know I still have a lot to learn but I'm heading in the right direction.

M.M.: So you felt like an equal partner in the collaboration.

KATHY: Definitely. At first I didn't but it finished, that's for sure.
M.M. We use the word professional dialogue to talk about the conversation you have with your colleagues and obviously your dialogue with (Rose) was different initially because of the project. Can you think back to your professional dialogue before the project, during the project, and after the project. Was it pretty much as what you've discussed and what you've discussed and the length of discussion. Sometimes they say we have between 3 and 7 minutes of professional dialogue a day, would that have been a figure that would fit you or not fit you.

KATHY: At the beginning I think we talked a bit more because we were trying to keep track and pace it and in the end we were missing classes and things, we got a little out of synch. But we usually ended up talking after almost every lesson and ? We were excited about it. I really noticed that the kids were feeling more comfortable in class and not worrying so much about wrong answers. I really liked that. I noticed a change in them from September. But now we get excited about things, when kids got it.
M.M.: Would you have wanted more of the collaboration, for example has the project been designed that you two were in each others classrooms. Do you see a problem with that or were you ready for it them, are you ready for it now?

KATHY: I don't think I would have minded. I get a little nervous and I think so does (Rose) so we didn't really force this on each other, we didn't see each others classes. I felt we worked together just enough, without making it a super time commitment. I felt we did enough.

M.M.: Going back, your partner attended that inservice during the summer as well. Did you make use of her expertise in that area or did you still ? and just look at content or process.

KATHY: I think we did a bit both, because we tried concept attainment.

M.M.: And what did you think about that?
KATHY: I really liked it. It put more onus on the kids again and it was the smart kids that got really nervous about it, what we talked about before and it was kind of neat. You don't like to feel like that, but they would get really bothered by it, everybody else knows the concept and they're? They're almost thinking too much, they're looking for something really complicated. One thing with the concept? some kids just don't let go. When you've proven their concept wrong, they hang on to it even though it keeps failing time and time again they'll hang on so when you ask, O.K. what is it we're getting at, they just don't know. Even when you clarify it they still hang on to it. We did verbs. We had positive examples connected with verb sentences or? sentences without. They wouldn't let go, it would fail. There was no action in the sentence and they wouldn't see it but they'd ignore that. Once it was explained to them they'd go, Oh yea. They want to have something that they can put there. We did that and we also did some concept attainment. Those were things that were not explained to me during the days.

M.M.: How did you feel after the concept attainment?
KATHY: I like it. The noise level goes up. I can hear it, it's constructive noise so I don't mind. Now I have to get them to relax again and listen when I'm talking but they know what I'm doing in the class now. Which I think is real positive for us. I like having them do more of it, maybe some students would make a comment, Why don't you just give it us, its easier that way. I'd say No, because then I'm doing the work, not you. Yea, we know, we like that. Then they'd have to come into class and think everyday which, at times, and you'll note, on that unit they had to be there everyday.

M.M.: What does constructivism mean to you and what's valuable about what happened in your classroom?

KATHY: Trouble is, I kept reminding myself through the whole thing, I know that teacher is going to come into my classroom with concepts about what verbs are or what nouns are and that my path is not to give them the concepts that I want them to learn but to change their old concepts so that will replace his with mine. I already have the ones I want.
M.M.: How did you get at their concepts when they come in.

KATHY: How we did it was we read them a piece of garbled writing and asked them what was wrong with it. They would say it doesn't make sense, or they didn't get any specifics but it sounded fine the first time you read. Grammar is a unit that, not like the science unit where there might be whole bunch of misconceptions about the universe, grammar is a bit harder to get at.

M.M.: Can you think of any one that you could get at.

KATHY: The nouns, getting them away from person, place or thing. I've just picked this up from (Rose) that its a label for something.

M.M.: So a lot of kids would come in with what conception?

KATHY: Just person, place or thing.

M.M.: And you somehow broadened their concept?
KATHY: Yes, and those are nouns too, more abstract ideas that they don't think of. They don't know what to do with those words. They see them and they're not sure about them. They often think their verbs, to be wise so it confused them. I think I've gotten through to most of them that way.

M.M.: Was there something on the test that the kids, they would look at the test and say across the board these kids are still weak in this area, or...

KATHY: The tough one was prepositional phrases. But those are difficult anyways. I didn't use them too much, there were only three of those that they had to pick out. But I gave them examples of the questions - they worked on and they still didn't get them. So, those were tough.

M.M.: Would you redesign your unit then, so they'd get that, or...

KATHY: I don't know how important that part is. You know they've been exposed to it so next year when they have grammar they might, you know be in there somewhere.
M.M.: What, if anything, has had an impact on what you're doing now or in the future?

KATHY: The biggest thing is the kids working together and sharing their ideas and discussing them first before they bring them to me. I tried to do that with their writing too, but they got very nervous when they have to read their own writing to someone. That happens everywhere so I don't know what the answer is there. I think it's very personal to read their writing to someone else so they don't like doing that. But I think more sharing in the classroom, that will take it away from me and put the onus on them.

M.M.: What value does constructivism in either your classroom, or in your preparation?

KATHY: Not thinking that whatever I say is going to sink in or whatever book we use is going to stick. That's the biggest thing.

M.M.: That must have had a major impact on the way you plan your lesson.
KATHY: Oh yes, they were ready for all the different angles. We have to have, well what if this doesn't work. A lot of it you do on a moment so if the kid doesn't get something, especially in grammar, well look at it this way. I'm doing a novel now and the group work is there, the potential for group work. It's a little harder to approach but I can still use the ideas as far as group work, sharing your answers with people.

M.M.: What limitations are there in the constructivist approach that you?

KATHY: By the end of the grammar unit I was getting a little tired of so much group work. It's more difficult and it's more exhausting for us, too. Sure the kids are working together but you're monitoring them, and what if the group is not heading in the right direction, you have to kind of turn them around so I would use it less frequently. They were getting ? on it to get there I'm sure for a while. I don't know if I'd want to use it all the time, every day, but certainly for specific activities.
M.M.: How did you feel in terms of the fact that you were experimenting in your class?

KATHY: At first it bothered me, because I thought this is my old room. What if they don't get the right answers and I'm going have to give it to them and I was really concerned about that but then after a while I thought well, next year when they have grammar it's all going to be refreshed for them anyways and anything I've left out will probably be filled in. So I didn't mind it, in fact, we told the kids in beginning that we were doing this. And then we kind of forgot about it and then at the end I said well remember way back we said we were doing kind of an experiment and get some new test results, I think it's been a good one and you've all improved, the marks are better this year than they were last year. I think they felt good about that. But it didn't really, I was more committed to my grammar unit because it was an experiment and not working alone, people are relying on you but it didn't bother me, trying out something new. We have a more flexible time frame, I think than Math or another subject so it was fine.
M.M.: So, if you had a class and it didn't go well, do you remember a class like that where it didn't go well, or did you have a lot of successes?

KATHY: Yes, I was pleased with all the classes, I found my block F, which comes first, was often my better class because that's when I was really psyched for it and then my block G, which are also my more obnoxious group, I was not into it as much as my F.

M.M.: Did one group score higher?

KATHY: It was about even.

M.M.: But you know it was higher. What makes you think it was higher?? What do you remember about the grammar unit from last year?

KATHY: The kids weren't getting it. You'd ask them at the end of the unit what a noun and they couldn't tell you. Or what's a verb, these kids knew it was an action word but they couldn't think of the word verb.
M.M.: In this case, from what you said, it definitely wasn't a mentor relationship, it was a positive relationship.

KATHY: Yes.

M.M.: Do you think that's because you're in your third year and you built up some confidence?

KATHY: I think so and I've had the unit where ?? The first year I didn't have the grammar unit. You make it up as you go along, more or less.

M.M. During the inservice, going back to the first morning, using metaphors, and the way we looked at them using constructivism and I remember everybody went home because they were exhausted from that. Can you think back to what it was about that particular morning that, specifically for you, what effect it had on you.

It made me think about positive results. Where are we coming from when we're up there in front of the class. Not as much as with Phys Ed I don't think but with English I guess that's the only way I know how to do it
so now I've got a new strategy and I know it works, to let the kids come up with the answers. So I know I definitely know I'm changing on that scale that we put ourselves on.

M.M.: Do you think you're a bit like ??

KATHY: A little piece, it's one step towards that.

M.M.: Do you feel comfortable making those steps?

KATHY: Yes, definitely. I'm starting to think its the process that they can keep coming up with answers and not so much whether its the grammar unit or math or whatever but their going through a thinking process.

M.M.: That's a major change for a lot of people. A lot of people would find that really quite threatening but you've sort of rolled with it. Can you think why that would be, is it just your personality?

KATHY: I think its comfortable for me. Maybe its something that I've been looking for or close to for a long time.
M.M.: When you're teaching how did you qualify using that strategy? You all use it, obviously.

KATHY: We're there for comments that kids make. It might not be the right answer but there's something, they think about it and you're just supervising. You're asking: Why do you think that?

M.M.: How are the kids at responding?

KATHY: They're good. They want to. When we did ?? I said, I forgot to do it with one class but do you ?? how did you, what was your thought process, when did you see the light, sort of thing, when does the light bulb come on. The kids were excited about saying what their process was, how we did this with this example and I knew it was wrong so I had to scrap it. The kids are excited, it gives them a chance to justify why they think what they do. The kids think, well you know, my answer may be wrong but this is how I thought it out.

M.M.: You visited each other's classroom. That was your choice. Let's say, in ?? they recommended you go into
each others classroom. How do you think the project would have been different if you had been told you had to go in each others classroom.

KATHY: We might have been, we would have had to been more coordinated as far as which lesson ??? and how we were going to approach it.

M.M.: Do you think it would have interfered with your collaboration in any way?

KATHY: I don't think so. If we were going to do it I would have liked it a little later on in the project. I wanted to get comfortable with this whole thing myself, first. You kind of have to get warmed up to it. I don't think it would have ruined it.

M.M.: These are all, again similar situations, you've done the grammar unit this year, you're both doing it next year. You were asked to again get involved with it would you say we've done this unit and that's all we can do or would you want new information or would you have enough to work on or would you be tired of it.
KATHY: I think we might want to look at what are some additional strategies but there's sure, there's definitely room for improvement.

M.M.: How about going into each other's classroom?

KATHY: I don't think that would bother me. I'm starting to feel more comfortable, too. My style and the way I am.

M.M.: Any final thoughts on the project.

KATHY: I definitely think it's been a really positive experience. You can I think grow with this.

M.M.: Can I read you the metaphor that you brought to the inservice. I know these are metaphors, but maybe if I read you something you can interrupt and say Yes, I feel really strongly about that or No, I don't feel that strongly about that. Your first choice was the metaphor of travel. The curriculum is a route over which students will travel under the leadership of an experienced guide and companion.
KATHY: I think I'm still a guide, but the route is not quite so ...

M.M.: Each traveller will be affected differently by the journey since its effect is at least as much a function of the intelligence, interests and intent of the traveler as it is of the contours of the route.

KATHY: I think that still applies because teachers, I use that as a technique and kids will get out as much as they possibly can, hopefully with this different approach they've gotten more out of it and they know grammar a little better then they would have if I had done it the same way I did last year. I was their tour guide because I pointed out the ...

M.M.: What do you think is the guided tour?

KATHY: They take it in, they ask questions or I would point something out and say what is this, so I think that's closer.

I may be plotting their journey but ultimately their, they have to come up with their own answers or
definitions. They're usually doing it themselves, I'm kind of a guide. I like that metaphor.
PARTICIPANT PACKAGE

RESEARCH INTO PRACTICE

*Assumptions of the Study

* Constructivist Approach to Classroom Practice

*Teaching Skills

*Teaching Strategies

*Peer Collaboration
ASSUMPTIONS OF THE STUDY:

1. An expert stance in teaching is less desirable than an experimentative, at times uncertain, approach to teaching.

2. Teaching as a reflective practitioner is desirable to an approach to teaching which involves an initial acquisition of skills and mastery of these skills.

3. Collaboration is desirable to isolation.

4. The acquisition and retention of new knowledge is a function of the existing cognitive structures of the learner.

5. A program of activities which allows the learner to construct knowledge is desirable to the transmissive approach to teaching (transferring a body of knowledge to the learner).

6. The ultimate desire is to improve the learning situation for students.
CONSTRUCTIVIST APPROACH TO A TEACHING EPISODE
(DRIVER AND OLDHAM, 1986)

a. Orientation - motivation towards a topic

b. Elicitation of ideas - students to make prior ideas explicit

c. Restructuring of ideas - conceptual capture and/or conceptual exchange

USING A CONSTRUCTIVIST APPROACH WILL MEAN THAT TEACHING EPISODES WILL:

1. Recognize that students' prior ideas are critical and must be addressed

2. Acknowledge that new knowledge will be integrated, subsumed, or replaced by old information through conceptual change, and that this must be facilitated by the teacher

3. Recognize that learning is not a passive activity. The student must be actively involved in the process of conceptual capture or exchange.
WAIT TIME - An important skill for the Constructivist approach

1. Frame the question to the class. Although the activity may begin with lower order questions, it is best suited for critical thinking questions.

2. Wait for students to process the information. Wait for a majority of hands before you call on one student to answer.

3. When the student has answered, wait—they may want to elaborate. Or, encourage a further response either from the student or ask is someone else would like to explain the answer further.

4. Think - how can you encourage more responses? How can you take the fear out of incorrect responses? How can you respond to incorrect responses that acknowledges the effort of the student and is not discouraging or
CONSTRUCTIVISM - Conceptual Capture or Exchange

Lesson - elicitation of students prior ideas.

Focus on correct and incorrect student responses. (You may want to audiotape a segment of the lesson). Was there an answer that surprised you? What was it?

What concept(s)/information does the student have that may explain this response?

Is this concept held by other students? If you are not sure how could you ascertain this information?

INCORRECT RESPONSE-
How could you facilitate conceptual exchange? What would you do to lower the status of the student's ideas and raise the status of the desirable concept?
CONCEPTUAL CAPTURE
The student will find the new information in agreement with their prior knowledge. How will you facilitate the linking and hence capture of the new information/concept.
CONSTRUCTIVIST APPROACH - PRIOR IDEAS

LESSON: ELICITATION OF STUDENTS' PRIOR IDEAS

What activity do you propose as an introduction to a unit that will encourage a number of students to formalize concepts and ideas? This may include any teaching strategy or pretest, brainstorming activity, cooperative activity which may define pretest types of questions, written assignment.

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________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

If the activity involves student responses in class, how will you encourage all responses, including incorrect responses? How will you respond to incorrect responses in a way that is encourages elaboration of the thinking behind an incorrect response?

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________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

How will you collect information for analysis?
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

When will you meet with your partner to discuss the results?
________________________________________________________________________
INDUCTIVE THINKING - PLANNING GUIDE

PHASE 1 ACTIVITY: THE DATA SET

Describe the data set to be used in this lesson. Will you provide the data set or have students collect data? If the latter, what will be the sources of information they will use?

What do you want students to gain from this classification task? What, in your opinion are the critical attributes of the data set? What categories do you bring to the set?

PHASE 2 ACTIVITY - WORKING COOPERATIVELY/CONCEPT FORMATION

Are the students familiar with the inductive model? Do they need training with respect to any aspect of the process - do students know how to group? What would be the specific instructions that you would give with the task?
How will you organize students for the categorizing activity?

 PHASE 3 ACTIVITY

Although you will not know during your planning what categories
the students will form, make a guess about possible categories they
might construct, and then write two sample questions that would
explore cause-effect relationships between those groups.

If students were successful in making inferences and conclusions
about their data, the teacher may wish to push them a step further
and ask them to predict consequences from their data by asking
"What would happen if..." kinds of questions. Write one or two
examples of hypothetical questions you might ask students about
this data set.
CONCEPT ATTAINMENT - PLANNING GUIDE FOR LESSON

What concept is the objective of the lesson? What are its defining attributes? What kind of data will be presented to the students? Is the information or concept new to the students?

Are the students familiar with the process of concept attainment. What instructions will you give with the activity?

Write a positive exemplar and a negative exemplar. Is the concept clear in the positive exemplar and absent from the negative exemplar?

Once a concept has been constructed by the students it may need a name - the teacher may need to supply the technical or common term. How will you connect the technical term with the concept attributes.
Application requires that students determine whether further exemplars fit the concept and, perhaps, to find examples of their own. How will you provide further experience with the concept? Describe the assignment or activity.
COOPERATIVE LEARNING - PLANNING GUIDE

How will you organize the class for this teaching episode? How many groups of what sizes will be selected?

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____________________________________________________________________________________

How will memberships be determined?

____________________________________________________________________________________

____________________________________________________________________________________

What will be your instructional strategy?

____________________________________________________________________________________

____________________________________________________________________________________

Define the task for the students.

____________________________________________________________________________________

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____________________________________________________________________________________

How will cooperative groups be used during the teaching episode? What will be the responsibility of members of the cooperative groups - do they work on the same task or different tasks? Will the cooperative group report back to the teacher or to the class?

____________________________________________________________________________________

____________________________________________________________________________________

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COLLABORATIVE PLANNING

Tasks:

1. Planning the unit of lessons. Approximate timeline, approximate dates of lessons.

2. Planning when meetings between the peer coaching team members will occur. Teams may want to meet weekly. Teams may want to meet during SSR time or other times. Please establish schedule.

3. Videotaping, team teaching and/or visitations. These should coincide with a trial of a new teaching strategy or activity. The purpose is to observe the students during learning and give feedback about the learning situation for students, not the teaching. If videotaping, please videotape the students. The learning situation for the students is our focus when determining the effectiveness of a teaching episode. Recognize that teaching is very complex - other factors may interfere with predicted results.

4. Group meeting with all of the peer coaching teams for a progress report and to trouble-shoot - date and time.

5. There is an additional half-day of sub costs still available. This can be used if the peer teams are having difficulties and need to revamp their work. We may use it to meet at the end of the project to get your feedback and conclusions about the constructivist theory in the classroom and peer coaching. This date will be determined.