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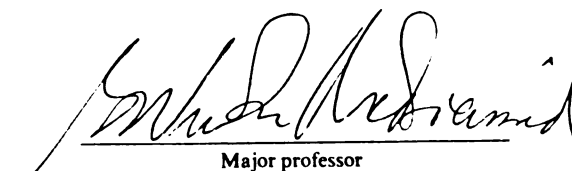
RETHINKING OPPORTUNITIES FOR SPECIAL NEEDS STUDENTS TO
LEARN: A CASE STUDY OF COLLABORATION BETWEEN SPECIAL
AND GENERAL EDUCATORS

presented by

Margaret A. Lamb

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Teacher Education


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**RETHINKING OPPORTUNITIES FOR SPECIAL NEEDS STUDENTS TO LEARN:
A CASE STUDY OF COLLABORATION BETWEEN
SPECIAL AND GENERAL EDUCATORS**

By

Margaret A. Lamb

A DISSERTATION

**Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of**

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Department of Teacher Education

1997

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Margaret A. Lamb

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ABSTRACT

RETHINKING OPPORTUNITIES FOR SPECIAL NEEDS STUDENTS TO LEARN: A CASE STUDY OF COLLABORATION BETWEEN SPECIAL AND GENERAL EDUCATORS

By

Margaret A. Lamb

This study tells the story of three teachers: Lyle (a veteran science teacher), Holly (a novice science teacher), and Jane, a special education teacher) and their collaborative efforts to develop a science curriculum for all students including those with disabilities. All three of the teachers were members of Hart High School, a Professional Development School (PDS) affiliated with Michigan State University (MSU). Hart High School was involved in two simultaneous reform efforts: the merger of students with disabilities into general education classrooms and the restructuring of teaching and learning in core academic subjects for all students with the support of MSU and PDS resources. Evidence suggests that the school has achieved some success in fully including special needs students in general education classrooms which exceeds the national norms. Data indicates that students with disabilities are selecting more challenging advanced college preparatory courses in increasing numbers and maintaining an average grade point.

The question this study addresses is: what resources--environmental, as well as, moral and intellectual--contribute to a school's capacity to support students with special needs? In addressing the question, I examine the professional knowledge and pedagogical reasoning that characterize the three teachers (Lyle, Holly, and Jane) involved in transforming the general

education curriculum to include all students. Further, I discuss in detail the beliefs that appear critical, if teachers are to address the needs of all students and thereby teach with a moral purpose. Finally, I address the environmental resources that seem necessary for teachers, like Lyle, Holly, and Jane not only to restructure, but reculture a school towards a moral ecology. Lastly, I describe some of the pitfalls that may await those who embark on similar journeys of reform.

Dedication

This study is dedicated to my husband, Bruce, who has been steadfast and loyal in supporting me in the pursuit of this doctoral degree. His devotion to me and his belief in my ability to realize this dream sustained me through this process. The study is also dedicated to my sons, Brian, Jeffrey, and Christopher, who are a continuing source of inspiration and encouragement. May my accomplishment serve as an example of self-determination for you in the pursuit of your goals and dreams throughout your lives. Finally, this book is dedicated to my parents, Donald and Margaret Krupp Jamrog, who instilled in me a thirst for knowledge and the pursuit of excellence.

ACKNOWLEDGMENTS

Many people have contributed to this study and the completion of this dissertation. First, and foremost, the members of the project, Lyle, Holly, Jane, Sally, Karen, and Ann made an outstanding contribution. Thank you all for giving your time to participate in this study and for allowing me the privilege of studying your thinking and learning from you. Our ideas come from engagement with the ideas of others; I am grateful to you for making my ideas possible in this dissertation.

A special tribute to my egalitarian partner, Bruce, who readily assumed the major responsibilities of our household and parenthood so that I could have the time necessary to study and write. I extend a special acknowledgment to my sons, Brian, Jeff and Chris for their understanding of my absence during some special moments in their lives that I missed in the completion of this doctoral degree.

I wish to acknowledge two very special women, Dr. Martha Karson and Dr. Carol Levin, who were a great source of inspiration. Thank you for nurturing and supporting me through the trials and tribulations inherent in this process. I would also like to thank Kathie Thomas for her support and technical assistance in the publication of this document.

Finally, a special thanks to the members of my committee for their encouragement and expertise in the completion of this study. Lastly, a very special tribute to my mentor, Bill

McDiarmid, who has been an incredible intellectual resource for me throughout my doctoral program. Your teaching has inspired me and your questions expanded my thinking and helped me find my own voice. With your thoughtful suggestions and reflections, this study is a contribution to research on the development of teaching and learning for all students in particular students at-risk and those with disabilities.

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CHAPTER 1

INTRODUCTION TO THE STUDY

Introduction

"We need to do more than repair special education; we need to transform general education" (Jorgenson, 1997 in press, p.14). This quotation by Jorgenson epitomizes the work of general and special educators at Hart High School. The teachers at this high school spent seven years endeavoring to transform general education to better address the needs of all students, including at-risk students and those with disabilities. While the quest to transform general education and improve the learning of all students is both noble and just, the question underlying this vision is: What does it take to initiate and achieve this transformation?

In the fall of 1987, the superintendent of Hart Public Schools and a recently hired Director of Special Education committed to a district-wide initiative to include students with mild disabilities in general education classrooms. As a result, students with mild disabilities had been mainstreamed in regular education at Hart High School for nearly seven years at the time of this study. This meant that special education teachers had to change their service delivery to these students from segregated small group settings to integrated settings in general education that involved team teaching.

A year later Hart High School formed a partnership with Michigan State University (MSU) and started the process of becoming a Professional Development School (PDS).

Educators involved in a Michigan State University affiliated PDS are committed to teaching and learning for conceptual understanding for all children and to inventing a new institution with educational professionals committed to lifelong learning (Holmes Group, 1990). Thus, since 1989 general and special educators, as well as administrators, at Hart High School have been involved in two simultaneous reform efforts: the merger of students with disabilities into general education classrooms and the restructuring of teaching and learning for all with the support of MSU and PDS resources.

Purpose of the Study

Hart High School offered a unique setting and an unusual opportunity to explore the intersection of these two reform initiatives as they related to students with disabilities. Many questions are yet to be answered about what exactly it takes to transform or restructure general education classrooms to meaningfully include students at-risk and those with disabilities. Committed to the implementation of both of these restructuring initiatives, Hart High School provided the opportunity to investigate the process of implementing these two reforms, their interactions, and their effects on classroom practice.

According to Fullan (1991), implementing any new policy requires changes in three areas: beliefs, curriculums, teaching methods. Thus, one area to be studied was the change that evolved in general and special education teachers' beliefs, curriculum, and practice as they worked collaboratively to integrate at-risk students and those with disabilities into regular classrooms. Further, Hart High School as a Professional Development School received an infusion of both human and fiscal resources to restructure their school and the curriculums to improve teaching and learning for all students. Consequently, this setting provided an opportunity to examine how teachers used these additional resources to create an inclusive

high school that supports the needs of all students. Therefore, the purpose of this study was to investigate, through analysis of a small group of general and special educators' collaborative conversations, the changes in teachers' beliefs and practices under dual reforms--mainstreaming and restructuring--as a PDS. Also, with the addition of human and monetary resources through the PDS, another purpose was to determine the role of environmental resources in supporting changes in teaching practice to educate students with special needs in general education classes.

Setting of the Study

The school is situated in a community of 20,437 people near both the state capitol of Lansing and Michigan State University. The proximity to this University made Hart High School a natural choice as a site for a Professional Development School. This partnership was formalized in 1988 after several meetings between Hart teachers, administrators and MSU faculty. During the 1993-94 school year, Hart High School enrolled 927 students and achieved an overall attendance rate of 93%. Special education personnel served 83 students (9% of the student body). The faculty and staff included three administrators, 50 teachers, three counselors, four special education teachers, and one social worker. The 1993-94 Annual Report to the State of Michigan described Hart High School as having a tradition of progress and innovation. Hart High School faculty made at least 35 presentations at state and national professional conferences during the 1993-94 school year. Teachers in collaboration with their MSU colleagues produced fourteen papers on their joint work in the school, eight of which were published in a book entitled, Alternative Assessment (1993). In January 1993, the high school launched a four-year restructuring project in the amount of \$560,000, written by the author and a graduate student, to create coalitions with community members and agencies to

address the needs of students with disabilities and those at-risk. The school earned the Michigan Exemplary Secondary School award for the second time since 1989, as well as the U.S. Department of Education's designation as an Exemplary Secondary School (1993).

This profile offers evidence to support the statement that Hart High School has a tradition of innovation. The fact that the high school faculty made multiple presentations at state and national conferences and wrote and presented fourteen papers with their university colleagues is extraordinary. Further, they gave two staff members the responsibility to write a proposal for a federal restructuring grant which was funded for over a half a million dollars. Naturally, Hart High School's affiliation with Michigan State University and the teachers' and University associates' research efforts greatly enhanced the school's capability to secure a federal restructuring grant. In other words, the school's growing reputation as a Professional Development School committed to innovation and changes in teaching and learning was a major factor in accruing additional research monies to continue the restructuring efforts.

These achievements are atypical of public high schools across the country, and they indicate a school environment that has fostered new organizational structures and opportunities for collaboration both among school staff and with university faculty. Further, these achievements illustrate an institution that is developing a moral ecology as described by Sirotnik (1990), i.e., one committed to inquiry, generation of professional knowledge, and individual empowerment to change the institution.

After five years as a PDS, Hart High School evolved a culture that facilitated grass-roots innovations and a strong sense of professionalism and collaboration between teachers, interns, MSU faculty, and administrators. Two questions arise: what conditions fostered

teacher collaboration, and what human and fiscal resources were critical in supporting the evolution of this culture?

In 1985, when Hart Schools began mainstreaming students with disabilities in general education classes, the special education teachers began teaching in the low-track classes. As an additional support to classroom teachers, the district and teachers' union agreed to weight special education students enrolled in general education classes. This meant that a student with disabilities was counted as two students on the class roster, effectively lowering the class size from a limit of 30 to 28 and so on. Thus the district not only made a verbal commitment to mainstream or include students with disabilities in general education, they made a significant financial commitment as well. Hart Public Schools is the only system in the county that has made this type of financial commitment to support the inclusion of students with disabilities. In fact this kind of support is atypical of school districts throughout the state and nation.

The district initiative to mainstream students with disabilities in general education fostered collaboration between general and special education teachers at Hart High beginning in 1996. Through these collaborations, members of the special education department and teachers in science, mathematics, English, and social studies began questioning the intellectual value and, to some extent, the morality of offering various tracks or levels of classes within their departments. Of greatest concern were the content, teaching methods, and the level of learning in the middle-track classes and the fundamental classes (low-track) offered to students at-risk and those with disabilities.

Consequently, once the PDS affiliation with MSU was established in 1988, teachers in the core subject areas who were supportive of the PDS initiative, were interested in further

examining their curriculum, pedagogy, and in mentoring pre-service teachers from MSU. Teachers and university faculty jointly developed inquiry projects that examined several aspects of teaching and learning for all students. Their respective MSU student-teaching interns participated in these projects. Some teachers in the math and science departments designed projects with university faculty focusing on the development of curriculum and methodology specifically to address the needs of at-risk and special education students. Two special education teachers were equally interested in this work and became involved in these projects.

After five years of sustained effort to restructure teaching and learning to better meet the needs of all students in science and mathematics, the PDS funded a Collaborative Inquiry Project for one year. The funding supported one hour of release time for myself and a quarter time research assistant for a year. The research assistant's role was to assist in data collection and organization and to review various journals for current research articles related to this study, such as, teacher collaboration, teacher beliefs, systemic change. The purpose of the project was to explore what general and special education teachers had come to know about supporting students with special needs in inclusive classrooms. Two science teachers (a veteran and a novice) and two mathematics teachers (a veteran and a novice) formed the general education components of the collaborative inquiry team in this study. The two special education teachers (one of whom is the author) involved in each of the department studies and the high school social worker completed the membership of this team. Following is a detailed description of the participants in this project.

Profiles of the Project Participants

1. Profile of the Author

A brief sketch of my background seems necessary to provide the reader of this study because of the multiple roles I played in Hart High school and in this research project. At the time of this project, I served as a special education teacher at Hart High School working collaboratively with the members of the Collaborative Inquiry group regarding the progress, issues, and concerns of students with disabilities on my caseload. While I was a doctoral student in Teacher Education at Michigan State University, specializing in Teacher Education and Learning to Teach with a cognate in Special Education, I began working as a special education teacher at Hart High School in 1992 after three years of doctoral studies. Since my area of research interest was the merger of general and special education and Hart High School faculty was actively engaged in restructuring their curriculum for all students and studying their work, Hart High was an ideal setting for me to teach and continue my doctoral studies.

The first year at Hart High I worked with Sally, the veteran math teacher in this study, on a PDS math restructuring project that focused on the development of an Algebra curriculum based on conceptual understanding for students at-risk and those with disabilities. A second PDS project in which I participated for several years was the development of a Global Studies curriculum. Again my interest in this project was the construction of a curriculum based on the development of critical thinking skills and problem solving regarding global issues for all students including those with disabilities. For three years I was a member of the Global Studies teaching team that consisted of a social studies teacher, a media specialist, and a university professor in social studies. This project culminated in the

publication of the curriculum with chapters on alternative assessment, addressing the needs of diverse populations, student outcomes, and teacher collaboration as a method for curriculum development (Little, et al, 1996).

In the spring of 1993, I wrote a PDS proposal to form a Collaborative Inquiry team of special educators and science and math teachers to discuss what we had come to know about including students with special needs in general education classes after five years of restructuring classroom practice. The analyses of the conversations of this team are the primary data for this dissertation. During the summer of 1993, I coauthored, with another graduate student, a proposal for a federal restructuring grant through the Office of Special Education Programs to include students at-risk and those with disabilities. The focus of this grant was the creation of a school-agency-community coalition to develop a transition system for all students, especially those at-risk and with disabilities, to assist them in preparing for their transition from school to adult life. In the spring of 1995, I became the director of this project and currently serve in that position at Hart High School.

I came to Hart High School as a veteran teacher with 23 years of classroom experience. The first ten years of my teaching career were in elementary education. Three of those years I was a Title I reading and mathematics teacher. My experience in this capacity inspired me to pursue a Master's Degree in Special Education with certifications in both Learning Disabilities and Emotionally Impaired. After completing this degree I spent one year as special education teacher consultant in a high school.

Then I was hired by Hart Public Schools as a middle school teacher in a self-contained program for students with severe learning disabilities. I taught two years in this setting, developing interdisciplinary units of study incorporating social studies, science, and English.

Students developed their reading and writing skills through these units. After two years the program was discontinued and the students were mainstreamed in general education four hours a day. I taught reading and English in the resource room two hours a day and then team taught in general education in reading and English the remainder of the day. I continued in this position until 1989 when I requested a two-year educational leave to pursue my doctoral studies. Between the years of 1989 and 1992, I was a full-time Instructor in the Special Education Master's Degree Program at MSU and a doctoral student in Teacher Education.

Although I was a full participant in the Collaborative Inquiry Project, I decided against being one of the main subjects in this dissertation for several reasons. Since the focus of my research and staff development experiences in my doctoral program for the past five years was facilitating teachers in the restructuring of curriculums to meet the needs of all students, I was concerned that these experiences might diminish the credibility of the study, if I were one of the main subjects. Further, I was most interested in researching what teachers in a Professional Development School, focused on restructuring teaching for all students, had learned about including students at-risk and with disabilities in general education. Given that the other veteran teachers in this study had been affiliated with the PDS since its inception and I joined the faculty three years after this partnership began, they had several years more experience in redesigning curriculums in this context. In addition, I thought it might be difficult acting as both the researcher and the subject in a dissertation.

Profiles of the Members of the Collaborative Inquiry Project

The general education teachers and other special education teacher involved in this project were selected on the basis of their PDS projects, which focused on the restructuring

of their science and math curricula for students in low-track or fundamental classes. Typically students enrolled in these courses had mild learning or emotional disabilities or were at-risk of dropping out of school because of chronic academic failure. All of the teachers in this study were active members of the PDS who wrote about their work and presented frequently at state and national conferences with their university colleagues.

The novice teachers in the project were student interns from Michigan State University at Hart High School and were active in the Math and Science PDS projects. The novice science teacher (Holly) was the student intern of the veteran science teacher (Lyle), while the novice math teacher (Karen) was actively involved in the curriculum restructuring in the mathematics department at Hart High, she did not work directly with the veteran math teacher (Sally) in her classroom. The school social worker was selected to participate in the project because of her active role in collaborating with all of the project members on issues and concerns regarding various students with disabilities and their learning and behavioral needs. Further, since she worked individually with many of these students on motivation, school success, and their feelings as learners she could offer the group her sense of students' perceptions on inclusion. In sum, I identified teachers and support personnel for this project whose areas of interest were the development of curriculum and methodology in their subject to address the needs of at-risk students and those with disabilities.

While all of the participants' voices are incorporated throughout this study, I selected three members as the main focus of the study, Lyle, Holly, and Jane because they collaborated and team taught in the PDS science project to restructure the curriculum to meet the needs of all students. Following is a brief description of all of the participants.

Lyle

Lyle was a science teacher at Hart High School for twenty-seven years. He had a Bachelor's and Master's Degree in biological science from Michigan State University. In addition, he had spent several summers learning at the biological stations at Gull Lake and Beaver Island in Michigan. He had primarily taught biology, zoology, botany, genetics, and human physiology. He had also taught low-track biology and general science classes as well. Lyle had co-taught a science methods course in a teacher education program at Michigan State University. He had nine years experience team teaching with special education teachers. He spent several years working collaboratively in a PDS science project with Jane (see below) which focused on restructuring biological science classes for all students including those with disabilities. He coauthored with Jane several published and unpublished papers about their project and presented them at state and national conferences with university colleagues.

Given his years of teaching experience of students with and without disabilities in various settings and the focus of his PDS curriculum restructuring project, he was selected as one of the main subjects of this study. His longevity as a science teacher at Hart High and his active involvement in the PDS science projects were additional factors in my selection.

Jane

Jane was a special education teacher for nearly twenty years. She had a Bachelor's Degree in Elementary and Special Education with a certification in Developmental Disabilities. She received a Master's Degree in Vocational and Rehabilitational Counseling from Michigan State University in 1979. In 1986 she received an additional teaching certification in Learning Disabilities.

She was a teacher at Hart High School since 1985. Thus, she was involved in the initial stages of integrating special education students in general education classes and team teaching in general education. Further, she was an active member of the Professional Development School since its inception. Her primary focus was in the PDS science project with Lyle to restructure biological science. She team taught with Lyle for several years as they worked to restructure biological science. She was selected as a main focus of this study because of her wide range of experience in teaching students with various disabilities and her involvement in both the special education and general education reforms initiated at Hart High.

Holly

At the time of this study Holly was a novice science teacher with one year of teaching experience at Hart High School. She received a Bachelor's Degree in Biological Science and Secondary Education From Lyman Briggs School at Michigan State University in 1992. She was enrolled in the Academic Learning Program in the College of Education at MSU. She was Lyle's student intern the year before she was hired as a science teacher. She was at Hart High School for nearly five years as a preservice teacher and a student intern. She was actively involved in Lyle's and Jane's PDS project to restructure biological science. During her years of experience she worked with students with various disabilities in the low-track classes and then in heterogenous classrooms.

She was selected as a main focus of this study because of her experiences in working with students with disabilities and her involvement in the PDS science projects at Hart. Further, I felt it was important to have a novice teacher as a one of the main subjects of this study to represent a more typical membership of a high school science department. In

addition, I was interested in finding out what if any differences existed between novice and veteran teachers in their professional knowledge regarding teaching students with special needs.

Sally

Sally was a mathematics teacher with nine years of experience in teaching fundamental (low-track) math and Algebra I. She had a Bachelor's Degree in Mathematics and a Master's Degree in Secondary Education from Michigan State University. She had seven years team teaching experience with special education teachers in the low-track/fundamental math course whose membership was students at-risk and those with disabilities. Her main focus in the PDS was the restructuring of the math curriculum at Hart High in particular the development of an Algebra curriculum based on conceptual understanding for all students.

I team taught with Sally for almost two years in fundamental math and Algebra I and was involved with her in restructuring these curriculums. We coauthored an unpublished paper of our work and presented it at a national conference. We team taught a Mathematics Methods course for Masters' students in special education at MSU. Sally has continued to write, publish, and present her curriculum work in Algebra at various state and national conferences. Given this range of experience, she was an ideal candidate to participate in the Collaborative Inquiry project. However, I felt it was better to have the three main subjects of this study from the same content area.

Karen

Karen was a novice mathematics teacher with one year of teaching experience. She received her Bachelor's Degree in Secondary Mathematics Education in the Academic Learning Program at Michigan State University. The year prior to this project, she was a

student intern shared by several teachers in the mathematics department at Hart High School. She interned for two hours with an Honors Algebra teacher, one hour with an Algebra I teacher, and one hour with a Transition Math (low-track) teacher. While Karen did not intern with Sally, the veteran math teacher in this study, she was an active member with Sally in the Mathematics PDS restructuring project, which included curriculum development, data collection and analysis. These experiences made her a viable member of the Collaborative Inquiry project. However, of all the members in this project, she had the least amount experience in teaching at-risk students and those with disabilities given that most students with disabilities were enrolled in the Transition Math Course (low-track). Consequently, she was not chosen as a main focus of the study.

Ann

Ann was the school social worker in the Collaborative Inquiry project. She had a Master's Degree in Social Work from Michigan State University and had a great deal of clinical experience in working with students with disabilities and their families. Ann was at Hart High School for nearly fifteen years. Thus, she brought a historical perspective to the project, having seen the changes in support services for students with disabilities at Hart High. She was a resource to all members of the project team in supporting students with disabilities in their classes. While she was at Hart School only part time, which limited her involvement in the PDS projects, she was tangentially involved through her collaborations with the other project members about students with disabilities enrolled in their classes.

A portion of her day was spent working with students individually on their academic and social problems and experiences at Hart High. Thus, she offered the Collaborative Inquiry group a different student perspective. While the perspectives she brought to the group

conversations were invaluable, she was not selected as a main focus of the study since the emphasis of this study was on teacher--as opposed to social worker--knowledge.

In sum, the members of the Collaborative Inquiry project were selected because of their identified interests and effort in restructuring teaching and learning in science and mathematics for students at-risk and those with disabilities. The members of the science restructuring project were selected as the main focus of this study primarily because I was personally involved in the mathematics project. Since my involvement in the science project was limited, I felt I might be more objective in analyzing their data.

Evidence of Effectiveness of Full Inclusion of Students' with Disabilities at Hart High.

Many claims are posited on the effectiveness of the changes I describe in this study. To substantiate the effectiveness of the changes requires that I present evidence on the changes and on the performance and success of students with disabilities since this study.

One measure of these changes is the course selections offered students at Hart High School. During the last eight years of restructuring, general and special education low-track (remedial) science, mathematics, English, and social studies courses were eliminated, as well as all special education classes. Presently, all sophomores are scheduled in Biology, Algebra I, American History, and English 10.

A measure of the effectiveness of the environmental and classroom changes is the number of students with disabilities who have taken advanced courses during their junior and senior years, courses beyond those required for high school graduation. Table 1-1 below lists the percentages of advanced courses selected by students with disabilities from 1994 to 1997. Advanced courses in mathematics include geometry, algebra II, pre-calculus, calculus, and probability/statistics. The science department offers chemistry, physics, and human genetics.

Comparative political systems, sociology, psychology and world geography are available in social studies. The English department offers advanced courses in creative writing, journalism, and literature. Foreign language courses in Spanish, German, and French are included in these data as they are not required for graduation and are part of the college preparatory program.

TABLE 1-1 Numbers and Percentages of Students with Disabilities Electing One or More Advanced Classes in Mathematics, Science, Social Studies, and Foreign Language.

Students Electing	1994 n=17	1995 n=16	1996 n=19	1997 n=18
One Advanced Course	7/17=41%	10/16=63%	13/19=68%	16/18=89%
Two Advanced Courses	0	0	1/19=5%	3/18=17%
Three Advanced Courses	2/17=12%	2/16=13%	3/19=16%	1/18=5%
Four Advanced Courses	0	2/16=13%	2/19=11%	2/18=11%
Five-Nine Advanced Courses	5/17=29%	3/16=19%	2/19=11%	7/18=39%

Table 1-1 above illustrates that, since 1994, students with disabilities at Hart High School are electing advanced courses in the core academic subjects at an increasing rate over the last four years. While 41% elected one advanced course in 1994, the percentage increased to 89% in 1997. Whereas 29% elected multiple advanced courses in 1994, this increased to 39% in 1997.

The 1994 Sixteenth Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act (IDEA) reports that 27% of high school students

in all disabilities categories spend more than 50% of class time in regular education academic classes (16th Annual Report to Congress on Implementation of IDEA, 1994). Twenty-six percent of students with learning disabilities (which is the largest category of exceptionality) are included more than 50% of their time in regular education academic courses (Table 3.2, p.80). Enrollment in advanced academic courses is not mentioned. According to this report,

Involvement in regular education classrooms influences the performance of students with disabilities negatively, for several reasons. First, it was the inability to succeed in regular education settings that qualified many students with disabilities for special education originally. Second, regular education classrooms have higher student-to-teacher ratios than special education settings, a fact that potentially reduces the amount of individualized attention students with disabilities might receive there. Third, although most students with disabilities received some kind of accommodation in regular education classrooms, the support most frequently reported was the monitoring of the student by a special education teacher. Direct support to the student was less common. (16th Annual Report to Congress on Implementation of IDEA, 1994, p.79-81)

Thus, the data in this report indicate that most high school students integrated in general education classes have a negative experience and imply that limited accommodations in these settings are a part of the difficulty. "Many students without disabilities find the regular education classroom a difficult environment in which to succeed. For students with disabilities, the problem can be exacerbated by the lack of appropriate accommodations" (16th Annual Report to Congress on the Implementation of IDEA, p. 81).

The conclusions reached in this national report raise another question: What academic impact has inclusion in general education had on students with disabilities at Hart High School? One way to measure this is to examine the cumulative (GPA) of students with disabilities.

The 1994 Annual Report on IDEA (IDEA, 1994) states that students with disabilities who completed four years of high school earned a cumulative GPA of 2.3 (Table 3.7, p. 92). Table 1-2 depicts the status of seniors with disabilities from 1994 to 1995 at Hart High School.

TABLE 1-2 Cumulative GPA Grades 9 to 12 of Students with Disabilities at Hart High School

1994 n=17	1995 n=16	1996 n=19	1997 n=18
2.3	2.1	2.1	2.2

Table 1-2 indicates that students with disabilities after completing four years at Hart High included in all general education courses maintain roughly the same GPA as students with disabilities nationally, of whom only 27% are enrolled in general education more than 50% of the time. A related question is what impact has enrollment in advanced courses had on students' with disabilities GPA.

TABLE 1-3 Cumulative GPA Grades 9 to 12 of Students with Disabilities Electing One or More Advanced Courses

1994 n=7	1995 n=10	1996 n=13	1997 n=16
2.5	2.2	2.2	2.3

Table 1-3 provides evidence that even the students with disabilities enrolled in advanced courses at Hart High still maintained the same GPA as the national average, which is based on the majority of students (73%) enrolled in general education classes for less than 50% of their day.

What about the graduation/drop-out rate of students with disabilities nationally and at Hart High School? According to the 1994 Report on IDEA (IDEA, 1994) approximately 30% of students with disabilities who had been enrolled in 9th through 12th grade failed to complete their secondary schooling or, in other words, have a graduation rate of 70%.

TABLE 1-4 Graduation Rate of Students with Disabilities at Hart High School

1994 n=17	1995 n=16	1996 n=19	1997 n=18
16/17=94%	14/16=88%	18/19=95%	18/18=100%

As Table 1-4 indicates, the graduation rate for students with disabilities at Hart exceeds the national average by more than 20% even when students are fully included in general education. The drop out rate at Hart ranges from 3-7% and is significantly lower than the national average of 30%.

Based on the above data, full inclusion of students with disabilities at Hart High School is not having the negative effect that most secondary students with disabilities are reported to be having nationally. In fact they are maintaining the same GPA as the national average for secondary students with disabilities despite the fact that they are enrolling in advanced courses in increasing numbers. What accounts for these differences at Hart High School? What resources at Hart High provide support for students with disabilities to be fully included in general education with the outcomes described above? These are the questions I pursue in this dissertation.

Importance of the Study

As stated earlier, in the late 1980s Hart Schools promoted a special education reform to include students with disabilities in general education classes. At Hart High School the

special education reform intersected with the curriculum restructuring reforms for all students fostered by the PDS initiative. The wedding of these two reform initiatives, i.e., the intersection of inclusion for special education with curriculum restructuring in general education is now being promoted by Pugach and Warger (1996) as a promising way to foster inclusive education. Interestingly, the work of Lyle and Jane and other members of Hart High School's science department is represented in a chapter of the Pugach and Warger book (1996) to exemplify restructuring the science curriculum to include all students. Kugelmass (1996) argues that reconstructing general education curriculum is a vehicle for fostering systemic inclusion. Jorgenson (1997, in press) calls for the transformation of general education curriculums to include all students.

The significance of this study is that the Hart teachers in 1989 began the transformation of curriculums and the inclusion of at-risk students and those with disabilities seven years before educational researchers promoted this approach as a way to create inclusive schools. Consequently, the student findings described above this study has much to offer both general and special educators as they work to restructure curriculum and support students with special needs. In particular, it suggests that certain resources--environmental as well as intellectual--are critical to teachers' abilities provide all students, especially those with disabilities, challenging opportunities to learn subject matter in depth.

Other educational researchers have called for the cultivation of the moral purpose in teaching, i.e., making a difference in the lives of individual students (Fullan, 1994). Sirotnik (1990) and Fullan (1994) call for the reculturing of schools to support a moral ecology in which faculty are committed to inquiry, generation of professional knowledge, and change agency to restructure schools for social justice. The resources of the Professional

Development School supported the majority of Hart High School faculty in making this commitment. This study will analyze the resources teachers with moral purpose draw on to make a difference in the lives of individual students, especially those with disabilities. It will also describe how the opportunities for teachers with a moral purpose to collaborate, inquire and reflect together provide them with a collegial group, who can collectively foster a moral ecology that supports students with special needs.

Research Question

The question this study was designed to address is: What resources--environmental as well as moral and intellectual--contribute to a school's capacity to support students with special needs?

In addressing this question, I examine the professional knowledge and pedagogical reasoning that characterize teachers involved in transforming the general education curriculum to include all students. Further, I discuss in detail the beliefs that appear critical, if teachers are to address the needs of all students and, thereby, teach with a moral purpose. Finally, I will address the environmental resources that seem necessary not only to restructure, but reculture a school toward a moral ecology. Pugach and Warger (1996), and Kugelmass (1996) provide a framework to develop an inclusive school through the transformation of curriculums by general and special educators. This study of Hart teachers will provide some flesh to their outline by describing the resources that are necessary for schools to transform curriculums and the school culture to support students with special needs. It also describes some of the pitfalls that may await those who embark on similar journeys of reform.

CHAPTER 2

THE DEBATE ABOUT EDUCATING STUDENTS WITH DISABILITIES

In order to understand the nature of the reforms at Hart High School, a knowledge of how the debate over inclusion has unfolded in the last decade is necessary. During this time a fissure has developed between members of the special education research community. One side argues that the segregation of students with disabilities is an issue of civil rights and social justice, hence they advocate for inclusion and posit that the restructuring of general education is necessary to improve the learning of all students. The other side stresses that maintenance of a continuum of services is necessary to address the individual needs of students with disabilities and argue that the reformation of general education to meet the needs of all students is improbable. Following is a description of this debate and the issues presented by both sides.

Gartner and Lipsky (1987) in the first critical review and analysis of the 1970 implementation of Public Law 94-142, the Education for All Handicapped Children Act, illuminated several moral and ethical concerns regarding the efficacy of segregating handicapped students from their peers in view of the diminishing academic expectations and requirements that are made in their behalf. As a result many special education professionals, extremely dissatisfied with the ways in which policies of the Special Education Law have been implemented called for the dissolution of the dual system of special education and general education that exists. They argued convincingly for the need to merge these two entities in

public schools and universities (Gartner and Lipsky, 1987; Sapon-Shavin, 1988; Stainback and Stainback, 1985; and Will, 1986). Their underlying assumption was that students considered mildly mentally impaired, learning disabled, or emotionally impaired, i.e., mildly disabled would be better served in general education classrooms than in segregated settings in special education. They proposed collaboration and team teaching between general and special education teachers as methods for accomplishing this merger.

The position of these authors in the 1980s fueled a debate in the field of special education about how best to serve all students with disabilities that continues today. In fact through this debate the terminology has evolved with new interpretations of the Special Education Law and research findings in the field. Ferguson (1996) offers a detailed description of this evolution that serves as useful background information.

In the late 1970s "mainstreaming" emerged as a reform to incorporate remediation support into the general education classroom because special educators began to question separate classes for students with mild disabilities, or those "nearly normal." In addition, this reform was affirmed as new interpretations of the Special Education Law were issued emphasizing the "least restrictive environment," i.e., students with disabilities are to be educated with nondisabled peers to the maximum extent possible, as a first choice. Further, there was a call for persons with disabilities to be able to function in the mainstream of society. According to Ferguson (1996), this practice did not question, however, the underlying assumptions about disabilities as something that needed to be repaired with different curriculums and teaching. Instead, the discussions about mainstreaming were about where and by whom this remedial curriculum should be offered.

Integration was the next reform initiative in the early 1990s, which was edged with more of a social and political discourse than mainstreaming. In this reform, the civil rights framework was utilized to address the segregation and discriminatory exclusion of students with severe developmental disabilities from their neighborhood school. Unfortunately, this initiative lacked a programmatic definition to replace exclusion, which resulted in many different interpretations of integration most however sustaining students' segregated experience. In many schools the word "integration" was merely exchanged with the word "mainstreaming." These reform initiatives have been commonly referred to as the Regular Education Initiative (REI), i.e., an effort to service students with disabilities in regular education. For the most part students with disabilities have been educated based on a deficit-remediation model with a continuum of support services offered in different locations. The continuum of services includes the following:

Consultation Services: This support is the minimum of support provided by a special education teacher to a student with a disability and their general education teachers as needed. (least restrictive)

Resource Room: This support is offered to a student with a mild disability for one to three hours of their school day and replaces a class in general education. For example, students with difficulties in reading and writing are often "pulled out" of a regular English and placed in a special education English class for remedial instruction in their deficit areas. (moderately restrictive)

Self-Contained Classroom: This support is offered to a student with more moderate to severe disability. Their instruction in all subject areas is in this special education classroom with the same group of students. Sometimes this service is referred to as a Basic Classroom Program because the curriculum focus is primarily on basic skills instruction or functional skills, like cooking, laundry, cleaning etc. (most restrictive)

The program for students with disabilities is determined by an Individual Educational Planning Committee (IEPC) comprised of the special education teacher, the parents, an

administrator, other service providers (social worker, counselor, speech/language teacher) and sometimes the student. Usually the committee matches the student to one of the services on the continuum to fit the deficit and the type of disability of the student. One purpose of providing a continuum of support is to over time, reduce the amount of special education services in a student's program once their academic and social skills are closer to their grade level. Unfortunately, the consequence of this continuum is that the integration or mainstreaming of students with disabilities is never realized because the members of the IEPC felt that the student's skills are never quite strong enough to function in general education (Gartner and Lipsky, 1987). Thus, once a student is programmed for a particular service on the continuum, it becomes self-perpetuating. According to the 16th Annual Report on the implementation of IDEA only 27% of high school students with disabilities spend more than 50% of their day in general education many of whom were referred in elementary or middle school (IDEA, 1994).

This practice precipitated the concerns articulated by Gartner and Lipsky (1987) and others cited earlier and a call for the dissolution of the dual system that perpetuated segregation. As a result of the attempts to mainstream and integrate students with disabilities into general education, a new emphasis on "the least restrictive environment" and education with nondisabled peers "as much as possible with necessary supports and services" clauses of the Special Education Law were affirmed by the courts and the call for educational inclusion was initiated. Inclusion proponents challenged the educational community to offer the continuum of services in the general education classroom. Unfortunately, the initial inclusive practices resulted in the "dumping" of students with disabilities into general education without support to them or their general education teacher. Even when the

supports were incorporated into general education, students with disabilities "seemed in but not of the class" (Ferguson, 1996, p.24). They frequently worked in small groups by themselves, with a paraprofessional, or a special education teacher in the back of the room on assignments loosely connected to the classroom activity or assignment.

A decade later Lipsky and Gartner (1996) updated their 1987 article and continue their argument that students with disabilities should not be educated separately from their peers. They indicate that inclusion of students with disabilities can provide all students with an education that is "both individual and integrated" (p.762). In their 1996 article, Lipsky and Gartner call attention to the consequences of legislation in special education since 1987 around four central issues: equity and rights, the current special education system, school restructuring and inclusive education, and the remaking of American society. Their framing of the issue is particularly salient since they have led the charge in questioning the implementation of the special education law and calling for subsequent reform of this policy initiative for ten years.

Equity and Rights

In education, the terms "equity" and "rights" have often been used in relation to the education of minority groups including women and the poor. Typically, it has not been used to discuss the education of students with disabilities because society views the treatment of students with disabilities in a medical context requiring special treatment in a separate education system. One central question in the inclusion debate is whether it is a civil rights issue as disability rights advocates assert. Some, like Shanker (1994), the late President of the American Federation of Teachers, see no connection to civil rights and argue that African American children were eager to learn, which is far different from some students with

disabilities who disrupt classroom learning. Frank Laski (1994), a leading special education litigator, counters Shanker's position by citing Supreme Court Justice Marshall's conclusion upon reviewing the record of social exclusion of individuals with disabilities that their segregation rivaled the worst of Jim Crow laws. Lipsky and Gartner (1996) contend that,

Special education plays a sorting role, both for those consigned to it and for those students who remain in general education. It limits expectations of the former, and gnarls the attitudes of the latter (p.766).

Current Special Education System

While the Special Education Law 94-142 and its successor the Individuals with Disabilities Education Act (IDEA, 1990) in many ways have succeeded by guaranteeing access to public education and supporting more than five million students with disabilities, the outcomes for many students are dismal. According to Kohler (1993) the outcomes for students with disabilities transitioning to adult life have not improved significantly in the last ten years. Past and present data indicate that students with disabilities drop out of school at a rate between 30 and 80%. The unemployment rate for persons with disabilities is the highest of any groups, i.e., two out of three are not working and only two in ten work full time (Lipsky and Gartner, 1996). These unemployment statistics have serious economic implication for all Americans given that more than 50% of students with disabilities are learning disabled who, by definition, are of average or above average ability. Further, the National Longitudinal Transition Study of youth with disabilities (Wagner, D'Amico, Marder, Newman, & Blackorby, 1992; Wagner et al., 1991) found that 19% of all adolescents with disabilities had been arrested two years after school and a rate of 37% for those who dropped out. Therefore, Americans are supporting either through public assistance or the penal system a large group of people with the intellectual capability to be productive members of society.

Another concern with the implementation of IDEA is the variability of placement patterns by disability groups among the fifty states. The proportion of students with learning disabilities who are placed in general education settings varies from 0.3 percent in Iowa to 93.3 percent in Vermont. Students with mental impairments ranged from 0.28 percent in New Jersey to 74.7 percent placements in regular classes (1995, Seventeenth Annual Report to Congress, Table AB2). Thus, the place of service for students with disabilities varies greatly across the nation, in spite of the fact that all states operate under the same Special Education Law.

Problems with the funding of special education also exist. The cost of special education annually between federal, state, and local contributions is 20 billion dollars (Lipsky and Gartner, 1996). This translates into 2.3 times the average cost of \$5,266 per pupil of educating a student in general education (CEC, 1994). Not only are the costs enormous, but the ways in which these funds are allocated and used is problematic. Schools' funding levels are determined by the number of students identified with disabilities and their placement in segregated settings. Thus, the rules for allocation of funds reward overidentification of students with disabilities and promote more restrictive placements regardless of the "least restrictive environment" clause in the law.

School Restructuring and Inclusive Education

The special education system as currently designed consists of programs largely separate from, frequently parallel to, and occasionally intersecting with general education. Thus, the national reform initiatives have greatly ignored students with disabilities. In fact, the National Council on Disability, in a review of eight major reform initiatives put forth by the federal government between 1990 to 1992, found that only two of them included specific

references to students with disabilities (Lipsky and Gartner, 1996). However, the Goals 2000: Educate America Act (PL 103-227) incorporates students with disabilities. Ignoring students with disabilities in these reforms sends two powerful messages: that their education is irrelevant and that they cannot achieve. Conversely, inclusion of these students confirms the educational system's responsibility to educate all students and that they are accountable for their academic outcomes as well. Some states (Kentucky and Kansas) are focusing reforms on the overall system by combining reform initiatives like general education school restructuring and inclusive education, much the same as Hart High School did in 1988.

In spite of the funding practices in special education favoring segregated settings, inclusive practices have expanded from 267 districts in 1994 to 891 districts in all fifty states in 1995 (National Study on Inclusion, 1995). The definition of inclusion has evolved over a very short period of time—from the late 1980s to the present. Ferguson (1996) in her research on inclusive education has found that schools in the United States are somewhere on a continuum between the following ways of thinking about inclusion.

--Inclusion as a special education reform aimed at moving students with disabilities, especially those with moderate and severe disabilities, from self-contained classrooms, with services and supports needed to achieve effective social learning outcomes, to:

--Inclusion as a process of meshing general and special education reform initiatives and strategies in order to achieve a unified system of public education that incorporates all children and youths as active, fully participating members of the school community; that views diversity as the norm and maintains a high quality education for each student by ensuring meaningful curriculum, effective teaching, and supports necessary for each student (Ferguson, 1996, p.17).

Lipsky and Gartner (1995) found in their National Study on Inclusion including all 50 states the following outcomes of inclusive practices:

--Both general and special education teachers report that academic, behavioral, and social outcomes for students in inclusive classrooms are for the most part positive.

--Teacher participating in these programs report development of new instructional strategies and a sense of a team effort.

--Inclusion programs and school restructuring efforts are having a significant impact on each other.

--Students with varying disabilities and degrees of severity are being included in general education.

According to Lipsky and Gartner (1996), the development of inclusive education programs for many districts has been connected with broader restructuring efforts, as was the case at Hart High School, the site of this study. Villa and Thousand (1993) in their study of thirty-two school sites found that administrative support in the form of setting a vision for teaching and learning all students, providing time for professional development and teacher collaboration, and securing financial resources to support the development of inclusive classrooms was key. Lipsky and Gartner (1996) have found in their review of inclusive practices across the country that the focus of the teacher collaboration should include the development of alternative assessments, curricula adaptations, implementation of cooperative learning strategies, and peer tutoring. Both parental involvement and supports for staff and students in the form of problem solving teams were also listed. Berres, Ferguson, Knoblock, and Woods (1996) in their book on inclusion report similar components for creating inclusive schools. Jorgenson (in press, 1997) offers guidelines that incorporate these same elements for creating inclusive schools.

Naturally, the reforms in special education since the late 70s, mainstreaming and integration (the precursors to inclusion) have encountered fierce debate. Critics of these

reforms have expressed serious concerns about reintegrating students with disabilities into a system that was unable to address their needs in the first place. According to Zigmond and Baker (1990) once mildly disabled students are integrated into general education settings, classroom teachers cannot conduct "business as usual." Business as usual for many students prior to their qualification for special education services has meant chronic failure and frustration in general education classrooms. Fuchs and Fuchs (1991) describe mildly disabled students' history in general education settings as one in which they had chronic trouble and academic failure and therefore were referred out. Students are generally referred for special education services not only because of their behavioral and/or academic difficulties, but frequently because of general education teachers' unwillingness and/or inability to teach these children.

Obviously, then in order for the re-entry of mildly disabled students into general education classrooms to be successful, staff development opportunities for veteran teachers faced with teaching mildly disabled students are necessary to develop their confidence and abilities to teach more diverse learners. Also, the training of preservice teachers needs to incorporate experiences with diverse populations including students with disabilities. Additionally, the nature of the practice of teaching in general education must change, otherwise the re-entry of students with mild disabilities will be a repeat of the same experience that triggered their referral for special education initially, i.e., academic failure. This is precisely the kind of reform that inclusionists like Ferguson, et al, (1996) and Jorgenson (in press, 1997), and Pugach and Warger (1996) are advocating: professional development time for general and special educators with the support of the principal to restructure teaching and learning for all students, particularly those with disabilities.

Ferguson (1996) posits that systemic inclusion as prescribed is neither easy, nor a quick fix; rather, it is an evolutionary process. Although Fuchs and Fuchs (1995) agree that general education classrooms can be made more accommodating, "there are limits on just how resourceful and responsive the mainstream can become" (p.524). They indicate that they are not the sole source of doubt about the capability of general education to respond to the needs of students with disabilities as several national organizations representing the disability community hold this view too. Both parent and professional groups like the Learning Disabilities Association, the National Joint Committee on Learning Disabilities, and the Division of Learning Disabilities of the Council of Exceptional Children strongly support the continuum of special education services. Further, these organizations view the movement toward full inclusion as a threat to the capability of schools to provide an appropriate education to every individual with a disability. In addition, they believe that parents of students with disabilities need to have placement options for their children.

Fuchs and Fuchs (1995) delineate what is "special" about special education: individualized instruction, smaller classes, and more highly trained teachers. Besides program placement the IEPC develops an individualized education plan, IEP, establishing goals and objectives for the student's area of needs. The ratio of students with disabilities per special education teacher in the nation is approximately 15 students (Fuchs and Fuchs, 1995). According to the National Center on Education Statistics, approximately 55% of special education teachers have Master's Degrees as compared with 40% of general educators. All of these factors seem to indicate a higher quality of instruction in special education classrooms.

Fuchs and Fuchs (1995) indicate that outcomes for students receiving special education services are mixed. They base this on a meta-analysis by Carlberg and Kavale (1980) of fifty independent studies of special education resource rooms versus regular classes. They concluded that for students with mild mental impairment special classes were significantly inferior to general education placements for this population and superior for students with behavior, emotional and learning impairments. Sindelar and Deno (1979) had similar findings in their review of 17 studies on the effectiveness of resource rooms. Additional reviews by Madden and Slavin (1983) and Leinhardt and Palley (1982) do not agree in all respects with the findings of Carlberg/Kavale and Sindelar/Deno, but all four studies agree on one major point that for particular students special education programs promote greater academic achievement than do general education classrooms (Fuchs and Fuchs, 1995). However, all four of the studies mentioned above were conducted in the late 1970s and early 1980s. Thus, the researchers reviewed studies on the effectiveness of special education programs in the 1970s, which was just after the passage of the Special Education Law (1975) and prior to the reforms of mainstreaming and integration of the late 1970s and the restructuring reforms promoted for general education. The question is whether these same results would hold true today. Further, all of the studies reviewed were elementary programs. Would these findings be similar for secondary students with disabilities?

The strongest argument that Fuchs and Fuchs (1995) offer for the maintenance of separate special education programming is the individualized instruction based on student need offered in these settings. They cite their research findings on encouraging general educators to adopt individualized instructional strategies as very discouraging. They found

that general education teachers make mostly group adaptations rather than individual, which are very minimal adjustments and do little if anything to support their needs.

In 1985 the Division of Innovation and Design (DID) of the Office of Special Education Programs (OSEP) funded a series of projects to develop model programs that would identify instructional, administrative, and organizational strategies for providing special education services in general education classes to students with learning disabilities. The funding of this research was consistent with the Regular Education Initiative philosophy of the department and the efficacy of the model programs were to be based on students' academic outcomes. Zigmond, et al (1995), recipients of these grants, report their findings of data from three different elementary multi-year studies in the states of Pennsylvania, Washington, and Tennessee in rural, urban and suburban contexts. In each of these studies, students with learning disabilities were provided reading instruction in general education classes restructured to accommodate their needs.

Each of the sites developed a model for changing: 1) the conditions in general education classrooms that necessitated referrals to special education, 2) the return of students with disabilities from special education services to general education, and 3) the accommodation of students with disabilities more effectively in general education. In all three sites the university members initiated the reform effort with the schools. The models were jointly developed by volunteer general and special education teachers and school administrators.

The results of the studies were mixed. Over the three projects, 54% of the students with learning disabilities achieved gains in excess of one standard error of measurement. This also means that 46% did not make this gain. Further analysis revealed that students with

learning disabilities who made average or better gains differed by site (33% for Pittsburgh, 23% for Washington, and 64% for Vanderbilt) averaging 37% across sites. There are several ways to think about this data. One way according to the researchers is that overall 63% of students with learning disabilities did not achieve average or better on these reading tests. Another way is to consider whether it is reasonable to expect that students identified with difficulties in learning to read would be expected to make an average or better gain than their nondisabled peers. An additional consideration the researchers offered was whether students with learning disabilities would start to catch up with their peers who are achieving at an average level. A comparison of their fall and spring reading test scores was made. The results of the sites differed with 53% (Pennsylvania), 38% (Washington), and 62% (Tennessee) of LD students gaining ground on their peers. Thus, overall 61% of the target population had moved up in their standing, the other 39% stayed the same or lost ground.

The researchers interpret these findings as disappointing and that "general education settings produce achievement outcomes for students with learning disabilities that are neither desirable nor acceptable given that these three projects invested tremendous amounts of resources, both financial and professional" (p. 539). In the authors' opinions their studies did not answer the question of how best to provide services for students with serious learning disabilities, even though 37% achieved average or better gains and 61% moved up in their standing.

There are other questions to ask of this study: With the merger of the general and special education resources in these studies what were the outcomes for nondisabled students with low reading scores? How will the additional training for general education teachers in accommodating students with special needs in reading impact their referral rate for special

education services in the future? What were the impacts on students with disabilities socially and emotionally in terms of their self-esteem as related to receiving instruction with their peers, rather than in a segregated setting in the short term? in the long term? What implications, if any, does this study have on teaching secondary students with disabilities? In the final analysis Zigmond et al. (1995) conclude that their research evidence confirms that there are no simple answers to where appropriate and effective services for students with disabilities should be delivered. Further, they conclude that their studies provide no basis for the elimination of the continuum of services and no basis for asserting that satisfactory outcomes can be achieved for students with disabilities in general education settings. They do not, however, mention that the findings of their study offer support for servicing some students with learning disabilities in the "least restrictive environment," namely the general education classroom.

The issue of the continuum of services is at the center of the debate between proponents of the status quo and the inclusionists. The initial interpretation of a continuum of services as described earlier in this chapter tied the service to a place or location in the school separate from general education or out of the home school. According to Ferguson (1996) the proposal to eliminate the continuum of services (Giangreco, Dennis, Cloninger, Edelman and Schattman, 1993) are interpreted by a few (Fuchs and Fuchs, 1994) as a call to eliminate the services themselves. In actuality Ferguson, Willis, Boles et al., 1993; National Association of School Board Educators, (NASBE), 1990; The Association for Severely Handicapped, (TASH), 1994, have emphasized the necessity to separate the services from places and instead make the full continuum of services available to all students labeled or not. In fact, full inclusion should not mean the elimination of services, but rather encourage

general and special education teachers to share their expertise for all students as they did in the Zigmond et al., (1995) study.

An additional aspect of the debate on inclusion is around the issue of **all** students with disabilities spending all their time in general education (Stainback, Stainback, and Moravec, 1992). Researchers skeptical of the feasibility of the inclusion of all students often cite extreme examples of medically fragile and dangerously violent students to call into question the concept of inclusion (Kauffman, Lloyd, Baker, and Reidel, 1995). Kauffman and Hallahan (1995) in their book, The Illusion of Full Inclusion, raise a concern about the need for students with visual and hearing impairments to have separate instruction in Braille, Orientation and Mobility, and signing. Ferguson (1996) in response to these issues argues that offering extreme cases in this debate misses both the point and the potential of restructuring both general and special education to better address the needs of all students. She contends that in inclusive schools some students for some parts of their schooling, might spend more time than others in certain settings. However, all students should have the opportunity to learn in a variety of places, in both large and small groups, and in community locations. If this were the norm that all students learned in a variety of settings and locations with various approaches to learning, than no student would feel segregated or singled out. This has not been the case with the implementation of a continuum of services. Historically, when students with disabilities have been placed in self-contained programs, resource rooms, or segregated schools they end up being in a permanent placement (Gartner and Lipsky, 1987).

The debate about how to best service students with disabilities and where continues. More research is needed regarding the development of inclusive schools and long term

student outcomes. In particular, more research is needed at the secondary level where a paucity of studies exists regarding outcomes of service delivery to high school students with disabilities. Fuchs and Fuchs (1995) express serious doubt that general education teachers can and/or will address the special needs of students with disabilities integrated in their classrooms, while inclusionists Berres, Ferguson, Knoblock, and Woods (1996); Jorgenson (1997 in press); Lipsky and Gartner (1996); Pugach and Warger (1996); and Thousand and Villa (1995); call for collaboration between general and special education to develop practices to better address the needs of all students especially those with disabilities. A major question to pursue is what resources contribute to a school's capacity to support students with special needs in inclusive settings? That question is the focus of this study that examines what resources general and special education teachers at Hart High School drew on to restructure teaching and learning for all students, in particular those with disabilities.

Theoretical Frameworks of This Study

Several theoretical frameworks developed by Fullan (1991 and 1994) proved useful in organizing and framing the results of this study at the classroom level and at the organizational level. Fullan (1991) states that the implementation of educational change at the classroom level involves changes in the practice of teaching. But what precisely does this mean? This is a difficult question to answer given that innovation or change in a classroom is multidimensional. According to Fullan (1991) there are at least three elements to address in changing classroom practice: 1) the implementation of new curricula or the revision of curricula, 2) the development and implementation of new teaching strategies and methods, and 3) changes in teachers' beliefs, i.e., the underlying assumptions and theories that support the decisions they make in their classroom.

He stresses that all three components are necessary because taken together they represent a way of achieving the goal. "Change has to occur in practice along these dimensions in order for it to have a chance of affecting the outcomes" (Fullan, 1991, p.37). In addressing the question of this study at the classroom level, teachers' beliefs, changes in curriculum, and changes in teaching methods surfaced in the teachers' conversations about their experiences in addressing the needs of students with disabilities. Thus, this theoretical framework was useful in framing the data of this study.

For change at the classroom and school organizational level Fullan (1994) offers another theoretical framework. "Managing moral purpose and change agency is at the heart of productive educational change" (Fullan, 1994, p.8). As Goodlad, Soder, and Sirotnik (1990) studied teacher education they began to see the moral imperatives embedded in teaching in a post-modern society. Goodlad (1990) illuminated four moral imperatives for public schools today.

The first moral imperative is furthering critical enculturation. The school is the single public institution in our country designated with enculturating youth into the principles of democracy. The second moral imperative is providing access to knowledge. Again the school is the only societal institution given the responsibility to provide youth with experiences with all subject matters. According to Goodlad (1990) all teachers must be attentive that no belief or practice limits any student's access to knowledge. The third moral imperative is developing an effective teacher-student connection. Teaching must encompass more than the teaching of subject matter it must also include sensitivity to the human qualities of their students. The fourth moral imperative is practicing good stewardship, i.e., teachers

must be actively engaged in the renewal process of the institution. Sirotnik sums up these moral imperatives in the following statement.

The implications of moral commitments to inquiry, knowledge, competence, caring, and social justice go further than curriculum and classroom experiences. They go to the very heart of the moral ecology of the organization itself (Sirotnik, 1990, p.298ff).

Fullan (1994) emphasizes that the building block of these moral imperatives is the individual teacher with a moral purpose, i.e., committed to making a difference in the lives of individual students. However, he elaborates further that "one cannot make a difference at the interpersonal level unless the problems and solutions are enlarged to encompass the conditions that surround teaching" (Fullan, 1994, p. 11). In other words teachers are mediators of both educational change and societal improvements. They are change agents with a moral purpose.

Fullan (1994) defines change agency as an awareness of the nature of change and the change process. The question is what are the elements of change agency that the individual and the culture of the institution embody? Fullan (1994) delineates four elements that will build greater individual and organizational change.

The first element of change is vision building. Developing a vision at the individual or institutional level means examining and reexamining one's purpose for being a teacher, thereby continually bringing this purpose into consciousness. By articulating one's vision for the future it calls into question elements of dissatisfaction with the organization whether at the classroom or institutional level. The development of personal vision with a moral purpose is the route to organizational change toward a moral ecology.

The second element of change is inquiry. According to Pascale (1990) "inquiry is the engine of vitality and self-renewal" (p.14). The development of one's personal purpose is dependent on engaging in conversations with other educational professionals to gather develop professional knowledge, discuss dilemmas of practice, and the elements of the organizational structure. Inquiry is characterized by the internalization of norms, habits, and techniques for continuous learning. It is an unquenchable thirst for further knowledge.

The third element of change is mastery. According to Fullan (1994) people must practice their way into new ideas not merely think them and talk about them. Mastery is both an outcome and a process. Senge (1990) describes mastery as approaching one's life as a creative work. One in which the individual is always clarifying what is important (purpose, vision) and continually learning to see the reality of the context or situation. The ability to be effective at change mastery is essential as a personal habit and in relation to specific reforms (Fullan 1994).

The last element for effective change is collaboration. Personal learning is dependent on collaboration. At both the classroom level and the institutional level people need to interact with each other to achieve their goals and objectives. Collaboration involves the ability to form peer relationships, partnerships and work as a team. Having the skills to collaborate is necessary to make change in any organization or institution.

In sum, the four elements of vision building, inquiry, mastery, and collaboration are necessary for teachers to implement change at the classroom as well as the institutional level. When wedded with the moral purpose of teaching these elements of change operationalized at both the classroom level and the institutional level have the possibility of fostering a school with a moral ecology. Fullan's (1994) theoretical framework connecting moral purpose and

change agency is at the heart of restructuring initiatives proposed by the inclusionists in special education. The call to restructure general education to better meet the needs of all students including those with disabilities requires teachers with both a moral purpose and a commitment to change. Thus, in analyzing the data of this study to respond to the question what resources are necessary to support students with special needs in inclusive settings this second theoretical framework developed by Fullan was ideal. These are the skills of teachers acting as change agents to ensure that the moral imperatives of a post-modern society as suggested by Goodlad (1990) described above are embedded in the culture of public schools.

A third theoretical framework was used by the author to analyze and organize the data on teachers' intellectual resources. Wilson, Shulman, and Reichert (1987) developed a beneficial framework for this task. Their model of the professional knowledge base of teaching includes seven components, three of which proved useful in this study: general pedagogical knowledge, subject matter knowledge, and pedagogical content knowledge. The authors define general pedagogical knowledge as the knowledge of pedagogical principles not bound by topic or subject matter. In this study it includes the theories and principles of teaching and learning, knowledge of diverse learners, and knowledge of principles and techniques of classroom management and behavior.

Schwab's (1964) definition of subject matter knowledge was used by Wilson, Shulman, and Reichert (1987) to define this concept. It encompasses knowledge of ideas, facts, concepts, and syntax of a discipline and their relationships. Subject matter knowledge also includes an understanding of the syntax of a discipline, i.e., the process for generating and testing knowledge. Pedagogical Content Knowledge as detailed by Shulman (1986)

includes the knowledge and understanding of the process of teaching a topic as well as the knowledge of the methods to teach the topic.

Pedagogical reasoning is a process described by Wilson, Shulman, and Reichert (1987) details the seamless process that teachers cycle through in their practice of teaching. There are six steps in the process: instruction, evaluation, reflection, new comprehension, comprehension, and transformation. Transformation consists of four subskills: critical interpretation, representation, adaptation, and tailoring. The last two subskills are critical for both general special educators in considering how to accommodate students with special needs. Adaptation involves fitting a representation of a concept to the characteristics of students in general. Tailoring is modifying the concept to the specific characteristics of a student. Tailoring is the heart of moral purpose and central to successfully including students with disabilities.

The three elements of the theoretical model of the professional knowledge developed by Wilson, Shulman, and Reichert (1987) were critical in identifying what intellectual resources teachers draw on to support students with special needs in general education. Further their process detailing pedagogical reasoning provides a beneficial framework for special and general educators working together to think about their process of teaching in a circular way and provides them with a language for transforming their teaching to address the needs of individual students.

In conclusion, the theoretical frameworks developed by Fullan (1991, 1994) were very beneficial in describing the processes of change that evolved at Hart High School as a Professional Development School toward a culture with a moral ecology. Further, Wilson, Shulman's and Reichert's (1987) model for professional knowledge was useful to categorize

and organize the kinds of knowledge that is necessary for general and special educators to support students with special needs. Further their process for pedagogical reasoning provides teachers with a language for thinking about and discussing ways to support the specific needs of individual students.

CHAPTER 3

METHODS OF THE STUDY

Description of Research Methodology

One of the challenges that I faced as both a researcher and a teacher at Hart High School was how to study the professional knowledge base and thinking of my colleagues, who themselves were action researchers. The educators who participated in this project, as members of a Professional Development School, were accustomed to creating studies in partnership with university faculty, i.e., developing the questions and methodology, and conducting the data analysis. Given that the nature of my daily interactions with these teachers was collaborative, for me to attempt to step back and play the role of an outsider in a research project with them would have been difficult, if not impossible. Further, as a special educator at Hart High I was deeply engaged in both improving the teaching and learning of special needs and at-risk students and in reconfiguring the culture to make collaboration the norm. On this basis, the research model chosen to study our work needed to be collaborative. Thus, adopting a traditional research approach with a clear delineation between a researcher and subjects with this group of teachers in this setting seemed both illogical and inappropriate. Since this study examined the professional knowledge they developed partly through their own research studies, their input into the design of this study was both necessary and valuable.

Two research methodologies proved useful in thinking about the design of this study and the data analysis. The Collaborative Inquiry Method, developed by Peter Reason, provided a beneficial model, given my interest in including my colleagues in designing the study. Naturalistic Inquiry Method as described by Lincoln and Guba (1985), also proved helpful as I organized my data analysis. The collaborative or co-operative inquiry methodology designed by Reason (1988) was the model that most closely aligned with the ways in which the members of this group were accustomed to conducting their research. Given that all of the members of the group used the processes of collaboration and inquiry in their projects a research methodology that incorporated these components would be the most suitable. According to Reason (1988) Co-operative or collaborative inquiry is research that is **with and for** people rather than **on** people. Thus, this method is a way to research, in which all those involved contribute to both the creative thinking involved in designing the study, i.e., deciding what is to be studied, how it will be studied, and making sense of the data, and also contribute to the action that is the subject of the research.

Project group members participated in all phases of the research except making sense of the data. Since the analysis of the data for this study involved a major time commitment and I wanted to utilize the data for my dissertation, I took the sole responsibility, with the group's permission, for analyzing the data and reporting the findings in this document.

I shared with the group Reason's (1988) description of both the stages of group development and the stages of collaborative inquiry. According to Reason, groups tend to evolve through three stages of group development.

Stage 1. The group needs to come together and to nurture and help individual members feel that they are safe and that they have a place in the group. There needs to be ways in which people can get to know each other and feel comfortable with each other.

While all of the group members knew each other, the backgrounds of the various members were not known to each other. Consequently, the first two sessions were devoted to each member describing their educational background and other elements of their personal life as they chose. To assist the group in coming together and feeling comfortable, I held the first session at my home over dinner. Subsequently, several group meetings took place over lunch at school and members took turns bringing snacks and beverages for the group at each meeting. The sharing of food was a source of comfort and seemed to revive all of the group members at the end of their hectic school days, which was the time for most meetings.

Stage 2. Struggles in the group may develop into opposing subgroups. The atmosphere may become argumentative and various group members may vie for control of the group. However, if all the members feel included then this dissension will not threaten the group members and their work. At this stage, a group facilitator must allow and encourage differing opinions, help people listen, and find ways to reach consensus.

The participants in this group were experienced in the collaborative process. Therefore, there was never a division of the group members or a tone of argumentativeness. However, members often expressed different viewpoints and at times disagreed with one another (some of these instances will be described in chapter four).

Although this was a collaborative inquiry group, it did not mean that all members participated in identical ways or to the same degree. Members played various roles at differing times. I was designated by the group to serve as the facilitator and organizer of the project work. This meant that I arranged the meeting dates, time and place. I organized the agenda with the groups' input, facilitated the conversations, and served as the time manager. These were the only designated roles; other roles were jointly shared by the group. All

members took turns in clarifying the inquiry and reflective processes of the group, managing the distress that various members expressed about their work, and validating group members' contributions.

Stage 3. If participants can successfully negotiate stage two, this opens the way for a fully collaborative relationship. If the group can embrace members with differing points of view then each member can feel that they hold a unique place in the group and offer their individual contribution. Thus, the group can engage in its work in a mature way, drawing fully from the contribution of each member.

Since the members of this group were experienced in the group process and voluntarily participated in this project, they were prepared to establish a fully collaborative relationship. Further, because they were dedicated professionals committed to improving all students' opportunities to learn, they brought a mutual commitment to the group. Evidence of their ability to function at stage three is presented in chapter four.

In addition to the stages of group process Reason (1988) identifies four stages in the development of a Collaborative Inquiry:

Stage 1. Participants discuss and agree what it is they wish to research; what ideas and theories they hold, what kind of research action they will undertake to explore these ideas.

Stage 2 Participants implement research action agreed upon in Stage One. This may include self-observation or reciprocal observations of other members of the inquiry group.

Stage 3. Participants become fully immersed in their research. They encounter each other in their world directly, opening themselves up to novel experiences and discerning what is actually happening.

Stage 4. Participants reflect on their experiences and attempt to make sense of it. This involves revising and developing the ideas and models with which they entered the first stages of inquiry, even discarding them as necessary.

The essence of this model is a conscious, self-critical movement between experience and reflection, which develops through several stages as ideas, practice, and experiences are

systematically honed and refined (Reason, 1988). The participants in this project experienced all four of the stages described above during their fourteen collaborative conversations (detailed in the next section of this chapter). During the first five weeks of the project the group met weekly for approximately one and a half hours after school. During these group conversations, project members discussed what they wanted to study in this inquiry group and how they wanted to conduct the study (stages one and two).

All members agreed that they wanted to share and discuss their work in restructuring curriculums to support at-risk students and those with disabilities, ask questions of each other, and reflect on their progress to date. In the second session I presented the group with several questions to frame our conversations. After much discussion and some modifications, we agreed on the following four questions to guide our subsequent discussions.

1. Given that Hart High School's faculty has six years of experience with mainstreaming students with mild disabilities, what are the beliefs of general and special education teachers about these students' capabilities to succeed, i.e., to learn what the majority of the class can learn, in general education settings?
2. What are the teachers' beliefs about this reform initiative to mainstream students with disabilities?
3. What modifications and adaptations to their curriculum, teaching methodology, forms of assessment, and social organization of their classrooms, if any, did they make to ensure the success of students with mild disabilities in their classrooms?
4. How successful are students with mild disabilities in their classrooms based on their perceptions, the students' grades, and their post graduation plans?

As the facilitator of the group, I reminded the members at the beginning of each meeting of these questions. In addition to discussing these questions in the collaborative conversations, the group agreed to two other methods of studying these questions. Regarding the first two

questions stated above on teachers' beliefs the participants decided to complete a fastwrite on this question. This data was submitted to the research assistant in a sealed envelope to ensure that no one reviewed the statements in advance of the group conversations. The research assistant was a college student enrolled in the special education teacher education program at MSU. She was funded through the PDS to assist with data collection and organization and for researching recent journal articles related to our work, i.e., collaboration, teacher beliefs, teacher knowledge.

Further, upon my suggestion, the group decided that case studies of two hypothetical special education students with questions about curriculum, methodology, and classroom organization would be an interesting way to discuss their individual strategies to include students with disabilities in their classrooms. They were familiar with the use of case study, as this was used in many PDS projects to discuss changes in practice and teachers' dilemmas. I wrote the case studies that profiled two typical students with disabilities (See Appendix A and B). Each member's responses to the case studies were videotaped by the research assistant (Stage Two).

Stages Three and Four of the collaborative inquiry process were implemented in conversations six through fourteen. These were the sessions in which the participants opened themselves up by describing and listening to one another's experiences and dilemmas in supporting students with disabilities in their classrooms. The last six sessions in particular provided all members the opportunity to inquire and reflect about their professional knowledge when they viewed individual members' videotapes of the case studies.

In sum, the participants in this study adopted the major components of Reason's (1988) collaborative inquiry method for studying their professional knowledge and beliefs that

developed as they restructured their curricula to better meet the needs of students' at-risk and those with disabilities. The only research activities in which they were not involved was analysis of the data and writing up the results.

Description of Data Sources

I draw on five data sources in this study, several of which I mentioned briefly above.

1. Teacher Fastwrites All of the project participants completed a fastwrite on the first two guiding questions for the group conversations about teachers' beliefs regarding students with disabilities capabilities to succeed in general education and their beliefs about the reform to mainstream or include these students. Prior to the conversation during the fifth meeting all members submitted a twenty minute response on these questions to the research assistant. These written statements also provided baseline data on each individual's response beliefs before the group began discussing the questions.

2. Fourteen Collaborative Conversations The group members participated in fourteen collaborative conversations as a part of this study from the last week of October 1993 to last week of May 1994. The conversations, ranging in length from one hour to three hours, averaged one and a half hours. All of the conversations were audiotaped and then transcribed. I chose to use an independent transcriber because I wanted to eliminate the possibility of my bias influencing the transcription of these conversations. The transcriptions of these fourteen conversations were one of the major data sources for this study.

Attendance at each session varied. This is understandable given the major time commitment involved in participating. Nevertheless, all seven members were present for 7 of 14 of the conversations, six members were present at 4 of 14, five members were present at 2 of 14, and only four were present at 1 of 14. However, with one exception, all members

were present for the collaborative sessions at which the videotaped interviews of the hypothetical case studies were discussed. These sessions provided some of the most salient data. The teachers on which I focused for my analysis--Lyle, Holly, and Jane-- were all present in 10 of the fourteen conversations and they were all present in the last six sessions for discussions of group members' videotaped interviews of the case studies.

3. Hypothetical Case Studies One way that the group decided to capture their professional knowledge and skill in supporting students with disabilities in general education classes was by using hypothetical case studies as prompts. At the group's request, I developed two cases that were based on many students with mild disabilities that I had taught. The Scott case study described a boy of average ability with attention deficit and hyperactivity disorder. He had difficulty completing tasks and his accuracy was limited because he rushed to complete his work. The Jessica case study profiled a girl who possessed strong social skills, but faced difficulties in reading and writing. The case studies struck the project teachers as realistic representations; several made comments about their authenticity. They asked if they were real students or commented that they had students just like Scott and Jessica.

The one-page descriptions of the students were followed by twelve questions that incorporated elements of the guiding questions the group decided to frame their conversations. Some questions asked about teachers' beliefs about teaching students with disabilities and their capabilities for success in general education. In addition, other questions asked about curriculum modification, accommodations, assessment, and classroom organization. The last questions dealt with who was responsible for teaching this student. The complete case studies are included in Appendices A and B.

4. Videotaped Interview of Teachers' Analysis of the Hypothetical Student Case Studies

All members of the group (including myself) participated in an individual pre-and post-interviews about the two hypothetical students conducted by the research assistant. Each teacher made an individual appointment with the assistant during January or February 1994. After the teacher read each of the case studies, the research assistant asked them the twelve scripted questions about the case. These interviews were videotaped. The same procedure was followed for the post-videotaped interviews. However, only the pre-interviews were subsequently shown to the group members and discussed in the collaborative sessions. The post-interviews conducted after all 14 collaborative conversations were concluded were not shown to the group members.

The videotapes of each pre-interview were shown during the last six sessions of the collaborative project. After viewing the videotaped group members queried the interviewee about their responses. These conversations were audiotaped and then transcribed. These conversations provided a great deal of data about teachers' methods of supporting students with disabilities in their classroom.

5. Unpublished Papers Two unpublished papers written by the project members were used as data sources in this study. Although they were not submitted for publication, they had been presented at national conferences. Lyle's and Jane's paper was a transcription of an interview conducted by Helen Featherstone at MSU. The interview consisted of a three-way conversation about restructuring the science curriculum and the teachers' approach to including students with disabilities. This paper detailed the evolution of their beliefs, their curriculum, teaching methods, as well as perceptions and feeling of the students' with disabilities about being included in heterogeneous classrooms.

The second paper was written by Sally and me about our experiences in restructuring the fundamental math class to engage at-risks students and those with disabilities in mathematical reasoning and problem solving. Specific examples of the development of mathematical reasoning in students with disabilities were described in this paper. In addition, the paper detailed the school environment necessary to support teachers' in taking the risks entailed in reform efforts.

6. Researcher as Instrument: My Knowledge of These Teachers and Hart High as a PDS A major source of informal and unsystematic data has been my knowledge of these teachers and their work, the role of special educators and the system of special education, and Hart High as a PDS. As mentioned in the last chapter, all the decisions that researchers make in any study involve trade offs. A researcher who is also a teacher in the school under study limited objectivity in the classical sense. The trade off, however, was a more intimate, day to day knowledge of the teachers and events in the school. Further, as a faculty participant in the PDS, I could provide an insider view on the human and fiscal resources that were available or not to support the restructuring efforts of teachers at Hart High. Therefore, my prolonged engagement with the faculty and involvement in the school establishes a trustworthiness in terms of the data.

As a special education teacher at Hart High I worked closely with Lyle, Jane, and Holly, collaborating and problem-solving on behalf of the students with disabilities that were my caseload responsibility. I had many opportunities to visit their classes and observe their individual tutoring sessions with my students. Through collaborating with them about the special education students on my caseload, I learned first hand about their curriculum accommodations, alternative assessments, and classroom modifications to address the needs

of students with disabilities. As a special education teacher, immersed in the reform initiatives at Hart High, I experienced personally the dilemmas and tensions of managing the legal mandates and educational responsibilities of this role. Further, I played a part in many PDS projects working with English, history, and mathematics teachers on restructuring their curriculum and teaching methods to address the needs of all students. In addition to my role as a faculty member, I also served on the PDS school council which reviewed proposals for projects and made decisions about funding. All of these experiences allowed me a front seat view of the change process at Hart High School. Therefore, my various roles at Hart High brought to this study a more intimate and richer account of the restructuring efforts of the teachers and administrators at Hart High and their struggles than an outside researcher could document.

Data Analysis

The naturalistic inquiry research model, described by Lincoln and Guba (1985), provided several useful methods for inductive data analysis. Inductive data analysis is a process designed to uncover embedded information and make it explicit.

Guba and Lincoln (1985) identify two sub processes that are necessary for inductive data analysis: unitizing and categorizing. Unitizing involves identifying single pieces of information or units that can stand by themselves. Categorizing is the process in which units of data are organized into categories that offer descriptive information about the context from which the units were obtained. According to these authors this process has been detailed in full by Glaser and Strauss (1967) as the "constant comparative method."

This method involves sorting units into temporary categories on the basis of similar or "look-alike" characteristics. As elements of these temporary categories accumulate, the

analyst develops a "rule" that determines the basis for inclusion/exclusion decisions about elements in the category. The rule is subject to continuous refinement as new data are reviewed for inclusion or exclusion. In the final analysis all of the elements in a category must meet the definition of the final rule. For example in the second read of the collaborative conversations, I identified two units, one of which was "teachers' beliefs about classroom practice" and the other was "beliefs about the structure of the educational systems." Upon further analysis the unit of beliefs on classroom practice was subdivided into three categories: "beliefs about learners," "beliefs about teachers' roles" and, "beliefs about content and assessment." The rule was that any statement regarding beliefs about learners was placed in that category; references or statements about teachers' roles were placed into a second category. Each belief category was further subdivided into specific beliefs about learners, teachers' roles, content and assessment. (See Appendix C for a detailed listing of these categories and subcategories of teacher beliefs).

Guba and Lincoln (1985) also recommend triangulation of data as a way to build the credibility and validity of one's data. Triangulation involves collecting multiple sets of data by different methods that then can be cross referenced or compared and contrasted for corroboration. For example, in this study data regarding teachers' beliefs about learners were collected by several methods. Teachers submitted a written statement about their beliefs, teachers talked about their beliefs in the collaborative conversations, and embedded in the interview about the hypothetical case studies were questions about teachers' beliefs. These three data sources were compared to establish the consistency of their beliefs. In addition, my own knowledge based on my daily work and collaborations with these teachers, provided another source of data that enabled me to validate data from other sources.

I analyzed fourteen collaborative conversations multiple times. As a first step, I read all of the conversations and recorded general themes that surfaced in each conversation. The second step was to distill the 30-50 page conversations into a mini summary of 10-12 pages. Each of these mini-summaries was subsequently reduced to a one-page summary of the major themes of each conversation. This allowed me a quick reference for each of the conversations. I then read and reread the mini-summaries to identify units of teacher knowledge, such as, general pedagogical knowledge, subject matter knowledge, pedagogical content knowledge, and pedagogical reasoning as defined by Wilson, Shulman, and Richert (1987). I referred to the original transcripts of the conversation as necessary when developing units and/or categories. The two other data sets (belief statements and videotaped interviews based on the case studies) were read and reread to further inform the units of teacher knowledge.

Once all of the data were unitized, I undertook the next process, categorization. For example, the unit of data on general pedagogical knowledge was analyzed into three categories based on the definition of pedagogical content knowledge described by Wilson, Shulman, and Richert (1987). These three categories were: knowledge of the theories and principles of teaching and learning, knowledge of diverse learners, and knowledge of principles and techniques of classroom behavior and management. Each of these categories was analyzed and further refined. Thus, the category "knowledge of the theories and principles of teaching and learning" was subdivided further into three subcategories: theories about teacher as teller or facilitator, theories about directions for class assignments, and theories about cooperative learning (see Appendix D for a complete listing of the categories and subcategories of this data).

My personal knowledge of the setting enabled me to identify the environmental resources that teachers used to support their restructuring efforts. I identified three categories of resources: professional development time, human resources, and cultural components fostered by the PDS partnership. Again these categories were subdivided further. For example, professional development time was further divided into Wednesday morning collaboration, time for collaborative partnerships, and time for team teaching. (See Appendix E for a complete listing of the categories and sub categories of this data).

Finally, in order to create a profile of the beliefs and knowledge of the focal teachers, I summarized, in detail, all of their dialogue in each of the collaborative conversations. Thus, I created a profile of Lyle's comments in each conversation so that I could readily cross reference his individual comments in the conversations with his written belief statements and his videotaped interview based on the two student case studies. This summary of Lyle's contribution to each conversation allowed me to analyze his data for consistencies and inconsistencies and to look for patterns in his data. Further, these summaries allowed me to develop a holistic picture of each focal teacher's beliefs and teacher knowledge.

In sum, by using Lincoln's and Guba's methods of data analysis--namely, unitizing and categorizing the collaborative conversations, their written belief statements, their videotaped interviews based on the case studies, and their unpublished papers--I was able to make explicit the teacher knowledge and beliefs that they developed through their restructuring efforts in their PDS projects. In the following chapter, I begin to describe what I learned from this analysis. Specifically I will discuss in detail the environmental resources, teacher beliefs, and intellectual resources that contributed to these three teachers' capacity to support students with special needs.

Limitations of the Study

This study has several limitations. First, the study focuses on three teachers and the intellectual resources and beliefs they developed over time in support of teaching students with special needs. Such a small sample raises questions about the generalizability, credibility, and dependability of the findings. Second, Hart High School represents an exceptional site, raising further questions about the generalizability of the findings. The intent of the study, however, was less to produce generalizable results and more to learn about the teacher knowledge, reasoning, and beliefs that are fostered by the infusion of human and fiscal resources and by a school organization and culture designed to promote professional development through collaboration, inquiry, and reflection.

Finally, the fact that the researcher of the study was also a colleague of the subjects may compromise her objectivity and, therefore, the credibility of the findings. I did, however, take several measures to moderate the bias. For example, I hired a research assistant to collect the teachers' written belief statements and conduct the videotaped interviews based on the student case studies (See Chapter 3). In addition, I employed a transcriber to transcribe all of the audiotaped conversations to ensure that the transcripts were as close as possible to the original conversations.

All decisions in any research project involve trade-offs. In this case, the loss in objectivity was compensated for, at least somewhat, by the gain represented by my familiarity with the context. As a participant in the reforms of Hart High, I brought to this study extensive knowledge of the classrooms of the focal teachers, the role of the special education teacher, the evolving culture, and the transforming organization of the school. Further, as a participant in the collaborative conversations featured in this study, I was aware of the

interactions and collaborative "knowledge construction" of the other members of the group.

Such "thick, rich" knowledge of the context seems critical to the dependability of case studies such as this.

CHAPTER 4

ENVIRONMENTAL RESOURCES

"Strong partnerships will not happen by accident, they require new structures, new activities, and a rethinking of the internal workings of each institution." (Watson and Fullan, 1992, p.219)

Educational reformers argue that changes in teaching for more effective learning of students at-risk and with disabilities requires major transformation in the culture of the school (Lipsky & Gartner, 1996; Fullan, 1994; Berends, 1992). Reform efforts that focus on the environment that support these changes in a sustained way are likely to foster the moral purpose of teaching, i.e., teachers committed to making a difference in the lives of individual students (Fullan, 1994). The development of this purpose or belief that a teacher is responsible to teach all students is especially critical in the development of inclusive schools that seek to educate students with disabilities in the least restrictive environment namely, general education settings. However, while the basic building block or the foundation of moral purpose in a school is the individual teacher, moral purpose must go beyond making an individual difference to making a difference in the institution (Fullan, 1994). Thus, changes in the environment that facilitate teacher inquiry and collaboration provide teachers with the opportunity to examine their beliefs, curriculum and methodology in relation to all students and conjoin the moral purpose of teaching with change agency.

Educational reformers interested in creating inclusive schools by merging the teaching resources of the general and special education systems to better meet the needs of all students have many questions about facilitating this reform initiative. One critical question to examine is what resources contribute to a school's capacity to serve students with special needs in inclusive settings? This particular question is the focus of this study. It evolved out of the five-year reform effort at Hart High School, as a Professional Development School (PDS), to restructure teaching and learning to better meet the needs of all students. Just prior to this period, the Hart School District hired a superintendent and a special education director committed to a district-wide initiative to include students with mild disabilities. So, a second reform in special education was being implemented at Hart High School: i.e., the inclusion of students with mild disabilities into general education classes. This special education reform was effected at Hart High School by both general and special education teachers through experimentation in team teaching and curriculum development. Thus, the restructuring reforms in general education fostered by the affiliation with Michigan State University (MSU) as a PDS and the special education reform to include students with disabilities in general education intersected at Hart High school. Together these reform efforts fostered a new culture that supported both general and special education teachers to work collaboratively to restructure teaching and learning for all students. Consequently, teachers' commitment to making a difference in the lives of individual students was expanded to making a difference in the organization itself.

The collective restructuring efforts of several science, mathematics and special education teachers during the last five years prompted the development of a PDS Collaborative Inquiry project to examine the teacher knowledge and beliefs generated by their

individual PDS projects. The question of this study evolved from this collaborative inquiry about the joint efforts of these educators to rethink their curriculum and their practice to better meet the needs of students' at-risk and those with disabilities.

As discussed in chapter one, the next three chapters of this dissertation will tell the story of these two reforms at Hart High School by addressing the following question:

What resources contribute to a school's capacity to serve students with special needs in inclusive settings?

This study will argue that certain environmental and intellectual resources are necessary to facilitate reform efforts in teaching and learning, although they are not sufficient in themselves to develop inclusive educational settings which support the needs of students with disabilities in the regular classroom. This chapter will argue that the establishment of Hart High as a PDS provided the school with both human and fiscal resources that were critical in supporting the teachers in this study to collaboratively examine their beliefs and practice. Through this examination, they developed ways to support the needs of students with mild disabilities in general education classes leading to the creation of a new culture. In addition, these resources were utilized to fund projects that supported them in efforts to restructure their curriculum and teaching. Although systematic data collection documenting curriculum change was not a part of this study, my experience with these teachers in their classroom and their writings and publications describing their curricular changes convinces me that this was the case. Lyle and Jane wrote and presented at conferences several unpublished papers about their restructuring efforts in science. In addition, the student case studies from their classroom were a main focus of a chapter in the book, Curriculum Trends, Special Education, and Reform, Refocusing the Conversation, edited by Pugach and Warger

(1996). Sally and Karen, the mathematics teachers in the Collaborative Inquiry team, have recently published through MSU an abstract entitled, "Developing a Network of Algebra Teachers," about their work in restructuring Algebra for all students.

Further, this chapter describes the collaboration between the math, science, and special education teachers in this study and argues that their conversations and the shared understandings, knowledge, and values they produced constituted another human resource that they used to continue the growth of their professional knowledge. While human and fiscal resources were a positive force in school restructuring, they also simultaneously set in motion a countervailing negative force. The chapter will also discuss the jealousies and tensions that could develop in any institution around the infusion of resources to foster change. Albeit, as Sizer (1996) has reported, restructuring of this nature leads to the development of stresses and petty jealousies within faculties.

Chapter 5 argues that the belief systems of the teachers, including the moral purpose of their teaching, was galvanized through their collaboration and that these beliefs are the most critical component for special and general education teachers to develop in order to create inclusive educational settings. The data presented will illustrate that the moral purpose of teaching for these teachers is based on their beliefs that all children should have access to the knowledge in all subjects and their role is to foster the learning of all students regardless of their special needs.

Chapter 6 discusses the teacher knowledge that this group of general and special education teachers working collaboratively developed in their individual PDS inquiry projects and argue that these resources were critical in supporting the teaching and learning for all students, in particular those with special needs. In sum, this study will argue that certain

environmental resources were critical in fostering the collaboration between general and special education teachers that led to the development of both an educational belief system with a moral purpose and the intellectual resources necessary to support the needs of students with special needs in inclusive settings. Collectively these efforts worked to create a new institution and culture with a moral ecology that promotes the teaching and learning of students and ensures access for all students to all subject matter knowledge.

The quotation by Watson and Fullan (1992) at the beginning of this chapter claims that dynamic relationships do not occur by happenstance. They develop with changes in structures, new activities and a reframing of the internal operations of an institution, all of which are promoted by the infusion of additional human and monetary resources. These resources simultaneously sow seeds of discontent as well. The profile of Hart High School presented in the introductory chapter characterized this school as a Professional Development School in a dynamic relationship with Michigan State University. The focus of their joint efforts was to change the internal operations of the school as well as the structures and activities in the classroom toward a greater conceptual understanding for all students.

As stated earlier, the special education reform to include students with disabilities in general education fostered an interest in collaboration between these teachers and intersected with the curriculum restructuring reforms for all students fostered by the PDS initiative. The wedding of these two reform initiatives, i.e., the intersection of inclusion for special education with curriculum restructuring in general education, is now being promoted (see Pugach and Warger [1996], Berres, Ferguson, et al. [1996], and Lipsky and Gartner [1997]) as the means for better addressing the needs of all students. Further, the conjoining of these reforms fosters the development of schools with a moral ecology (Goodlad, Soder, and Sirotnik,

1990) devoted to developing democratic principles, providing access to knowledge, building stronger student/teacher relationships and continuing the renewal of the institution. The question this chapter will discuss is, What environmental resources contributed to the school's capacity to support the needs of all students including those with disabilities?

In exploring this question, the author parsed the data on environmental resources into three categories: professional development time, human and cultural. These categories are primarily to assist the reader in focusing on the dimensions of a particular environmental resource. They need to be viewed, however, as intertwined and in a dynamic interaction with one another. In other words, the creation of more professional development time increased access to human resources that led to changes in the culture. All these environmental resources continually interacted over time to create a new institution and school culture.

TABLE 4-1 Environmental Resources

CATEGORY I: PROFESSIONAL DEVELOPMENT TIME
1. Wednesday Morning Time for Collaboration 2. Time for Collaborative Partnerships 3. Time for Team Teaching
CATEGORY II: CONNECTING HUMAN RESOURCES
1. General Education Teachers 2. Special Education Teachers 3. Counselors 4. Administrators and their Leadership Role 5. University Personnel
CATEGORY III: CULTURAL COMPONENTS FOSTERED BY THE PDS
1. Elements of a Professional Development School 2. Mission Statement of Hart High School 3. Teacher Generated Decision Making Model

To what support in the form of professional development time, human, and cultural resources do general and special education teachers have access, to address the special needs of Hart High students' at-risk and with mild disabilities?

CATEGORY I: Creation and Utilization of Professional Development Time

This category describes the types of professional development time that were a critical environmental resource in Hart High School for developing strong partnerships between teachers, counselors, administrators and university faculty to rethink the workings of their institution to support all students including those with special needs. The creation of this time was possible largely through the fiscal resources that accompany a university/school PDS partnership. While access to professional development time is critical in fostering restructuring, it is not the time alone that creates the change. Rather, it is both the availability of the time and how it is utilized. As a PDS, Hart High had access to university faculty who were active partners with the school in planning and implementing the agenda for this time. The guiding principles of a PDS, discussed later in the chapter, provided the school staff and university faculty a common intellectual framework for their collaborative restructuring work.

1. Wednesday Morning Collaboration

One resource that was available to both Hart High School faculty and collaborating university faculty was a common professional development time every Wednesday morning. Hart High School in their restructuring efforts as a Professional Development School (PDS) redesigned their schedule in 1990 by shortening the time between classes and starting ten minutes earlier each day to create a three-and-a-half hour block for their project work.

Generally, the first half hour was devoted to faculty meeting time followed by two 90-minute blocks for collaboration on department projects and for interdisciplinary projects.

The development of this time created an opportunity for teachers and administrators to collaborate with university faculty about curriculum, pedagogy, classroom organization, school reorganization, and teacher education. In essence, through the creation of this time, all educators had the possibility to become a resource to one another. During the 1993-94 school year, there were 12 PDS projects developed by the Hart High School and Michigan State University faculty. Most high school faculty were involved in at least two projects, one in their department and one of their choice that was interdepartmental. All faculty members had the opportunity to develop and submit a project for funding by the PDS monies. However, the lack of availability of university personnel to affiliate with the elective subjects such as, business, foreign languages and fine arts left some high school faculty out of the loop. This meant that the majority of projects funded were in the core curriculum of math, science, English, and social studies. This inequity in funding served to sow the seeds of discontent regarding the PDS partnership in part of the faculty.

On some Wednesdays, the entire morning was utilized to share progress and publications of the PDS projects and to address issues of concern to the entire faculty such as new scheduling options, writing across the curriculum, and student outcomes. In addition, time was devoted to debate these issues and reach a consensus through the decision-making model. (This model will be discussed in detail later in the chapter.)

Obviously, the creation of a two-and-a-half hour block for collaboration each week was a major change in the organizational structure at Hart High School. The establishment

of this block of time on a weekly basis for faculty, administrators and MSU personnel to collaborate was a critical resource for all. In particular, it was a valuable resource for special educators to illuminate issues regarding students with disabilities in their conversations with general educators and promote their reform initiative to include these students in their classes. It gave all faculty time to think about and discuss the changes in their teaching and students' learning and how they might do it better for all students.

A critical part of the reorganization was an expectation set by the principal that the faculty redefine how they spend time together during Wednesday morning. He took a strong position that this time was for faculty and administrators to develop their professional knowledge, rather than for grading papers, preparing class materials, or managing the school. He not only set the expectation but modeled this change by becoming a full participant himself in several inquiry groups. This administrative leadership was another critical resource that faculty drew on in their restructuring efforts. (This issue will be discussed more fully later in the chapter.)

The creation of this time each Wednesday allowed faculty to collaborate both within and between their respective departments on projects they had jointly developed with their MSU partners. Over the years, this professional time became a critical resource for faculty to inquire, reflect and discuss changes in their practice. The faculty used this time to compare their experiences and discuss different ways of thinking about teaching, assessment, curriculum and methodology in relation to all students. Finally, it was time when support for teachers from colleagues, administrators, and MSU faculty was clearly demonstrated.

Such explicit support is arguably necessary to continue to take the risks in changing one's practice. Featherstone, Pfeiffer and Smith (1992) report in their study of a group of teachers relearning to teach mathematics the value of a support group that cares about the trials and tribulations involved in creating new ways of teaching. This kind of group support encourages teachers to ask questions and take further risks in their classrooms leading to critical changes in practice. It is worth noting that all of the members of the Collaborative Inquiry group (the subjects of this study) engaged in numerous projects on Wednesdays interacting with other educators to rethink their practice, their curriculum and student learning and assessment.

In sum, all Hart faculty had the opportunity to engage in professional development with their colleagues and university faculty each Wednesday morning. This time created access to one another; thereby allowing each person the possibility to act as a professional human resource. Consequently, the weekly collaborative time was a critical environmental component for teachers to have sustained conversations with members within their department as well as other departments and with university colleagues about teaching, learning, assessment, and new organizational structures to enhance the learning of all students. It was an especially vital resource for special educators to utilize as a means to foster sustained conversations about including students with disabilities.Sizer (1996), developer of the Coalition of Essential Schools, confirms that serious reform requires time for people to think and interact about their work. Pugach and Warger (1996) and Berres, Ferguson, et al. (1996) in their call for curriculum reform jointly developed by general and special educators imply the necessity for professional time for teachers to collaborate.

2. Collaborative Partnerships

While the weekly university/school collaborations were important, the daily collaborative partnerships supported by the human and fiscal resources of the PDS over five years, were a very critical environmental component that contributed to Hart's capacity to serve students with special needs. These collaborative projects in the core subjects between teachers, student interns and university faculty were critical in fostering the development of a curriculum and pedagogy in science, mathematics, English and social studies to enhance the learning of all students including those with special needs.

The PDS human resources were in the form of university faculty in science education interested in fostering the national science frameworks that emphasized science for all Americans, American Association for the Advancement of Science (AAAS), (1988). Similarly, the university mathematics educators were concerned about implementing the National Council of Teachers of Mathematics Standards (NCTM) (1989) which focused on developing mathematical understanding for all students. Thus, university faculty were built into these projects as collaborators/teachers to jointly develop with the Hart teachers new ways of teaching and learning in these core subjects.

The PDS fiscal resources in the projects provided general education teachers with one hour of reallocated time each day to develop new curriculum, new assessments, and to collaborate and reflect on their practice with other project members. While special education teachers were not provided with reallocated time, they utilized their planning time to participate in these collaborations. As was mentioned earlier, the opportunity for special educators to participate with general educators and university faculty in restructuring

curriculum and methods was the ideal place to foster classrooms in which students with special needs would be supported. Pugach and Warger (1996) propose this very model of curriculum reform as an ideal way to restructure teaching and learning for all students and create inclusive schools. According to these authors, "By shifting the focus of collaboration to the curriculum, the opportunity to contribute to the general improvement of schooling is increased. Together with general education teachers, special educators can directly support the creation of a more challenging, motivating curriculum for all students" (p. 37).

In addition to a daily planning hour, many projects periodically planned whole days for teachers and university faculty to develop curriculums, to write about their work, and to present their products at various conferences. Special education teachers were included in all of these efforts. Graduate assistants were frequently supported by projects to collect and analyze data. The substitute teachers needed to release teachers were paid through PDS monies. Many projects planned time during the summer for all of the project members to continue data analysis and curriculum development and analyze their year's work. This was an opportune period for teachers and university faculty to spend time reflecting and planning their future work as both were unencumbered by teaching responsibilities and, therefore, able to fully focus on their projects. Funding for summer work was provided by the PDS monies.

In sum, the combination of the access to professional development time and the sustained collaboration between school and university faculty, who were focused on restructuring curriculum, and teaching and learning, created a more inclusive school for all students. Through these sustained exchanges, faculty had the opportunity to examine and reexamine their vision and engage in continuous learning about their practice. Through these experiences, they not only reflected on their teaching practice, they implemented changes in

their practice generated in their collaborative reflections creating an ongoing cycle of inquiry, practice and reflection. In this regard, teachers and university faculty worked to "behave their way into new ideas, not just think their way into them" (Fullan, 1994, p.15). While the PDS provided the fiscal resources to create some of this time, it was the nature of how the time was spent between school and university faculty that made the difference.

3. Time for Team Teaching

In 1986 when students with disabilities were fully included in general education classes, special education teachers and general education teachers began developing teaching teams in core subjects to support students with special needs in the general education classroom. As the teaching partnerships developed, the special educators' role in the classroom slowly evolved from an assistant, who modeled study skills and worked with small groups of students, to a planning partner and co-teacher. When Hart High became a PDS, the team teaching partnerships between general and special education were strengthened even more through the intensification of inquiry with the university faculty and the joint development of PDS curriculum projects.

In addition, new teaching partnerships between Hart teachers and university faculty developed. Team teaching involving Hart teachers and university faculty became commonplace in both settings, i.e., university members taught lessons in high school classes and high school faculty taught components of MSU methods courses. Special educators participated in university methods courses as well. They shared with pre-service teachers strategies for teaching students with special needs in inclusive settings. Consequently, the collaboration between the school teachers and university faculty occurred much more

frequently than Wednesday mornings. In some cases, it was a daily part of the teaching teams' schedules; and in other cases, it was a series of informal conversations over the lunch period and after school. MSU student interns participated in these conversations and in the implementation of curriculum units designed collaboratively.

The nature of these team teaching/collaborative relationships between public school and university faculty is best described by the Hart High School Global Studies Team in the Curriculum Handbook they published. They wrote the following about their three-year group experience, "It's not university-based norms; it's not school-based norms; it's our group's own set of norms about what we're doing and why we're doing it" (Little, et al, 1995, p.26). As a member of this group, I experienced the lines between public school and university faculty as seamless. The group developed an identity of its own. Similar partnerships evolved in the math, science and English projects. These team teaching arrangements in the PDS projects, which included special educators, helped foster a set of beliefs, a restructured curriculum and methods to support the needs of all students.

However, even though team teaching was an ideal opportunity to foster inclusive classrooms to support students with special needs, the commitment to team teach with general education teachers created tremendous stress on special education teachers given the complexity of their role. Their role in a secondary school has expanded greatly in the past five years as more and more students with varying disabilities with differing degrees of severity were included in the regular classroom. The expansion of their role as a team teacher and collaborator without the addition of human resources was a real barrier to participating in restructuring efforts such as the PDS.

As a special educator at Hart High and an active member in PDS projects, I wrote an unpublished paper about the tensions and dilemmas of a special education teacher in a PDS. All of the special educators at Hart High operated as both a team teacher and a consultant. While team teaching afforded a great deal of support to some general education teachers and some students with disabilities, it offered a minimum of support to others. Herein lay one of the tensions. Thoughtful participation as a member of a teaching team meant daily interaction with a teaching partner and the class, as well as several hours of planning each week. However, only 4 or 5 students with disabilities were enrolled in the team taught class. Although, the at-risk students scheduled in the class were the beneficiaries of the additional support provided by the special educator as well. Consequently, the special education teacher spent one hour daily and several hours of planning supporting only one fifth of the 25 students on his/her caseload. If the special education teacher diminished the amount of time spent in the teamed class to consult with other general educators instructing the other 20 students on caseload, then he/she became a part time member of the teaching team. This meant that he/she played a lesser role in thinking about the curriculum and methodologies in the teamed class. So the special education teacher was constantly playing "catch-up" on what was taught and how students were progressing in the teamed class or how the other students on caseload contacted on a more limited basis were progressing in their classes.

Thus, special education teachers constantly navigated between the positive feelings of team teaching and involvement in PDS projects and the gnawing feeling of limited contact with the other students on caseload and their general education teachers and the possible negative effects of this choice. The special educator had to weigh the short term benefits of addressing the needs of 25 students with the possible long term benefits of investing time in

the development of new curriculum and pedagogy in general education that supported the needs of students at-risk and those with disabilities.

These tensions were exacerbated further by the divisiveness they spawned between the members of a special education department. If a special education teacher chose to invest more time in the PDS restructuring projects, some special education colleagues viewed this as neglectful of the 25 students on caseload. If one chose to be involved in the PDS projects on a very limited basis, then general educators and administrators perceived the special educator as marginally interested in restructuring or resistant to change.

Some of this tension was eventually alleviated by fiscal resources provided by the PDS for one hour of reallocated time for one semester for each of the special education teachers to collaborate with general education teachers on curriculum development. However, this support was not forthcoming until the fourth and fifth year of the PDS partnership for two reasons.

First, it was difficult to find a certified special education teacher to work one hour a day; and second, the PDS initiatives were primarily focused on restructuring the core subjects and therefore the majority of resources were used to support subject matter teachers.

The addition of any new policies and/or programs only serves to broaden the dimensions and complexity of the special education teacher's role and responsibilities. Little wonder that the burnout rate for special educators is high, and the average tenure of teachers in this position nationally is three years. In general, all teachers feel deluged with the continual "add-on-itis" of educational policies. Given these circumstances, the ability of

teachers in both general and special education to sustain lasting reform efforts becomes next to impossible.

CATEGORY II: Connecting Human Resources

As stated in the last section, the establishment of Wednesday morning time and the infusion of fiscal resources to provide for daily collaboration and planning for team teaching allowed general and special education teachers, counselors, administrators and university faculty to become accessible human resources for each other. In the following section, I describe the importance of fostering this accessibility and how it led to the development of a new school culture and institution that supported the needs of all students including those with disabilities.

1. General Education Teachers

There were 50 general education teachers on the faculty during the 1993-94 school year. As stated in the last section, the establishment of a weekly professional development time allowed teachers, administrators, and university faculty to serve as resources to one another. During the first block of time on Wednesday mornings, teachers met within their departments to discuss their curriculum, methodology and assessment. In the core academic subjects university faculty and special education teachers were consistent members of these department discussion groups, while administrators often rotated between different department meetings. One consistent theme in the weekly department discussions was supporting the needs of all students by developing curriculum, teaching methods, and assessments sensitive to their learning. Often they discussed various students that were not being successful in their class with their colleagues seeking their input and suggestions. In

these conversations, special education teachers were a valuable resource in assisting teachers to think about ways of accommodating students with reading and writing difficulties. Frequently they volunteered to visit their class to observe a student or group and make further suggestions and/or to teach a particular skill to their whole class or a small group.

The second block of time on Wednesday often focused on issues such as tracking, methodologies like cooperative learning, or organizational structures like block scheduling. These discussions were interdepartmental and usually included one or more university faculty and interns, as well as an administrator. These conversations gave faculty members opportunities to discuss topical issues and share their teaching philosophies and beliefs. Frequently teachers would bring case studies from their classrooms with particular questions about teaching a concept, difficulties with cooperative learning or alternative assessments as a focus for the group conversations. Again group members would volunteer to come in and observe and offer additional insights or co-teach a lesson. These collaborative teaching situations that evolved naturally through teacher discussions on Wednesday served to develop greater trust and respect for teachers' craft knowledge, thereby breaking down the barriers that often exist both within and between departments in high schools.

The Collaborative Inquiry project was one such group that evolved out of a mutual interest to discuss what a small group of teachers had come to know about supporting students with special needs in inclusive classrooms. Through years of collaboration during Wednesday mornings and team teaching, the members of this group had developed a sense of trust and readily used each other as resources to discuss dilemmas in their practice. In the Collaborative Inquiry discussions, they brought their individual resources, i.e., their

knowledge, skills, and dispositions, that they developed over time through their PDS projects that collectively created a group resource for them to discuss, revise, and refine their beliefs, their curriculum and their methodologies. It is through this interactive process that changes in practice evolve and what Fullan (1994) means in describing change as a process, not an event.

In the analysis of the collaborative conversations of this group numerous examples emerged which illustrate how the group itself became a resource for the members to discuss the dilemmas of their practice. One dilemma that was a recurring theme in several of the conversations was the membership of the cooperative learning groups. Lyle, the veteran science teacher, in one of the first group conversations was struggling with his beliefs about heterogeneous groups and the impact of dysfunctional students in some groups.

Lyle: I've been a strong proponent of heterogeneous cooperative groups for a long time. I am at the point where I am going to start pulling people out of groups and saying you're gonna start group seven and you're gonna have some buddies here in a minute. Because these people I'm pulling out are detrimental to their groups. I've given them eleven weeks to come around and they're still detrimental. They absolutely take the group backwards and the other members are writing to me in their journals saying get me the hell out of here I can't learn anything.

Peg: So you're gonna put all the detrimental kids together?

Lyle: See, I don't want that to happen, but I also, I've got some really good kids that ought to be going like crazy and they're being held back and that's not right (Coll., 11/15/93, p.2-3).

At this point I share with Lyle a "dud group" strategy that other teaching teams have used. They place the few students who are disengaged and nonproductive (usually these

students are at-risk and often have disabilities) in one group and sometimes a leader emerges and they start to take off or they stay "duds."

Lyle: Out of those a leader emerges and away they go. And it depends on whether they want to sink or swim at that point and I've never done that before and I swear that I'm gonna experiment with it. I'm ready to do that.

Karen: The dud group thing works with sophomores pretty well, in my experience. But junior kids see right through it and they would just as soon screw off because they know if they screw off in another group they're gonna get a bad grade anyway. And everyone in the room knows why they are all in the same group. It's just another excuse for them to fail.

Lyle: So what do you do? What do you suggest you do with that group? Leave them heterogeneous?

Karen: I don't know because I feel very strongly against, always giving kids who have high ability the responsibility for making sure that everybody gets done what they're supposed to be doing (Coll., 11/15/93, p.4).

While the group did not resolve Lyle's dilemma for him, it did provide him with a resource to discuss his concerns and to hear how others were thinking and dealing with the dilemma of students in cooperative groups who limit the productivity of their group. He continued to use the collaborative group as a resource for thinking about this issue as he revisited this topic in the next collaboration.

Lyle: Remember I talked last time about considering putting them to work in groups. The kids that just absolutely wouldn't do it, put them in groups. I wanted to report on that because I've done that now for a couple of weeks. They've made two presentations in front of the class and in every case they made very good presentations considering what they would have done if they were the low man on the totem pole in another group. These so called dud groups, I've put the challenge up to them. I said, OK, you people have told me that you have been working in these groups and yet your group members say you are not.

My observations are that you are not. You guy now, let's see you produce. And they got up, they had posters, they made good presentations, they learned something. The only thing that bothered me was their quiz grades still didn't come up. But that means we have to look at alternative assessments, that's really not the issue. I think they learned a whole lot more.

Jane: But you know one of the things we found out in our study, Lyle, was just all that social stuff that's going on for those kids and I think it's scary for them to be working with other kids who they think are smarter and that never say "hi" to them in the hall and "now you (the teacher) want me (a dud) to work with them."

Ann: Well, doesn't that say something about the questions we still have about this strategy. Because it's my understanding that you know, we're all into heterogeneous groups and all the pluses, but sometimes the research doesn't really say for sure that's the best thing to do. We need more research.

Lyle: That's right. But having seen it both ways, and it's too soon to talk about it, I think that heterogeneous classes are the way to go, but maybe not heterogeneous cooperative learning groups necessarily. You've got to match up more than just ability, you've got to match up personalities and leadership qualities, attitudes and values. I mean it's really complicated in how to pick groups. When I first talked about cooperative learning groups a couple of years ago in a project the university member of our group definitely said that they had to be heterogeneous and kids had to have assigned roles and very structured and I mean that just blew these kids away. It was just not how they were going to learn.

Holly: I agree, I don't like it that way (i.e., very structured roles for group members) either. (Col., 11/29/93, p.14-15).

In this exchange Lyle revisited his dilemma about cooperative learning with the group and shared how his plan to try a dud group with these students had worked. While in this instance he served as the catalyst for this topic, clearly all of the group members used the group as a resource for thinking about this issue. This issue resurfaced in the session on 3/21/94 in which the group viewed Lyle's videotape of the case studies of Jessica and Scott.

After viewing his tape, Sally queried Lyle about his ambivalence about whether he believed that placing Jessica, an LD student, in a heterogenous group was a good plan.

Lyle: I'm up and down about how to do my cooperative learning groups. I've tried three different ways in terms of grouping them and assigning roles and I'm not totally convinced that you ought to assign roles. I also think I have more success with them if I don't group them, if I let them group themselves.

Sally: One of the concerns I have about not grouping them heterogeneously is that you have the tracks they would be in anyway reconfigured in your classroom. If you've got heterogeneous classrooms, but then you let them work with whoever you want to, then you've got the LD kids all working in one group and the Honor Society kids working in another group. And so they're right back to tracking in the cooperative learning situation (Coll., 3/21/94, p.2)

Lyle "totally agrees with her that is what happens." He went on to tell her about the dilemma he had with the students in his dud group and how when he grouped them together they became productive. (Sally was absent in the sessions in which Lyle shared his frustrations on this issue with the other group members.) Lyle admitted, "You're right; it was tracked big time, but they had more success than they would have the other way."

Sally: One thing that I do that seems to work better is I construct their groups, but I tell them that in this project there are some roles that I can see and as soon as they get together they should decide who is going to take which role. One of the ways that I understand cooperative learning is that it doesn't make sense unless the project takes a variety of skills. And so if you have projects that incorporate a variety of skills where they can actually do that and group students for that purpose then that would maximize them being able to learn in a less threatening atmosphere because they're not being held accountable for each spelling error, because someone else could help them with that. And at the same time they're seeing it modeled. So when I think about people doing math, or doing science or anything, it seems like there's a secretary, and there's the leader and there's an assistant and there's all these different people with a variety of skills and perspectives working together.

Ann: I just had this thought about cooperative learning groups. There's more than one way to do them. And it seems that maybe for different subject matters, things are different. It also may be that some variety where sometimes they get to pick a group and sometimes they get assigned a group. It might be that in one class the assigned groups work well and in another class you get a different mix and that doesn't seem to work. I think the fact that you're kind of experimenting and trying different things is important and that's what you really need to do.

Lyle: The mix of students in a group is so important. So it makes it different every time you start it over.

Peg: So you can't really develop a hard and fast rule about how you're gonna do it?

Lyle: NO. I've read Cohen and I've worked with Tom Bird on this in our cooperative learning inquiry group. I've gone the gambit. And I still lose sleep over it, 'cause I feel guilty about letting them do it the way they are. Just because it isn't cooperative learning. So I've got to decide.

Ann: But isn't good teaching putting your own ways together? Taking all that you know, like for example, I do a lot of therapy, and I never follow so and so's therapy. I probably have 20, 30, 40, or 50 in my head and I mix them all together and come up with my theory.

Lyle: See I was feeling pretty good about this group of duds until Sally said something very important and that was it isn't really a heterogeneous classroom, if I'm allowing them to homogeneously group themselves. I mean, so I've gotten them all within the same four walls but they're still back to the same old same old; the special ed kids in a group and the honors kids in a group.

Peg: But maybe within the semester it's a series of experiences, like Ann is saying. Sometimes homogeneous; sometimes heterogeneous. Sometimes you construct the group and sometimes they do. It's a blend of these.

Lyle: Yeah, I know it is.

Sally: It works better to a greater or lesser extent with different classes (Coll., 3/21/94, p. 15-16).

At the end of this conversation spurred by Sally's questions, Lyle revisited his dilemmas over the use of heterogeneous grouping. On the one hand, he wanted to include all types of kids in a group. On the other hand, he wanted to facilitate the learning of all students. The conflict arose when a few students were impeding their groups because of their individual issues about learning. At times the moral purposes of teaching collide. Lampert (1985) described Lyle's dilemma as a choice between equally undesirable alternatives and suggests that educational research and theories are limited in their capacity to assist teachers in solving particular problems. Further, she suggested that teachers have many contradictory aims in their work and resolutions are rarely simple.

There are several major points in this example. Based on Lampert's observations that teachers face many contradictory goals in their daily practice, it follows that having the intellectual resources of other colleagues accessible in the school is critical. Also, the addition of students with disabilities to general education expands the range of heterogeneity and intensifies the complexity of teaching even more. Thus, there is tremendous value in connecting the human resources of general and special educators in a school environment to discuss and deliberate the issues inherent in creating inclusive classrooms.

Second, these passages illustrated the necessity of a school environment to facilitate and support this type of collaboration in order to create a school that will support the needs of all students. Without this group resource in the environment, it would be much easier for teachers to say, "I have tried cooperative learning and it doesn't work for all kids," or "I've tried including kids with disabilities in my class and it doesn't work; some kids can't learn in

a regular class." However, with the accessibility of these teacher collaborative groups in a school environment, all educators have a resource to share their dilemmas and discuss them. Further, they can draw on the intellectual resource and the emotional support of others who are experiencing these same tensions in their own classes to help resolve some of these dilemmas. Each of the group members offered different ways of thinking about this issue and possible ways for him to ameliorate his conflict, while maintaining his beliefs. This collaborative group has achieved the essence of Hargreaves (1994) description of a collaborative culture.

Collaborative cultures can extend into joint work mutual observation, and focused reflective inquiry in ways that extend practice critically, searching for better alternatives in the continuous quest for improvement. In these cases collaborative cultures are not cozy, complacent and politically quiescent. Rather they can build collective strength and confidence in communities of teachers who are able to interact knowledgeably and assertively with the bearers of innovations and reform.

Finally, in order to create and sustain this type of culture, it is clear that collaborative groups need to be ongoing throughout the year. This group met every other week for an hour and a half after school and in other groups large and small throughout the last five years. Note that Lyle's dilemma with the "duds" was ongoing from November through April, his thinking about how to resolve this issue shifted. He used this group as an intellectual resource to assist him in thinking about the tension that arose between his beliefs. Lyle's experiences depicted in the above passages, gives substantive meaning to Fullan's (1991) comments about the change process, "Real change represents a serious personal and collective experience characterized by ambivalence and uncertainty" (p.32).

Thus, the excerpts from the collaboration between general and special educators evidence how creating a collaborative school environment and using the human resources to support these interactions, educational professionals can work toward creating an environment that supports the needs of all students. Without opportunities for sustained collaboration between general and special education teachers the inclusion of students with disabilities in general education could be a return to a learning environment in which they have had limited success.

2. Special Education Teachers/Consultants

The very nature of the special education teacher's role in a school is to act as a resource to teachers and students. Hence, one name for a special education service is a "resource room." While the special education teacher is a critical component of a collaborative partnership in a school developing an inclusive culture, it is an involvement that exacts a high price given the multi-dimensionality of their role. Following is a brief description of the nature of the special educator's role in a secondary school to assist the reader in understanding the complexity of their role and the additional burden that restructuring initiatives create.

Hart High School had four full-time special education teachers/consultants to assist faculty in addressing the needs of 83 students with disabilities during the 1993-94 school year. The students certified in special education include several categories of disabilities: learning disabled (largest percentage), emotionally impaired, mildly mentally impaired, hearing impaired, physically impaired, health impaired (includes attention deficit/hyperactive disorder, AD/HD), autistic, and speech and language impaired. Within each of these disability areas

there is also a range of mild to severe in terms of the degree of disability. This list illustrates the number of disabilities that the special education teachers must be familiar with in order to successfully plan a program for each student. Frequently they confer with consultants for low incidence populations, such as visually and hearing impaired, concerning their educational program.

One major responsibility of the special education teacher is the development, implementation and coordination of up to 25 students' programs, called their caseload. In an inclusive school, the special education teacher plans students' programs in collaboration with general education teachers. Thus, they need to consult frequently with the students' general education teachers about their academic progress, the nature of their disability, and the accommodations legally prescribed in their Individual Education Plan (IEP) to be successful in school. Usually, the IEP stipulates weekly consultation of 15-30 minutes with either the student or their teachers. In Michigan special education teachers can be assigned 25 students. High School students commonly have six teachers. The demand on the special education teacher's time to consult with nearly 150 teachers is enormous. In addition, they serve as a resource to administrators, counselors and general education teachers when major issues and concerns arise with students with disabilities or high risk students suspected of having a disability.

Another responsibility for the special educator is compliance with the rules and regulations of the federal and state mandates for special education students. The statutes require an annual review of every special education student's Individual Education Plan. This involves arranging an Individual Educational Planning Committee (IEPC) meeting with the

student, parent, general education teacher and any other support services that are a part of the student's program (social work, speech/language, etc.) While the law requires an annual meeting, if a student needs a change in program, an IEPC must be held to discuss the changes and then document them in writing.

Every three years, the law requires a complete reevaluation of the student's disability areas to redetermine their eligibility for special education services. The special education teacher is responsible for some of the academic assessment and a classroom observation. All of the members of the evaluation team (school psychologist, special education teacher, social worker etc.) meet to review their findings and discuss their recommendations for the student's program. Then the special education teacher arranges a time and place for the IEPC with the student, parents, and classroom teacher.

In addition to the annual review and the reevaluation of students receiving special education services, the special education teacher plays a major role in the assessment of students referred for an evaluation to determine their eligibility for special education services. The referral process for students suspected of having a disability is quite similar to the reevaluation process. All of the arrangements for annual reviews, reevaluations, new referrals and the documentation of these meetings are made by the special education teacher at Hart High School without the benefit of secretarial support. Annual monitoring of the implementation of these procedures is a part of the state guidelines and a school district's special education funding is linked to full compliance with these procedures. Thus, in Hart Schools compliance with these procedures is taken very seriously. The last paragraphs have detailed how the very nature of the special educator's role is acting as a resource to teachers,

counselors, administrators, students, and parents in the development of educational programs for the success of students with disabilities. The question is how did the greater access to school and university personnel on Wednesday morning enhance their role as a human resource further? The district initiative to include students with disabilities in general education settings, rather than segregating them in special education classes, changed the role of the special educator from classroom teacher to collaborator with general educators. While this greatly added to the complexity of their role, the intent of this collaborative relationship was to jointly develop curriculums and methods to accommodate students with disabilities in their classrooms.

Hart High's partnership with MSU as a PDS and the creation of a block of time each Wednesday provided special educators with a natural opportunity to further collaborate with general educators and university faculty in redesigning teaching and learning for all students including those with disabilities. Hence, the two special education teachers in this project viewed the PDS projects as ideal opportunities to further implement the special education reform to develop a more inclusive school, strengthen team teaching with general educators and further restructure curriculum, methodology, and alternative assessments.

However, as discussed earlier, given the complexity of their role this participation caused another set of tensions for the special education teacher: balancing the demands of their role with the additional responsibilities of a teaching partnership. Also, their commitment to restructuring created a fracture within their department. Often the other two members of their department felt that their commitment to work so intensely with general education teachers resulted in them underserving the students on their caseload. Further, given that the

PDS provided a trickle of resources over five years to support special educators efforts in curriculum restructuring, these same members felt that the cost/benefit ratio was negligible. Consequently, Peg's and Jane's commitment to the PDS initiatives were viewed as a need for personal, professional gain, rather than a desire to address the special needs of students. By making the commitment to support the restructuring efforts of general education teachers, Jane and Peg experienced the same internal contradictions about their practice and the needs of their students as Lyle describes about his classroom practice in the previous section.

In sum, the special education teacher's role is one of consultant, collaborator, team teacher, implementer, and interpreter of the rules and regulations governing special education services. Thus, by design special education teachers are a major environmental resource to teachers, administrators and counselors. In spite of the tensions created, they are a critical resource in collaborating with other faculty to facilitate their thinking about the special needs of students with disabilities as they jointly develop inclusive programs. In like manner, the general education teachers, administrators and counselors serve as human resources to special education teachers in their efforts to develop programs that foster success in regular classrooms. The ability of all professionals to become human resources to one another was possible through the creation of weekly professional development time. The collective group effort that ensued to restructure teaching and learning to support students with special needs is a key environmental resource for all professionals in creating an inclusive school.

3. Counselors

Following is a brief description of the role of the high school counselor and how it is enhanced through participation in collaborative groups. In 1993-94 Hart High School

employed three full time counselors and one part-time counselor through a PDS project. The primary responsibility of each of the high school counselors is to schedule over 300 students for their classes and oversee their high school program. A second responsibility is assisting students in identifying colleges, securing financial aid, and writing letters of recommendation. In addition, the counselors spend some time with teachers and students helping to resolve behavioral issues that interfere with the classroom climate and student learning.

On some occasions, they schedule a meeting (called a "staffing") with a student and their parent/s and all of the students' teachers to address issues and concerns that impact a student's performance throughout the school day. While the counselors spent some of their time addressing the needs of individual students with teachers before Hart became a PDS, this affiliation offered the counseling department additional personnel support from MSU freeing up additional time to work with teachers. This extra time was spent discussing the needs of particular students and collaborating with various projects groups in their restructuring efforts. Providing counselors with some time to engage with teachers in the process of redesigning curriculum and assessment helped them gain a broader perspective of the struggles that both teachers and students experience in making changes in teaching and learning. This collaborative experience enhanced their ability to counsel students struggling to be successful in school and to describe to parents the intent of these restructuring efforts. In this regard, they were a supportive resource to both students and faculty in the school's efforts to redesign the curriculum and instruction at Hart High.

Frequently, counselors attend the Individual Educational Planning Committee (IEPC) meetings to discuss special education students, giving their input regarding the student's

program and progress toward high school graduation. Thus, the counselors are a resource for faculty, students, and their parents to assist in addressing the issues and concerns that impact a student's success in school and their future. Given their involvement in the restructuring projects, they were very aware of the faculty's efforts to support students with special needs in general education. Thus, they could offer an additional perspective to parents on how students with disabilities would be accommodated by general education teachers in terms of curriculum and assessment.

Lyle, Holly, Jane and the other members of the collaborative group viewed the counselors as human resources available to assist them in their efforts to better include students' at-risk and with disabilities. They often worked with the counselors to schedule a staffing for students in their class that were having a great deal of academic and/or behavioral difficulty. They mentioned frequently in their collaborative conversations that a team effort is necessary to address the academic and behavioral issues of many students. The staffing often included both the counselor and the school social worker, whose primary responsibility is serving the needs of students with disabilities.

In sum, both general and special education teachers had access to counselors to assist them in addressing the particular academic and behavioral needs of individual students. When necessary, counselors would arrange staffings with teachers, students and parents to jointly address concerns. Counselors often attended IEPC meetings on students with disabilities. The expansion of counseling support funded by the PDS increased the counselor's availability to engage with teachers about individual student issues and to participate in restructuring projects. The increased frequency of collaboration between counselors and teachers was an

important human resource in helping both groups of professionals to continually address the learning of students with special academic and emotional needs as they redesigned their curriculum and assessment methods through their PDS projects

4. Administrators and Their Leadership Role

Administrators were another human resource available to all staff at Hart High School, not only as the managers of the school, but as educational leaders. Throughout the history of Hart High School, two administrators, a principal and an assistant principal, were responsible for the operations of the school. The principal was responsible for overseeing the curriculum of the school, evaluating teachers and the overall operation of the school, including the budget. The assistant principal was responsible for the enforcement of the attendance and discipline policies of the school district.

In 1988 with the establishment of Hart High School as a PDS, the role of the principal began to change from manager to educational leader. In an interview with Ted Downs, Hart High Principal, he reported that this role change was fostered by his participation in an administrative inquiry course at Michigan State University focusing on the principal as an educational leader. He explained that during this three-semester seminar, administrators from local school districts met weekly with an MSU professor interested in developing a process for principals to examine their leadership style through case studies. According to Ted, a second purpose of the course was to identify linkages between theory and research in school administration with the "craft knowledge" of practitioners. He reported that these seminars impacted his thinking about educational leadership, as did his weekly participation in the PDS projects with teachers and university faculty. According to Ted, "The seminars helped me

understand the complexity of leadership in that sometimes an identical decision may work well in one instance, but not work well in the next instance, though it appears that all of the main variables are the same. Subtle variables can change the organizational or the individual's reaction." Thus, his role as the principal expanded. He was not only responsible for the daily operation of the school, but for coordinating and supporting the development of the PDS projects and facilitating the partnership between the school and university.

The principal played a critical role in supporting the faculty in their efforts to reorganize the school and change the nature of teaching and learning at Hart High School. He set the expectation that everyone participate in professional development and personally encouraged reluctant faculty to become involved and to share their ideas.

The role of the principal as both school manager and educational leader became unmanageably large. Consequently, a third administrative position was developed in 1990, that of a staff development coordinator, which was partially funded with PDS monies. This administrator served as Hart High School's liaison with the MSU site-coordinator and was responsible for overseeing the work of the PDS projects and expenditures. The major responsibility of this administrator was to support the efforts of university and school faculty to change teaching and learning at Hart High School for all students. With two administrators focusing on the recreating of Hart High School as a new educational institution and fostering an expectation of commitment to changing teaching and learning, inquiry into practice soon became an established norm supported by the majority of teachers.

By setting this expectation for restructuring and supporting the teachers taking the risks to change teaching and learning, the principal and assistant principal became one of the

most important human resources for the teachers in this project. The support of the administrators, as instructional leaders, is a necessary component for teachers to sustain the effort to examine their practice together and restructure their teaching and students' learning.

How did administrators support faculty in these efforts? The administrators provided support in many ways. For example, the principal worked with the Board of Education and the community to garner their support in changing the high school schedule to create a block of time for professional development each Wednesday morning. Both the Board and community were informed annually of the PDS projects and their outcomes. Students and parents were surveyed each year about the impact of the schedule change and the results were made public. Over the years, sizeable majorities of both students and teachers have reported a positive impact of this change.

Administrators were available to discuss innovations in practice and classroom structures with teachers, parents and students. They participated in staff development by attending the PDS project meetings during collaborative time. Their participation served a dual purpose: supporting faculty in their restructuring efforts and informing them of the substantive nature of the teachers' work. This knowledge was immeasurably important in responding to parents' questions and concerns about the changes in teaching and learning taking place in the classrooms at Hart High School. For example, when parents called the principal concerned about their students' frustration that teachers did not answer their questions directly, but instead responded with a series of additional questions for the class to consider, the principal was prepared to respond to the rationale behind the constructivist method of teaching and learning and support the teachers' efforts. In like manner, when parents called with questions about the inclusion of students with disabilities or special

education teachers team teaching in general education classes the principal could answer their questions with evidence that the teachers in this school were committed to developing teaching and learning in all subjects for all students' success. This type of administrative support was a critical environmental and human resource for both general and special education teachers to rely on in their struggles to develop new teaching practices. Further, administrators encouraged and facilitated teachers and MSU faculty to write about their restructuring efforts and to present at state and national conferences.

They supported visitations by other teachers and administrators from the state and region. Wednesday mornings often included 10 to 15 visitors each week, who sat in on the project meetings. Visitors were asked by the administrators to be observers of the collaboration, rather than participants. By defining the role of visitors in this way, the administrators protected project members' collaborative time from the intrusion of questions by the weekly visitors. A debriefing session was held by the administrators and a variety of teachers involved in the PDS projects at the end of the collaboration time for the visitors to ask questions about their observations and share their perceptions of the projects. The weekly visitations from other schools validated the importance and significance of the restructuring efforts of Hart's faculty. Furthermore, the follow-up debriefing sessions with the visitors not only were informative for the visitors but served as public acknowledgment of Hart's teachers efforts at restructuring by the school administrators.

Administrative support for the development of new curriculum and teaching methods was an important human resource as this type of work intensified the uncertainty for teachers concerning the success of their daily practice a (Floden and Clark 1987). Lamb and Bethell

(1992) discussed this issue in a paper presented at a national conference. They indicated that in order for teachers to take the necessary risks involved in changing their teaching, "the environment of the school must be both desirous and supportive of change, and the norm of the school should be one of inquiry and reflection about the nature of teaching and learning and issues of equity and excellence" (p.11). Within a collaborative environment committed to change, teacher experimenters can be supported by their colleagues who are engaging in these same or similar endeavors. As discussed in the previous section, collaborative groups are valuable environmental and intellectual resources for teachers to draw on to sustain their efforts at innovation. Efforts to change teaching and learning are not impossible in more traditional environments. However, as the level of frustration and uncertainty escalates during this process, teachers' feelings of isolation and vulnerability are intensified (Lamb and Bethell, 1992). According to (Powell, Farrar, and Cohen 1985), historically, efforts at change without support have lead to the dissolution and abandonment of reforms. Thus, the administrators were a very important resource in supporting all faculties' efforts to develop an inclusive school responsive to students' needs.

5. University Personnel

The PDS partnership with MSU provided educators at Hart High with other significant human resources: university faculty, graduate students and preservice interns. The addition of these human resources to Hart High School's Wednesday collaborative time was an important source of both questions and new ways of thinking about teaching, learning, assessment, subject matter and organizational structures from outsiders' perspectives. They provided access through conversation and publications to the latest research in all of these

areas. They were a source for inquiry and reflection in both the development and implementation of PDS projects. The preservice interns contributed enthusiasm, energy, curiosity and their own thoughts about teaching that often inspired the veteran educators. Their presence in the classroom provided teachers with additional support in facilitating learning and frequently additional time to collaborate with other colleagues when they assumed the primary responsibility for teaching. Unfortunately, Hart High School never had access to a university faculty member from the department of special education. The special education department at MSU consisted of only six faculty members that severely limited their participation in the College of Education's PDS initiative.

In sum, the teachers, counselors, administrators, and university staff at Hart High School jointly developed a culture of collaboration and consultation in which all members were viewed as valuable human resources in the restructuring of teaching and learning for all students and the creation of a new institution. The administrators, reinforced by the partnership, set an expectation that the professional development time on Wednesday morning would be time for the development of professional knowledge. The majority of the faculty supported this emphasis and enforced it through peer pressure by personally encouraging those who found it difficult to participate. Further, the administrators participated fully by collaborating with school and university faculty on their PDS projects and sharing and supporting their efforts with the Board and community, thereby becoming human resources as well. Through the efforts of all these human resources working collaboratively, a school climate of inquiry and reflection about teaching all students became established norms at Hart High School. This collective effort was a critical environmental resource supported by both

human and fiscal resources provided by the PDS partnership that all faculty could utilize to better address the needs of all students.

CATEGORY III: Cultural Components Fostered by the PDS Partnership

Both the partnership with MSU and the creation of a block of professional development time fostered a collaboration among all of the professional resources at Hart High that led to the development of new cultural components with the school.

1. Elements of a Professional Development School

As detailed above Hart High School became a Professional Development School (PDS) in 1988 after several meetings between university and high school faculty and administrators. Two questions arise regarding this affiliation: What is a Professional Development School and what impact did it have on the culture of Hart High School to become more responsive to students with special needs?

Professional Development Schools evolved out of the efforts of nearly 100 American research universities committed to "making our programs of teacher preparation more rigorous and connected--to liberal arts education, to research on learning and teaching, and to wise practice in the schools" (Preface, p.1, Holmes Group, 1990). The intent of this initiative was to create collaborative partnerships between university faculty and public school teachers and administrators to develop a school culture committed to the development of novice teachers, the continued development of experienced teachers and for the research and development of teaching. Six organizing principles form the backbone of a PDS:

1. Teaching and learning for understanding,
2. Creating a learning community,
3. Teaching and learning for all students,

4. Life-long learning by teachers, administrators, and teacher educators,
5. Thoughtful inquiry into teaching and learning, and
6. Inventing a new institution.

In a report of the 1995 Review of PDSs affiliated with Michigan State University prepared by Judge, Carriedo, and Johnson, 1995, this movement is characterized as a creation of the school reforms of the late 1980s. According to the authors of this report, the PDS is to be a partnership between the university and public schools. As implemented by Michigan State University, the PDS had a strong emphasis on renewal for both the schools and the university, the development of good teaching practice and research on K-12 learning, teacher preparation, and school organization and leadership. In addition to these three areas, two other components were strongly emphasized at Hart High School: teaching and learning for all and creating a community of learners. In fact, the PDS principle of teaching and learning for all students was the principle that connected the special education reform to include students with disabilities in general education to the PDS initiative. This principle legitimized Hart High special educators' perspective on the importance of thinking about students with disabilities in the restructuring of teaching and learning in the general education reform. Further, the emphasis on creating a learning community for all, thoughtful inquiry on teaching and learning and life-long learning linked to inventing a new institution promoted teachers as change agents in developing a moral ecology in their school committed to supporting the needs of all students.

Based on the data presented in the previous sections, the creation of this collaborative partnership between MSU and Hart High School had a significant impact on the culture of the school. This new partnership was a source of human and fiscal resources for the school

and a site for the university to train preservice teachers in a setting that fostered professional development for all teachers. As mentioned in the description of Hart High School, in 1990 the school day was restructured to create a block of time each Wednesday for professional development through collaboration between school and university faculty. The focus of these collaborations was an inquiry about teaching, learning, subject matter, methodology and teacher education for school and university faculty. These inquiries yielded numerous presentations by teachers and university faculty at conferences as well as several joint publications funded with PDS monies. Thus, the change in the culture of the school worked to create teaching professionals inspired to speak and write about their efforts of restructuring their practice and for whom inquiry into teaching and learning was an integral part of their work.

Over the years as a PDS, teachers assumed responsibility for creating a new institution by developing their own research projects with their university partners and student interns and in some cases writing their own proposals for grant monies. The six principles of a PDS and other national standards were used to frame the inquiry projects jointly developed by Hart teachers and university faculty. The science department utilized the standards in the report, "Science for All Americans" (AAAS, 1989) as a curriculum guide and the mathematics department referenced the National Council of Teachers of Mathematics Standards (NCTM, 1989) as their guide. Both the PDS principles and the curriculum standards provided a common language for discussing issues about teaching and learning for the Wednesday morning collaborative time. The participation of special educators in the collaborations

emphasized the necessity of thinking about all children including those with disabilities in the restructuring initiatives.

Hart High School also provided a professional climate for the development of preservice teachers. After 5 years as a PDS, Hart High School was profiled in the January 11, 1993 issue of U.S. News and World Report in a cover story entitled "The Perfect School: 9 Reforms to Revolutionize American Education." In this article Hart High School is described as a clinical school in which student teachers and entry-level teachers learn the latest teaching methods with experienced teachers in the classroom. According to the article, "The teacher-training program at Hart sends a strong message to beginning teachers that they are entering a profession with high standards" (p.26). Both Holly and Karen (the novice teachers in this study) were student interns at Hart School. Holly interned with Lyle in science and Karen with various mathematics teachers. They spent Wednesday mornings discussing the teaching of science and mathematics for understanding for all students with veteran teachers at Hart and MSU colleagues involved in the PDS and continued these conversations throughout their daily teaching. According to Darling-Hammond (1995), these collaborative experiences for preservice teachers can develop a frame of learning that is ongoing, collegial, integrated and child-centered as well as develop the sense that learning to teach is an ongoing process.

In sum, the relationship with MSU as a PDS had a strong effect on Hart High School as an institution. This partnership provided the school with human and fiscal resources that helped to develop a climate that was committed to facilitating teacher responsibility and leadership, fostering the development of novice teachers, and creating a new organization

that was devoted to the teaching and learning of all students including those with disabilities. Within this climate many teachers, university faculty and preservice teachers jointly examined curriculum and methodology and experimented with new ways of teaching subject matter, organizing classrooms, and assessing students' learning. Hart High in many ways met the aim of a PDS as defined by Darling-Hammond (1995) "to transform the entire educational enterprise by changing teaching, schooling, and teacher education simultaneously" (p.90).

However, not all Hart teachers were fully vested in this partnership. In part because it is more difficult for some people to take the risks necessary to make changes in their practice. Also, for the first three years of this partnership, the fiscal and human resources from the university were concentrated in four departments, namely the core subject areas. This inequity in the distribution of resources and the notoriety that the teachers in PDS projects achieved led to the development of jealousies and a fracture between teachers who taught required courses and those who taught elective courses. Faculty meetings and staff lounge conversations were laced with complaints about the "favoritism" shown to teachers in the PDS projects and that extra time for collaboration was really to create the substance for the "dog and pony shows" put on by school and university faculty at national conferences. Over time these feelings and divisions grew, diminishing the intensity and pace of the restructuring. The 1995-96 Annual Education Report of Hart High School substantiates these issues, "With five years of effort behind us, the novelty of the PDS has worn off; the introduction of resources for improvement can create stresses in our school, including concerns about equity in recognition and access to resources and support."

2. Mission Statement of Hart High School

An examination of a school's mission statement can provide insight into an institution's philosophy and beliefs. Hart High School faculty and administration jointly developed a mission statement in 1990-91. This development came after two years as a PDS. These two years gave the faculty at Hart High a good deal of reflective experience in collaborating with university faculty about teaching, learning, and the organizational structure of their school. According to Fullan (1994), the reflective experiences of an institution taken collectively are critical because a shared vision emerges from the dynamic interactions of organizational members. Hart's vision taken from the school's 1993-94 Annual Education Report is as follows:

A rapidly changing world requires a new kind of education. Hart High School as a Professional Development School is dedicated to preparing students and educators for the changes that lie ahead. We will provide exemplary education for all our students, support growth for the professionals in our school, and foster the development of the entire educational community through the study of practice and the generation of knowledge. We accept as a starting point for our work the six principles for designing a Professional Development School proposed by the Holmes Group.

The activities and efforts of the Hart faculty as measured by the inquiry projects they developed and the joint papers and presentations they annually produced with their university colleagues indicates that this statement truly stands as a serious commitment by the faculty of this school.

The vision building process is not static, but is ongoing and continues to evolve as the organization changes. Vision building is the examining and reexamining of the purpose of teaching (Fullan, 1994). Several years later, Hart's faculty developed four target area goals for the North Central Accreditation process. These goals provide further evidence of the

school's continued growth and the faculty's commitment to creating a new institution in which all students can learn. During the 1993-94 school year, the faculty engaged in lengthy discussions to develop specific target area goals as part of the North Central Association's Outcomes Accreditation process. The four student outcomes are:

1. Students will be able to transfer knowledge and skills gained in one situation to another.
2. Students will be able to actively participate in a constructive discussion, both articulating their own ideas and learning from others.
3. When faced with important issues and decisions, students will actively seek information to gain multiple perspectives and develop strategies for resolving issues.
4. Students will be able to create a piece of writing, revise it, and explain why the revisions represent an improvement.

These student goals are consistent with both the principles of the PDS and the national curriculum standards. Student construction of knowledge through the processes of inquiry and reflection permeate the goals, which are central to the PDS principles for teachers. Darling-Hammond (1995) in her research on PDSs found that the experiences of curriculum development and team teaching fostered learning by teaching, doing, and collaborating (i.e., inquiry and reflection) simultaneously in both teachers and students. The development of these goals offer additional evidence that the culture and the climate of the school was one of a faculty committed through collaboration to create a new organization that promoted high standards of professional knowledge for beginning and experienced teachers and high expectations for all students. Further, the public display of this mission statement and the student goals stand as a constant reminder of the new institution for veteran and new faculty,

for visiting professionals, parents and students. Thousand and Villa (1995) in their book entitled, Creating Inclusive Schools, claim that building a common vision that is committed to teaching all students is a critical step in creating an inclusive school environment.

3. Teacher Generated Decision Making Model

As stated earlier in this chapter the decision in 1988 for Hart High School to become a PDS in partnership with MSU was a joint decision made between administrators and a core of high school teachers. After three years of restructuring efforts and collaboration about creating a new organizational structure teachers wanted to create a formal process for deciding issues that impacted the entire school. Many of them had spent a great deal of time discussing differing forms of school organization. They wanted to move even more toward site-based decision making and away from the top down management that existed for many years at the high school. Darling-Hammond (1995) in her study of PDSs found that the focus on facilitating the reconceptualization of teaching and learning fosters new forms of teacher leadership. This new empowerment liberates teachers to make decisions that shape practice, as well as decisions that impact the institution and system. This was the case with a science teacher very involved in the PDS initiative.

In addition to his professional development in school, he was enrolled in an administrative course at MSU and decided to develop a model for making group decisions in school settings for his course project. He shared this model with several members of the faculty to get their feedback on his plan. He received a favorable response from his colleagues and was encouraged by them to share it with the principal. The principal was

supportive of this group process for decision making. They worked together to refine the model before a formal presentation was made by the science teacher to the faculty.

The model is based on majority rule that may be either a 2/3 or 3/4 vote decided by a vote of the faculty based on their perceptions of the significance of the issue being decided. Any faculty member or group may present a proposal to the entire staff. The faculty may approve the proposal immediately if appropriate, or it may choose to have the proposal go through the review process outlined in the model when 20% or more vote for this procedure.

The Collective Decision Making Model has two phases. In Phase I, the total faculty is divided into cross-departmental groups to review and study the proposal during the first hour of Wednesday morning. Each group reports its findings to the total faculty. After the presentations, the faculty may choose to vote on the proposal or with 20% or more of the faculty vote, the proposal may be referred to Phase II of the model.

During Phase II, interested staff volunteer to form a subgroup to research and develop various points of view on the issue and present their data to the faculty. The information is discussed and debated. A one week period is allowed to informally discuss and reflect upon the issue. At the next faculty meeting, the faculty votes on the proposal and either a 2/3 or 3/4 majority determines the outcome of the proposal.

After several hours of deliberation and discussion of this model, it was adopted by the faculty. The model received strong support from the majority of faculty who wanted an agreed upon process for discussing, debating and deciding changes in the school. However, the faculty support was motivated by differing perspectives. The large faction of faculty involved in the PDS wanted the process to maintain and protect the restructuring efforts of

their departments and the school to-date. The smaller faction of faculty that felt alienated by this partnership supported this process to control the rate of change and protect the elements of the traditional high school structure that were important to them. Many faculty wanted a process that would eliminate the possibility of administrative mandates and formalize joint decision making between faculty and administration.

Regardless of these differing motivations, the adoption of a group decision making model is yet another measure of this high school's efforts to create a new institution. The model itself serves to illustrate further the evolution of their roles from teachers as learners to teachers as leaders and the creation of a school culture in which teachers take ownership and responsibility in the joint governance of the school. With this process, faculty are expected to play a leadership role in presenting new ideas and debating issues of concern. Consensus is always the goal. Further, the consensus is a result of a process of inquiry and reflection about the issue at hand. These principles are two of the PDS guiding principles. The development of this model by a faculty serves as strong evidence that the culture of Hart High School is one in which faculty and administrators work collaboratively to create a new organization and all voices have a way to be heard.

Since its implementation, the model has been used often and has assisted in resolving many issues and in supporting experimentation with some organizational changes. For example, the faculty adopted a new method of administering the state proficiency tests based on a proposal presented by a group of faculty members. At times proposals have been rejected by the faculty, even those presented by administrators. Two years ago the principal and a group of teachers presented a proposal to restructure the entire school schedule. A

variety of scheduling alternatives were intensely debated and discussed for several weeks. When the vote was taken, the proposal was defeated by a small margin because the majority of the faculty believed May was too late in the year to implement a new schedule for fall. There are still ongoing conversations about development of a new schedule, although there is still not a consensus for the change. The fact that this model is still utilized in 1996 indicates both the strength of the model and the investment the faculty has made in taking responsibility for governing the school.

How does the implementation of this model serve as an environmental resource to support students with special needs? Given that students with disabilities at Hart High School are at present fully included in general education, any proposal to create a separate special education course or a separate diploma would have to be presented to the entire faculty for discussion and then supported by the majority before implementation. A perfect example of how this decision-making process was used was the debate about how academically talented students would be supported at Hart High. A proposal was made to the faculty to eliminate honors classes and instead incorporate an honors option in all classes so that any student could have access to this option. After utilizing the process of the decision making model, the faculty voted to eliminate honors classes and offer an honors option in all classes. Thus, this group decision-making model provides an environmental resource for generating debate about all issues including ways faculty will collectively support students with special needs at Hart High.

In summary, the guiding principles of the Professional Development School and its resources, the mission statement and the model for decision-making at Hart High that evolved

through collaboration and were implemented by the faculty are all important environmental resources that teachers used to develop an inclusive school whose goal was to develop the potential of all students.

Conclusion

In conclusion, this chapter has argued that the district's special education reform coupled with the establishment of Hart High School as a PDS with Michigan State University provided the school with both human and fiscal resources critical to developing its capacity to support students with special needs in general education. These resources provided both the time and the conceptual framework of a PDS for school faculty to participate in sustained collaborative conversations focused on the restructuring of teaching and learning to better meet the needs of all students including those with disabilities. This attention to the teaching and learning of all fostered the moral purpose of teaching, namely making a difference in the lives of individual students. The fiscal resources created more professional development time which increased access to the human resources within the school and from the university. This led, in turn, to the building of strong collaborative partnerships providing teachers with an environment to examine their beliefs, curriculum, and methodology to better support all students. Thus, in these partnerships, the moral purpose of teaching conjoined with change agency and fostered new structures in the internal workings of the school developing a more inclusive culture or moral ecology. However, as in any institution the infusion of additional resources simultaneously created both positive forces toward change and negative forces to repel change, forces that ultimately derailed progress toward the school's reform goals. In spite of the tensions that the PDS partnership created for both general and special education

faculty, most teachers invested in developing Hart High School's capacity to serve students with special needs in general education. While these environmental resources are necessary to facilitate the reform efforts in teaching and learning to address the needs of students with disabilities, they are not sufficient in themselves to develop inclusive educational settings. Chapter 5 will argue that the belief systems of the teachers, including the moral purpose of their teaching, were strengthened through their collaborations, and these beliefs are the most critical component for special and general education teachers to develop in order to create an inclusive school culture with a moral ecology.

CHAPTER 5

TEACHER BELIEFS

**"One's personal predispositions are not only relevant but, in fact, stand at the core of becoming a teacher."
Lortie, 1975, p.113.**

Some research suggests that beliefs are the best predictors of individual behavior (Bandura, 1986; Nisbett & Ross, 1980, Rokeach, 1968). Specifically, teachers' beliefs shape their perceptions and judgements and impact classroom performance (Ashton & Webb, 1986; Clark, 1988). According to Fullan (1994) the individual teacher is the basic building block of moral purpose in an institution. If students with mild disabilities are to be successfully included, then general education teachers must believe that they are responsible to teach all students and that their moral purpose in teaching is to make a difference in the lives of individual students. As discussed in chapter two, teachers must not only hold the belief, but enact it by restructuring their teaching to facilitate the learning of all. Otherwise, the physical presence of students with mild disabilities in regular classrooms will be "business as usual" (Zigmond & Baker, 1990), which has meant chronic failure and frustration.

Therefore, a second step in addressing the question of what resources contribute to a school's capacity to serve students with special needs in inclusive settings is "to understand the values and beliefs of those who drive these processes" (Brousseau, Book and Byers, 1988, p.33). The overarching thesis of this dissertation is that while certain environmental and

intellectual resources are necessary for inclusive practices, teachers' beliefs about students' learning capacities and their own responsibilities to help all students learn are equally critical.

The last chapter described the environmental resources that supported collaborative partnerships between general and special education teachers that focused on restructuring teaching and learning for all students. Through this collaborative process teachers had the opportunity to examine their beliefs about learners, curriculum and pedagogy and to further develop their intellectual resources to support students with special needs. According to Fullan (1994) teachers with moral purpose need four basic skills to be effective change agents: personal vision building, inquiry, mastery, and collaboration. In other words, teachers who aspire in their teaching to make a difference in the lives of their students need to work collaboratively on a continuous basis examining their own vision of school, persistently asking questions about their practice and attempting to master new ideas and skills. Through this type of ongoing collaboration the moral purpose of teaching becomes intertwined with change agency. Fullan (1994) defines change agency as a conscious awareness about the nature of change and the change process. These four elements of moral purpose were incorporated in the PDS projects developed by Hart School and university faculty that led to the development of a culture with a moral ecology.

This chapter will examine the beliefs of Holly (a novice science teacher), Lyle (a veteran science teacher) and Jane (a special education teacher) that were strengthened and/or evolved through their collaborative experiences. As mentioned in the introductory chapter these three teachers engaged in sustained collaboration in their PDS project to restructure science teaching and learning for all students in their respective classes. They volunteered to participate in the Collaborative Inquiry project with members of the PDS math project to

discusses what they had learned about supporting students with mild disabilities in general education over the last five years.

In order to ascertain the teachers' beliefs in this study, I analyzed both their written and oral communication for categories of beliefs. The first set of data was a Fastwrite documenting their thoughts about the initiative to include students with mild disabilities into general education settings. One way to address the issue of the validity of a belief statement is to review other data to corroborate them. Thus, two other sets of data were examined for evidence of their beliefs: transcripts of fourteen collaborative conversations and each project participant's videotaped interviews of two hypothetical case studies of students with mild disabilities. Analyses of multiple data sets provide a fuller picture of teachers' beliefs and offset concerns about the reliability of their self reports.

Several questions surface from an examination of these data sets about general and special education teachers' beliefs about inclusive practices.

.....What specific categories of beliefs are evidenced in this data?

.....What, if any, are the similarities and differences in the categorical beliefs between general and special educators?

.....How do these teachers' beliefs about the merger of general and special education compare with the discussion in the literature regarding this educational reform?

In the analysis of the data five sets of beliefs emerge, which can be divided into two categories: teacher beliefs about classroom practice and beliefs about the structure of educational systems (Chart 1). The first three sets of beliefs related specifically to the teachers and their practice in the classroom and are critical to support the needs of students with mild disabilities in general education settings. The second category that surfaced in the data was

beliefs about the organizational structure of secondary schools and the educational system and how these elements work to foster or inhibit inclusive practices. Following is an organizational chart to assist the reader in understanding the data about teachers' beliefs.

Table 5-1 Organizational Chart of Teachers' Beliefs

CATEGORIES OF TEACHERS' BELIEFS	
CATEGORY I: BELIEFS ABOUT CLASSROOM PRACTICE	
1.	Beliefs About Learners
2.	Beliefs About Teachers' Roles
3.	Beliefs About Content and Assessment
CATEGORY II: BELIEFS ABOUT THE STRUCTURE OF EDUCATIONAL SYSTEMS	
1.	Beliefs About Systemic Change
2.	Beliefs About the Organizational Structure of the School

See Appendix C for a Listing of All of the Beliefs in relation to the subjects of the study.

Following is an analysis of these beliefs and their role in supporting the needs of students with mild disabilities in inclusive settings. Each of the teachers in this study expressed these beliefs either directly or indirectly in the data or exhibited them during my interactions with them in the school setting in our work together.

CATEGORY I: Beliefs About Classroom Practice

1. Beliefs About Learners What beliefs about learners emerged in the data? Do general and special education teachers hold common beliefs about learners?

A. Heterogeneous Classrooms

Holly, in her Fastwrite (FW) concerning the merger of general and special education wrote that she believes in heterogeneous classrooms for several reasons. One reason she offered is that in this type of class students have role models for appropriate behavior. She

indicated that when she taught in a "more homogeneous setting of lower level students, the behavioral issues were my biggest concern" (FW, Holly). She did not think that these students ever had appropriate role modeling for behavior from other students. "Without the exposure to a true learning community where all are respected and everyone participates, they fail to build their own" (FW, Holly). She offered that in the science department they have been teaching heterogeneous classes for several years and she noted a difference in the behavior of lower level academic students. "The behaviors they once exhibited are no longer acceptable (FW, Holly)."

However, Holly did show some inconsistency in this belief. In a later conversation, Holly talked about a gifted first grader reading on a fifth grade level.

She is required to do the first grade reading book. She's with kids learning how to print and so I'm wondering like, there really is a justification for letting her going ahead. She does the first grade work in a rush and then she can read her book. So that's a problem too. I see kind of both sides. I see reasons why they separate (kids) and I can see why they're doing that (keeping this girl in first grade). I don't know if I have the answer. I don't know if it's right or wrong and it makes sense for a while there because it is a lot easier to teach with kids that are probably grouped together. It's not right but it's probably easier to just do one lesson..I don't know (Coll. 11/8/93 p.23).

In these instances Holly questioned her belief about heterogeneous classrooms. Although she stated that homogeneous classes "aren't right," she thought they might be easier to teach. Ultimately though, she seemed to remain committed to heterogeneous classes on the basis of a moral principle when she stated that homogeneous classes "aren't right."

Both Lyle and Jane held the belief that special education students benefitted from heterogeneous settings. They wrote a PDS research project (1986-1991) with MSU science education faculty to develop heterogeneous classrooms in Science by including students' at-

risk and with disabilities in Biology. The basis for this project was their increasing moral discomfort and frustration with both the academic and social experience for these students in the fundamental (low track) General Science Class. The purpose of the project was to find ways to include these students both academically and socially in all science classes offered by their department. What did they say in the data about their belief in heterogeneous classrooms?

Lyle in one group conversation gave a profile of a young man labeled Emotionally Impaired because of his acting out behavior, who has been in a self-contained classroom from early elementary until tenth grade.

He doesn't know how to act. He does not know what acceptable social behavior is; not language, posturing, or anything at all to do with academics; I mean he doesn't have a clue. He comes to school to talk about his car crashes and his tickets (Coll. 10/25/93, p.15).

Later in the conversation he reported,

Kids' attitudes about themselves and about school get in the way of academics. This young man has a strong personality, so he really doesn't give a candied rat's patoot about what anybody thinks about him (Coll. 10/25/93, p. 18).

I asked Lyle if he had come to believe, after working with special education students, that there was a real difference in their normalization and socialization and whether mainstreaming give them more of an opportunity to develop positive social norms? Lyle responded, "I agree, as long as we're doing something more than mainstreaming them, we've got to do something special with them in our class in terms of teaching or we're also just spinning our wheels" (Coll. 10/25/93, P.15). In this statement Lyle, like Holly, indicated that he believes students with behavioral difficulties can be better normed in general education.

In his videotaped interview about the hypothetical LD students (Jessica and Scott), Lyle further substantiated his belief about the benefits of heterogeneous groupings for both students. When asked how he would approach teaching Jessica, he talked about placing her in a heterogeneous cooperative learning group to assist her comprehension of biology since reading is difficult for her, although he had some ambivalence about the construction of cooperative groups as detailed in the last chapter. However, in his response about Scott, Lyle stated unequivocally that:

I'd like to see him mainstreamed in a heterogeneous classroom. I don't think special education should deal with Scott alone. I don't think that would be good for Scott. He needs to be out in the real world, instead of being pulled out and dealt with in a special class.

Based on this data, both Lyle and Holly expressed the same belief regarding the value of heterogeneous classrooms for students with disabilities, because it offered them role models for more acceptable academic and social classroom behaviors.

Jane did not directly state her commitment to heterogeneous classrooms in the data. Rather, she implied this belief in her Fastwrite and in her conversations. However, given her sustained effort with Lyle to create heterogeneous classrooms in the Science Department at Hart High School since 1986, there was little doubt about her belief. Jane's opening statement in her Fastwrite was that she was "committed to this initiative (to include students with mild disabilities in general education classrooms), although I have come to realize how complex the issues involved are." What Jane emphasized in this written statement was that after her experiences in the development of heterogeneous science classrooms, she was aware of the complexity of the process of change.

In a conversation with Holly, Jane made a striking statement about the system of special education, which supported her position that students were better served in heterogeneous settings. In the conversation, Holly related an incident to the group about a parent who wanted her student reinstated in special education because, in the parent's view when, he stopped receiving services he began failing his classes. Holly said,

He is one of the brightest kids I have, if he remembers to bring his work he does fine...he always gets an A or a B. Yet she wanted him back on caseload like it was some magical thing that happens, this magical wand that all of a sudden things will be taken care of if he's on a caseload (Coll. 5/9/94, p.33).

Jane responded, "I think we do build a false assumption that by sending students to special education classes we're going to be able to cure their problem." Ann (the social worker) jokingly added, "That's why I have the magic wand of special education" (Coll. 5/9/94, p.33). In this exchange Jane's awareness of the assumptions held by some parents and professionals about the cure-all ability of special education gave some indication that she believed they would be better receiving support services within the regular classroom. Perhaps, one reason Jane did not directly state her belief in heterogeneous classrooms was that Hart High School had mainstreamed special education students for many years and she was now more consumed with the impact of this reform on teachers' roles and the organizational structure, than whether students with disabilities should be mainstreamed.

In summary, all three of the teachers gave evidence that they believed that learners benefit from heterogeneous settings. While Jane implied this belief through her statements about her commitment to the merger of general and special education, Holly and Lyle indicated that through their experiences they believed that heterogeneous classroom offered

students with academic and behavioral difficulties role models for learning and social interactions.

Some of the recent research in special education on the postsecondary status of students with behavioral difficulties supports Lyle's and Holly's belief that heterogeneous classrooms benefit these students. Jeffrey (1993) in his study of this population found that they have not developed the necessary coping skills to resolve the ordinary problems that occur with others everyday in the work place. He recommends that students with emotional impairments be integrated in heterogeneous classrooms to experience appropriate role models. Once students with behavioral problems are placed in segregated classes with other students with behavior problems, they have limited opportunities to interact with students in regular classrooms. Walker and Bunsen (1995) recommend in their study about the status of youth with emotional disorders that they need to have access to integrated settings to develop feelings of empowerment, decision making skills and conflict resolution. In reviewing the recent literature on students with emotional impairments I was unable to find any evidence to the contrary.

B. All Students Can Learn

Holly was the only teacher of the three that directly stated this belief. In her Fastwrite she wrote that "all students can succeed in my science class. There is a role for everyone and all different kinds of learning at different levels. The levels of understanding are heterogeneous in any group. Therefore there really isn't any problem with teaching different levels and at times all students need a little extra time and help."

Her statement in the videotaped case study on Jessica further confirmed her position. "All students can be successful in my class. I have a student like her, he can listen and talk through things. These are the techniques that will help her." Holly's statements in the two different data sets indicated that she approached teaching her classes with the assumption that all students can succeed in her class and that she viewed students with disabilities as part of the whole class, not as a separate group of learners with special needs.

Lyle and Jane did not express this belief that all students can learn/succeed directly. One explanation for this was that given their years of experience in working with students at-risk and those with disabilities they have come to believe that all students can learn and have been examining this belief in more depth with a series of additional questions: What is the role of the teacher in assisting all learners to access essential knowledge? How can subject matter knowledge be represented differently to facilitate all learners' success? What pedagogical methods seem to benefit students with special needs? These were the overarching questions of their PDS project to restructure the teaching and learning of science for all students. Holly worked with Lyle and Jane for two years as a student intern and had the opportunity to begin teaching in a science department that was asking these questions about their practice and about learners.

The way of thinking that evolved for Lyle, Jane, and Holly in their restructuring efforts was initially one that focused on the different learning styles of students with disabilities. Through their collaborations and classroom efforts their thinking shifted to thinking about all learners as having unique ways of learning not just students identified as learning disabled. This change in their views of all learners describes an essential way of

thinking that is surfacing in the current literature on creating heterogeneous learning communities. Ferguson (1995), a special education researcher studying inclusive classrooms, writes that defining and creating integrated classrooms around a few students with disabilities seems misguided because everyone focuses on this small group of students and their differences, "rather than the whole group of students with various abilities and needs" (p.285). This comment about thinking of the class as a whole group of students with differing capabilities and skills parallels the thinking that Holly expressed in her Fastwrite and that all three worked to operationalize in their classrooms through the collaboration in their PDS project.

C. Student Responsibility

Holly stated this position directly in her Fastwrite,

If a student attempts their homework and shows some level of understanding in our class, I feel they do succeed and have passing scores. If a student does not complete the tasks, ask for help, or show signs of understanding they will most likely not succeed, which I feel is no fault but their own.

She also made several comments in her videotape regarding student responsibility.

About Scott she said,

If he doesn't do homework or try, that could hurt him. Everybody is responsible to help Scott. He has to take responsibility for his disability and his learning. We all need to help him become his advocate and help him be responsible.

Holly demonstrated a consistent theme of holding students' accountable for their learning.

Lyle also expressed his belief about student responsibility for learning in the videotaped case studies. With Jessica, he would talk with her about her responsibility in biology class and share his expectations with her and develop a contract. He said:

I would tell her I expect her to try all of the questions on the essays and to come in for an interview. I expect her to keep her journal every day and to use her lab partners to do the lab write up. I would encourage her to ask questions in class and tell her that she is helping the class by asking questions. I would give her feed back on her journals and commend her good efforts.

Jane mentioned in her Fastwrite that with the mainstreaming of students with disabilities into general education classrooms that the role of the learner needed to be redefined. She elaborated on this position in the group conversations and in her videotaped interview. Jane believed that students with disabilities need to learn to advocate for themselves; i.e., self-advocate, in the classroom for the accommodations they need to be successful, thereby taking more responsibility for their learning. In the conversation on October 25, Holly and Jane had a discussion about offering a structured study for special education students. Holly indicated that she thinks it was a good option for special education students to have some "down time" from an academic class in a structured study where they can do their homework and get some help with it. Jane's response indicated that she felt strongly about this issue. Jane said:

See, I just can't buy this down time idea. I know a lot of people say kids just need a time to get down, but I just can't buy it. I do recognize that kids who are in the mainstream need support and I don't think it's just the special ed kids. I think that it's all kids. I'd rather that we think about how we can provide that support to all kids because I think that all kids could benefit that way. But we're trying to build a curriculum to help kids understand what their disability is so that they can begin to talk about that with the general education teachers. I don't think we do a very good job of that at all. And I'm just coming to believe that if kids are gonna be successful in general ed they have to be able to advocate and articulate what it is they need in order to be successful. Because the bottom line is they really do have to be treated differently because of the way they learn, I think (Coll.,10.25/93, pp. 21-22).

In this passage, Jane argued that students need to learn how to become advocates for themselves in the general education classroom. They needed to be able to articulate what they

need, i.e., the accommodations that will promote their success in general education settings. This was a new role for all students to take responsibility for their learning by sharing with the teacher the ways in which they learn best, how they can demonstrate their knowledge and the learning difficulties that they experience.

The responsibility of advocating for special education students included in general education classrooms has belonged to the special education teacher consultant. As stated in the last chapter there are two major reasons why students need to assume more responsibility for advocating for their learning. One reason is simple logistics. Special educators have a caseload of 20-25 students each of whom have six different teachers totaling 120 teachers for special educators to consult with about the disabilities and accommodations of their students. Since special educators are team teaching with general educators, it is impossible for them to be their students' sole advocate. A second reason is that the Americans with Disabilities Act mandates accommodations in post secondary institutions and in the workplace, therefore it is even more imperative that students with disabilities learn how to articulate the nature of their disability and advocate for themselves.

In a conversation on 12/7/93 Lyle and Jane had an exchange about advocacy that revealed Jane's thinking about changing her role as a special education teacher as well as the role of the special education student. Lyle asked Jane about the time several years ago when they team taught in Biology on a daily basis.

Lyle: We were talking about advocacy and I wanted to ask when you and I teamed did you feel like you did quite a bit of that when we were in the same classroom, I mean in terms of advocacy?

Jane: You mean teaching kids how to be an advocate?

Lyle: Teaching kids how to be their own advocate.

Jane: I don't think then I did as much as I try to do now. I was doing more *for them*, rather than empowering them. And you know part of the stress of this job and all of the different disability areas that are being represented now is forcing me to think I can't do this any more and then I think that I shouldn't be doing it anyway. So the whole question is how can we teach kids to do that? If we do this only for kids with disabilities though, are we just fueling the dual system (i.e., of general and special education) by saying it's different for them?

Holly: I was just thinking that all my kids need to learn how to advocate.

Karen: It's most critical for them, but it doesn't have to mean it's not important for anybody else I would think.

Jane: Right. Right. (Coll. 12/7/93, pp.17-18)

Jane was very consistent in her belief that students needed to take responsibility for their learning, as evidenced in her videotaped conversation about Jessica and Scott. In response to both case studies, Jane spoke directly about the students' role and responsibility in managing their learning. In the case of Scott, whose major problem was his attention deficit, Jane was asked who was responsible for helping him develop more appropriate classroom behaviors? She emphatically stated, "Scott is responsible." When asked how she would approach teaching Scott, Jane responded,

As a tenth grader, I would want him to learn to express to teachers what he needs. Scott needs to get into his behavior and learn when his attention is breaking down. He must keep track of the behavior that signals his attention is wandering.

In the case of Jessica, whose primary disability is in reading and writing, Jane indicated that "Jessica needs to know more about her disability and to learn to use the computer as an aid for her writing and spelling." When asked who was responsible to teach Jessica to read,

Jane said, "Jessica is the key. If she is motivated to improve her reading then both general and special education teachers need to work together on this."

Jane's responses in both of the case studies were consistent with her belief statement that the role of the student needs to be changed in order for the merger of general and special education to be successful. Their role, according to Jane, was one that entailed students taking responsibility for their learning, that is developing self-determination. In these passages' Jane indicated that students with disabilities need to learn about their disability and the accommodations that will facilitate their learning and then advocate for these supports in general education.

In summary, all three of the teachers in this study expressed their belief in several of the data sets that students need to assume some responsibility for their learning. Recent research on developing self-determination in students with disabilities parallels Jane's views about the changing roles of both the special educator and the student with disabilities. Fields (1996), in her research in this area, writes that a commitment to fostering self-determination challenges the traditional role of the special educator as a service provider to be redefined as more of a consultant or facilitator. Fields (1996) further argues that this new role of facilitator means that the special educator assists individuals with disabilities to become self-determined and make decisions about their educational goals. The role of the student is to become empowered and to take responsibility and set goals for his/her learning. These are precisely the positions that Jane has articulated in her Fastwrite, collaborative conversations and the videotaped interview.

Summary of Teachers' Beliefs About Learners

All three teachers throughout the data in this study identified fairly consistently three beliefs they hold about learners. Both Holly and Lyle directly indicated in these data that they believed students with disabilities can benefit from heterogeneous settings, while Jane indirectly made this point through her conversations about the benefits of including all students. Holly stated directly that she believed all students can succeed or learn in her class, while Lyle and Jane expressed this belief through their work in the science restructuring project. Holding students responsible for their learning was clearly stated by all three of the teachers throughout the data. All three of these beliefs about learners inform teachers' moral purpose for teaching. They provide substantive meaning to Fullan's (1994) definition of moral purpose as making a difference in the lives of individual students. For these teachers moral purpose has come to mean creating heterogeneous learning communities in which all students have access to the same knowledge, restructuring teaching and learning so all students can succeed and expecting students to be responsible for their learning. This set of beliefs about learners is one crucial resource that contributes to a school's capacity to serve students with special needs in general education.

2. Beliefs About Teachers' Roles

The beliefs about the teachers' roles in supporting students with disabilities in inclusive settings added another dimension to the moral purpose of teaching that was also of critical importance. In analysis of the data three beliefs surfaced: 1) the belief that teachers' roles need to be redefined, 2) the belief that their role is to teach all students, and 3) the belief that teachers need to hold high expectations for all students.

A. Redefinition of the Teacher's Role

Holly when asked in her interview about the case studies of Scott and Jessica, "Who is responsible for teaching them to read?" replied:

That's something I'm worried about. Biology is important, but Scott and Jessica still need to learn to read and write. They need to succeed in life. We can read in groups and have each one learn from the other. But all of us (general and special education teachers) need to play a role. Special education teachers are here to help these students but that's not their only role. They're here for all students. Special education teachers in the mainstream help other students too and they can benefit from their help. It is the classroom teacher's job to teach reading and writing. I don't know if I can do all of it. It depends. Time is an issue. I want them to get the biology concepts, but they still need to learn to read and write. (Holly, Videotaped Interview, Jan., 1994)

Holly made it clear that her role was to teach biology, but she also needed to develop the literacy skills of her students. This was a redefinition of her role from strictly a subject matter teacher. However, Holly expressed some internal difficulty with accepting the responsibility for the development of literacy skills along with teaching biology when she said she was unsure if she could do it all. Balancing the time between helping them learn to read and write and teaching them biology was a struggle. In terms of the special educator she clearly stated that their role was to work in the regular education classroom assisting all students.

Lyle wrote in his Fastwrite regarding his thoughts about the initiative to merge mildly handicapped students in general education settings,

If we expect success with these students, the general education teacher must receive regular support from special education. As much experience as I've had with this situation (mainstreaming), every year presents different teaching challenges and no matter how experienced we think we are with this (initiative) we still need lots of support (Lyle, Fastwrite).

Lyle too expressed some internal struggle in redefining his role to meet the needs of special education students. He indicated that even though he was experienced with mainstreaming he still needed the support of a special education teacher.

Lyle discussed this belief further in both of the case studies. He argued for a team effort for both Jessica and Scott including the special education teacher, the parent and the student. Regarding Scott he said, "All of us have to work as a team. I would want a support person from special education to help me with any special problem that might come up that I am not trained to handle." About Jessica he said,

I like to use special educators as a reference to get advice on special education students in general or about specific issues. That is their role to support us in general education. Mine is to guide the daily classroom activities, assess their progress, encourage success and help kids take charge of their lives.

In this passage Lyle framed teaching with a moral purpose as empowering students to assume control of their lives.

In sum, both Holly and Lyle, believed that with the mainstreaming of special education students that the roles of the general and the special education teacher were redefined to work collaboratively in their classrooms addressing the needs of all students. Although both of them clearly believed in inclusive practices, they expressed internal struggles in changing their traditional role from a subject matter teacher to one that met the demands in the classroom. What did Jane, the special education teacher in this study believe about the redefinition of teachers' roles in this merger?

Jane in her Fastwrite stated that general and special educators needed to redefine their roles which included planning time to inquire, reflect and collaborate to "ask questions, articulate our beliefs and develop problem solving teams."

Jane made comments in 9 of the 14 conversations about the need to redefine teachers' roles and change their practice in order to merge special education students into general education. In the first group conversation Jane spoke strongly about the need to rethink the role of the secondary special educator, as a remedial teacher.

We're (high school special educators) really trying to think about how we can build a curriculum to help kids understand what their disability is, so they can begin to talk about that with the general ed teachers. And I am just coming to believe that if kids are gonna be successful in general ed they have to be able to advocate and articulate what it is they need in order to be successful. Because the bottom line is they need to be treated differently because of the way they learn. I think a lot of special educators think that they still need to remediate (Coll., 10/25/93, p.10).

This passage illustrated two ideas that Jane has about the changing role of the special educator from remediator to one that assisted students in learning about their disability and how to advocate for their needs in the general education classroom. Second was that they work with general educators to assist them in developing ways "to treat special education students differently because they do learn differently and therefore facilitate their learning in integrated classrooms."

Jane also expressed the emotional dissonance she experienced in changing her role in a team taught class with a general education teachers. In this part of the collaboration, I related to the group a story regarding a very bright student with a learning disability, Missy. She was so self conscious about responding in class that she never spoke above a whisper. In this particular class all students had to give group presentations in front of the class. Missy was expected to present with a group even though she was real nervous about getting up in front of the room. Jane asked me,

Jane: How did you feel? Were you nervous for her? Cause I can remember the first year students in Special Ed were getting up in front of the class and I was a basket case. I mean it was so powerful for me to tune into how I was feeling. I was scared to death for those kids. It was kind of interesting, I thought.

Peg: I just said to her that I knew she could do it, I know you're scared. So is everybody. You don't have to do it by yourself. Write your part on a card and you can have that with you. But I'm struck sometimes as I team with other teachers who will say, even in group participation, oh the Special Ed kids don't have to take a talking part. They can just make the poster. I say we have to expect that they participate because then we're contributing to that learned helplessness..We're giving them permission.

Jane: Uh. Huh. But when you think about it, it's almost like enabling them...it's really an issue of risk taking, I think, for me, allowing them to take a risk and protecting them from that for some reason, because I think that's one of the issues in Special Ed is we pretend not to enable them, we call it support.(Coll. 11/29/94. p.11-12)

In this exchange, Jane has identified the internal role conflict, i.e., encouraging students' risk taking vs. protecting them from failure that she experienced when she began team teaching in general education classrooms. While she has stated in several instances that the role of the special education teacher needs to change, she also was very aware of the internal struggle that this change evoked in her. This example was consistent with the statement in her Fastwrite that she realized how complex the issues were in merging mildly handicapped students into general education because of the dissonance one experienced in changing their role. In addition, this statement also affirmed her position that special educators need to rethink their role in meeting the needs of their students.

Jane offered more detail about her internal struggles than Lyle or Holly, because she was having to make the most dramatic changes in her practice. In addition to relinquishing

her autonomy in her own classroom to team teach in general education, she had to now redefine her role with both the general education teacher and the special education students in this context. The redefinition of her role in relation to the needs of the special education student was causing the most dissonance as evidenced in her videotape of the Jessica case study. When asked, who is responsible to teach Jessica to read, Jane responded:

Jessica is the key. I have a dilemma of my own. She's been pulled out from general education for years to work in the special education resource room on her reading and she is still a poor reader. How do we get kids to work on their reading in high school when they've tried and still can't? Is she motivated to improve her reading?

The dilemma for Jane involved changing her role from the traditional one of remedial teacher in a special education classroom to supporting and facilitating learning in the general education class. In the first collaboration Jane described her position about the role of the special educator as a remedial teacher by saying:

I think that a lot of special educators think that they still need to remediate. They think that every kid ought to be able to read before they leave school. But I think that some of our kids have been down shifted so long. I just think that we have to let some of the kids jump over hurdles because many of them can think conceptually and this would empower them and then maybe they would want to improve their skills, but they are in so much pain about their basic skills that they have just burnt out on trying (Coll. 10/25/93 p.10)

In this passage Jane articulated her thoughts about the special educator defining his/her role as a remedial teacher. Yet in her interview she said that Jessica's reading problem presented a dilemma for her. This seemed to indicate that while philosophically she believed that the role of the special educator needed to change from remediator to facilitator of the students' learning, internally this shift still posed a dilemma for her when a high school student with a learning disability was still reading several years below grade level. How does the

special educator address these issues when they were team teaching in general education classes? In my own conversations with Jane about this issue she believed that one way to resolve this dilemma of teaching specific reading skills to students at the high school level was to offer an elective reading class jointly taught by an English teacher and a special education teacher for all students interested in improving their decoding and comprehension skills.

In summary, all three of the teachers in this study believed that their roles as educators needed to be redefined with the merger of special education students into general education classes. Both of the general education teachers believed that the role of the special educator was in the general education classroom, team teaching and working with all students and collaborating with them concerning the individual issues of students with disabilities.

All three of them also expressed the internal struggles they experienced in redefining their role to support the needs of students with mild disabilities in general education classrooms. Jane, the special education teacher expressed the most dissonance because her role was more radically redefined in the merger in terms of both the location and the nature of her work. According to Fullan (1994) these internal struggles are part of the change process that teachers of moral purpose experience as they examine and reexamine their role as a teachers and their purpose in teaching.

What does the literature have to say about the redefinition of teachers' roles in inclusive settings? Villa and Thousand (1995) in their book, Creating an Inclusive School, support the beliefs of the teachers in this study that general and special educators must work together to create inclusive schools. They recommend that general and special educators combine their resources in team teaching arrangements. Team teachers in collaboration bring

their "unique instructional expertise, areas of curriculum background and personal interests together to provide a richer learning experience for all students" (Villa & Thousand, 1995, p.72). Dianne Ferguson (1995) in her experience in developing inclusive practices, writes that if inclusion is ever going to mean more than the mere integration of students, than special educators must change their tactics "with new kinds of practice in which groups of teachers work together to provide learning supports for all students" (p. 285).

While there is support in the literature for changing the role of the special educator, there is not consensus. Fuchs and Fuchs (1995) argue strongly that by specialness is meant that instruction for children with disabilities takes place in resource rooms and self-contained classrooms. In the article "Special Education in Restructured Schools," Zigmond, Jenkins, Fuchs, Deno et al. (1995), based on findings from three different multi-year studies, conclude that the continuum of special education services must remain. According to these authors the primary role of the special educator is to teach in special education classrooms, rather than team teach in partnership with general educators.

One must note however that the Zigmond et al. study was conducted at an elementary level, as are the majority of the studies regarding the delivery and impact of special education services. The findings from these elementary studies conducted are often generalized to apply to secondary settings. Even though the nature of secondary schools, i.e., the adolescent student population and their needs for social acceptance, the focus on subject matter, the emphasis on preparation for adult life all point to different considerations in developing supports for high school students with mild disabilities.

The real question is how an educator enacts their moral purpose, i.e., making a difference in the lives of individuals. Obviously, some special educators believe moral purpose is best represented in more segregated special education settings. Goodlad, Soder, and Sirotnik (1990) argue that teachers with moral purpose "must be diligent in ensuring that no attitude, beliefs, or practices bar students from access to the necessary knowledge" (p.49). Frank Laski, a leading special education litigator, cites Justice Thurgood Marshall, who after reviewing the extensive history of social exclusion of individuals with disabilities concluded that their segregation paralleled the worst excesses of Jim Crow (cited in Laski, 1994). Undoubtedly, given the dissonance in the special education literature about how students with disabilities are best served in schools, the debate about the role of the special education teacher is far from being resolved.

B. Responsibility to Ensure that All Students Learn

This belief was not directly stated by these teachers in the data rather it was implied throughout their writings, conversations and in their daily practice. The fact that all three of the teachers expressed a strong belief in heterogeneous classrooms indicated a belief that their role is to teach all students. All three of the teachers also discussed at length how they addressed the needs of all students in the general education classroom.

For example, **Holly** described how she accommodated differences in learners in the following comments,

On individual assignments I give everyone the same written form. Often the average or below average students have difficulty expressing themselves well in essay form. Therefore, I usually give make-up tests in oral form. If a student has trouble on the first attempt, they usually can express themselves to me orally (Holly, FW).

In this writing Holly indicated that she was aware that many students needed alternative ways to demonstrate their knowledge and she was willing to offer them that opportunity.

Lyle in his videotaped discussion of the case studies of Jessica and Scott said that both students needed to be in general education settings and that there needed to be a team effort between the students, the science teacher and the special education teacher to develop a plan to meet the needs of both students. While he would not alter the science curriculum for Scott or Jessica, he would accommodate their learning by given them more time to complete written assignments and alternative assessments like oral interviews.

Jane in an exchange with Holly about offering special education students a structured study emphasized the need to think about all kids. She said, "I do recognize that kids who are in the mainstream need support and I don't think it's just the special ed kids. I think that it's all kids. I'd rather that we think about how we can provide that support to all kids because I think that all kids could benefit that way" (Coll. 10/25/93).

Further evidence of Lyle and Jane's commitment to teach all students is found in their unpublished paper (1989), a transcription of an interview on their project to detrack the science department by eliminating the low level science classes and to create heterogeneous classes for all students. Lyle states:

I have always been uncomfortable with the label we put on the students that learn at a different pace or with different techniques. For many of them they are "identified" as slow learners at a young age and are subjected to "different treatment" for the rest of their school days. They become a separate sub culture and, just by the mere fact that they are given "special attention," they carry a stigma around with them for the rest of their lives. I had seen too many students eligible for support services failing or floundering in the tracked situation. Though there were two teachers in the room, we weren't able to

provide enough individual conversations, role modeling, or leadership in lab settings to impact students the way we thought they could be impacted in heterogeneous settings (p.5).

Jane states in the same paper the following about her commitment to inclusion.

I wanted students to work and learn in a diverse group just like they will after schooling is finished. I wasn't thinking solely of the special education students either. All students can benefit from diversity.

These comments offered evidence that both Lyle and Jane are committed to teaching all students in heterogeneous settings. Another indicator of their commitment is the fact that they developed this study, the inclusion of students at-risk and mild disabilities into biology classes, as a project for their work in the Professional Development School. Holly, as Lyle's intern from Michigan State University became a member of this science department and therefore participated in this study. Later she was hired as a science teacher at Hart High School, hence she was a part of this study to gradually eliminate low track science classes and include all students in biology.

In conclusion, all three teachers in this study demonstrated a firm belief that their responsibility was to teach all students. Perhaps, the strongest indicator of this belief was that none of these teachers throughout the data and in my professional experience with them over the last five years have ever expressed an unwillingness to teach any student regardless of the nature or severity of their disability. Further, the alternatives and accommodations that they provided for students identified for special education were available to all students in their class. Their goal, as teachers, was to foster and facilitate the learning of all students.

The special education literature on inclusive practices emphasizes that one underlying belief necessary for creating inclusive schools is the belief that teachers are responsible to teach all students. Falvey, Givener and Kimm (1995), in their chapter about inclusive schools, write that restructuring education to establish meaningful standards for each student requires a belief that each child can learn and succeed and that effective teaching and learning results from the collaborative efforts of all teachers united to foster the success of all students. Many special educators, however, remain doubtful that general education classrooms will ever become responsive enough to effectively meet the needs of students with disabilities (Fuchs and Fuchs, 1995). Undoubtedly, the debate regarding where students with disabilities are best served will continue for the next decade.

C. Importance of High Expectations

Both Holly and Lyle were very direct in their belief about high expectations, while Jane emphasized the need for teachers to find ways to foster students' success.

Holly, in several conversations stated the high expectations she held for all students. In the conversation on 11/29/93 the group was discussing the idea of how classroom teachers contributed to special education or other marginal students' "learned helplessness" by lowering their expectations. I shared with them an experience I had while teaming with a general education teacher, who said the special education students didn't have say anything in the group presentations they could just make the poster. Holly responded:

I can't get over the idea of telling someone they can do a poster and don't have to read or say a part, that just blows me away! Everybody in my class has to verbally say part of the group presentations, I can't imagine that. In my class every week they get a participation grade and to me that's the warm body in class, doing your job, asking questions, taking notes, and working in your group. And that's a portion of your grade by the end of the term there's

probably a 100 points, that's not the whole grade but it is a part of it (Coll. 11/29/93 p.12-13).

Holly shared with the collaborative group her internal struggles with holding students to high expectations.

It's also hard because you have these expectations and they immediately turn off because they just don't think they can meet them, or it's scary because it's gonna be too hard. And that kind of stuff comes out you know. I want always to have the same expectations and then you can be a little more picky with their work once you get it in front of you...But I don't like when they turn off and then I figure they didn't turn in the assignment and my expectation was that they do it..so I go over and check with them. Why didn't you do it? Are you going to do it next time? Can I help you with it? And they still don't do it and then they're failing. What can I do? Is it that they just don't care any more? If I lower the expectations they are still not probably going to do it. (Coll., 5/9/94, p.9).

This passage exemplified the ambivalence Holly had about her belief to hold high expectations for all students. She was frustrated because the students weren't turning in their assignments and she could see the outcome--failure. She offered them encouragement and yet stayed her ground, realizing that probably if she lowered her expectations they still probably wouldn't do it.

Like Holly, Lyle expressed the need for teachers to hold high expectations for students. He made this point several times during the conversation on 2/7/94

Everybody's a little different, but I still say we've got to demand a little more out of them and let them know they have to at least try their best. And a lot of these kids aren't even coming close to their best because we're not asking them to do it in the lower grades. (p. 10)

Later in this same conversation, he said he tells students:

I give them an option. I say you don't have to come to this class. If you're signed up for Zoology right now and if you don't want to be a part of this

class then you have the option to go down and go someplace else. But you're gonna work, if you're gonna be in here. You don't have a choice (p.20).

Three months later he stated strongly during the collaboration on 5/9/94:

I think that a lot of special education kids come in to classes with low expectations of themselves and then on top of that if the teacher reinforces that by having low expectations for them they are defeated right away. We ought to let them know that we have high expectations for everyone and that we don't intend to let them stay on this even keel. Like they've reached all of the skill levels that they're ever going to reach in their life and by the time they're in 10th grade, even though they may not improve very much we still should expect them to improve. If you don't expect them to get better they won't get better. (p.9)

Later in this conversation, Lyle revealed that he was inconsistent about high expectations. He admitted to the group that one of his:

biggest shortcomings is that a lot of us in the trenches are saying I'll accept their work at their level as acceptable passing work. The person may write a paragraph that really isn't a paragraph. It doesn't have any caps or periods and all that good stuff, but they said something and we'll accept it at that level. So we're not really helping them get better at reading and writing, but we're being more accepting of their level and not really challenging them to get better (Coll. 5/9/94, p.50-51).

While this was certainly discrepant with Lyle's strong stance on holding high expectations for all students, it was not surprising. In general, a common practice of secondary content area teachers is to hold high standards for knowledge of their subject matter, but not for the mechanics of writing. However, this issue does raise several questions about the continued development of the reading and writing skills of all students especially those with disabilities in written language. Critics of the inclusion movement argue that this is precisely why secondary students with reading and writing disabilities still need access to resource room services (Zigmond et al, 1995; Sapon-Shavin and O'Neil 1994/1995). However, inclusionists argue that this practice means that both general and special educators

need to work jointly to provide the further development of reading and writing skills of all students in the general education classroom (Barry, 1994/1995 and Warger & Pugach, 1996).

Although Jane stated in her Fastwrite that the "role of the learner needs to be redefined," she did not elaborate further about what that means. However, it was evident in the other data that she felt strongly that students needed to take more responsibility for their learning by identifying their learning strengths and challenges and then advocating for their needs with their teachers. Lyle and Holly concurred with Jane on this redefinition of the learners' role. However, unlike Lyle and Holly, who specifically wrote that learners needed to be held to high expectations, Jane did not.

In reviewing the data, Jane appeared to believe that holding students to high expectations was somewhat contingent on whether the teacher provided them with alternative ways to learn and demonstrate their knowledge. In one conversation, she indicated it was scary to her that the degree of the student's disability was really determined by how the teacher thought about that student. Jane continued:

Like the fact that Lyle allows students to have an oral interview after they try to write as much as they can on a test makes a big difference on how successful those kids are in your classroom (biology). And so there's a vehicle for them to show you what they know other than the way they've never been able to do it anyway (i.e., writing). But then they can go into a classroom where there's not that understanding, there's not really the desire to know what kids know, there's not that flexibility really to accommodate and those kids are right back hitting their heads up against the wall. (Coll. 10/25/93, p.24)

In this passage Jane addressed the issue of high expectations from a student perspective. In order for students to be held to high expectations, the curriculum, the methodology, and the classroom organization have to be designed so that they can meet these

expectations given the nature of their disability. Jane reiterated this position when discussing Jessica and Scott's ability to succeed or meet expectations in general education settings.

She asserted in both of the cases that the selection of the general education teacher was a key to their success. In her videotaped conversation about Scott and Jessica, she said several times that they needed to be less traditional in their approach to teaching both Scott and Jessica.

Scott needs to be in a class where he can be actively involved. One that provides group work and projects. This will tap into his strengths that include a more active style of learning. Thought must be given to the teachers' style and matching his style to the teachers.

Jane made a similar comment regarding Jessica.

Jessica needs classes where information is presented in different ways not always giving information, but getting her more actively involved. She needs classes where the text is viewed as more of a resource and not the Bible. She needs teachers that view their role as more of a facilitator of learning than a traditional one that lectures.

In both examples Jane was consistent with her position that the role of the general educator needed to change in order to successfully merge general and special education. According to her the traditional teacher as teller made it more difficult for students with disabilities to engage in learning and demonstrate their understanding because of their frequency of attentional deficits and their difficulties in writing.

What does the literature say about students with disabilities and expectations for their learning? This critical issue is discussed also by Udvari-Solner & Thousand (1995) in their chapter on promising practices for inclusive education. They write that high expectations for learners and the demonstration of their personal best are important principles in developing

inclusive schools. Pugach and Warger in the book, Integrating General and Special Education, (Lovitt and Goodlad, 1993) write that "the integration of special and general education must be well grounded in an analysis of curriculum issues and the expectations that various approaches to curriculum create for learners" (p.125). These authors on inclusive practices support both Lyle's and Holly's positions about learners needing to be held to high expectations and add credence to Jane's position that holding students with disabilities to high expectations in general education is dependent on the teacher's view of curriculum and methodology.

Summary of Beliefs Concerning Teachers' Roles

In summary, all three of the teachers in this study believed that their roles as educators needed to be redefined with the inclusion of students with disabilities in general education classrooms. While all three expressed this belief, they also revealed internal struggles with the redefinition of their roles. Jane, the special education teacher expressed the most distress about her changing role because this merger restructures both the location and the delivery of special education services. Further, all three of the teachers indicated a belief that their responsibility as a teacher is to teach all students. Finally, Holly and Lyle stated directly that their role was to hold all students to high expectations. Jane's belief that students with disabilities needed to be held to high expectations was conditional to the classroom teachers' view of curriculum and methodology. All three of these beliefs concerning the teacher's role further defines the moral purpose of making a difference in individual students' lives as a teacher who reexamines their role in relation to all of their students' academic needs including those with disabilities and holds high standards and expectations for all students.

3. Beliefs About Curriculum and Assessment

A third set of beliefs that emerged from the data in the category regarding classroom practice concerned curriculum and assessment.

A. The Need to Restructure the View of Subject Matter

Holly and Lyle in the data spent little time discussing the science curriculum. In fact both of them in their videotapes of the case studies stated specifically that they would not alter the science curriculum for either Scott or Jessica. **Jane**, however, in her Fastwrite stated that both general and special educators must do more than redefine their roles, "they must change their views on content and how learning is assessed." In the discussion above regarding the redefinition of teachers' roles, Jane indicated that the success of Scott and Jessica in the case studies was dependent on the selection of the general education teacher, who needed to be less traditional in their approach to content, methodology and assessment. How does one account for this difference in perspective on curriculums between the science teachers and the special education teacher?

As the reader may recall from chapter one, in 1985 Hart High School became a Professional Development School. Prior to this study the Science Department worked diligently for five years to restructure their curriculum from a traditional curriculum of lecture and lab that emphasized the memorization of facts in the text book to a model of conceptual change. Lyle, in a transcription of an interview about restructuring the science curriculum, describes this model as based on the belief that:

less science content is really more, we mix facts with processing and go into greater depth and teach for understanding using real world concepts. We give students real life problems and allow them to design their own labs. We use

metaphors and analogies to clarify concepts and try to relate new information to ideas they understand.

This restructuring of the science curriculum is characteristic of the broader, natural reform of science (American Association for the Advancement of Science, 1989). According to Anderson and Fetters (Pugach and Warger, 1996) this science reform emphasizes deeper understanding of fewer topics by changing teaching and the social organization of the classroom to engage more students in authentic scientific experiments.

Holly was Lyle's MSU student intern in this science department at the time the restructured science curriculum was being implemented. Thus, the science curriculum in which she was mentored was a non-traditional curriculum based on a constructivist model of teaching and learning emphasizing conceptual change. As a full faculty member in the science department she continued to implement the science curriculum based on the conceptual change model. Jane and Lyle collaborated together to develop this science curriculum for heterogeneous groups including at-risk students and those with disabilities.

The point of this discussion is to provide the reader with an explanation of why neither Lyle nor Holly felt their science curriculum would need to be altered in order for Jessica and Scott to be successful. Simply stated, their department had already redesigned their curriculum to address the diverse needs of all students, therefore in the data of this study, neither Holly nor Lyle focused their discussion on the need to change content.

Jane, however made several references in her comments on the videotaped case studies regarding the teachers' roles and viewing their content differently. Both Jessica and Scott according to Jane needed to be in a classroom environment in which the teacher viewed their role as facilitator of students' engaging in content knowledge, rather than as a teller of

the content. Jane commented that the texts be used as a "resource not the Bible." This statement seemed to imply that in order for teachers to see their role as a facilitator of knowledge, they must regard subject matter as a dynamic body of knowledge including concepts, vocabulary and facts in which they actively engage students, rather than a static collection of information in a text to be read or lectured about. Jane explained her idea about changing the way teachers think about learning and content during the collaborative conversation on 11/3/93. The group was discussing the acquisition of language and the role of prior knowledge. Holly gave an example of dropping a person into a country whose language they didn't know. In this case, they had to learn by getting involved in the culture and talking with people in addition to time when you sat and learned the language.

Jane responded,

What I hear you doing is giving him time. And that's something that we don't give...I mean we wouldn't say to someone we're just dropping you into a culture, you have to learn the basics like this year. Even as adults we give ourselves as much time as we want to learn something. But our organization (school) just stifles that so much. We say you have to obtain these standards before we let you go on to this. That's what I think about with kids with learning disabilities a lot of those kids need time to acquire knowledge. (Coll. 11/8/93, pp. 35-36)

Jane referred to the fact that schools rigidly define what content knowledge needs to be acquired by a certain time line. Yet in the real world adults take the time they need to learn things. Jane seemed to be arguing that content teachers have to be more flexible in giving some students more time to acquire the content because in the real world each person learns at their own pace.

Since Jane was a part of the restructuring effort in the Science department, why did she make such a strong point in her data about the need for teachers to change their view of

content? Two factors could account for Jane's emphasis on teachers reframing their content. First, Jane collaborated with teachers in all of the content areas. Not all of the departments at Hart High School had restructured their curriculum to the same degree as the Science Department, so Jane still experienced the effects on all students of a traditional teaching style in which the text book and the teacher were the sole sources of knowledge and the students' role was to listen and memorize. This business-as-usual approach to teaching consistently impaired all students' ability to gain greater conceptual understanding, especially those with disabilities.

Second, given that Jane was a part of the restructuring effort in the science department with Lyle, she had directly experienced the impact of restructured curriculums on students with disabilities. She stated in the unpublished paper of the transcription of their interview, "I've seen such growth from this experiment to create heterogeneous classrooms. I too think the conceptual change approach to learning is very inclusive and keeps all students tuned in to their own educational process." Given this experience in restructuring the science curriculum to better meet the needs of all students, she felt the frustration of students failing in traditional classrooms even more strongly than before. Therefore, she was more prescriptive in her belief statement about what was necessary to merge general and special education than either Holly or Lyle.

Several authors concur with these three teachers that the content or curriculum needs to be restructured to enhance the learning of all students. According to Ferguson (1995), in response to the broader demands of life and work in the twenty-first century, requiring active learners and collaborators, teachers at all levels of schooling are rethinking their curriculum

and trying to find ways to develop habits of learning that will serve them in the workplace. Ferguson further indicates that educators are less convinced that learning one "official" curriculum will allow students to achieve the competencies they will need for success in the twenty-first century.

Pugach and Warger (1996) argue strongly that the restructuring of curriculums is the common ground in which both general and special education teachers can participate in developing a richer learning environment for all students. They state,

Given the central role the standard curriculum plays in the initial identification of mild disabilities and also that the majority of students with mild disabilities spend more time in general education than special education classrooms, the standard curriculum present a natural context for special education to target its reform energies (p. 14).

In summary, all three of the teachers in this study believed that the traditional curriculum needed to be restructured to better meet the needs of students. Lyle and Holly made little reference to this change because they have spent the last several years redesigning and implementing the science curriculum for all students. While Jane participated in this project with the science department she made a strong point about this issue because she worked with several departments that hold a traditional view of their teaching and their curriculum.

The restructuring of curriculums is one way in which the moral purpose of teaching and change agency are linked. Goodlad, Soder, and Sirotnik (1990) argue that teachers with moral purpose must ensure that no beliefs or practices exclude students from access to necessary knowledge. Holly, Lyle and Jane's evolving beliefs about science curriculum and

pedagogy to include all students were a part of the way they enacted the moral purpose of teaching.

B. The Need to Develop Alternative Assessments

Just as there was a need for teachers to restructure curriculums, the teachers believed that a new view of assessment was in order as well. Again Jane was much more focused on this issue in the data than either Holly or Lyle for the same reasons stated above. However, each of the teachers addressed the issue of assessment in the data.

Holly in the collaboration on 2/7/94 specifically shared with the group an example from her classroom when everybody bombed the tests on organic substances. She knew it was a difficult unit of study and so she thought about it and decided,

Let's go back and look at it. And I developed an alternative assessment for the class that was more visual. I didn't ask questions, but made a more visual test with pictures and columns. I made a big chart and they had to fill in the blanks"(Coll. 2/7/94, p. 2-3).

In this example Holly illustrated that she believes that her role was to think about assessment differently, not only as a way for measuring student knowledge, but also as a basis of reteaching a concept.

Lyle in his videotaped interview of Jessica and Scott indicated that he would give both students an opportunity to interview with him orally after they have attempted to respond to their biology test in writing. This was consistent with the design of assessment that he and Jane designed in their project on creating inclusive science classes. Also in Lyle's class, students had an opportunity to share in their weekly journals what they have learned and questions they have about their unit of study. Lyle used their journals as assessment tools in determining their progress in understanding the concepts in the science curriculum. **Jane** had

several things to say about assessing learning in different ways. In one conversation Holly asked Jane how she might accommodate and assess a student with a severe writing disability.

Jane responded that she worked with such a student in the American Studies class.

We do analysis journals every week and he writes what he can. He backs it up with an audiotape. He makes an audiotape every week and analyzes his own learning. He'll organize his ideas and talks it through on the tape. I've encouraged him to organize his ideas like a concept map. (Coll. 11/29/93, p. 24)

This example illustrated how Jane was thinking about alternative ways to assess students learning. She stated further that the students' degree of disability in a class was dependent on how flexible the teacher was in thinking about ways of assessing learning. The more traditional the assessment, i.e., strictly in written form, the more difficulty a student with a writing disability will encounter in demonstrating their learning. One alternative was to offer the student the option to audiotape his reflective journals.

Jane posited several things in her videotape about redefining assessment for both Scott and Jessica. Extended time for assessments would be necessary for Scott whose attention deficit may make it difficult to stay focused for a long period of time. Jessica would need more time because of her reading and writing disability. Jane indicated that Jessica would need the option of oral testing in conjunction with a written assessment because she might not be able to write all that she knows. In the segment about Scott, Jane stated that his teachers needed to analyze his learning differently because he had difficulty finishing lengthy assignments. Jane indicated that in the case of lengthy assignments such as reading a novel, Scott might not finish, but then teachers needed to analyze his learning based on what he has completed, which might not be a finished product. According to Jane, "They need to look

at the process of learning not just the product. Then they would see more evidence of success and effort from a student like Scott." Jane said that with students like Scott the "teacher needs to focus on the quality of his work rather than the quantity."

This particular issue about assessment was the topic of discussion in the last conversation (5/31/94) after the group had viewed Jane's videotape. Karen, the novice math teacher, asked Jane about this view of assessment:

Karen: You used a specific example about reading a novel and said that expecting him to get to a final product of reading through the entire novel by a particular time was not necessarily reasonable. I wonder what you would expect from him in reading the novel?

Jane: Well, my experience of being in classrooms where that is an assignment, is that the whole class together will be at a certain point on a certain date to answer all the questions that have to do with the comprehension of what they've read about. And for a lot of kids that's just an overwhelming task and I was thinking that for someone like Scott to know that by next Tuesday I have to read 135 pages and have all the answers to these questions. It's so overwhelming that he doesn't even attempt it. So I was thinking that, if he could do the same thing except maybe not have to get that far, that it's more important that he get going with the book and he takes some ownership and feel like he's enjoying the story. Instead of stopping him from even attempting it because we're so rigid about saying everyone in this room has to be here by this time (Coll., 5/31/94).

Jane's point here was that if teachers viewed assessment in terms of both process and product then students who found it difficult to complete lengthy assignments could be given credit for the work that they had done even if they hadn't completed the full assignment. This was consistent with her statement in her Fastwrite that teachers' need to assess learners differently.

Udvari-Solner & Thousand (1995) posit that teachers need to adopt a new view of assessment. They claim that traditional measures of performance fail to provide teachers with

information of students' understanding and quality of thinking. They indicate that classroom teachers must move toward more authentic ways of assessment that involve exhibitions of student learning in a variety of ways to show students' progress over time in both acquisition and application of knowledge. Their position is congruent with Jane's that assessment should include both process and product.

In summary, all three of the teachers' believed that alternative methods of assessment were necessary to determine students' learning, in particular those with disabilities. Jane offered several examples to demonstrate her belief, while Holly and Lyle offered only a couple of examples. The Science department has spent several years rethinking assessment as a part of their restructuring effort in their science curriculum and continues to reflect about and revise assessment in their daily practice. These ongoing efforts reveal teachers with a moral purpose who are committed not only to creating access to knowledge through curriculum restructuring but through alternative assessments. These options allow students to demonstrate their knowledge and understanding in a variety of ways which is helpful to all students but essential to students with disabilities who are often limited in the area of written language.

Summary of Beliefs about Classroom Practice

In conclusion, the three teachers in this study have fairly consistently espoused sets of beliefs throughout the data in the category of classroom practice concerning learners, their role as a teacher, and their view of content and assessment. At times they all expressed some inconsistencies in their belief systems regarding changing their practice to include students with disabilities in the mainstream. Schutz (1970) comments in the literature that teachers'

beliefs often vacillate and are sometimes unclear and often inconsistent. Fullan (1991) talks about change being "a process not an event." "Real change represents a serious personal and collective experience characterized by ambivalence and uncertainty" (Fullan, 1991, p.32). Consequently, these inconsistencies expressed by Holly, Lyle and Jane are part of the normal process of change.

The three sets of beliefs that emanated from the teachers' data in this study about their classroom practice, i.e., beliefs about learners, beliefs about teachers' roles, and beliefs about content and assessment were all critical in supporting the needs of students with mild disabilities in inclusive secondary settings. They reveal more precisely what it means to make a difference in the lives of individual students. The mere physical presence of students with disabilities in general education without changes in these tenets will continue to be business as usual for them, which has been chronic frustration and failure.

CATEGORY II: Beliefs About The Structure of Educational Systems

The second category of beliefs was derived from the subjects' written and oral communication about the educational system and the organizational structure of secondary schools and how these components interacted and either facilitated or hindered inclusive settings for students with disabilities.

The data showed that once beliefs about inclusive practices were operationalized in their classroom, teachers recognized that both the educational system and the school's organizational structure inhibited their efforts to include students with disabilities in the mainstream and limited their possibility for success in integrated settings. According to Fullan (1994) a teachers with moral purpose must simultaneously make a difference in the individual

and the broader school-wide change to create a system that will be most effective for all students' learning. Following is a description and discussion of the teachers' beliefs about the structure of educational systems that surfaced in the analysis of the data.

1. Beliefs About Systemic Change

What beliefs about systemic change emerged in the data? Did the general and special education teachers hold common beliefs about systemic change?

A. The Need to Counter Learned Helplessness

Lyle expressed in his Fastwrite that "the high school cannot make a significant difference with many of the kids that have 'learned to be special education.' We must change the way these kids are supported in their earlier years" (Lyle, FW). This belief that students with mild disabilities learned to be special ed and, therefore, the educational system needs to begin mainstreaming students at the elementary level was a recurring theme that Lyle expressed in many of the collaborative conversations.

In the first conversation Lyle stated that "High school teachers don't feel that they can be very effective if they start mainstreaming at the high school. We have to stop tracking kids in third and fourth grade" (Coll. 10/25/93 p.10-11). In the next conversation (Coll.11/3/93 p.8) Lyle indicated that he "feels that kids are overprotected in elementary schools that kids with disabilities need to face reality about their disability not be protected from it."

Again in the collaboration on 3/10/94 Lyle stated strongly:

I don't want to sound like a broken record, we need to deal with the people (students) in the building right now, but I can't even be a part of this if we can't somehow get back to the elementary and stop the bleeding back there. This is too late. We're gonna have this same conversation next year and five years from now and ten years from now and nothing will have changed unless we go back to the elementary and change how we treat these kids. If we

continue to pull them out and put a label on their forehead they're always, always gonna be like this. If we expect inclusion of students at this level then there better be inclusion at the lower levels and the administration is gonna have to staff it (pp. 9-10).

In these passages, he expressed his feelings about mainstreaming students throughout their school career so that they were used to dealing with their learning issues in the regular class and might have higher expectations for their learning. Ann, the social worker, who supported both elementary and secondary students with disabilities responded to his comments with a story of a fifth grader:

The interesting thing is that at the elementary school that (pulling them out) feels good to the kids. They're sitting in a classroom where they haven't been successful and they're failing and when they get pulled out and put into a resource room and they start being successful, they feel like they have been saved. I went to a parent conference of a 5th grader and the 5th grade teacher, like when she has social studies and science the little girl is in the resource room. So she was changing her times around so this kid would have some contact with social studies and science and wouldn't always miss it. OK so then the kid said to her, "I don't need to do social studies because I don't do social studies in your room." And the teacher said, "Yes you need to do this." And we all agreed with the parents that whenever she's in the room she has to do what the other kids do...but see she wants to get out of it now. And I said to them at the high school she's gonna be telling me I didn't get the basics...I've got gaps in my learning. Special Ed did this to me and now they expect me to do this and that and I've got screwed because I got through special ed. And in the fifth grade she wants us to excuse her...to make it easier.

Ann confirmed with this story Lyle's assessment of the "learned helplessness" that begins at the elementary level. Students were pulled out of general education classrooms and given easier work. Then, when they returned to the general education classroom, they didn't even want to try; they have "somewhere down the line been given permission to not try hard and to not perform. They have learned helplessness, they have learned to be special ed" (Lyle, Coll. 11/29/93 p 1.).

In fact the special education literature validates the positions of both Lyle and Ann. Learned helplessness occurs in people who have an external locus of control and believe that bad things happen to them because they lack ability and good things occur because they are lucky (Kennely & Mount, 1984; Rhodes, Blackwell, Jordan, & Walters, 1980). Luchow, Crowl and Kahn (1985) describe this pervasive feeling of helplessness in the same way as Lyle constructs it, a "lack of persistence at tasks which realistically could be mastered" (p.470).

Much of the discussion in the special education literature in fact supports Lyle's belief about special educators routinely lowering expectations for special education students. Fuchs, Fuchs, and Hamlett (1989) report the goals written in special education students' Individualized Educational Plans (IEPs) underestimate their performance and special educators must be encouraged to raise their expectations to more realistic levels. According to Rieth and Polsgrove (1994) this practice of establishing lower performance goals may be contributing to students' lack of academic success.

Lyle, in two other collaborations, mentioned his observations of other characteristics of the "learned helplessness syndrome" exhibited by special education students with limited experience in general education. One observation was their attitude about tests. "They don't try to pass the test in the first place. They didn't prepare for it. They come in every day, but they're distracting the class and they're not doing anything" (Coll: 11/29/93, p. 27-28.). In the same collaboration Lyle noted that special education students came to expect special treatment, "When they learn to be special ed it's like all I have to do is act up and I'll get some special attention, but I'm not expected to perform very much so I'm going to get by with this no matter what" (p.1).

In a later conversation he told the group, "I think so many of these special education students have learned that if they don't write anything down on a test, they're gonna get treated really special...there's a percentage that can't, but I would say that 70-80% of them, if we demanded more they would do it (Coll., 2/7/94, p.9).

In these statements Lyle was making the point that in special education resource rooms of ten students and one teacher, special education students come to rely on having immediate responses to their needs. Thus, when they began to experience difficulty or exhibit frustration, an adult was readily available to attend to their needs. Then when they were expected to function in the mainstream by the secondary level, these patterns of dependency were manifested by the students' belief that they could not get started without assistance and therefore would sit and wait until the teacher was there to help them. This was another dimension of the "learned helplessness" syndrome fostered by a system that limited mainstreaming opportunities through elementary and middle school.

A model secondary program for LD students developed by Naomi Zigmond (1990) includes training in survival skills, which includes social skills training for the general education classroom. This curriculum includes learning teacher pleasing behaviors, such as bringing a pencil to class, making eye contact, looking interested in a lesson, looking busy and volunteering in class. Performing these behaviors will lead general education teachers to view them more positively.

While this premise may be valid, that by exhibiting these behaviors the teacher will view them more favorably, it also raises serious questions. Why do high school special education students need to have training in these behaviors in the first place? Are these

behaviors an outcome of elementary and middle school special education programs that foster the learned helplessness, the lowering of expectations and the "learning to be special education" that Lyle has repeatedly observed in his teaching of special education students? Would they need to be taught these teacher pleasing behaviors if their social behaviors had been developed more predominantly in regular education classes?

In sum, Lyle articulated a belief that the K-12 educational system needed to change by developing more inclusive practices, whereby students with mild disabilities spent a great deal of time in general education settings starting at the elementary level. Through his efforts to include students with disabilities in science classes, he has come to believe that the ability of these students to be successful in general education even with a restructured curriculum is limited because the system of special education fosters the development of the "learned helplessness" syndrome.

Jane, like Lyle, embraced the belief that the educational system needed to change. The general education system diminished self-esteem and the special education system responded by fostering a learned helplessness. Therefore, both systems needed to change. Following is a description of Jane's belief about the necessity for systemic change to more successfully include students with mild disabilities at the secondary level.

B. The Need to Foster Self-Determination and Self-Advocacy Skills

In response to the "learned helplessness syndrome" of the special education system, Jane wrote that she was "committed to this initiative (to include students with mild disabilities in general education classrooms), although I have come to realize how complex the issues involved are and that it necessitates a strong commitment to change" (FW, Jane).

According to her written belief statement, the reintegration of these students involved a desire to reform the structure of a system and to change one's role as an educator. This desire implied a willingness to rethink and change, with others, several pieces of the educational system: the roles of the practitioners, the view of their content and how learning was assessed, and the role of the learner as a self advocate, all of which were discussed in the previous sections of this chapter.

In one conversation, Jane discussed specifically how the educational system diminished the self-esteem of some students beginning at the elementary level. She had just read an article discussing the effects of elementary schooling on students' academic self-esteem and expressed how the structure of the educational system and the beliefs teachers hold about students' capabilities negatively impact some students.

I was interested in this article and how the research indicates that early elementary children make this appraisal about themselves and how they compare academically with other kids and I asked, 'What is it about our structure and what is it about, that we make things worse for kids?' Because that's where I see it breaking down. Kids make this appraisal and then these messages get shot to them that it's not OK for them to be the way they are. Because we have all these things, we give grades, we give tests, we compare, we have our own notions of how kids should do and if they don't fall into our own perceptions then they're low level kids. And I just think it gets worse and worse. It's like this little tiny snowball that starts and it just builds so that by the time you get the kids at this level they're depressed and angry about school. And it just gets worse and worse and then we start down-shifting kids by tutoring them, pulling them out, trying to do special things with them. There is just no excuse for this and as professionals we have to take responsibility for the academic self-conflict of our students (Coll. 2/28/94, p. 10-11).

In this passage, Jane shared her perceptions about the impact of the educational system as a whole because the process of diminishing students' academic self-esteem and their beliefs about themselves as learners are formed in the elementary school and have a snowball

effect. Jane's references to the structure's schools have in place like grades/tests and teachers' own perceptions of what learners ought to be doing at given ages served as evidence that she was aware of the multiple dimensions in the educational system and, therefore, realized that changing the system will be complex. She offered further evidence of her belief by expressing her commitment to change the system, "We as professionals must take responsibility for our students' self conflict."

Students' feelings of inadequacy can lead to poor performance and often inappropriate behaviors precipitating a referral for special education services. Once they have been identified as having a disability and are educated in the special education classrooms for an extended length of time other feelings characteristic of the "learned helplessness syndrome" are expressed. Jane spoke to this point on 12/7/93, "When I interviewed students with Lyle in our project, it was a real wake up call to me to find out that they would describe themselves as slow learners and how they come to that conclusion." Later in the conversation she reflected, "I think that it is probably the process of special education: the labeling, the parents' perceptions, the fostering of learned helplessness" (12/7/93, p.16).

Sally, a math teacher in the collaborative group stated during this conversation she believed these feelings are developed also through:

the kinds of conversations that special education teachers have with their clients in the special ed room and it's mostly helping them with their work that general educators assign. I think this also sends a message to them that you're incapable of doing this work, so you're here with me to help you..Not let's discuss how you can compensate for these particular weaknesses that you have. How can you approach this in a different way? What do you need to take responsibility for...more of that kind of conversation (Coll. 12/7/93, p.11).

According to Jane these feelings of shame and helplessness made the integration of special education students into the mainstream more difficult. In one of the last group conversations, she shared with the collaborative group a particular incident with a junior high student.

We're back to what you've (general education teachers) recognized for a long time about these secondary students that have been in the (special education) system forever; they've built up so much shame. I mean I have an example of a junior high student at his IEPC meeting to plan his high school schedule. He's been in special ed since second grade, doesn't want anyone to know about his disabilities, all the shame (Coll. 5/24/94, p. 14).

This passage illustrated that through her experiences with special education students in this process of integrating them into general education classes, Jane has learned that they often have feelings of shame about themselves as a learner and they don't want anyone to know about their disability.

These experiences led Jane and others to believe that special education students needed to develop self-determination skills to be more successful in general education classes. In several instances in her collaboration she said that "kids will have to learn to advocate for themselves. They have to know about their disability; so they can talk about it with their teacher" (Coll., 11/3/93, p.26).

In 1994, Jane, Ann, and I piloted a class for students' at-risk and with disabilities to foster skills in self-advocacy and self determination. This course provided students the opportunity to explore their learning challenges and strengths and develop and implement a self-advocacy plan. In addition, they evaluated their behaviors regarding internal and external locus of control. By examining who has the control of a situation and who has responsibility, students can begin to feel empowered and diminish their sense of "learned helplessness."

Although Jane was a strong advocate for this change in the special education system to foster self-determination, she realized in teaching these skills that it would not be an easy process. During a collaborative group conversation she reported, "In our class I thought it was going to be uncomfortable for them to talk about their disability, but neither Peg nor I expected the intensity of their feelings, their rage, about their disability and their resistance to talk about it. It was like opening Pandora's box " (p.5).

A few months later she said, "You know I was really amazed at the frustration I felt and didn't anticipate in trying to help kids. I thought it would be easy for them to say, this is where my problem area is. This is what I can do to help. I mean it is not easy" (Jane, Coll. 5/24/94, p. 14). Further, she was amazed at how frustrated she felt about it and that she hadn't anticipated this kind of difficulty assisting students with disabilities to become more self-determined.

Given these experiences Jane believed that the development of self-determination skills needed to start earlier. Jane reiterated several times during the collaboration how essential it was that the development of self-determination skills that fostered student responsibility needed to begin in upper elementary grades.

If we really did a better job of helping them understand their disability at the elementary level, it would be more natural for them at the high school level, as opposed to trying to hide it and be shameful of it (3/21/94, p.6).

The concept of self-determination is gaining acceptance within the disability fields because many people are questioning the limited opportunities that persons with disabilities have to give input about their futures. According to Ward (1992), "self-determination, which includes self-actualization, assertiveness, creativity, pride, and self-advocacy, must be part of

the career development process that begins in early childhood and continues throughout adult life" (p.389).

Field (1996) states that students with learning disabilities face many barriers to becoming self-determined including acknowledging that they have one. An understanding of one's strengths and challenges and an acceptance of self are the foundation of self-determination (Field & Hoffman, 1994). Further, Smith (1989) reports that the learned helplessness of students with learning disabilities has been well documented and presents real barriers to becoming self-determined. The process of self-determination is a developmental process that begins in early childhood, although is being fostered more at the secondary level. However, according to Ward (1991) many of the beliefs, values, and skills that promote or hinder adolescents' self-determination are most strongly formed in early childhood.

This literature provides support for Lyle's position that many students with disabilities develop learned helplessness and for Jane's position that changing the general and special education system to develop the skills necessary for self-determination at the elementary level would begin to ameliorate their sense of shame and powerlessness.

What did Holly, the novice teacher express about systemic change? She did not address this issue directly in any of her data. Perhaps, one reason for this was that she was only in her second year of teaching and new to the profession. Thus, the majority of her energy was consumed with the initial development of her classroom practice. Further, since she did not have the experience that Lyle and Jane had, she was not yet thinking about the system as a whole and its long-term impact on high school students.

In summary, both Lyle and Jane believed strongly that the K-12 general and special educational systems needed to change in order to more successfully include students with disabilities in general education classrooms. Lyle argued for systemic change on the basis of the learned helplessness that the system of special education fostered in students with disabilities. Jane argued that including students with disabilities required systemic change, namely that all educators must rethink how they diminish students' self-esteem by sorting and classifying them in both general and special education systems. Jane believed that the learned helplessness could be addressed by developing the skills of self-determination at the elementary level. Jane believed that the development of these skills needed to be systematic throughout the grades, however "if we do this for just kids with disabilities then we are fueling the dual system. All kids need to learn to be self-determined enough to advocate for themselves" (Coll., 12/7/93, p.16).

2. Beliefs About Organizational Structure

In the further analysis of the data two beliefs surfaced about the need to change the organizational structure of the high school.

A. Teachers Need to Work as A Team

Holly commented in her videotaped conversation on Jessica and Scott that everyone was responsible to help them succeed: the students, and both the general and special education teachers.

Jane has looked at tests I have developed and made suggestions. Working with the special education teacher helps me to be more successful with all students. Special education teachers help all students. They help me see better ways to teach all students.

Lyle made similar statements in his videotaped interview about Scott. "There needs to be a team effort for Scott to address his ADHD issues. The team needs to include Scott, his parents and the general and special education teachers." In terms of Jessica and her reading Lyle made the following comment,

Everybody is responsible to make Jessica read better. The special education teacher is a part of the team and provides general information about students with disabilities, but also specific information.

Jane stressed in her videotape on Scott the need for a team effort.

A group of people needs to work together to develop strategies for Scott to be successful in general education. All of his teachers including a special education teacher and a former teacher need to meet and discuss what has worked for him. The special education person is the key link to work with Scott as well as his general education teachers. There must be a team effort, including Scott.

About the second case study Jane said,

Jessica is the key. If she is motivated to improve her reading and writing than general and special education teachers need together with her on this program. We need to look at the training of the teachers on the team and Jessica's needs. I think that whatever is best for her is the key, rather than emphasizing whose role it is.

In summary all three of the teachers in this study expressed the belief that there needed to be a team effort between general and special education teachers to support the needs of students with mild disabilities in the mainstream. Obviously, in order for this team effort to be possible time to collaborate and plan for students is essential. This belief system calls for reorganization of the time structure of the school to allow teachers the time to consult with each other and plan for students' learning.

Villa and Thousand (1995) discuss this issue of collaboration as a critical organizational resource for teachers to fulfill their responsibilities to help students with disabilities succeed in inclusive settings. They offer several ways to reorganize time to allow for collaboration including redesigning the master schedule, providing permanent rotating substitute teachers to release teachers, and rearranging the school day to allow for a block of time before or after school. Without this type of commitment to the reorganization of the school day, teachers and students will continue to be perpetually frustrated about the quality of their teaching and students' learning. According to Villa and Thousand, "Support from colleagues, students, formal leadership and others in the community is what most people really are crying out for when they scream they are frustrated and in need of resources" (1995, p.66).

Jane expressed the need for a team to address Jessica's needs in reading and writing. She said that educators needed to look at the training of the team members and decide what was best for Jessica, rather than who's responsible. In other words Jane was indicating that teachers need to rethink their roles by identifying their strengths and then plan for students' needs based on the skills of individual team members rather than by title and/or certification. In fact Thousand and Villa (1995) offer this as a second tactic for creating inclusive schools. They propose that educators rethink their roles and drop the standard rigid expectations as to the roles people must play. Fullan (1994) states that collaboration is one of the characteristics of teachers as change agents with moral purpose. This redefinition of roles leads to the second belief that evolved from the data about the organizational structure of schools.

B. Consistent Support from Special Education Teachers

Holly in the case study on Jessica commented about the role of special education teachers in general education classrooms. She said,

Special education teachers are here to help these students, but that's not their only role. They're here for all students. Special education teachers in the mainstream help other students too and they can benefit from their help.

While Holly's comment did not state this belief directly, she implied that it was beneficial to have a special education teacher in the classroom to help both special and general education students.

Lyle had a stronger position. He began his Fastwrite with the following statement,

If we expect success with these students, the general education teachers must receive regular support from special education. As much experience as I've had with this situation, every year presents different teaching challenges and no matter how experienced we think we are with this (initiative) we still need lots of support.

Lyle and Jane team taught on a daily basis for three years as they developed their PDS project to merge special education students from a fundamental general science class to a biology class. Lyle said in their unpublished transcription of an interview about their project,

that having Jane teaming with me was beneficial to both the students and the teacher. She was an advocate for all students, not just the special education students. I personally learned a lot of techniques that may have gone undiscovered without this exposure and experience.

In particular, Lyle learned to write words and phrases more legibly on the board or overhead, avoid abbreviations, to use more colloquial terms along with the scientific terminology (e.g., master control for nucleus), and to meet with all the cooperative groups not just the groups that included students at-risk and with disabilities.

Jane commented in the same paper that in the team situation she "felt like she was 'included' too for the first time." In her Fastwrite she wrote "this initiative will require resources to support both general and special education teachers including time to reflect and collaborate together" (Jane, FW). Jane was committed to team teaching in general education settings but noted that this initiative will require time for teachers to reflect and collaborate together.

The key word in her position was "resources." At the completion of their three-year project to create an inclusive biology class, special education students were dispersed into all biology classes with a maximum number of four in any class. This arrangement was quite different from the eight to ten that were in the team taught class with Lyle and Jane for three years. Jane then circulated between the biology classes working in all of the classes (including Holly's) on an as needed basis, rather than a daily basis.

Lyle pointed out, in his statement, that if inclusion is going to work general educators must have "regular" support from special educators because each class was different. Though he had acquired many skills in working with students with disabilities, Lyle argued that the classroom teacher needed daily support to implement the new curriculum and teaching methods that support their needs. By regular support he meant team teaching on a daily basis. Jane made this point about the need for resources. All three of the teachers indicated the need to reorganize secondary schools to utilize the teaching resources in both general and special education to better serve the needs of all students in inclusive classrooms.

As noted earlier in the section on redefining teachers' roles Villa and Thousand (1995) and Ferguson (1996) in their studies of inclusionary practices indicate that team teaching

arrangements are a viable solution to including students with disabilities in general education. Pugach and Warger the book, Integrating General and Special Education, (Lovitt and Goodlad 1993) argue that general and special education teachers need to work in partnership to redesign curriculum and teaching methods to enhance the learning of all students. This is exactly what Jane and Lyle have done in their project to merge special education and at-risk students in biology. Villa and Thousand (1995) suggest reorganizing schools by merging the resources of special and general education teachers into team teaching arrangements. They propose that in order for educators to more readily access the resources of their colleagues, everyone must reconstruct their role and embrace new ways of working together. They concur with Lyle, Jane and Holly that teaching teams bring their unique instructional expertise and curriculum knowledge together to provide a richer learning experience for all students.

Roberts and Mather (1995, p.49-50) write, "successful integration is dependent on the amount of support given to classroom teachers, students, and parents." Schumm and Vaughn (1995) in their five-year study investigating inclusion reported that one central theme in their study of 30 elementary teachers was the need for ongoing dialogue with special educators. The state of Vermont, in which 83% of students with disabilities are educated in regular classrooms, lists as vital to successful mainstreaming the incorporation of a process for collaborative planning and teaming between general and special educators (Thousand & Villa, 1995). However, Kauffman and Hallahan (1995) have a different point of view about restructuring special education resources in this way. They argue that the merger of special education resources into general education classrooms on the basis of serving not only students with disabilities, but all students more effectively, is not feasible because the diversity of the learners in any classroom would be too great to effectively meet any student's needs.

By merging their resources special education will be in danger of losing its focus, identity and authority. It can only maintain its autonomy "if it is successful in fending off the entrepreneurial interests and irresponsible attacks that threaten its hard-won position" (Kauffman and Hallahan, 1995, p.187).

These two opposing viewpoints frame the dilemma that Jane experienced at Hart High School. How does a special education teacher commit to team teaching on a daily basis and consult with the students on her caseload, their teachers, and the other support specialists designated in their program?

After the completion of their Science Inclusion Project, Lyle and Jane reverted back to their traditional practice of the general education teacher teaching alone and the special educator consulting with all of the science teachers as needed. Hence, neither Lyle nor Jane was satisfied with the organizational structure of Hart School because there was limited time for collaboration and Jane consulted with all teachers in the science department without team teaching in any one class.

Lyle was left with trying to adapt and tailor the science curriculum in a heterogeneous classroom without the consistent support of a special educator. As Fullan (1992) indicates meaningful, sustained change takes place over a three to five-year period. Lyle and Jane stopped team teaching after three years, just as their efforts on creating heterogeneous classrooms for students with disabilities and their partnership began to bear fruit. It seems essential for the educational system to find ways to sustain congruent teaching partnerships between general and special educators that are committed to creating new curriculums focused on teaching and learning for all students. This type of continuity is necessary for the

continued learning and growth of both general and special educators, as they forge new ways to teach all students in general education classrooms. According to Tralli, Colombo, Deshler, and Schumaker (1996) these collaborative partnerships are a necessary condition for "supported inclusion" for meaningful student outcomes, rather than inclusion by being listed on the class roster.

Hart High School general and special education teachers continue to try to resolve this dilemma by trying different organizational structures, which will maximize the utilization of resources and offer them continued time to collaborate and reflect on their practice. During the last three years, Holly has been working with other subject matter teachers in mathematics, English and history to create an interdisciplinary teaching team for a group of sophomores including ten special education students. A special education teacher works with this team on a part time basis team teaching primarily in English and history. Perhaps, this structure in tenth grade will foster a more consistent team teaching arrangements between general and special education teachers.

The present status of the organizational structure at Hart High School as it is in transition to create a more meaningful educational experience for all students though frustrating, is not surprising. Fullan (1993) indicates in his book on educational change, implementing new initiatives takes a minimum of two or three years and bringing about institutional change can take five or more years.

Summary of Organizational Structure

In summary, all three of the teachers believed that the organizational structure needed to change to allow time for them to work as a team to support the needs of students with

disabilities. Second, all three teachers believed that the organizational structure needed to change so that general education teachers can have the consistent support of special education teachers in their classrooms. The present organizational structure left all of the teachers frustrated with their teaching practice and students' learning. Jane, the special education teacher, was very torn between her belief about team teaching and the other demands of her job to consult with all of the students on her caseload and their teachers and participate in the special education evaluation process.

Conclusion

In conclusion, this chapter has described two categories of beliefs about inclusive practices that emerged from the analysis of the data on the three teachers. Category I includes three sets of beliefs about classroom practice: beliefs about learners, beliefs about teachers' roles, and beliefs about content and assessment.

These sets of beliefs about classroom practice are at the core of a teacher with moral purpose and, therefore, essential for teachers who are committed to making a difference in the lives of individual students including those with disabilities. However, moral purpose focused solely at the classroom level is insufficient to foster a moral ecology in the culture of the school (Fullan 1994, Goodlad, Soder, and Sirotnik, 1990). Thus, throughout the data teachers' beliefs about the need to change the organizational structure of school and the K-12 system emerged.

Category II includes two sets of beliefs about the structures of educational systems: beliefs about systemic change and beliefs about the organizational structure of the school. Teachers who have a moral purpose are change agents as well, who actively promote and

strive for changes in the system through inquiry and collaboration (Fullan, 1994). Thus, through their collaborative work to restructure science teaching and learning for all students the teachers in this study realized how the organizational structure of the high school and the educational system impede teachers in their efforts to create inclusive schools and hinder students' abilities to become fully integrated and successful in the general education classroom.

The belief systems described in this chapter are at the heart of a teacher with moral purpose and essential to developing inclusive classroom practices and fostering a moral ecology in the culture of a school. As quoted at the beginning of this chapter, a teacher's predispositions are not only relevant, but in fact are at the core of becoming a teacher (Lortie, 1975). According to Fullan (1991) teachers' beliefs are one of the three major components in changing practice. The other two components are revision of curriculum and revision of teaching methods. All three of these components are necessary for achieving a particular goal, which in this study is general and special education teachers working collaboratively to support the needs of students with mild disabilities in general education classrooms. Just as limited change in classroom practice can occur if teachers merely alter their curriculum and their strategies, so too can inclusive practices be implemented by placing students with disabilities in general education settings with some modifications and accommodations by the classroom teacher. However, real change or sustained change occurs with the alteration of an individual teacher's conceptions or core values about the purpose of education (Fullan, 1991). Then, in the case of developing inclusive practices, it is not only essential for teachers to have the environmental resources for developing these practices, but equally critical that

teachers examine and change their beliefs about students' learning capacities and their own responsibilities to help all students.

Lyle and Jane developed a study to create an inclusive biology class in which Holly participated as a student intern. Through this three-year process these teachers examined their belief systems about students with disabilities, and then changed their curriculum and their methodology to better meet the needs of all students. This Collaborative Inquiry Project offered them another opportunity to collaborate with each other, with two members of the Hart High School Mathematics department, and a school social worker and to continue this process of change by exploring their beliefs and their teaching practice in regards to supporting the needs of students with mild disabilities in general education classrooms.

This chapter illuminated the categories of beliefs that emerged through their efforts to create inclusive settings for the past several years. In the final analysis, all of the beliefs articulated by these three teachers underpin the educational decisions they make daily to address the needs of students with mild disabilities in the classroom. Based on these data their central beliefs about their classroom practice are that all students can learn, that they are responsible to teach all students, and they must formulate new ways to think about their curriculum and assessment. Seymour Sarason (1995) captures the critical factor of changing one's beliefs very adroitly, "The initial object of change is not students, the classroom, or the system: it is the attitude and conceptions of educators themselves" (p.84).

After establishing the critical beliefs teachers need to embrace to support students with disabilities in general education, what intellectual resources evolved through the sustained

collaboration and inquiry that they drew on to support these students? The next chapter will explore this question.

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CHAPTER 6

INTELLECTUAL RESOURCES

"Often we find meaning only by trying something." p.xi, Fullan, 1991.

According to Fullan (1991) the implementation of educational change entails alterations in the practice of teaching. However, change does not occur by addressing a single component of practice. Innovation involves addressing multiple components of teaching. Fullan (1991) cites at least three dimensions that must be addressed in implementing any new policy or program: changes in beliefs, changes in curriculum, and changes in teaching methods. Environmental resources are necessary to support the implementation of any of these kinds of changes.

Chapter 4 described in detail the environmental resources at Hart High School that were necessary to facilitate changes in teaching and learning to better meet the needs of all students including those with disabilities. This attention to the teaching and learning of all fostered the moral purpose of teaching, namely making a difference in the lives of individual students. In the collaborative partnerships supported by the environmental resources the moral purpose of teaching was fused with change agency which facilitated new structures in the school leading to a culture with a moral ecology in which all members of the school, i.e.,

teachers, counselors, support staff, and administrators worked toward creating an intellectually demanding and supportive setting for all students.

Chapter 5 examined in detail the belief systems that were critical for teachers to make a difference in the lives of individual students and simultaneously to create an inclusive school culture.

Chapter 6 will describe the teachers' knowledge that the general and special education teachers in this study drew on to support all students and argue that these resources were critical in supporting students with disabilities in inclusive settings. Thus, the question that remains is what intellectual resources do teachers with a moral purpose utilize in the classroom to make a difference in the lives of individual students?

One of the dilemmas a researcher faces in studying teacher knowledge is how to analyze and organize the data in a way that makes sense to other researchers and teachers. Wilson, Shulman, and Richert (1987) in their studies about changes in teachers' subject matter knowledge over an extended time, faced a similar situation. Hence, to organize their data they developed two frameworks. One model included the components of the professional knowledge base of teaching and the other was a model detailing the pedagogical reasoning that teachers use in the act of teaching. Both of these models proved useful in organizing the data of this study for several reasons. First, the models have been used for the last ten years and are known by many educational researchers. Second, these models represent the various dimensions of the teaching act while maintaining a holistic representation of practice. Third, the data in this study were similar to their data and, therefore, their models proved useful in

organizing the evidence from the teachers' collaborative conversations and their videotaped interviews of the hypothetical student case studies.

TABLE 6-1 Intellectual Resources

CATEGORY I: GENERAL PEDAGOGICAL KNOWLEDGE
1. Knowledge of the theories and principles of teaching and learning. 2. Knowledge of diverse learners. 3. Knowledge of principles and techniques of classroom management and behavior.
CATEGORY II: SUBJECT MATTER KNOWLEDGE
1. Knowledge of the ideas, facts, and concepts of the discipline and their relationships. 2. Knowledge of the syntax of a discipline, i.e., the process for generating and testing knowledge.
CATEGORY III: PEDAGOGICAL CONTENT KNOWLEDGE
1. Knowledge and understanding of the process of teaching a topic. 2. Knowledge of the methods to teach the topic.
CATEGORY IV: PEDAGOGICAL REASONING
1. Adapting--fitting the conceptual representation to the characteristics of the learners. 2. Tailoring--adapting the materials to the specific students in a class. 3. Reflecting--the process of evaluating one's own practice of teaching. 4. Inquiring--the process of questioning the teaching of one's own practice and others.

Educators' collaborative conversation and videotaped interviews were the primary data sources to ascertain the knowledge and skills that the teachers in this study drew on to support students with special needs. However as mentioned in Chapter Five, several teachers in the group developed their own studies as part of their work in Hart High PDS and wrote

about their work. Thus, both their published and unpublished papers about their projects were another data source analyzed to investigate their teacher knowledge.

As a point of reference, the Collaborative Inquiry group consisted of Holly, Lyle, Jane and three other participants: Sally, a veteran math teacher, Karen, a novice math teacher, and Ann, a high school social worker. In some cases, examples of various intellectual resources are exemplified by other members of the group, besides Holly, Lyle, and Jane. In the data analysis many of the subjects drew upon the same resources, and at times subjects other than the three focal educators gave a more detailed description or example of their thinking in a particular category. Since one purpose of this study was to illuminate the intellectual resources that this collaborative group utilized in supporting the needs of students with mild disabilities in general education settings using exemplars from other participants seemed useful.

CATEGORY I: General Pedagogical Knowledge

This category of teacher knowledge is based on one's cumulative experience, as both a teacher and a learner, and forms the foundation of the basic teaching principles and techniques, that one relies on for their practice. It differs from pedagogical content knowledge in that it is not subject matter specific. Naturally, like any knowledge base it is dynamic, rather than static, and, therefore, continues to evolve with the teacher's experience. This category is divided into three elements, all of which are evidenced in the data as the collaborative group discussed their practice in relation to students with mild disabilities.

1. Knowledge of Theories and Principles of Teaching and Learning

A. Theories About Teacher as Teller or Facilitator

The following excerpt from Lyle's and Jane's of a transcription of their interview by an MSU professor exemplified the theories and principles of teaching and learning they drew on in their study to create a science curriculum for heterogeneous classes. Further, it described how their beliefs and theories changed over time.

In the 70s and most of the 80s, our teaching methods were fairly traditional--lecture, lab, written reports, objective quizzes and tests--and we were trying to teach facts instead of bringing about understanding of concepts. Currently, we believe that "less is more," where we mix facts with processing and go into greater depth and teach for understanding using real world problems. We are not grouping by ability, but have heterogeneous classes. We use cooperative learning teams and assess with essay quizzes and tests. All students have the option of interviewing with us after the written test. Students are given real life problems and are allowed to design their own labs. They either report their findings and conclusions in writing or give team presentations (unpublished paper, Lyle and Jane, p.3).

In this passage Lyle and Jane described how the theories and principles they employed in teaching science changed as they experimented with new ways of teaching and facilitating students' learning and worked to develop heterogeneous science classes. They described the changes they made in their practice from a role of teachers as tellers, to teachers as facilitators of knowledge. In their paper, they viewed learners as active participants in constructing knowledge, rather than passive vessels to be filled by the teacher. Students had real ownership in their learning by designing their own questions for study in the science lab with a small group. Over time Lyle and Jane viewed the curriculum differently, "less is more," which meant teaching fewer concepts in greater depth and emphasizing conceptual

understanding which was really "more knowledge," than surveying the text and teaching facts with limited understanding. Their new curriculum was linked to real world examples from students' daily lives. The curriculum changes implemented by Lyle and Jane are the essence of the reform "Science for All Americans" advocated by the American Association for the Advancement of Science, 1989 and the National Science Teachers Association, 1992).

Finally, Lyle and Jane presented different plans for assessment which provided students with oral or written alternatives for reporting their lab findings. Students had access to the teachers for support, as well as the members of their group. Thus, in this classroom setting, the teachers' theoretical principles of teaching and learning provided a variety of ways for students to learn and to demonstrate their knowledge. This meant that students with special needs such as difficulties in reading and writing had a better opportunity to fully participate and succeed in this class. In summary, Lyle and Jane altered several of their frameworks regarding teaching and learning. Table 6-2 below depicts their shifts in theoretical frameworks as described in their unpublished paper of their interview.

TABLE 6-2 Lyle's and Jane's Changes in Theoretical Frameworks

DOMAIN	PAST THEORY	EMERGING THEORY
Teacher Role	Teacher as Teller	Teacher as Facilitator
Student Role	Passive Participant Absorbs Knowledge	Active Participant Constructs Knowledge
Curriculum	Cover Text/Teach Facts Only	Less is More/Teach for Conceptual Understanding Real World
Assessment	Traditional Paper/Pencil Multiple-choice Essay/Individual	Essay Individual/Group Oral/Written
Teaching Method	Lecture Format/ Teacher to Large Group	Cooperative Learning/ Teacher to Small Groups

This framework of teaching and learning was indicative of the beliefs of Lyle, Jane, and Holly that were detailed in the last chapter. As they experimented with new theories of teaching and learning, changes in their belief systems evolved as well. These changes in beliefs and theories were evidenced specifically by Jane, who stated in her Fastwrite that in order for students with mild disabilities to be supported in the mainstream teachers need to change their role, their methods and the way they think about curriculum and practice. In this statement Jane described the actions of teachers with moral purpose, i.e., reflecting on their role, their content and pedagogy in relation to teaching all students.

Lyle and Jane developed these new theoretical principles and beliefs during a three-year PDS project that focused on ways to integrate students at-risk and with mild disabilities

in the fundamental track science class into the mainstream biology class. Holly was a student intern in the MSU teacher education program that emphasized a constructivist approach to teaching and learning in their science methods course. Thus, her internship with Lyle and Jane in their PDS project was in an environment that provided her with an opportunity to implement the theories of teaching and learning promoted by her teacher education program at MSU.

Based on the data and my on site experiences with them, all three of the teachers in this study followed the process of change described by Fullan (1992), i.e., change is a personal process that takes place over time and emerges through an opportunity to experiment with innovations. Real change is comprised of changes in curriculum, teaching methods and one's belief system.

All three of the teachers addressed each of these components in their efforts to implement a science curriculum for all students. The data illustrated through the teachers' questioning and uncertainty that all three were still experimenting with these theories. Holly was more tentative than Lyle and Jane about these theories because she was a second-year teacher and did not initiate the changes in practice, as Jane and Lyle did through their project, but became a part of the process as Lyle's student intern. What other theoretical considerations emerged in the conversations?

B. Theories About Directions for Class Assignments

On 4/29/94 members of the group discussed different strategies for giving students directions before they begin a task. Karen, the novice math teacher, illuminated a contrast

in style she perceived between Sally, the veteran math teacher, and Lyle. She said, "Sally gave students very explicit directions and told them what her expectations were, while Lyle just kind of lets them get started" (4/29/94, p.38). Karen stated that she thought about this contrast in giving directions as one of group vs. individual constructivism. She pointed out that if group construction was the goal, than it's important that all get the same set of directions, but, if you as a teacher are more concerned about the process a student goes through in making sense of it and constructing a personal view, than giving less direction is a better choice. Holly and Lyle responded to Karen's comments:

Holly: So I'm confused. I do give a lot of directions in the beginning. Or maybe I don't give that much. I ask, What are we doing? What do we need to write down? So we do a lot of that together. I think my point is that Lyle taught me during student teaching that you can't stand up there and tell them everything because they'll tune out. So I let them get started and then when questions come up then I come back and say now we're at this point. But I don't know if they really go back and construct individually. That sounds really cool. But I don't think it's that much. (4/29/94,p.38)

This passage provided an example of how Holly was uncertain about how a teacher should act in giving directions. She was uncertain about how much structure she provided in giving directions and how much knowledge her students constructed individually. This gives credence to the fact that she is still working to internalize the theoretical principles of her internship program through her daily practice. This is not surprising as ambivalence and uncertainty are characteristic of the change process and as well as the practice of teaching (Fullan, 1992). The conversation continued with Lyle responding to Holly's uncertainty with the following comment,

Lyle: It depends on the task and how big the task is. Because sometimes it's really important for them to go back and to construct their own process and other times it would be dangerous or would be counterproductive.

Holly: It's kind of like a mixture you know.

Lyle: It's a degree of scaffolding right?

Karen: It's a degree of scaffolding and then what you hope to get out of that scaffolding. The goals for just a blank piece of paper with the direction investigate the functions $Y=X$ to the n would be different from investigate $Y=X$ to the n and be sure to talk about the patterns.

Lyle: I think early on we need to give them a lot of scaffolding until they understand. Assuming they didn't have the organization skills in the first place. Give them something to hang onto and then kind of divorce them from that. (4/29/94,p.38)

At this point in the conversation Peg asked Lyle about students like Scott (the hypothetical special education student with ADHD in the case study), if they ever acquire enough scaffolding to be able to construct knowledge more independently?

Lyle: Sometimes they never figure out the scaffolding. So then you walk around during a test, a lab, whatever you have going on, that's what Holly was talking about, you provide individual scaffolding if you've got a kid that's just sitting there like this or the test with nothing written on it and he's read the question. Then he certainly needs some more scaffolding before he can get going.

Karen: Yah. The difference is sort of like, are you more interested in being able to articulate the different things about functions that could be interesting like domain and range or are you more interested in the process of discovering the types of things that are interesting about functions?

Holly: It depends on what you're after and it varies within every day, every hour. It varies with the assignment, the class and the people.

Lyle: In the lab class it's pretty easy. You go back and you give x number of directions to the class and then you've got some kids that are not doing what they're supposed to be doing or not knowing where to start then those are the ones you have to go over and give more support to. Everybody isn't bringing the same skills and experiences to the class. So you can't assume that one set of directions is gonna fit for everybody. That's what we try to assume. We say, oh well if I work on these directions good enough every single person will be able to do them. But that's just not the case.

Karen: Not only that but a direction like make a graph of this situation in September might be a big direction. They have no idea what it means. Now in April, if I said make a graph they could get started. Initially that was a vague direction, now it's a specific direction.

Sally: And I've had to become more specific later in the year and less vague with my directions because they know so much more (Coll. 4/29/94 pp.39-41).

This conversation illustrated several things about their thought processes while planning assignments. They indicated that they think about the purpose of an assignment and what kind of process they want students to use: a group or an individual process. The process chosen determined whether the initial directions will be general or more specific.

In addition, Lyle pointed out that the teacher had to be prepared to support students, who are not engaged, by guiding them or providing them with enough scaffolding in the form of questions or probes for them to make a connection and engage in the class work. Frequently, these were the students with disabilities. Lyle made the point that all students come with a different set of experiences and skills. Some special education students, like Scott, find it difficult to acquire enough of a knowledge base to operate as an independent learner in class and therefore may always need to be provided with more facilitation from the

teacher. Lyle's focus on providing the individual student with the necessary scaffolding to respond to questions and/or engage in the activity is a critical method that teachers committed to addressing the needs of all students practice. It is a part of pedagogical reasoning called, tailoring, that will be discussed in more detail later in this chapter.

Karen and Sally made a final point in this exchange that not only does a teacher have to consider the class and the day, but that the time of the year was also a point of consideration. At the end of the year students have acquired a knowledge base and therefore need more specific directions because they now have many more ways to think about the directions for a particular task.

Jane did not comment in this segment of the conversation between Holly, Lyle, and Karen about the issues to consider in giving directions for several reasons. One reason was that in a team teaching situation between general and special education teacher, the general education teacher usually took the lead in starting the class and giving the directions. However, in my conversations with Jane and my observations of her in planning lessons with general education teachers, she has stated on several occasions the necessity of giving both oral and written directions for students with disabilities and that some students need different kinds of directions in order to understand what is expected of them.

In sum, this conversation illustrated that these teachers draw on many theoretical principles and experiences to determine how to direct the class. They reflected on the goals of the lesson, the best methods/processes to accomplish the goal, the nature of the learners, both as a group and as individual members, and the time of day and the school year before

determining how best to orchestrate the lesson for their classes that day. Lyle, in particular, made a strong case for the teacher always considering the individual when he says one "good set of directions" will not be good enough for every student as all learners are different. While Jane did not state this in the collaborative conversations this comment is one that I have heard her make frequently in her meetings with many general education teachers. These theoretical principles are necessary for all students' success, but thinking about the teaching and learning of individual students is especially critical for students with disabilities to be successful in general education. Further, the theories of teaching and learning they described emanated in part from their belief systems about their roles as teachers, i.e., to teach all students and their beliefs about learners, i.e., all students can learn. These practices and beliefs that these teachers exhibited in the data are indicative of teachers with moral purpose.

C. Theories About Cooperative Learning

One method of engaging students in subject matter that Lyle, Holly, and Jane embraced was cooperative learning, though they had different thoughts about implementation.

A segment of the conversation on 11/29/93 illustrated these differences.

Lyle: Remember the last time we met, we talked about putting kids in different arrays based on those who wanted to work and those who absolutely didn't? Well, I wanted to report on that because I've done that for a couple of weeks. The groups have had to make two presentations. I can say that in every case they made good presentations considering what they might have done if they were the low man on the totem pole in another group. I challenged the dud groups..I said OK you told me you were working, your group members say you're not and my observations are the same. So let's see you produce..they had posters, they made good presentations, they learned something. The only thing that bothered me is their quiz

grade didn't come up. But that means we have to look at an alternative assessment.

Jane: But you know Lyle one of the things we found out from our students in the fundamental class about merging them into heterogeneous groups is all that social stuff that is going on for those kids (the duds) and I think that it's scary for them to be working with other kids who never say hi to them in the hall and now they've got to work with them as partners (Coll., 11/29/93 pp.14-15).

In this exchange Jane and Lyle discussed the dilemmas that arise with any principle of teaching and learning, i.e., different contexts present issues that challenge the principles a teacher holds. In this case Lyle started with students arranged in heterogeneous cooperative groups. Then, it became apparent to him that this arrangement was unsatisfactory for some of the students. So he changed the membership of the groups and created a "dud" group, comprised of students with disabilities who were unproductive and disruptive. Jane reminded him of the social issues that arise in cooperative groups if the students feel socially rejected by the other members of their group as is the case with special education students. The conversation continued:

Lyle: I still believe that heterogeneous classes are the way to go but maybe not heterogeneous cooperative learning groups. You've got to match more than just ability...you've got to match personalities, leadership qualities, attitudes and values. I mean it's really complicated how to pick these groups. When I first talked about cooperative learning, a couple of years ago...the way to go was heterogeneous with assigned roles and very structured and I mean it just blew the kids away.

Holly: I don't like it that way either. My problem is that I have two "duds" and I don't want them to work in partners and I didn't want them to pull two other groups down. So it was hard for me to decide, so I put them both together with two other students. They give them roles they can handle but eventually I want them to give the two duds

bigger roles and they're giving them little roles. But the duds work better together in a group of four rather than in two different groups (Coll. 11/29/93 p.16).

In this exchange Lyle stated that after using cooperative learning in his class for three years his theories about this method have changed. He thought there were many variables besides ability that need to be considered in constructing cooperative groups, i.e., the individual student's leadership abilities, values, and attitudes. The theme that pervaded these interactions was that all three teachers were thinking about the various attributes of individual learners and the conditions in which they could actively engage in learning as a group member and then made the adjustment in their classrooms accordingly. These passages also provide evidence of the teachers' reflective capacities, which is a part of pedagogical reasoning discussed later in this chapter. According to these teachers thinking about the individual is critical in supporting students with diverse learning abilities in heterogeneous classrooms. Further, it is illustrative of the moral purpose that permeates the decisions they make in their practice.

Lyle, has also found that implementing cooperative learning in a structured approach with assigned roles was difficult for his students. Holly had a similar experience with a highly structured approach to cooperative learning, therefore she agreed with Lyle on this point. Often they have found that a student with reading and writing difficulties are assigned a role in the group that they found difficult to fulfill and then they are ridiculed.

Like Lyle, Holly had two students who were disengaged and consequently distractive to their groups (the so called "duds"), however she resolved this dilemma differently. She

placed them together in one group thinking that this would give them a social partner, as well as two other students, who could be role models. This dilemma of how to resolve the "duds" was not easy, if the teacher placed them all together, they had no role models, if they were placed in individual groups they could disrupt the productivity of four groups. Lampert (1985) referred to these kinds of pedagogical problems as a difficult choice between equally undesirable alternatives, which meant that sometimes one could not choose a solution without compromising other goals.

Based on the data and my own teaching experience these types of dilemmas become more frequent with more diverse heterogeneous groups, which include students with disabilities. Often they are the "duds" and need individual consideration in order to become stronger participants in group learning. Their presence adds another complexity to the pedagogical problems for the secondary teacher who wants to be inclusive, yet promote the learning of all students. Jane and Lyle found in the student interviews they conducted as part of their study how difficult it was socially for students who have been in segregated settings for many years to integrate into groups with members they do not know or whom they perceive to be smarter. Lyle and Holly were struggling with this pedagogical dilemma in the previous example.

One of the major concerns pervasive in the special education literature about including students with mild disabilities in general education is that they will not have the individual consideration that is necessary for their learning. Lyle and Holly consistently demonstrated this principle in their teaching. Jane repeatedly echoed the theme of thinking about "what was

good for all kids,” as well as the individual learner. Thus, these teachers through their conversations indicated that the challenge for all teachers in any classroom was to balance these two perspectives: the needs of the individual vs. the needs of the group.

Summary of the Knowledge of the Theories and Principles of Teaching and Learning

In summary Holly, Lyle, and Jane presented evidence that the principles of teaching and learning they used in their classroom were derived from the cognitive theory of constructivism. These principles evolved through their PDS project based on “Science for All Americans,” a curriculum to restructure science for all students supported by the National Science Teachers Association (1992). In this model students were active participants in developing their knowledge of a subject through group projects guided by questions developed by the teacher as well as questions that they have generated.

Assessment was ongoing through journals, lab reports, and group presentations. Students had written and oral test options. The text is used as a resource, rather than the main source of information. The emphasis on learning was conceptual understanding of fewer concepts in depth, rather than survey of the facts and details of the subject. The primary theory for learning was through cooperative groups emphasizing student responsibility. The three teachers in the group were grounded in these principles in various degrees. Lyle and Jane worked for three years on developing and implementing them, while Holly was mentored in them as Lyle's student teacher and as a teacher in the science department for two years.

2. Knowledge of Diverse Learners

A second element of General Pedagogical Knowledge is one's knowledge of learners, in the case of this study diverse learner's at-risk and certified in special education with mild disabilities, primarily learning disabilities (LD). This professional knowledge base encompasses knowledge of student characteristics, cognition, and the motivational aspects that impact students' learning. Several of these elements were touched on in the last section. What have Holly, Lyle and Jane and other group members come to know about learners with special needs?

A. All Learners Are Different

One common learner characteristic that emerged from the data was that all learners are different. In the first group conversation Lyle and Holly made the point to the group that students were categorized in special education, but students with the same label were very different.

Lyle: We like to lump kids together and say we've got Emotionally Impaired, Mentally Impaired and then we have Learning Disabled. And within the LDs there is a whole range. If we have a particular definition of LD, I can go through my four classes and pick out eight kids that are as handicapped as some of the LD kids and for various reasons haven't been referred.

Holly: That's what I've been observing in my classes. (Coll., 10/25/93, p.17)

Lyle made this point again in a conversation about his definition of success for mildly handicapped students in his class, "My students have as many success levels as there are students. Every student has a unique set of strengths and challenges coming into the class,

so it's hard for me to generalize" (11/15/93, p.2). At several points in the conversations Holly made reference to very different kinds of LD students that she has had in class.

Holly: LD students like Melissa who are so bright they blow you out of your gourd but if they were not mainstreamed who knows what school would be like for them. (10/25/93, p.16)

Later in the conversations she discussed a brother of a friend of hers who is severely LD.

My boyfriend's brother is severely learning disabled. He's graduated now and has a diploma but he has no skills. He can barely read and write. His mom is mad, but I tell her we can't keep kids in school forever. I was wondering if he could still get services? (10/25/93, p. 23)

In a conversation a month later Holly referred to another type of LD student.

One of my LD students has very limited writing skills. He cant' spell very much and he needs help constructing sentences. He tries very hard to do his work, but he can verbalize what he knows" (11/29/93, p.21).

These passages provided evidence that Holly was aware that even though a student has the same label (LD) they had different learning needs. Several months later Lyle offered these comments about learners:

Lyle: What is so frustrating sometimes are the generalizations we make about students. They just don't hold water when every kid is so different from every other kid. Every kid has their own specific kind of disability and attitude. Every kid is brand new. It's almost as complicated as a whole new set of genes! (Coll. 2/7/94, p. 17)

Lyle's statement in this passage was no surprise to Jane. As a special education teacher one part of her role was evaluating students for special education services and

developing individual educational plans for them based on their strengths and disabilities. She shared with the group about an unusual LD student that she was working with.

Jane: Last year I was working with a very different LD kid with a learning disability in written expression and was having so much trouble in art. He couldn't express himself in art either and I'd never really thought about how that would transfer to other content areas. He couldn't express himself in any way even manipulative. He didn't know how to get started with constructing a piece of work. It was really amazing. (10/25/93, p. 24-25)

In this passage Jane gave evidence that LD students with writing disabilities are also very different. Even though she did not make many specific references about the uniqueness of each learner, the nature of her job and my work with her provided evidence of this awareness.

These passages indicated that these teachers viewed all students as unique learners with special needs even, if they had the same label. This teacher perspective is central to developing a moral purpose for one's craft, because thinking about students as individual learners is an initial step in trying to make a difference in their lives and an important intellectual resource in supporting students with special needs.

B. Teachers' Knowledge of Student's Perceptions of Themselves as Learners

One component of Lyle's and Jane's PDS project (in which Holly participated as an MSU intern) was to find out the perceptions of students with disabilities concerning their abilities to learn zoology in a regular class after learning science in low track classes. Their findings were summarized in an unpublished paper, which was an interview conducted by Helen Featherstone about their project. The following excerpt from this paper describes the

students' perceptions, which was critical information in assisting Lyle, Jane, and Holly in understanding the motivational issues regarding their students' class participation and in developing strategies to address these issues. Helen asks them how they found out students' perceptions about their class experiences.

Lyle: Jane and I designed questions that gave students the opportunity to compare their first semester experiences in the "tracked" fundamental biology class with their experiences in the heterogeneous zoology class. We were interested in finding out how they perceived themselves as learners.

Jane: We talked with every special education student (15 students) and we came up with some very powerful feedback. We were shocked at how they were feeling inside and how they viewed themselves as learners. It was difficult to hear them say that they were 'slow learners' and were 'really low.' They expressed fear about being mainstreamed and said they felt 'really stupid' compared to the 'other kids'. They said, 'The other kids already know this stuff.' They felt like they were way behind the other students.

Lyle: How they felt with other students socially also came out. They commented, 'We don't know these kids. They don't know us.' They said they see some of these kids in the hall but would never dream of saying 'Hi' to them. They never had classes with them before. They would say, 'I'm used to being in classes with my friends. You know, the same kinds of students we are.' They seemed to feel like they were in a different race that was shunned and discriminated against.

In the next segment Jane summarized how she and Lyle felt about their findings.

Jane: We were really saddened by these comments. Many of these students had been put on 'caseload' (special ed.) back in the elementary school. When the parents signed the referral and consent forms that made the students eligible for special services, it became a lifelong commitment, almost a sentence for them. It seems the earlier they are identified, the farther behind the other students they get. Each year they fall behind several weeks so, when they reach high school, they may be a couple years behind both academically and socially. It became clear to us that

this feeling of being dumb and slow really inhibited their learning. They were afraid to participate in class discussions because, 'I don't know what questions to ask, and I don't know if what I want to ask fits in.' (Lyle and Jane, Unpublished Paper, 1990., p.4).

Lyle and Holly had a similar exchange in one of the collaborations.

Lyle: I think that a lot of special education kids come into classes with low expectations for themselves and then on top of that if the teacher reinforces that by having low expectations for them, they are defeated right away.

Holly: It's also hard because you have these expectations and they immediately turn off because they just don't think they can meet them, it's scary because it's gonna be too hard. And that kind of stuff comes out you know. (5/9/94, p.8)

Sally and Peg found similar student perceptions in their PDS project to transform low-track mathematics classes into more intellectually challenging environments. Their curriculum was based on the frameworks developed by the National Council of the Teachers of Mathematics (1989) that emphasized mathematical reasoning. The class of eighteen students, including a combination of eleven at-risk and seven with mild disabilities, consistently reported that they couldn't think like this and that they needed an easier class. One student expressed her group's feelings about the difficult task this way, "We did not try really hard to get it all finished because it was too hard. So we got sick of trying and we quit working on it" (Lamb and Bethell, 1990, p.14).

These data on students with disabilities perceptions of themselves as learners in mainstreamed classes were used by Lyle, Jane, Holly to develop particular classroom and

behavior management strategies to nurture their active participation and, therefore, the social inclusion of these students. These strategies are discussed in detail in the next section.

The outcomes of the student interviews fused for these teachers the moral purpose of teaching and change agency. This is evidenced by the fact that they spent several years developing math and science and math curriculum to include all students and they became active in eliminating the tracked classes in the mathematics and science departments at Hart High. Since 1995 all Hart sophomores have enrolled in biology and algebra. The teachers in the project have continued to refine the curriculum and methodology in these courses with other members of their departments to include all students.

C. Teachers' Knowledge of Student's Feelings About Their Disability

A third learner characteristic of students with disabilities that emerged from the data was the emotional impact of their disability in school. The last section discussed students' with mild disabilities perceptions of themselves as "slow" learners, dumb, and helpless. Jane, Lyle, and Holly illuminated another characteristic of special education students: their strong feelings about their disability.

Jane: The Self-Advocacy class I was taken back by the tension that developed so quickly in the class when we started talking about having a learning disability.

Holly: We had a conversation in biology about learning disabilities the other day and some kids who have difficulty with learning just didn't want to talk about it.

Jane: There was such a sense of shame coming from the students. Neither Peg nor I were prepared for the degree of rage and depression the students had about school and their experiences. It was like we

opened Pandora's box by openly discussing learning disabilities. (Coll. 11/3/93, p.19)

In another conversation Jane asked the group why they thought that students in special education have the perceptions of being slow and stupid. Lyle responded:

Partly don't you think it's because they've been pulled out and treated separate from all of their peers all the way down to elementary school. Why wouldn't you feel like you were retarded and be angry if you were just jerked out of the class and sent to a special room with a special teacher? (Coll., 12/7/93, p. 10)

Lyle also talked directly about students' feelings about their disabilities.

Some of them have such a low opinion of themselves they can't even begin to list their disability. It's like a deep seated depression or resignation about whether they can ever learn. (Coll., 3/21/94, p. 16)

I've seen many of them who don't own up to the fact that they have a disability. They try to bury it. They want to be as normal as the next person and they are in most respects, except they can't write or spell well, or in some cases conceptualize. (3/21/94, p. 19)

As evidenced in the data above and in other conversations, the teachers in this study discussed two emotional characteristics that were prevalent in many students with mild disabilities: depression and rage. Some students cycled through both of them or exhibited one of these emotions more predominantly than the other. In the depressed state the teachers reported that they placed their heads down and were disengaged in learning, or as Lyle indicated they sat there helpless. Conversely in the angry state, the teachers indicated that they actively resisted wanting to do anything. As Lyle stated, "They came without paper and pencils, they were unwilling to work in their group, or they wanted frequent passes out of

class" (4/29/94,p.11). They became as Lyle and Holly found real "duds." Jane stated in a later conversations what she knows about students' feelings about their learning.

Jane: And what I know about a lot of students that we've talked to this year, they'll talk about how when things get tough in the class, they'll do things like put their heads down or just get mad if they don't understand the concept. Plus, they're bringing all that stuff that Lyle and I found out with them, like everybody else already knows everything in the class. I'm a low level kid. They've got all those messages going on. (5/9/94, p.17)

Later in the same conversation Holly talked about a visit she made to the Self-Advocacy class taught by Jane and myself.

Holly: Half of the kids were doing another assignment or had their heads down on the desk maybe three were paying attention here and there. I told them that in my class this kind of thing would not fly.

Peg: I think that after a while that they just have these habits of surviving in the classroom by withdrawing and putting their head down and isolating themselves.

Holly: Well, I think that all of us teachers have got kids that put their heads on the desk and it's just like you don't want to deal with telling them to put their head up or I've had a kid out of control and for a few minutes he's actually quiet with his head down, so I let him stay that way. But what kind of message am I sending him if I'm not making him sit up with head up, you know? (5/9/94, p. 33-36)

In this exchange Holly also noted how some learners respond by putting their heads down and pulling back or to quiet themselves after they have been out of control. Sally and I observed these same emotional responses from the students in our math study:

Their increased frustration and anxiety led to intense resistance in the forms of argumentativeness and passivity. Some students resisted more forcefully with negative comments such as, 'I hate this class; it

sucks.' Others just became disengaged in their cooperative groups (Lamb and Bethell, 1990, p.14).

In summary, Jane, Holly, and Lyle and other members in the collaborative group observed two predominant emotions--anger and depression--in students with disabilities and those at-risk when they were integrated into general education classrooms with a restructured curriculum to facilitate their learning. Their observations of students' emotional responses to the restructured curriculum helped them realize that these feelings were another barrier that they needed to address in order to engage these students' in learning science and math. Consequently, they developed classroom strategies to assist these students in experiencing success in their subjects as a way to address their feelings about their limitations as learners. These strategies will be detailed farther in the chapter.

Summary of Knowledge of Diverse Learners

In conclusion, teachers in this study identified several characteristics of learners with special needs that are critical to their teaching. One, that all learners are different, even if they have the same special education label. Second, Lyle, Jane, and Holly through their PDS project to restructure a science curriculum to include students with disabilities found that these students perceived themselves as slow learners, stupid, or a really low level learner. Third, the teachers in this study observed two predominant emotional characteristics of students with disabilities, anger and depression, which were barriers to their active participation in group work. Given this knowledge of students' perceptions of themselves as learners and their feelings about their disability, Lyle, Jane, and Holly realized that

restructuring the science curriculum was not sufficient to include all students when the students presented social barriers to active participation.

Anderson and Fetters (1996) discuss the challenge of true inclusion in that special education students encounter both academic and social barriers in general education classes. They compare the social experiences of students with disabilities in general education to the integration of African American students. Steele (1992) describes the stigma that students of color feel, which applies to special education students, who are marked as different from their peers by labels, by segregated educational experiences, and different cognitive abilities. As many authors have noted (Delpit, 1988; Heath, 1983; Ogbu, 1987, 1992; Steele, 1992) students that are stigmatized face a basic choice: they can try to diminish their differences with their peers or protect their self-worth by choosing alienation. Ogbu (1987, 1992) describes this behavior as "oppositional social identity" which manifests itself by limiting one's effort toward goals that seem impossible to achieve.

Thus, the question the general and special education teachers in this study faced was how to develop a learning community that addressed these dispositions and feelings so that all students would participate in the restructured science curriculum. The next sections will describe how the teachers changed their practice and the classroom environment to address these needs and socially include students' at-risk and with disabilities.

3. Knowledge of Principles and Techniques of Classroom Management and Behavior

The third element of General Pedagogical Knowledge was teachers' knowledge of the principles and techniques of classroom management and behavior. Table 6-3 summarizes the

knowledge the teachers in this study drew on to create an environment that promoted the social inclusion and construction of knowledge for all students and addressed the feelings of shame and alienation that students with disabilities hold. These are the methods that these teachers developed to make a difference in the lives of all students in particular those at-risk and with disabilities. Not all of the participants in the study talked about each strategy: however the reader needs to keep in mind that Holly was Lyle's intern and, therefore, actively involved in Lyle's and Jane's PDS science project. In addition, as a special education teacher at Hart High, I worked with Lyle, Jane and Holly and had many opportunities to discuss strategies with them on including students with disabilities as well as observe them in their classrooms.

TABLE 6-3 Principles and Techniques of Classroom and Behavior Management

PRINCIPLES AND TECHNIQUES OF CLASSROOM AND BEHAVIOR MANAGEMENT	
Principle I. Student Participation is Expected in Class Activities	
A. Techniques	
1. Calling on Students at Random	
2. Dialogic Assignments and Journals	
3. Physical Arrangement of the Classroom	
4. Participation Grades	
5. Group Presentations	
6. Management by Walking Around	
7. Coaching	
8. Tailoring Interactions to Support Emotional Needs	
9. Changing Group Membership	
10. Class Attendance	
Principle II. Student Responsibility	
Principle III. Collaborative Effort for Behavioral Issues	

This knowledge base is inextricably linked to teachers' beliefs about learners, their theories and principles of teaching and learning, subject matter knowledge, teaching methods, and classroom organization. In other words, if a teacher's belief is that the text is the main source of knowledge and that teaching is an act of telling, then the particular teaching methods and the organizational structures they choose will likely correlate with these principles.

The teachers in this study embraced a social constructivist theory of teaching and learning: therefore the techniques of classroom management and behavior they implemented

in their classrooms complimented these principles. They believed that all students can learn, students need to take responsibility for their learning, and that all students need to be held to high expectations. Given this set of beliefs the rules of behavior and management that they established reflected these principles. What management principles and strategies did the teachers in this study employ in their classroom to address the needs of students with mild disabilities?

Principle I. Student Participation Was Expected

Lyle in one conversation talked about his basic rule which reflected his beliefs in this area.

Lyle: Well, one thing I want from students is that when they are in my class that they are working and that's what I get upset about is when they're not working up to their potential...and they're in the class and in the lab screwing around instead of working. That's when I put my foot down and say, I demand that when you're in my class that you are working. That's my basic rule. I give them options and say you don't have to come to this class, and if you don't want to be a part of this class you can have the option of going to the counseling center and finding another choice.

Holly: Yes, definitely (Coll. 2/7/94, p. 19).

In this passage Lyle and Holly were committed to a basic rule that they expected students to be engaged in their work. This corresponded to their beliefs of holding students' to high expectations and being responsible for their learning. Jane too "wanted students to work and learn in a diverse group, just like they will after schooling is finished" (Lyle & Jane, 1990, p. 2). While the expectations that everyone be engaged in their work is prevalent in traditional classrooms as well, it was their beliefs about teaching and learning, their teaching

methods, and their interactions with students that created a more constructivist learning environment. Based on the teachers' report in their conversations and publications regarding the resistance of students at-risk and with disabilities to engage in academic task, this principle is a necessary position in order for students with disabilities to be meaningfully included in general education classes not merely physically present. What did the data reveal regarding the teachers' actions to operationalize this principle? Following are specific strategies that the teachers employed in their classroom to encourage student participation and social inclusion.

1. Calling on Students at Random

The above conversation continued with Holly querying Lyle about his strategy when students were not engaging in the class conversation.

Holly: What do you do when kids just sit there and they act like they have nothing to talk about...like nothing?

Lyle: I don't wait anymore. I ask a general question and wait about two seconds, you're supposed to wait four..then I go what about you Judy and I call on some students and put them on the spot and start calling names because it's easy to sit there and be a member of 24 people.

Holly: But still you call on them and it's 'I don't know.'

Lyle: Yeh, I know. Part of it's not cool to talk in class. You're a bit nerdy if you raise your hand and act like you know something. That's really unfortunate but it's gotten to be more and more that way. Eventually I get students who are used to answering, because they know I'm going to call on them. If the whole class is totally stuck, then I want to know how stuck we are and I'll go to the kid I know has the answer and they prove it every time I call on them. (Coll. 2/7/94, pp.25-26)

The teachers reported that there are several tensions that arise in a classroom organized for students and teachers to socially construct knowledge. One tension was to foster a conversation between students and teachers. This was a very challenging task in particular for students who have grown accustomed to being passive members in the class. As Lyle and Jane found in the study of integrating special education students into heterogeneous classrooms, they participated less because they didn't know many of their classmates and they felt that everyone was more knowledgeable than they were. Given these conditions, the teachers in the study believed it necessary to develop a variety of methods to encourage students to interact and therefore assume some responsibility for their learning. Although Jane did not comment about calling on students, because she operated as a support teacher with the classroom teacher taking the lead. However, she facilitated their participation by sharing aloud that a particular student had something to add to the conversation, then the classroom teacher would ask for this student's input. Jane's strategy validated for students in advance that their comments were germane and encouraged them to contribute.

2. Dialogic Assignments and Journals

A second strategy that Lyle, Jane, and Holly used to foster student/teacher dialogue was reflective assignments and journals. Lyle and Jane describe this strategy in their unpublished transcribed interview about their PDS project.

Jane: They weren't used to taking tough concepts and really thinking about them. We tried to adjust to them by establishing trust. We let them know they could write in their own words with less scientific jargon and that we would talk to them about their answers so they could

clarify verbally, if needed. They could answer with diagrams, graphs, cartoons, or any other method they were comfortable with. We also started having them practice more writing in journals (thinkbooks) so they could become more confident in their writing abilities. (p.6)

Lyle: To improve lab report quality (and, therefore grades) students got reports back with comments and questions and were allowed to resubmit them with corrections. (p.8)

Dialogic assignments and journals were one way that they used to get to know what students were learning, their misconceptions, and how they were feeling about the class. Their responses to students' journals helped them to develop a level of trust and feel supported in the class. They used the information gleaned from their journals about students' conceptual understanding as a basis for deciding whom to call on in class. Once students had a sense of trust and support they felt safe enough to participate in class conversation. This strategy assisted teachers in making a difference in the individual students' learning. Holly does not mention this strategy in the data, however, as Lyle's intern she was very involved in dialogic assignments and based on my observations this strategy is incorporated in her own classroom.

3. Physical Arrangement of the Classroom

Holly and Lyle used other strategies to foster students' comfort with a more conversational teaching and learning process.

Holly: Another thing that I have been thinking about is the part about talking to someone you've never talked to before. I do a lot of class discussion and we sit a U-shape and we're facing each other and we do a lot of talking in this set up and it gets them going. And I really like it because it lets them open up and talk to other people. I've really seen them grow more and more into class discussion. So I feel

in some ways at least we're still accomplishing the idea of opening up relationships between students. (Coll. 3/21/94, p.17)

In this excerpt Holly shared a classroom arrangement that she found broke down some of the social barriers between students by placing them in closer proximity with different students and encouraging conversation in small and large groups. Based on my classroom observations Lyle used a similar strategy; he arranged students' desks in two rows shaped like a semicircle. This too allowed for students to feel more connected and facilitated participation in a group conversation. Jane did not mention this strategy, however since Lyle and Jane collaborated several times a week during their PDS project, it seems likely that the arrangement of the room was jointly discussed.

4. Participation Grade

A fourth strategy that Lyle, Jane, and Holly used to foster participation was to grade students on their contribution to class discussion. Lyle and Jane described in their unpublished paper of their interview,

The technique that the students liked from the first semester of our class was that we issued participation points during class discussion. It encouraged them to talk more and stay "tuned in." (p.5)

Holly shared during group collaboration, "They get a participation conduct score (the warm body, doing your job, taking notes, etc.) as part of their grade. I think that's important" (11/29/93, p.12). As Lyle and Jane indicated giving reluctant students credit for participating encouraged them to share their ideas and maintain their attention in the class conversation.

5. Group Presentations

Group Presentations were a fifth strategy reported by Holly, Lyle and Jane to foster group participation and interaction with the subject matter. Holly shared that "everyone in my class has to verbally say a part of their group's oral presentation on unit topics" (11/29/93, p.12). Later in the same conversation Lyle stated, "I tell my kids up front that each person is being graded as an individual not as a member of the class or their group. Everybody makes presentations" (p.14). Teachers found this plan allowed all students to demonstrate their knowledge with the support of their group members and to become full participants in the class conversations about their units of study. Teachers reported this method often engaged those students who were reluctant to participate because of their anxiety about their performance. "We wanted them to gain confidence in their own ideas by asking more questions and getting involved in class discussions. An important learning strategy for all students was oral presentations" (Lyle and Jane, 1990, p. 8). This method also reinforced that they were responsible for their learning. The option of an oral demonstration of knowledge versus a written form was an important consideration for students with writing difficulties because it allowed them an opportunity to share their learning using their strength, oral communication.

6. Management by Walking Around

As mentioned earlier many students, especially those with attentional difficulties, found it difficult to get started with their work or to sustain it. Since Lyle, Jane, and Holly expected students to be engaged in their work they instituted management by walking around

to assist these students. In my observations in their classrooms all three teachers circulated around the class from group to group to ensure that students were involved in their assigned task. They mentioned several times throughout the conversations that after a few weeks they knew which groups and individual students needed support in getting started or sustaining their efforts. In addition, they indicated that their movement from group to group offered all students support especially those with learning difficulties and was an informal method of assessment to determine understandings and misconceptions about the lesson.

7. Coaching

Coaching was the seventh strategy that Lyle, Jane, and Holly discussed using to engage students in learning. This involved encouraging students through cuing them with a word, a picture or a question. Jane wrote, "During discussions or other learning times, I could explain things in different ways from Lyle and model constructing concept maps" (Lyle & Jane, 1990, p.6).

Ann, the social worker, and Lyle had a conversation about the importance of coaching students.

Ann: We have to help the kid take the next step. First of all you've encouraged them through the oral assessments that they can get their grade better. The next thing is to coach them to the next level, plan with the kid. What is the next step for you? Because I think if they have some input into it and take some ownership into it then they can move to the next level.

Lyle: When you were talking about coaching; that's what I'm really into. We talk about walking around and helping them during the test, reading this, stating it another way for the ones that are stuck. I try to be real visual. I'll give them some seat time, I'll say this is going to

be your thinkbook entry for today and it will be a test question that's coming up. I'll say I want you to write everything you know about how earthworms reproduce sexually. And then everybody is writing and drawing cause they have to do diagrams and writing, then I can go around and find the kids that are having difficulty with that and talk to them at that point. And then during the test they expect me to walk around, but they don't use me as a crutch either because I'm not going to give them the answer. I'll just ask them another question. I give them some scaffolding. The coaching phase of that I think is terribly important. They get use to you in their face, over their shoulder, expecting them to do something instead of just sitting there like a bump saying, 'I can't do this.' I deal with all kids when I'm coaching, Jane taught me this a long time ago. I'll go around and talk to the other kids and challenge them too, even the ones doing it perfectly. I'll challenge them to do it better, so that I'm not just stopping everybody in special education. (Coll. 5/9/94 pp.19-20)

This passage illustrated several things. First, it was an example of how Lyle implemented the constructivist theory of teaching and learning. He facilitated students' learning by expecting them to use both words and pictures to illustrate their ideas. He restated questions in different ways to facilitate their understanding. Both of these strategies were critical accommodations for many students who found it difficult to express their ideas solely in words and/or comprehend what they read, particularly students with mild disabilities. He asked them a series of questions to push their thinking about the unit of study. The coaching strategy also served as a management strategy in that his physical presence in the groups reinforced his expectation that students needed to be working, they had some responsibility for their learning and that he believed they all could learn and wanted to support their efforts. Holly offered similar examples in the collaborative conversations as well.

All three teachers reported that coaching contributed to students' level of comfort in engaging in the content and built their confidence in learning the subject matter. Finally,

Lyle's example illustrated in a holistic way how a teacher with moral purpose operated as a facilitator of all learners in a heterogeneous class, held them to high expectations and provided each with a variety of options and the emotional support and accommodations necessary to demonstrate their learning.

8. Tailoring Interactions to Support Emotional Needs

Tailoring classroom management to address the emotional needs of diverse learners was also addressed by the three teachers in the study. Holly in her videotaped conversation about Jessica noted that one of Jessica's strengths was her social skills and that she could use that strength to help her become comfortable in class. In her discussion about Scott, she also demonstrated sensitivity to him as a learner in the whole class. When asked how she would approach teaching Scott, Holly said:

I would give him the class assignments and let him try things and then I would go to him and ask some questions. It will take me a few weeks to get to know him, but I would let him get started. He might get too hyper in lab, but I'd let him get started and then step back and watch him and see what he needs. (Holly, videotaped interview of Scott)

In these statements Holly was treating Scott like other biology students. She was not immediately rushing to accommodate him but, gave him some time to demonstrate what he would do in her present structure and then she would make adjustments as needed.

Lyle and Jane in their second year of teaching a heterogeneous science class used a social circle, i.e., students from the previous class to orient and support the students.

Lyle: We invited several special ed. students that had experienced our first semester experiment to join us in a "social circle" to share some of

their feelings and opinions about what the new students would experience. We brought our data from the previous year's interviews and invited the social worker to join us for additional support and guidance.

Jane: Everyone seemed comfortable talking openly about our endeavor, and the new students, maybe naively didn't see anything very threatening about the situation. The real outcome of the social circle then was to let the kids know that we wanted to stay connected with them and that we were really going to be their advocates. They understood we wanted them to have a positive experience and that we really cared for them. (Lyle and Jane, 1990, p.7)

These excerpts from the unpublished transcription of their interview indicated the concern that both Lyle and Jane felt in supporting students at-risk and with disabilities in their integration into an inclusive academic and social setting. It is another example of how teachers with moral purpose strive in every way to make a difference in the lives of all students by considering the emotional impact of restructuring teaching and learning.

9. Changing Group Membership

As mentioned in the section on Cooperative Learning, teachers sometimes needed to change students' groups. Both Lyle and Holly found that students who were "duds" and seriously impaired the ability of a group to function had to be changed to a different group. This was another strategy teachers utilized to manage students' behavior in their class, although they reported implementing it infrequently and only after coaching members of the group in resolving group dynamics. Implementation of this strategy required that teachers be committed to ensuring that all students learn and be aware of the individual needs of all their students. Although Jane reminded Lyle and Holly that "one of the things they found out

in the student interviews in their PDS science project was how scary it was for some kids to work with kids who never say 'hi' to them in the hall" (11/29/93, p.15). This parallels directly the "oppositional social identity" Ogbu (1987) describes in which students reject and resist participating in tasks that perceive as impossible for them to achieve, especially with peers who view them as inferior. Consequently, changing group membership was a necessary strategy for teachers to employ under these circumstances.

10. Monitoring Class Attendance

Another classroom rule that Holly and Lyle implemented in their class was a limited number of passes out of class. Since the majority of activities in their class involved either small or large discussion about their unit of study, missing a class really impacted students' ability to develop conceptual understanding. Given that many activities were done in small groups, it was difficult for a group to work effectively when students were absent even for part of the class. The following conversation illustrated their feelings about excusing students from class. Holly had just asked Peg when do special education teachers see their students? Peg indicated that they had to pull them out of class the same as the counselors or the attendance staff.

Lyle: That's really a major flaw in the system. They need to be tuned in all of the time and when they leave for a pass they can't just walk back in 15 minutes later and plug into what's going on. They're lost for the day. That day has been scrapped, you know? So it works much better, if whatever has to be dealt with can be dealt with in the classroom. I'm pretty hard nose about giving them potty passes for this reason. I tell my students at the beginning of the semester that they get one emergency a semester. Then I ask them if they want to spend it today?

Holly: My students are allowed two bathroom passes a semester and I keep track. I have had kids that used their two passes and then had to sit there. The only time I ever let them go, that's another rule, I get to be the one that decides when you have to go or not...not in the middle of class discussion, not during the last ten minutes, but during a lower key activity. You usually know if it's an emergency because they will ask you more than once. (Coll. 2/7/94 p. 20)

In this exchange the teachers indicated that class attendance for the whole period was very important in order to be a part of the large and small group conversations, which developed their conceptual understanding of the subject matter. Thus, their consistent attendance was critical. According to Lyle, Holly and Jane time out of class was a serious issue for any student, but in particular for students at-risk and with disabilities. Typically these students had marginal attendance records and when called out of class by support staff (counselors, special educators, etc.) their participation diminished further. This placed them in greater jeopardy of failing in a content that was taught through group conversations, rather than a text. In addition, since these students had degrees of discomfort in engaging in learning, they were often eager to leave class for any reason. Consequently, the teachers felt it was necessary for them to monitor carefully requests to excuse students from class. While Jane did not comment on this topic, my own knowledge on this issue is that she frequently accompanied at-risk students to the office or restroom to minimize their time out of class. Or she would leave class and discuss with office staff the difficulty the student faced in missing class.

In summary, all ten strategies discussed by Lyle, Jane, and Holly in the study collectively operated to increase class participation and the social inclusion of all students.

However, these measures in their view were critical to engage students' at-risk and with disabilities in the restructured curriculum given the habits they have developed to limit their participation and minimize their fears of failure in school settings. By addressing the intellectual, emotional, and social needs of individual students through the development of these strategies and their curriculum, the teachers effected the moral purpose of teaching.

Principle II. Student Responsibility

All three of the teachers in this study believed that students needed to be responsible for their learning. What does this mean for students with disabilities? In addition to being expected to participate in large and small group discussions, Lyle, Holly, and Jane stated throughout the data that students needed to learn to advocate for themselves. In one conversation Lyle told the group that he received a letter from a special education student's mother indicating that her son had no initiative and that she wanted him to take responsibility for her son.

Lyle: I want to put the ball in his court. I want him to develop some responsibility. I have made myself available to accommodate many things for him, but he has to take the initiative to come in and do an interview and to get his make-up work. I gave him his make-up work for a while, but now I want him to take responsibility. I see him after school and I've reminded him that he has a three week old test to make-up. He says he'll come in but he never shows up. (Coll. 12/7/93, pp. 10-11)

Holly shared similar experiences regarding students who do not access the support offered after school. However, on one occasion she described a very different self-advocacy experience with a student.

Holly: One special education student came in the first day of class and handed me this sheet of paper that he had filled out on himself. He wrote where he feels his disability is and what help he needs on assignments. He asked if he could go over it with me. I couldn't believe it; he went through the whole thing. During the quiz today he came up and asked me questions and he puts his hand up in class, he tries very hard. How can we get other kids to do this? (Coll. 2/7/94, p. 14)

Jane talked about the need for special education students to learn how to advocate for themselves as Holly described.

As the school becomes more diverse kids will have to learn how to advocate for themselves. They have to know how they learn; so they can talk about it with their teachers. (Coll. 11/3/93, p.24)

The theme was the same from all three of the teachers, high school students needed to take some responsibility for their learning. They needed to access the accommodations that teachers provided. Students with disabilities needed to learn about their disability and what accommodations they needed to be successful and share this with their teachers. Jane and Peg experimented with how to teach students to assert themselves or self-advocate in a pilot study initiated in 1994. They found that with guidance, support and practice students with disabilities could learn self-advocacy skills and become more responsible for their learning. One wonders how much the ability to self-advocate assisted students electing advanced courses as described in chapter one. The literature on self-determination, mentioned in chapter four supports the need for students with disabilities to learn these skills, so that they will be more independent in their transition to adult life in accessing support in post secondary training and the workplace.

Principle III. Collaborative Effort for Behavioral Issues

The videotaped data on the case study about Scott, the student with Attention Deficit Disorder was consistent between Lyle, Holly, and Jane. They stated that students with behavioral difficulties needed to participate in a collaborative effort between their general and special education teachers to develop an intervention plan. In some cases it was helpful to have a social worker or counselor and parent involved as well. All the teachers stated that it was essential that Scott be responsible to develop a plan with his teachers to address his difficulties in attending and staying still. Jane described the need for collaboration in her videotaped interview about Scott.

The Special Education Teacher is the key person to work with Scott as well as the general education teachers. There must be a team effort. As a tenth grader I would want Scott to get to know himself and learn to express to teachers what he needs. Scott needs to get in touch with his behavior and when his attention is breaking down and teachers need to accommodate that by letting him stretch when he needs to. Scott must learn to track the behavior that signals his attention is wandering. He needs a group that will assist him too. Teachers may need to work with the group to help them support Scott. This must be done carefully so not to alienate Scott from the group. (Jane's videotape of Scott, case study)

According to these teachers, the key element in addressing any behavioral and/or academic concern with a student was the development of student responsibility for his/her behavior. Second, they indicated that ongoing communication between all teachers, the student, the social worker, and parents. In the last group meeting, Holly, Lyle, Peg, and Ann illustrated the effectiveness of collaboration in managing students' behavior. Holly asked the group for assistance and then described a situation she had in her class with two students, one

who was a bright student who knew it all and constantly blurted out of turn and another who was impulsive and blurted out inappropriately.

Holly: How do you deal with both of those? Without stifling the bright kids how do you say wait a minute. Let's everyone think about it. She raises her hand a lot, it's not really like she is blurting out.

Lyle: Well in my opinion you have to negotiate with more than just Scott of course. You've got to negotiate with everybody and maybe one at a time, especially the strongest violators.

Peg: You try to establish a norm in the class that you want to hear from everyone and that everyone has to have a chance and so even though lots of times several people may be wanting to respond it's important that you hear everybody's voice. If you set that norm then it provides the students with a rationale for not calling on the flagger.

Holly: I have a student whose disability is talking out, but what he says has nothing to do with what we're talking about. I've had the discussion with him about what that does to the whole group and what that does to our class community feeling. And then it happens again and I ask, 'Do you need to do that?'

Peg: Sometimes I say that I'm looking for comments about this particular thing. We're talking about amoebas at this time, do you have something to say about that? So I frame the condition under which they can respond?

Lyle: I try to make it into a teachable moment. It depends on the comment. If you act like you're bugged by it why then it's going to happen some more and I would deal with it the same way. I would melt it into the moment and talk to them later.

Holly: Another student responds inappropriately as a defense mechanism for saying, 'I don't get this.' But sometimes this happens and the perfect moment where the discussion is really going good and then boom he ruins it. I've pulled him out into the hall. I'll get out there and talk to him, but how many times do you talk to him in the hall?

Ann: I would talk privately with the kids and instead of really focusing with the 'you' stuff which makes people defensive, I would come out with, 'I'm concerned or I feel that really affects the class! Or say your feelings. 'I'm really irritated with you because I felt like it was a moment when we could get a lot of learning and you interrupted! But always start with 'I' so they don't get defensive. When they start blaming other kids then just say, 'I need you to take responsibility. Because that's a way of not taking responsibility by blaming someone else! I think we have a lot of ego centered kids that don't have a sense of where other people are coming from. I think our teaching job is to try to teach them to have a sense of where other people are coming from.

Karen: I was thinking about the kids you're talking about who are doing it because they have a need to show everyone what they're doing. You talk with them and they say I just need to participate. And it's difficult for them to understand that if they do it all the time then it's just a conversation between you and them and there are 27 other people in the room that are not participating in the discussion.

Holly: You can plan it ahead of time by asking them the right questions so they feel like their contributing. The ones who know a lot and think they know all the answers, I want to challenge them too. So I try to call on them when I know they don't have the answer so that they'll feel challenged too. And so the other kids see that they don't know everything.

Ann: Also these kids are adolescents and they don't have all the skills of what's appropriate and so I think kids like the class clown you can be honest with them. Sometimes we need a little relief and it is funny but you need to realize how much you do it. You need to focus on that's fine once in awhile, but when you start doing it continuously you really are affecting the class and our learning. (Coll. 5/31/94, pp. 31-36)

This passage illustrated several things. First, it was an example of how the collaborative group was an intellectual resource for teachers to think about ways to resolve behavioral/management issues. Holly said it best in her videotape about the case studies,

"Talking with Jane about students with disabilities helps me to be more successful for all students." Second, the passage gave insight into the complexity of the task these teachers experienced in facilitating a group conversation with diverse learners toward a better conceptual understanding of a topic. As the teachers discussed, each class of students presented different challenges. Both students with disabilities and those who were gifted intellectually at times impeded class conversations because of their individual learning characteristics. This passage was also another example of these teachers effecting the moral purpose of teaching to include all students. Each of their suggestions involved helping students take responsibility for their behavior in the group without stifling their voice or putting them down. Clark (1990) discussed moral transactions in a classroom and how teachers often reduce classroom heterogeneity without physically removing students, but by ignoring or ridiculing them, thereby discouraging their participation.

Summary of Principles and Techniques of Behavior Management

In conclusion, the preceding discussion illuminated key principles and strategies of classroom and behavior management that Lyle, Jane, and Holly implemented to facilitate the social construction of knowledge. These principles (student participation and responsibility, professional collaboration) were integrally connected with their theories of teaching and learning and their beliefs about their roles as teachers and about learners. They attempted to implement these principles and strategies with all students depending on their individual needs as learners.

They spent several years discussing, reflecting and struggling to include students with disabilities academically and socially so they would feel like full members of the class. The teachers utilized the strategies described in this section that were most appropriate to address the needs of all learners. While all students benefitted from these principles and techniques, they were essential for the success of students with disabilities, given their feelings about school and their habits of limiting their classroom participation. The development and implementation of these strategies provided further evidence of the teachers' belief that it was their role to teach all students and therefore their moral responsibility to address the attitudes and behaviors that prevented students from accessing necessary knowledge even if the students themselves erected these barriers.

CATEGORY II. Subject Matter Knowledge

The second category of knowledge that teachers in this study drew on to support students with mild disabilities in general education classrooms was their subject matter knowledge. The substantive component of subject matter knowledge is defined as the teacher's knowledge of the ideas, facts, and concepts of the discipline and their relationships (Wilson, Shulman, Richert, 1987). Another dimension of subject matter knowledge is syntax, i.e., the process for generating and testing how subject matter knowledge is derived (Schwab, 1964; Floden, McDiarmid, and Wiemers, 1989). Subject matter knowledge was not a major focus of the collaborative conversations of the teachers in this study, since the primary purpose of the group meetings were to discuss what they had learned about supporting students with disabilities in general education classrooms. Perhaps, another reason for the

limited focus on subject matter was that the teachers in both the science and mathematics departments had spent several years in restructuring their curriculum. A great deal of their teacher collaboration time on Wednesday mornings at Hart High School was spent discussing subject matter and their curriculum. Consequently, the members of this group who were actively engaged in PDS curriculum projects, were already familiar with the national frameworks recently developed in science and mathematics that they had implemented in their own classrooms, therefore it was not a primary focus of their conversations.

However, there were two conversations in which some of the teachers discussed substantive and syntactical elements of subject matter knowledge that were very important in supporting the needs of students with disabilities in general education. These conversations revealed teachers' thinking about their subject matter that are critical considerations for students with disabilities.

In one collaboration Lyle and Sally had a conversation about the significance of vocabulary words in science and mathematics.

Lyle: We downplay the vocabulary and emphasize the understanding. Those kids that have trouble reading use the simple terminology they call them tubies in the earthworm, instead of nephridia and they understand the concept. Who cares what its official name is? You still want to be demanding and you still want to give all the students an opportunity to reach their potential, but at the same time not shut everybody out by the language.

Sally: I think though at a different level that's better instruction about science too, though. Because they learn how names are kind of arbitrary. If they're exploring things and putting their own labels on them then they can understand that's just what someone else did to come up with 'nephridia.'

Lyle: Yeah. We talk about that all the time, especially the scientific naming. In fact I've infused this into my spiel. Now when I'm talking about something using the scientific term I'll say who cares about that name.

Sally: I think that's another aspect of de-emphasizing the traditional vocabulary is that they get a better sense of the subject matter. And how it grows, how science comes into being and how math comes into being. I think that's real important. Because it's not making it easier; it's making it broader.

Lyle: I agree.

Peg: It also says that knowing science is more than knowing the vocabulary. In fact, if you just know the vocabulary you may question whether you really know science or math. It's having an understanding of the concepts and the relationship between them that is the important thing. For example, that all beings have some kind of tubing system to eliminate waste. That's a part of what human organisms have to have. That would be a more powerful thing than to know than the label.

Lyle: I think so too. The other concern is that 50% of our students go to college and they're going to use those words. So I tussle with well, should I be challenging them to start learning the vocabulary? That's why I put the official word up there on the board along with tubing and hope that it rubs off on enough on those kids that are serious students.

Peg: But the terminology comes as you make sense of it.

Lyle: You know a lot of trouble with the language though is it's really detrimental because if you lose out way back here when you started using this specific word, it's just a garbled mess for kids that don't get it. (Coll. 5/9/94, p.5)

This exchange between Lyle, Sally, and Peg illustrated several points that these teachers considered in the teaching of their subject matter that were critical to all students,

but in particular those who have difficulty with learning vocabulary and reading comprehension. Both Lyle and Sally indicated that vocabulary words were arbitrary in a discipline and have evolved from experiments that others have done. Thus, when students used their own terminology to describe their work, they were doing the same thing that other scientists and mathematicians have done. Sally indicated that allowing them to do this broadens their perspective of how a discipline grows, referring to the syntactical dimensions of subject matter. While Lyle stated that he struggled with this issue for college bound students, his resolution was to use both terms. Lyle believed that using simpler terminology gave more students access to learning about science, especially those who struggled with language.

This was one theme that dominated the special education student interviews in his and Jane's study that the vocabulary was too hard to understand. Thus, the ability to adapt content was a critical way of thinking that Jane and Lyle developed in order for students with disabilities, which often are language based difficulties, to be successful in their biology class.

This conversation also illustrated that Lyle's and Sally's priority in subject matter knowledge for students was conceptual understanding. In a later collaboration members of the group had a conversation about what the essential concepts were for their curriculum and how they determined growth in conceptual understanding. This discussion was precipitated by a question Peg asked about defining success for students with disabilities in the general education classroom. She indicated that she would want to know what the key concepts of

the course were, like photosynthesis for example, so that the success of a student would be dependent on their ability to demonstrate understanding of these concepts.

Lyle: I'd want to know if they could demonstrate this knowledge before going into the unit, because if they already knew that then they didn't progress with the unit. And then what do we call essential? Is it essential prior knowledge?

Karen: The longer I'm teaching secondary education the more convinced I am that there is not a content that is essential at the high school level. There are many processes that are essential to learn.

Peg: But what I'm saying is that it has to be defined by the teacher. Three science teachers might see it differently so you have to work it out with an individual teacher so the student knows what the expectations are.

Karen: I'm thinking that one of my essential goals in geometry is that students are able to take a set of given conditions and make a statement that they're going to have to back up and that they can construct a justification for that statement based on certain things that everybody knows are true. And if at the end of the year they don't even know where to start, do we just fail them?

Lyle: Or do we give them scaffolding and find out how much scaffolding they have to have before they can give justification to their statement?

Karen: Right. Because I can scaffold the heck out of that thing, but the point of it is the process of being able to do that. The scaffolding is the point. If I have to scaffold it that almost defeats the purpose.

Peg: I would argue that it depends on the kid. If you had a student who required a great deal of scaffolding at the beginning of the term and at the end you had to give limited support and they could respond satisfactorily, I would say that they had learned something.

Karen: Me too.

Lyle: You have to have a record of their prior knowledge then in order to know if they were successful. Because if I ask a kid to explain photosynthesis to me and they say, 'What?' and I say something like green plants...That's scaffolding. If they still can't respond and I say, sunlight. How far do I have to go?

Peg: Right and what I'm saying is that it's the teacher's right to define those terms, but I think from the beginning when you're working with a student that's at-risk you have to have a way to define what is essential learning for this kid.

Karen: But see to me Lyle, photosynthesis is not the point. The point is being able to take a question like what is photosynthesis, find a definition of photosynthesis, take that definition apart into the pieces, make sure I understand all of those words and then construct a description of how the process happened. That's what I'm after.

Lyle: It depends on what you term as essential. To a biologist understanding photosynthesis is essential.

Karen: But are all kids biologists?

Lyle: Yeah. Everybody is. We all are.

Karen: Yeah and we're all mathematicians, but do I say if you don't know the criteria by which we classify a quadrilateral then you don't know an essential concept in geometry? I'm not certain that's the whole deal. If I know where to look up what different quadrilaterals are then that's all I really care about. That you're inclined and that you have the knowledge to find the resources to know that information. That's what I care about more.

Lyle: Well there's some place that there is a set of essential tools though. I mean if I want kids to go out and do a pond study, which my final exam is all about, then they need to have a basic concept of photosynthesis like it was as easy as chewing gum. You've got to make the jaw go down and you've got to make the jaw go up. It's an essential. There's got to be some happy ground because you can't go look up everything. I think the key is knowing their prior knowledge. I assess that through their journals, class discussions, group reports.

Then I look at how much their thinking has changed, especially the at-risk and special education students.

Peg: So, did it make sense to you that each teacher would have to decide what was essential for their learning?

Lyle: Oh, Yeah! (Coll. 5/31/94, pp.42-48)

This conversation illustrated several critical points about the resources general education teachers drew on to support students with disabilities. One resource was their ability to think and talk about their subject matter and to determine what was essential for students to understand. Lyle identified certain concepts essential for students to understand, while Karen took a different point of view about subject matter and described the development of problem solving processes that were essential in mathematics. The major point is not that teachers have to think about subject matter in the same way, but that they do think about their subject matter knowledge and have a thoughtful rationale for their positions. Both Lyle and Karen demonstrated this kind of thinking in this conversation. While Holly and Jane did not contribute to this conversation, I have been in other group conversations in which they shared their thoughts about these issues.

A second intellectual resource, was the alternatives they gave students in demonstrating the development of their conceptual understanding. Lyle indicated that assessment of students' conceptual understanding was ongoing and that he read their journals, noted their contributions to class discussions and group presentations, and their oral assessment as a way of tracking the development of their thinking. Both he and Karen discussed providing students with scaffolding to facilitate their ability to construct knowledge

and then gauged the changes in the degree of scaffolding a student required overtime. They determined success based on their ability to demonstrate changes in their conceptual understanding with less coaching. Lyle stated that in particular he noted these changes in understanding for at-risk and special education students, so that he could better assess their progress. Finally, the collaborative group, was a resource itself. This passage served as a prime example of how members of the group used this collaboration to present their thinking about their subject matter and to clarify and refine their thinking through the group process. The discussion between Lyle and Karen reflects the national debate about **what** students need to know in various subject matters and **how** they learn this. Many states Vermont, Massachusetts, Virginia, and Ohio now require Hirsch-like list of "facts" students must learn in history class. Thus, the opportunity to have these debates in which teachers examine their rationales and to hear others in the school is a considerable intellectual resource.

It was Lyle, Holly, and Jane's collective abilities to think about their subject matter, to identify the essential concepts, to design multiple ways to assess conceptual understanding, as well as their ability to think about each student as an individual that were the critical resources they drew on to support students with disabilities in general education classrooms. It was this way of thinking about teaching and learning, fostered by the beliefs discussed in Chapter 4, that these teachers practiced to ensure that students' with disabilities reintegration into general education would not be business as usual, but a place where they have access to knowledge and an opportunity to succeed based on their ability to demonstrate growth in their conceptual understanding with the accommodations and support they need.

CATEGORY III: Pedagogical Content Knowledge

A third category of professional knowledge is pedagogical content knowledge, which includes both the knowledge and the understanding of the process and methods for teaching a topic. This knowledge base is influenced by the teachers' subject matter knowledge, their knowledge of methods, and their knowledge of learners. According to Wilson, Shulman, and Richert (1987) this knowledge base evolves over time as teachers transform their own subject matter knowledge for the purpose of teaching. It is the accumulation of what teachers know about teaching a topic, how to teach it, how students learn it, the common student misconceptions, and the difficulties students encounter in learning it. Teachers' capacity to develop this body of knowledge in relation to students with disabilities is critical in order to support their learning in general education classrooms. The greater the teacher's capacity to think about how diverse learners acquire knowledge and their difficulties in doing so and to develop methods to address these issue, the greater potential for diverse learners' success in their classroom. In fact, this question of how to develop a curriculum and methodology that addressed the needs of diverse learners was the point of the studies that Lyle, Jane, Sally and Peg designed. Therefore the teachers in the collaborative group provided several examples of this kind of thinking.

Both Jane and Lyle described their way of approaching the teaching of various topics in science in their unpublished interview.

We are not just asking them to memorize facts and recall them during an objective tests. We're asking students to take charge of their own learning and to show us what they know and understand and how they think about science. (Jane, p.9)

Their method included students taking responsibility for their learning and demonstrating their understanding of scientific concepts. This method of assessment, i.e., demonstrating what they know and how they were thinking about science in class discussions, in group presentations, in their journal entries and in an oral interview gave all students a greater opportunity to represent their learning. However, for students with mild disabilities including difficulties with memory, reading and written language, providing them with options to demonstrate their learning over a period of time was essential for their success in mainstreamed settings, rather than the traditional multiple choice unit tests and midterm and final. Jane and Lyle developed a particular process for teaching the science units, which emphasized active engagement in learning through an inquiry process. Lyle described the teaching and learning process for each topic this way:

Students are now asked: What do you know about this topic? Let's list all of our misconceptions about a particular concept and try to break them down. Let's analyze our problems, then design and run experiments that will help us solve our own problems and draw our own conclusions. Finally, let's see how our new concepts fit into the 'big picture' and how they might be used in our everyday lives (Lyle, unpublished interview, p.9).

With each unit of study Lyle developed a concrete, real world connection for students to represent the unit of study. For example, in teaching the unit on digestion Lyle led students through a series of questions that were designed to help them visualize the process. In my classroom observations, Holly used the same approach in teaching digestion in her biology class. The representation that he used was the peanut butter and jelly sandwich. He asked them what happened when they ate a peanut butter and jelly sandwich? After they swallowed,

do little pieces of bread, peanut butter and jelly float through their body to the cells? What were the basic elements in these foods that the cell used for energy? How did the cell get energy? The students and the teacher then designed a series of experiments to determine the basic nutrients in these foods: sugars, carbohydrates, protein. He always brought them back to the peanut butter sandwich and what happened to it as it moved through the food tubes (esophagus, stomach, and intestines).

Lyle discussed the series of questions that he asked students about photosynthesis in a conversation with the group.

How does one think about photosynthesis? You can look at it as a vocabulary word or a concept. I don't have to use the word to scaffold their thinking. I can ask, Where did the energy that possum has walking across the road originate? And how did it get there? Then they would certainly have to go through photosynthesis. They would have to know how the food got its energy. (Coll.,5/31/94, p.47)

In both of these examples Lyle tried to relate the scientific concept to the real world of the student. This provided students with a way to connect what they were learning in science to their life. One of the major barriers for students in learning any subject matter is how it relates to their world. The further removed the topic is from their world the more difficult it is for them to conceptualize. Given that students with mild disabilities often have a limited language base, i.e., vocabulary and concepts, due to their receptive processing difficulties they have an even more difficult time bridging this gap. Consequently, the more the teacher can represent and connect their subject matter to the world of the student the greater the chance the student has of developing a conceptual understanding of the topic.

Peg and Sally in their paper about transforming low-track mathematics classes into mathematically empowering environments wrote about the struggle to develop meaningful ways to represent subject matter to this population. "We struggled daily with this issue of how to represent knowledge meaningfully to a group of students who had varying levels of background knowledge of the mathematical topics and differing levels of desire to engage in subject matter" (p.7).

The topic of probability serves as a good illustration of this point. For example, one problem in probability related to the likelihood of a woman giving birth to a male or female child and another problem related to the probability of a basketball player successfully completing a certain number of free throws. By striving to represent the content in contexts that were relevant to their lives we found students more motivated to engage in thinking about the subject matter (Lamb and Bethell, 1992, p.8).

Summary Pedagogical Content Knowledge

In sum, the teachers presented examples of their pedagogical content knowledge that improved the opportunities for all students to develop a real understanding of their subject matter, especially students with mild disabilities. This form of teacher knowledge when implemented provides all students with greater access to knowledge. While the teachers provided some evidence of their knowledge in this area, it is an ongoing process that they continually refine. However, it takes more than Pedagogical Content Knowledge to help all students develop a conceptual understanding of a topic. Lyle, Jane, and Holly gave evidence that it also requires that a teacher be able to think about how to transform a concept to address the individual student's learning characteristics and hold the belief that it is their

responsibility to develop ways to teach all students (Wilson, Shulman, Richert, 1987). This ability is a form of pedagogical reasoning and is at the core of the moral purpose of teaching.

CATEGORY IV: Pedagogical Reasoning

The fourth category of teacher knowledge is pedagogical reasoning, a theoretical concept described by Wilson, Shulman, and Reichert (1987) to describe the kinds of reasoning that a teacher utilizes in their act of teaching. Four components of pedagogical reasoning emerged from data analysis of the teachers' collaborative conversations and classroom observations: adapting, tailoring, inquiring and reflecting. All four of these elements are critical to one's continued development of their teaching practice and are essential skills for teachers to support students with disabilities in the mainstream.

1. Adapting

In what ways did the teachers adapt their subject matter to address the needs of students with mild disabilities? Adapting a lesson or topic involves fitting the analogies, illustrations, activities, and assignments to better match the characteristics of the students in the class. These characteristics include misconceptions, motivation, and ability. Lyle, Jane, and Holly described several examples of adapting lessons, assessments, and activities to meet the needs of students in their classes. As was illustrated earlier in this chapter one adaptation that Lyle made in his classroom was using vocabulary that students understood with the scientific term, for example, "tubies" for nephridia the tubes in the kidneys, "fingers" for intestinal villi, and "blind alley" for appendix. Both Lyle and Holly emphasized the use of terminology that students easily understood along with the scientific term. Lyle stated, "I

want students to describe it and understand the concept more than to remember the name of it" (Coll., 2/7/94, p.15). Other examples of adapting by Lyle, Jane, and Holly have been cited throughout the chapter from the collaborations and their unpublished papers. These examples included scaffolding or coaching students through a series of questions to facilitate their thinking about a concept and provide them with alternative ways to assess their learning, i.e., diagrams and drawings with interviews, group presentations.

In one conversation Holly described an adaptation that she made for a class that had "bombed" a test on organic substances.

Holly: It was a real hard unit. It's the organic unit and it's real new for a lot of them. So then I thought well let's go back and look at it. So we did like a make-up test and I re-did it. I didn't ask questions. I like drew pictures of structures and I had columns. How would you test for this in a food lab? Is this organic? Give me an example of a food it's found in. I made like a big chart of all these substances and they had to fill in the blanks about the substances. It was great. It was really great to see them. They got a point if it was organic and another if they could tell me an example of the food it's in. They got it all worked out and the conversation between the kids was great. It was all real visual because it was a big chart and they didn't have to write essays. It was kind of matching in what they knew. I was really glad I did that. (Coll. 2/7/94, p.1).

This was an example of adapting an assessment for a particular class that had a difficult time with an essay test. Many teachers would move to the next unit, rather than regrouping and finding another way for this class to demonstrate their knowledge. However, Holly modified the assessment for this class, which allowed the students to clarify their misconceptions and feel empowered about what they knew. These kinds of adaptations were important for all students to regroup when they failed an assignment or test, but especially

important for students with mild disabilities who have a history of repeated failure. Adaptations such of these assisted all students in feeling that they could develop an understanding of challenging subject matter even students who had a pattern of frustration and resistance in trying to learn difficult concepts.

Lyle and Jane gave a detailed description in an unpublished interview by an MSU faculty member of how they adapted the science curriculum to actively engage students at-risk and with disabilities in constructing scientific knowledge. Their plan had five goals:

1. to help students express their thoughts in writing.
2. to help students gain confidence in their own ideas by asking more questions and getting involved in class discussions.
3. to develop cooperative teams as an important learning strategy for all students for developing oral presentations.
4. to develop more effective ways to assess student learning and to adjust to individual needs more efficiently.
5. to find more visual ways to communicate and compliment verbal instruction.

They provided the following adaptations for students to achieve these goals.

Jane: I continued modeling note taking on the overhead during discussions, and Lyle tried to use a larger variety of visual aids to help students 'get a picture' of what was being said and what students were being asked to think about. We also worked more with concept mapping and had students practice using them as an additional learning device.

Another strategy we tried, with limited success, was to set a minimum standard (80%) that students must reach on lab reports, quizzes, and tests. These students were too used to accepting failure as a possible alternative, so we said that they had to 'do it until they got it right.'

Lyle: The 80% minimum led to alternative assessment methods. We used mostly essay testing and offered as an option after the test, a chance to answer questions students had trouble with orally during a personal interview. To improve lab report quality students got reports back

with comments and questions and were allowed to resubmit them with corrections. If this system was abused (and it was), students had to come in after school to do the corrections.

Another form of alternative assessment was to let students work as teams during a test or quiz working on the answers together (in real life they may work in teams to solve problems, so why not?) This was a very positive move because it improved their listening skills, their critical thinking skills, questioning, cooperation and other social skills. This technique was used only when we deemed it appropriate, not all the time.

Jane: We approached two of our goals by combining strategies. We knew that we wanted improved questioning during class/team discussions to help students stay focused on the topics being presented. We also wanted students to improve the organization, thoughtfulness, and general quality of their writing. Keeping 'thinkbooks' (journals) was a way we started helping kids stay focused, asking questions, and sharing ideas. At the end or sometimes the beginning of class students had three to five minutes to either reflect on the day's lesson or ask a question in writing or make a prediction or share a feeling or concern. We would publicly acknowledge that two or more students had the same question. This helped students see that they weren't the only ones with questions. Further, we would build their questions into the day's topics to demonstrate that their questions were important. Students found that the same questions were asked by all students so the special education students felt much better about asking their 'dumb' questions. (Lyle and Jane unpublished interview 1990, pp. 8-9).

This excerpt from their unpublished interview illustrated their thinking in adapting the science curriculum to engage at-risk students and those with mild disabilities in scientific thinking and the methods they implemented in their three-year study. They used visual cues in the form of diagrams and concepts maps to aid conceptual understanding. They devised alternative ways to assess students' thinking, such as, regularly assigned writings in a thinkbook or student journal to improve students' ability to think and write about science.

They used the student questions generated in their thinkbooks as a basis of class discussion and to illustrate that many students in the class have the same questions.

In sum, one element of pedagogical reasoning that surfaced in the data was teachers' ability to adapt their curriculum and methods to address the characteristics of their students. Lyle, Jane, and Holly found that the adaptations of their curriculum designed to facilitate the learning of students at-risk and those with disabilities was so beneficial that they came to believe that these adaptations would assist all students in developing a greater conceptual understanding of science. Consequently, their department after three years of study decided to eliminate the low-track science classes. The adapted curriculum and methodology developed in the science projects were incorporated into other science courses with heterogeneous settings.

The critical point from this data was that the general and special education teachers working collaboratively adapted their curriculum and their teaching methods to address the characteristics of all students including those with disabilities and facilitated their learning and supported their social inclusion in heterogeneous settings. However, adapting the content and methods to meet the general characteristics of the students in each class may not be sufficient to address the learning characteristics of all students. Some students may need individual adaptations.

2. Tailoring

How did these teachers tailor assignments and assessments to meet the individual needs of students with disabilities? Tailoring is the second element of pedagogical reasoning

that emerged from the data. It is the same as adaptation except that it involves the adapting of curricula, assignments, and assessment to the specific characteristics of individual students in a class rather than the entire class. The ability of a teacher to tailor teaching and learning to meet the individual needs of students with very diverse needs is critical for the success of students with disabilities in general education settings. Lyle, Holly and Jane offered several examples of tailoring teaching and learning for students with disabilities.

Several situations of tailoring that Lyle developed have been described in this chapter. He coached individual students by scaffolding their thinking through a series of questions during labs and essay tests. He asked them questions on their lab reports and journals and he offered students the opportunity to interview with him after their written assessment. The oral interview was another example of how Lyle tailored teaching and learning to the individual student. Holly tailored her teaching in the same way. Following is a description of my observation of a follow-up interview of an essay test on digestion at the cell level with a learning disabled/hearing impaired sophomore, named Mary. Lyle read the student's essay and then drew a diagram consisting of a circle the size of a half dollar with a smaller circle the size of a drop of water with dots in it. Lyle asked her what the picture represented. Mary told him it was the picture of a cell and the smaller circle was the master control of the cell. He asked her if she knew the name of the master control. He told her it was called the nucleus and wrote the name on the picture. He said that she was correct that the nucleus was the master control of the cell. He then drew two parallel lines one half inch apart on the left side of the large circle. Then he drew several arrows from the midpoint between the parallel

lines into the cell. He asked Mary if she could describe the new part of the diagram. She told him that the lines were a tube for feeding the cell. He confirmed her answer and elaborated that the tube was a blood vessel, called a capillary that was really the size of a human hair. He told her that this person ate a peanut butter and jelly sandwich for lunch an hour ago.

Then he asked her to tell him how the cell got this food? She told him that food particles in the tube moved from the tube through the cell wall into the cell. He asked her what she meant by pieces of food? Did she mean pieces of peanut butter, jelly and bread were floating in the tube? She laughed and said, "No." The food was changed into nutrients and the nutrients moved into the cell. He asked if she could name any of the nutrients? She told him she couldn't remember. He reminded her that they were called fats, sugars, and protein. He asked her how they get passed the cell wall? She told him that the cell wall had a guard system, but certain things like nutrients could pass through. He told her that she was right about that.

The interview ended with Lyle telling her that the next time they met he wanted her to discuss with him what the cell did with the leftovers from the nutrients. He told her that she was really making progress in her understanding of how cells got food. She left smiling.

Each time Lyle met with Mary he drew the same diagram and expected her to tell him more about the processes of digestion, excretion, and diffusion using more and more of the scientific vocabulary with less and less scaffolding. Each time Mary could tell him more. Mary's disability made it very difficult for her to develop conceptual understanding. She needed both an auditory and visual stimulus to develop a basic understanding of abstract

concepts. By providing her with an individual interview with a picture and a series of questions, Lyle tailored his assessment to fit her characteristics as a learner.

This example illustrated how critical the ability of a teacher to tailor their teaching to a student's learning is to a student with disabilities, like Mary. She was asked to drop her ninth grade science class because the teacher was convinced she was incapable of learning high school science because of her disabilities. She was very anxious at the beginning of her biology class. However, with Lyle's beliefs that it was his responsibility to teach all students and that all students can learn, Mary earned a grade of C+ in Biology due to her efforts and the adaptations and tailoring that Lyle provided for her learning.

Holly offered another example of tailoring teaching and learning to meet the needs of Nate, a student with a severe writing disability.

Holly: Nate has very limited writing skills. He can't spell very much and he needs help in constructing whole sentences. He gets the assignments with everybody else. He understands that he is gonna try. And he does, he asks me how to spell things and he has a group member that the loves to work with. She helps him spell and they talk through the writing together and then they write it. He writes down as much as he can and then we talk through the rest of it. (Coll. 11/29/93, p.23)

This passage was an example of how Holly tailored individual assignments to address the characteristics of a student with a severe writing disability. Holly met with him after school to complete his assessment on the digestive process. She read through his writing to get a sense of what he knew. Then she brought over the three-dimensional plastic representation of the human body with all of the digestive organs. She asked him to use this model to talk through how a peanut butter and jelly sandwich traveled through the digestive

system. Nate removed each of the organs and in most instances named the organ and described the digestive process. She provided him with some scaffolding as he described the process, but with the assistance of the model he was able to satisfactorily describe the digestive process.

Nate had the benefit of a visual and tactile representation and oral communication to demonstrate his understanding of the steps in digestion. These options allowed him to use his strengths as a learner: visual and tactile processing to aid his memory and facilitate his oral communication to demonstrate what he knew about digestion, rather than a written assessment that emphasizes his disability area. Tailoring the form of assessment as well as the teaching (Nate worked with a partner to do his written assignments) allowed students with disabilities to utilize their strengths to demonstrate their knowledge and was critical for the success of students with disabilities in Holly and Lyle's science classes. Nate completed biology with a C minus. He failed science in his freshman year because of incomplete assignments and low test scores without any adaptations or tailoring to accommodate his disability.

Jane in the discussion of her videotape of the case study on Scott offered a way to tailor an English assignment to read a novel.

Jane: Teachers need to think about the difference between assessing a student on the final product versus the process. If teachers concentrated on the process then they would see more evidence of success and effort. In my experience of having the whole class read a novel and be at a certain point on a given date is quite overwhelming for some kids and they won't even try, like Scott. I was thinking that it's more important that they get going with the book and read some

pages that instead of stopping him from reading at all because we're so rigid about saying every one must be at this page on this date.

Karen: I wonder if the English teacher's goal was answering the comprehension questions or reading the book? It could be that developing the questions was a means for accessing this process of engaging in a long piece of work and making sense to it from beginning to end.

Jane: But it's just that for some kids who get overwhelmed easier and never can get to the final product there's no opportunity for them to learn how to learn. It's more important for me to have Scott say, 'Well, I'm really enjoying this book. I've never thought about reading a novel.' And sometimes that might happen if you don't have all that pressure of reading this much by a certain day, you're willing to try it.

Lyle chimed in and offered additional ways to tailor this assignment for a student like Scott.

Lyle: A trick I use if I know the kid may not have read the entire assignment than I will ask them questions about the early parts of the book knowing they haven't read the last part of the assignment. So let him have some success ask him and make sure that he knows you're going to do that in advance so that he can trust you'll do that on a continual basis, but continuing to challenge him to get a little better. And then so that it's not obvious that you jump on him early all the time ask him some predicting type questions later on rather than the factual questions where you would have to have read it. Maybe he could pick up off from someone else's comment and asks him to predict. So there's ways of including Scott without exposing him number one as a slow reader, number two not taking away his challenge that he can get better and number three that he does count in class. This success may encourage him to read a little further next time knowing that he's going to be allowed to be successful in front of his peers which is all important. He can also respond later in the discussion even though he hasn't read that part. (Coll. 5/31/94, pp. 1-2)

This passage illustrated several points. One, as mentioned earlier, was that the collaborative group was a resource that the teachers used to inquire and reflect together about

their practice. Second, it described in detail the ways these teachers tailored a lengthy reading assignment for students, like Scott with ADD and for students with reading difficulties. Jane suggested that teachers tailor their assessment toward the process of a student reading a novel and discussing it, rather than the completion of the novel. This allowed students like Scott to have a chance of demonstrating some success in this assignment.

Lyle added his thinking about how to engage and encourage students who usually only complete the first part of an assignment. This kind of tailoring in their general education classrooms was essential for students with disabilities who quite often were so overwhelmed by attempting to complete 100 pages or so by a given day that they never even started. Lyle's suggestions for tailoring the class discussion about a reading assignment gave students who struggled with reading a way to participate and feel encouraged to continue their efforts. Students with reading difficulties or disabilities had an opportunity to experience success in there with tailored reading assignments.

In sum, the examples of tailoring that Lyle, Holly and Jane utilized in their practice to support individual students with disabilities was critical to their success in the mainstream. The development of the skills to tailor assignments and assessments emanated from their beliefs that the practitioner's role is to teach all students and that all students can learn. Further it illustrated their moral purpose of teaching by making a difference in the learning of students like Mary, Nate and Scott who otherwise would not have been afforded these options.

3. Inquiring

How did the teachers inquire and evaluate their practice of facilitating the learning of students with mild disabilities? A third category of pedagogical reasoning that was evidenced in the data was teachers' ability to inquire about and evaluate their teaching practice in relation to diverse learners. Inquiring into one's practice involves asking questions about their teaching, student learning, subject matter, and learners. Evaluation involves the ability to check for students understanding and misunderstandings. The teachers in this study demonstrated both of these reasoning abilities.

Hart High School has been a Professional Development School for six years and therefore committed to the six principles of a PDS. All of the teachers in this study embraced the principles of teaching and learning for understanding for all students, creating a learning community, long-term inquiry into teaching and learning, and inventing a new institution. Four of the teachers in this study (Lyle, Jane, Sally, and Peg) developed their own PDS studies focusing on the development of teaching and learning for conceptual understanding of all students in science. The principles mentioned above were the guiding principles of their studies. After four years of inquiry into the development of these practices each of their departments detracked their curriculum so that all students would participate in Algebra I and Biology. The two novice teachers, Holly and Karen, were a part of these projects as interns and have continued this work as new teachers in the science and math departments. Several members of the group have written and published papers about their changes in teaching practice developed through their projects.

Their voluntary participation in this collaborative inquiry project was a second piece of evidence that they are committed to inquiring and reflecting about their practice. The conversations and videotaped interviews were held for one to two hours after school. This was their second PDS project for the 1993-94 school year, as this was in addition to their department projects. Throughout the collaborative conversations group members constantly asked each other questions about a variety of issues they face in their daily practice. Several of these questions have been presented in the excerpts of conversations throughout this chapter. Holly asked Lyle what he does when no one responds to his questions in large group discussion. Jane asked the group what to do about kids who do not engage in class discussions and give little evidence of trying? Karen asked Jane what she meant by "students are engaged in learning." Karen and Lyle had a conversation about what are the essential concepts in a subject. Lyle had several sessions in which he questioned the group about how to organize cooperative learning groups with students who are disengaged and disruptive in class. There were several conversations about the question of how to grade students and how participation is a part of their grade. All of these examples that were in the passages throughout the chapter illustrated the ability of these teachers to continually inquire about elements of teaching and learning.

Lyle, Holly, and Jane provided a great deal of evidence regarding how they evaluated students understandings and misunderstandings. In their practice of teaching evaluation of student learning was ongoing, not merely during formal tests. Large and small group discussions, dialogic journals, oral presentations, written assignments, tests and individual

interviews were all viewed as opportunities to evaluate students development of understanding or misunderstandings of their content. Lyle, Holly, and Jane used the evaluative information from all of these sources about students' learning as a basis for developing the next set of lessons and activities.

In sum, the teachers' ability to inquire about their practice and evaluate students' learning was a critical intellectual resource for the inclusion of students with disabilities in general education settings. The fiscal resources of the PDS enabled them to have time necessary to inquire together about their practice. Further, the guiding principles of the PDS encouraged them to think about methods to develop all students' conceptual understanding. Thus, the focus of their inquiry in their PDS projects fostered the detracking of students at-risk and with disabilities into heterogenous settings at Hart High School. The teachers in this group were interested in developing a high powered curriculum focused on conceptual understanding for students who have chronically failed math and science including those with disabilities. After three years of continually transforming, implementing, evaluating, reflecting, and revising their curriculum and sharing the efforts of their labor with other members of their departments, the science and mathematics departments created heterogenous courses that were opened to all students. The evidence presented in chapter one regarding the increasing number of students with disabilities accessing more and more advanced courses seems to validate these changes.

4. Reflecting

What role did reflection play in assisting these teachers in supporting the needs of students with disabilities in mainstreamed settings? The fourth component of pedagogical reasoning that emerged from the teachers' collaborations was the ability to reflect on one's practice. Reflection is a process that enables one to learn from their experience. In the case of teaching, the practitioner looks back on the teaching and learning that has occurred in their class and reconstructs the events to determine their impact on students' conceptual development of the unit of study. Based on their observations and interpretations of these activities, adjustments are made in their practice accordingly.

This chapter and the previous chapter provided several parts of teachers' conversations that demonstrated their abilities to reflect on various components of their practice. It was this ability that fostered changes in their practice and in their department to provide students at-risk and with disabilities access to learning science and math in heterogeneous settings. One illustration of how reflection played a major part in assisting these teachers to learn from their experiences was documented in Lyle and Jane's unpublished interview with a university professor. They wrote about what they learned from the student interviews after the second semester of implementing a more constructivist approach to teaching in cooperative groups.

Lyle: The techniques that students liked from the first semester were:

- 1) the use of illustrations on the board and overhead (I sketched cartoons and diagrams that helped clarify concepts).
- 2) issued participation points during class discussion. It encouraged them to talk more and stay 'tuned in.'

- 3) tried to use more 'everyday words.' The zoology vocabulary I was using was too hard, too fast.
- 4) used metaphors and analogous stories to help clarify concepts. If I could relate 'new stuff' to information they already understood, it would help increase their understanding of the new material.
- 5) talked less and wrote more on the board/overhead without using many abbreviations.
- 6) we went faster in zoology and didn't use as many real life examples to which they could relate, where first semester we went at a more deliberate pace and we tried to bring in real life experiences as often as possible.

Jane: Take for example the written work. The at-risk and special education students see some of their classmates taking notes from discussion writing conclusions from lab investigations, and responding to other writing assignments and they feel discouraged because writing takes them so much longer.

Lyle: Reflecting on this problem, we felt we should have done a better job of preparing them for the merger into a heterogenous class the second semester and more appropriate adjustments during the second semester. The change was too much and too soon for many of them (at-risk and special education students.) Now that we are working with the 'less is more', there hasn't been the same kind of problems with writing. They have more of a chance to practice their writing skills in science classes because we do daily journals. (Lyle and Jane, unpublished paper, 1990, p. 5)

In this excerpt from their interview Lyle and Jane provided evidence of how they reflected on the students' perceptions in their interviews to rethink their curriculum and methods. After analyzing the student responses they itemized what students liked about the first semester compared to the second semester and then made the necessary corrections. For example, Lyle reported in one of the collaborative conversations that he used both the scientific vocabulary and simple names to assist students' understanding. Participation was a part of every student's grade. They developed alternative ways besides writing for students

to demonstrate their knowledge. All of these changes were based on their reflections on students' perceptions of the differences between their two semesters and Lyle and Jane's observations. In the section on tailoring the passage about Holly creating a new assessment on organic elements was evidence of her reflective abilities.

In sum, these teachers' abilities to reconstruct the events of the class as a whole and for individual students was critical in changing their practice. Unless these teachers examined their practice and reflected on the outcomes of these events in relation to all of their students, their teaching would remain business as usual, then learning for students at-risk and with disabilities in their classrooms would continue to be chronic frustration and failure.

Conclusion

In conclusion, this chapter has described the intellectual resources that general and special education teachers working collaboratively utilized to support the needs of students with mild disabilities in general education settings. These resources were divided into four categories based on models of teacher knowledge developed by Wilson, Shulman, and Richert (1987). The two frameworks included components of a professional knowledge base and elements of pedagogical reasoning. Data on the focal teachers' knowledge fit into four categories of professional knowledge: General Pedagogical Knowledge, Subject Matter Knowledge, Pedagogical Content Knowledge, and Pedagogical Reasoning. Knowledge representing these different categories evolved as the teachers worked to develop a new curriculum and methodology for teaching students at-risk and with disabilities in more meaningful ways.

As Fullan (1991) has indicated change is a process and not an event and often teachers find meaning only by trying something. These teachers found meaning in the development of their new curriculum based on conceptual change and their new methodology based on social constructivism for students with disabilities and then promoted these changes for all students in the science and mathematics departments at Hart High School. Through this innovative process of changing their curriculum and methodology their beliefs about teaching, learning and learners were further defined as well. In essence they achieved the merger of change agency and moral purpose that Fullan (1994) indicates is essential for deep system change.

Pugach and Warger (1996 in press) argue that curriculum reform is an ideal focal point for the collective energy of special and general educators. In their opinion it forms a natural bridge between concerns for school improvement and concerns about how to address the learning needs of students who have had persistent problems in the traditional curriculum, namely students' at-risk and with mild disabilities. The special and general educators in this group not only embraced the task of restructuring their curriculum and methodology through collaboration for all students, but have developed ways to tailor their teaching to address the specific needs of students with mild disabilities within that curriculum. They demonstrated that they are teachers with moral purpose thinking daily about their practice to make a difference in the lives of individual students. What conclusions and implications can be drawn from this study about the resources that contribute to a school's capacity to serve students with special needs in inclusive settings? The last chapter will discuss this question.

CHAPTER 7

IMPLICATIONS AND CONCLUSION

"For complex change we need many people working insightfully on the solutions and committing themselves to concentrated action together." (Fullan, 1994, p.34)

Summary and Implications

The question this study has examined--namely, what resources contribute to a school's capacity to support students with special needs in inclusive settings--evolved through the conversations of a group of general and special educators about restructuring their curriculum and their practice to include all students.

The last three chapters have told the story of three teachers in the collaborative group: Lyle, a veteran science teacher, Holly, a novice science teacher, and Jane, a special education teacher. The story was about their efforts over several years to implement two reforms at Hart High School. One reform effort was to restructure teaching and learning to better meet the needs of all students supported through a university partnership as a Professional Development School. The second reform effort was the inclusion of students with mild disabilities in general education classrooms initiated by the school district. These two reforms intersected at Hart High School. They were implemented by the general and special education teachers in this project through experimentation in team teaching and curriculum development supported by the PDS. Their efforts prompted the development of a PDS Collaborative

Inquiry project to examine the teacher knowledge and beliefs generated in their years of collaborative work to restructure their curricula to support students with special needs in general education classrooms.

This study has argued that the collaboration between general and special education teachers, supported by the resources and culture of a Professional Development School, fostered the development of both educational belief systems with a moral purpose and the intellectual resources necessary to support students with special needs. Collectively these resources produced a new institutional structure and culture with a moral ecology that promoted the teaching and learning of all students and ensured access to all subjects. The student outcome data reported in chapter one provides some evidence to substantiate these institutional changes.

Environmental Resources

Chapter Four argued that the establishment of Hart High as a PDS provided the school with both human and fiscal resources that were critical in supporting the focal teachers to collaboratively examine their beliefs and practice. Providing the teachers time to collaborate and reflect about teaching and learning was one of the initial steps in creating a new culture. The collaborative time not only represented the new culture, but the ongoing processes of inquiry and reflection during collaboration were the embodiment of the new culture. Thus, spending time for restructuring curriculum, teaching, and learning to support the needs of all students became a part of the new culture, while simultaneously creating a new culture.

Chapter Four also described the collaboration between the math, science, and special education teachers in this project and argued that their conversations and the shared

understandings, knowledge, and values they produced constituted yet another human resource that they used to continue the growth of their professional knowledge. These additional resources were a positive force in school restructuring; at the same time, however, they created a countervailing negative force. The jealousies and tensions that developed at Hart High over the resources to foster change were discussed in chapter four.

Implications of Findings About Environmental Resources

1. Two important resources that contribute to a school's capacity to support students with special needs are access to ongoing professional development time and access to university faculty as collaborative partners.

In order for inclusion to be an integrative and meaningful experience for students with disabilities, rather than a place they are assigned, general and special education teachers must have access to professional development time. However, merely the availability of time is insufficient; how the time is spent is critical. In order for teachers to create an inclusive environment their efforts must be directed toward the restructuring of teaching and learning for all students.

Lyle, Holly, and Jane had access to both time--a half day every week--and intellectual resources--the other staff members and university faculty. The time allowed the staff to build trust in each other, listen to each other, and share their work. It also provided the faculty with time to explore their commonalities and differences and time to reflect, inquire and build a vision of school together. During this time, teachers talked at length about teaching, learning, assessment, and new organizational structures. Lyle and Jane also had the opportunity for daily collaborative planning time with each other over several years. Through the fiscal resources provided by MSU, Lyle was given one hour of reallocated time to devote

to curriculum development. A university faculty member, a graduate student, or a student intern (Holly) in science education frequently participated in these sessions. Jorgenson (1997, in press) lists the "provision of time and support for teachers to engage in reflective inquiry about their curriculum and teaching practice" (p.13) as one of the critical elements in schools that have restructured their curriculum and teaching practice.

2. Fiscal resources to reallocate teachers' time need to be more equitably distributed.

Providing several members in each of the core subjects with an hour of reallocated time for several years created a lot of jealousy concerning the value of the PDS initiative for all faculty, especially those in elective subjects. This jealousy over time fostered negative feelings of a small minority of faculty about the restructuring initiative. Eventually these malcontents eroded the impact of reform efforts. According to Sizer (1996) positive forces of change sow seeds of discontent in some faculty members because they perceive some members of the group receiving preferential treatment for doing the same job they do, teach. Some are afraid of change and want to sustain the traditional structure. Others have seen so many reforms come and go with limited impact on the institution that they are cynical about the impact of yet another new initiative (Sizer, 1996). "Pressure for change, whether wise or unwise, ultimately emerges as hiccups, but by and large leaves the school's design and routines much as they are now," writes Sizer (1997, p. xv).

Is there a way to minimize the development of jealousy and resistance? In the case of Hart High School, perhaps if the reallocated time were awarded to more than the teachers in the core subjects from the onset of the partnership with MSU, such strong jealousies may not have developed. In addition, if a representative sample of teachers, administrators, and university faculty jointly decided on the resources awarded to projects, rather than a small

group of core subject faculty, perhaps the intensity of the faculty's feelings about favoritism for a few would have been less intense. Sizer (1996) in his reflections after ten years of working to restructure high schools confesses that there is not at present a resolution to this issue of resistance and cynicism about reforms and change.

3. When forming university and school professional development partnerships, the university needs to provide faculty in elective subjects, as well as the core academic subjects. A major reason that departments, such as fine arts, business, physical education, life skills, and special education, received little PDS financial support to restructure their curriculum was the lack of university faculty to participate in these areas. One of the requirements for PDS project proposals was an identified university staff member to participate in the project. Without the university personnel available in these subject areas, high school teachers in these departments were precluded from developing PDS projects. This situation sowed seeds of discontent toward the partnership and restructuring efforts. Faculty in these departments often felt that their subject matter was viewed as less important than the core academic subjects and this perception marginalized their support for school's restructuring efforts. In order to create an inclusive school, all faculty need to be included in the restructuring efforts.

4. Time available for team teaching between general and special education teachers contributes to a school's capacity to support students with special needs in general education.

In their team teaching partnership Lyle, Jane, and Holly through their daily interactions fostered a common set of beliefs about learners with special needs, their roles in relation to these students, and beliefs about content and assessment that accommodate their needs as

learners. These partnerships allowed them to explore new dimensions of their roles as teachers. The general education teachers, Lyle and Holly, had time to interview students individually about their learning. The special education teacher, Jane, at times had the responsibility for a lesson with the entire class. This teaching arrangement is central to creating an inclusive school because it provides general and special educators the opportunity to teach and think together about curriculum and methodologies that support the needs of all students (Berres, Ferguson, Knoblock, and Woods, 1996). Further, it allows the strengths of each team member to be utilized to best meet the needs of all students regardless of their title (Villa and Thousand, 1995).

5. The addition of team teaching to the special educator's existing responsibilities creates tensions that must be addressed through additional human resources.

While team-teaching arrangements between Lyle, Jane and Holly were necessary to foster an inclusive school at Hart High, these partnerships created tensions for Jane regarding her ability to meet the demands and duties of her existing role and still honor her commitment to the team. While Jane was willing to do this other members of her department were not, they found the efforts necessary to juggle the requirements of the special education mandates juxtaposed with a commitment to team teaching too overwhelming and exhausting. A question to consider is whether school's should expect special educators to manage in essence two jobs in order to foster inclusive practices. How long can one professional sustain this commitment and is it morally defensible for school districts to expect someone to fulfill such overwhelming responsibilities?

Clearly, based on the data in this study the team teaching partnerships between general and special educators greatly contributed to Hart High School's ability to support students

with special needs in general education classrooms. However, additional support personnel were necessary in order to fulfill all of the legal mandates that special education teachers, like Jane, must address. A special education teacher in each of the core subjects as well as in technology and fine arts would be ideal. In addition, secretarial support to manage the clerical work involved in record keeping for special education would free up valuable time that could be directed toward team teaching and collaboration. The student data presented in chapter one on Hart students' GPA and their increasing selection of more advanced courses seems to support the value of team teaching in accommodating and supporting students with special needs. In addition, trained paraprofessionals to assist teachers in meeting students needs would also alleviate some of the tension inherent in the special educator's job.

Implications Regarding Human Resources

1. Connecting human resources in an inclusive school provides teachers with a support network to deliberate on and evaluate changes in teaching and learning and is an essential resource for students with special needs. The relationships that Lyle, Holly, and Jane established with other faculty, including support personnel, was an important human resource in their efforts to change science teaching and learning for all students. Pugach and Warger (1996) and Berres, et al (1996) identify this component as a critical element in developing inclusive schools. By connecting all of the human resources in Hart High School during professional development time, the faculty had the opportunity to deliberate about the dilemmas they face in their practice. The faculty members brought their individual resources, (i.e., their knowledge, skills, and dispositions) which collectively created a group resource for them to discuss problems and issues. The group resource also served as a forum for all Hart High staff to revise and refine their beliefs, their curriculum and their methodologies toward

meeting the needs of all students. The connection of general and special educators, support personnel, and administrators at Hart High provided everyone with the support they needed to continue the risk taking necessary to foster new practices. Without this support network it was more likely that teachers would retreat to their familiar past practices when they experienced frustrations with the process of change.

Further, including all the human resources in Hart High School demonstrated the value placed on the contribution everyone could make to restructuring teaching and learning. The valuing of everyone's contribution on the faculty served as a model for students to value the talents of all their peers regardless of their special needs at Hart High.

2. The principal is a critical resource in sustaining the vision of an inclusive school toward the development of a moral ecology. The Hart High School principal, Ted Downs, played a vital role in supporting and encouraging Hart faculty in their restructuring of teaching and learning of all students. His support was critical in sustaining teachers' efforts as they encountered the risks involved in changing their practice. In addition, his leadership in defending the guiding principles of inclusive practices to critics (teachers and parents) was key in sustaining restructuring efforts. By participating with the faculty during professional development, Ted modeled an expectation that all staff were responsible to enact the vision fostered by the PDS principles, i.e., teaching and learning for conceptual understanding for all students, inquiry into practice, training of preservice teachers, inventing a new institution in collaboration with university faculty. Through frequent communication with members of the Board of Education and the community regarding the school's progress in restructuring teaching and learning for all students, he served as an important liaison for the faculty. The principal, as the school leader, must continually "seek and oversee the broader purpose and

direction of the organization" (Fullan, 1994, p.71). Jorgenson (1997, in press) identifies administrative vision and commitment as the critical component in sustaining school reform and inclusive education. This also indicates that programs in educational administration need to emphasize leadership skills that support and sustain reform in addition to managerial skills.

3. The addition of outside voices, in the form of university faculty, are an important resource for schools committed to restructuring teaching and learning for all. The outsiders' perspectives were a valuable resource in terms of inquiry and reflection about teaching and learning. The university faculty provided Hart High staff with new ways of thinking about teaching, learning, assessment, subject matter, learners, and organizational structure. In addition, as a part of the PDS partnership, the training of preservice teachers at Hart High was an ongoing event. They were included in all projects and activities and participated in the Wednesday morning professional development time. The preservice interns contributed their enthusiasm, curiosity and their own thoughts and questions about the practice of teaching. In the collaborative conversations they provided a critical voice in directing the group's thoughts to the guiding principles of the Professional Development School, i.e., teaching and learning for conceptual understanding for all and inventing a new institution.

The participation of university staff provided teachers with additional perspectives on restructuring teaching and learning. With this collaborative time Lyle, Jane, Holly, and a university science educator had the opportunity to engage in the elements of change agency in relation to science: vision building, mastery of their practice, and inquiry (Fullan 1994). This meant that they had the opportunity to examine and reexamine their visions and engage in continuous inquiry about their teaching. The focal teachers and the university faculty

became intellectual resources for one another as they planned a new curriculum with alternative assessments, implemented it together, and then reflected about their work. According to Jorgenson (1997, in press) the systemic change process is advanced by association with a critical friend—namely university faculty-- to listen carefully during teacher collaboration, as well as clarify elements of the conversation, and offer research on other school's experiences with change. By having both the time and access to the intellectual resources of a collaborative group, Jane, Lyle, and Holly restructured their science curriculum using the framework promoted by the American Association for the Advancement of Science (1989), "Science for All American" to better meet the needs of all students. Based on their comments in an unpublished conversation with an MSU faculty member cited in chapter six, they changed their roles from teacher as tellers, to teachers as facilitator and viewed learners as actively constructing knowledge, rather than passive recipients. They further reported that over time they began to view curriculums from the perspective of "less is more," which meant teaching fewer concepts in more depth. Thus, access to both time and human resources, including university faculty, were two important resources that greatly contributed to Hart School's capacity to support students with special needs.

Implications for Developing Cultural Resources

- 1. The efforts to implement the guiding principles of the Professional Development School provide university and public school faculty the impetus to become change agents to develop a school with a moral ecology.** Darling-Hammond (1995) found in her study of PDSs that the focus on restructuring teaching and learning fosters new forms of teacher leadership, liberating them to re-shape practice and make decisions that impact the institution and system. The guiding principles of the PDS embraced by the majority of

educators at Hart High School developed teachers who were change agents in the classroom as well as in the institution. As Lyle's and Jane's work progressed in the restructuring of the science curriculum to include all students, their efforts moved beyond the classroom level to detracking the science department. In fact, through their efforts the fundamental science class (low track) was eliminated and at present all students enroll in Biology. According to Fullan (1994) teachers need to first concern themselves with making a difference with each student. But they must also direct their efforts on a school-wide basis to create an environment or ecology that is committed to creating access to all knowledge for everyone and helping all students learn. It is the commitment to this moral purpose of making a difference in the lives of all students that leads to a school with a moral ecology. Villa and Thousand (1995) and Jorgenson (in press, 1997) in their research on creating inclusive schools confirm the necessity of guiding principles that embrace the moral purpose of teaching as critical in the development of an inclusive school culture.

2. The construction of a common vision by the school faculty comes from restructuring experiences in changing teaching and learning for all students. The premature formalization of vision developed by an individual or a small group for an entire organization may lead to compliance, but not a shared commitment, which is essential for success (Fullan, 1994; Senge, 1990). Individuals need a fair amount of reflective experience before they can form a meaningful vision and a shared vision must be constructed through the collaborative interactions of the members of an institution (Fullan, 1994). "Vision emerges from, more than it precedes, action" (Fullan, 1994, p.28). As described in chapter four, the vision to create an inclusive school in which all students have access to all knowledge and to teaching and learning for understanding evolved as the Hart High School general and special education

faculty worked jointly to construct curriculum and pedagogical practices that included all students.

After two years of collaboration with university faculty about restructuring teaching, learning, and the organizational structures of their school, Hart High School faculty and administration jointly developed a mission statement. Both the mission statement and their student outcomes reflected the guiding principles of the PDS that focus on teaching and learning for all students. This was in part due to the fact that they had over two years experience in thinking and talking about these principles and trying them out through their PDS projects. Jorgenson (1997, in press) indicates that schools do not become learning communities simply by implementing state-of-the-art instructional practices, educators must attend to the culture of the learning community as well. By drafting a common vision or mission statement after working collaboratively for several years on teaching and learning for all students, the Hart faculty were able to develop a shared vision that was inclusive of all students.

Teachers' Beliefs

Chapter Five examined in detail the beliefs of Holly, Lyle, and Jane that were strengthened and/or evolved through their collaborative experiences in their curriculum restructuring efforts. The chapter argued that their belief systems including the moral purpose of teaching was galvanized through their collaboration and that these beliefs were the most critical component for special and general education teachers to develop in order to create inclusive educational settings. The data illustrated that the moral purpose of teaching for these teachers was based on their beliefs that all children should have access to the knowledge

in all subjects and that their role was to foster the learning of all students including those at-risk and with disabilities.

Implications Regarding Teachers' Beliefs About Classroom Practice

1. One belief about classroom practice is that heterogeneous classrooms can provide all students with the academic and social experiences necessary for the development of a school with a moral ecology. As discussed in chapter five, Lyle, Holly, and Jane espoused this belief that students with disabilities need to have the academic and social experiences available to them in general education classes. Toward that end all of the teachers in the study worked to detrack their science and mathematics departments. Detracking can be an outcome when school's restructuring efforts include restructuring teaching and learning for all students and the inclusion of students with disabilities in general education (National Study on Educational Restructuring and Inclusion, 1995). Further numerous educators provide additional evidence regarding the necessity to create heterogenous classrooms to support all students including those with disabilities. Gartner and Lipsky, (1997); Hahn (1994); Steele, (1992); Ogbu, (1987, 1992) have all written about the stigmatization and alienation that occurs when certain populations are segregated from the mainstream. Oakes (1985) writes at length about the differences in content, pedagogy, and classroom climate/culture between high and low track classes. Civil Rights advocates for people with disabilities Funk (1987) and Laski, (1994) argue that students with disabilities have a right to be included in heterogeneous classrooms. Ferguson (1996) and Jorgenson (1997) write about the necessity to create inclusive schools with a diverse learning community that reflects the real world community in which all members work and play together.

2. Teachers with a moral purpose who believe that all students can learn and that the role of a teacher is to teach all students are a critical component in the development of an inclusive school.

As detailed in chapter five, these beliefs evolved and/or emerged for Lyle, Jane, and Holly through their collaborative efforts to restructure science teaching and learning for all students. As general and special educators work together to restructure curriculums to enhance the learning of all students, the outcome of their interactions is likely to be that different students will learn the science curriculum to different degrees and in different ways (Pugach and Warger, 1996). Ferguson (1995) posits that in inclusive classrooms general and special educators need to think of all students as being able to learn, but having different capabilities and skills.

According to Pugach and Warger (1996), the challenge for educators is to create a learning environment that teaches all students fundamental "learning-how-to-learn skills and encourages thinking, social and communication skills, so they can tackle new content in ways that better their current and/or future lives" (p. 228). These are some of the characteristics embedded in the Science Framework, "Science for All Americans" (AAAS, 1989; National Research Council, 1992; and National Science Teachers Association, 1992) that Lyle, Jane, and Holly used to restructure their curriculum. For example, these reforms emphasized depth on particular science concepts rather than breadth; deeper meaning over covering the text. Further, the frameworks suggest changes in the social organization of the classroom (i.e., cooperative learning) to involve more students in lab experiences, which can enhance the development of their social and communication skills. The adoption of these science frameworks were congruent with Lyle's, Jane's, and Holly's desire to create a science

curriculum that included all students and their belief that their role as teachers was to teach all students.

3. General and special education teachers teaming in inclusive classrooms need to hold high expectations for all students and assist them in taking responsibility for their learning.

In chapter five, Lyle and Jane characterized many secondary students with disabilities as having developed a "learned helplessness" from years of support in segregated settings. Lyle and Jane felt that it was difficult for secondary teachers in general education to make a significant impact on students' beliefs about themselves as learners, who had been segregated through elementary and middle school. In resource rooms settings students receive support in their area of disability in a classroom of ten students with a teacher and sometimes a paraprofessional. According to Lyle they become accustomed to having immediate support and are protected from struggling with difficult concepts in various subjects because the curriculum in special education classrooms is often diluted. Jane indicated that special educators often believe that students with disabilities in reading and writing are incapable of engaging in higher level thinking skills and learning complex tasks. Thus, the students feel helpless when they are reintegrated in general education, because they are not accustomed to learning independently and engaging in the concepts of a subject. In fact Luchow, Crawl, and Kahn (1985) describe this feeling of helplessness as limited persistence at tasks that they are capable of mastering. According to Fuchs, Fuchs, and Hamlett (1989) the goals written in students' Individualized Educational Plans (IEPs) underestimate their performance and abilities.

Good and Brophy (1997) detail the impact of teacher expectations in their book,

Looking in Classrooms. They state that:

teachers are guided by their beliefs about what students need and by their expectations of how students will respond if treated in particular ways. Also, teachers' beliefs about the academic ability of the class or of individual students may influence their curricular, instructional, or evaluative decisions (p.79).

Further, they describe two types of teacher expectation effects. In the self-fulfilling prophecy effect an erroneous expectation leads to student behavior that becomes true. In the sustaining expectations effect teachers reinforce students to maintain prior patterns of behavior and they fail to observe and capitalize on changes in a student's potential.

Given the impact of teacher expectations reported by Good and Brophy (1997) and the limited expectations that many special educators have for students with disabilities reported by Fuchs, Fuchs, and Hamlett (1989), teaching students with special needs in inclusive classrooms requires that teachers expect all students to live up to their potential. Further, teachers need to be vigilant concerning opportunities to encourage students' potential. Both general and special education teachers must work to foster student responsibility for their learning.

Meiers (1995) suggests that there are two elements necessary for learning: the opportunity to watch an expert and being held to high expectations. In segregated classrooms, i.e., low track classes students' at-risk and with disabilities have neither element. The focal teachers' experiences in including students with disabilities with limited exposure to science in general education was that they often sat passively and waited for assistance and automatically assumed they were incapable of learning biology. Some students actively resisted by refusing to participate or verbalizing that the activity was "stupid." Steele (1992)

describes this behavior as the "disidentification" with a subject or task that one feels incapable of successfully completing. Given these learner characteristics teachers must hold firm in their expectations that all students work up to their academic potential and assist them in taking responsibility for their learning by accommodating their academic and emotional needs in a supportive, caring learning environment.

4. The belief that general and special education teachers' roles need to be redefined as collaborators in adapting curriculums to meet the needs of all learners is critical to the development of an inclusive school. Lyle, Jane, and Holly stated numerous times that teachers needed to work as a team to address the intellectual, social, and emotional needs of all students. As we have seen Lyle, Jane, and Holly worked together to develop curriculum and teaching practices to include students at-risk and with disabilities in biology. Further, during their collaborative time they discussed ways of adapting and tailoring curriculum to meet the needs of individual students in their classes. Villa and Thousand (1995) redefine general and special education teachers' roles as partners in collaboration to redesign curriculums to meet the needs of all learners. Pugach and Warger (1996) describe their roles as partners in Curriculum-Centered Problem-Solving teams to brainstorm new strategies and methods in curriculum and assessment to support all students in general education. General and special education teachers committed to restructuring teaching and learning for all students including those with disabilities share a commitment to the future of all children. Through the redefinition of their roles as collaborators in adapting curriculums they can find the "common ground with one another on the details of day to day educational practice that will allow their visions to become reality" (Jorgenson, 1997, in press, p.11).

5. Teachers' belief in the need to restructure curriculums and develop alternative assessments is a critical resource in creating an inclusive school. As reported in the data Lyle, Jane, and Holly (as a student intern) developed a PDS project to restructure the science curriculum to address the needs of students' at-risk and with disabilities. Their curriculum was based on the framework "Science for All Americans" which advocated more depth and less breadth of content and teaching for conceptual understanding. Implementing this framework also involved shifting the role of the teacher from "teller" of knowledge to facilitator of "knowledge." Further, it altered the role of the learner to actively engage in constructing knowledge with the teacher and other students, rather than passively absorb information from a science lecture.

The current literature on developing inclusive schools indicates that restructuring curriculum and developing alternative assessments are critical to the development of an inclusive school. Udvari-Solner (1995) defines curriculum adaptations as any adjustment in the classroom environment, teaching, materials, or assessment that enhances a student's performance. Pugach and Warger (1996) propose curriculum redesign teams comprised of general and special educators as central to the development of inclusive schools. Jorgenson (in press 1997) refers to general and special education teachers "fine-tuning" the curriculum and assessment methods as essential to inclusive practices.

Implications Regarding the Beliefs About the Structure of Educational Systems

1. Both special and general education teachers need to foster skills of self-determination to promote self empowerment and independent learning in students with disabilities. In response to the "learned helplessness" syndrome discussed in the last section and the feelings of limited capability, shame, and anger that students with disabilities

expressed in their student interviews in the science project, a class in the development of self-determination skills was piloted at Hart High. Self-determination skills include knowing one's strengths and limitations and how to accommodate them. Self-efficacy, the belief that one is capable, and self-esteem, the belief that one is of value are two other major skills in this area. Self-advocacy, the ability to appropriately secure what one needs, is a critical skill in self-determination. The purpose of this course was to provide students at-risk and with disabilities an opportunity to explore their learning challenges and strengths and to develop a written self-advocacy plan detailing their profiles as learners to share with their teachers.

Jane learned in teaching this class that the students' rage, shame, and depression about their disability was much more intense than she had anticipated. Given her experiences in assisting students to develop self-determination skills, Jane believed that this development needed to start in elementary school. If students with disabilities learned from the onset to identify their strengths and limitations and how to advocate for the accommodations they need to be successful, perhaps the syndrome of "learned helplessness" and the intense negative feelings about themselves as learners that was evidenced at Hart High would be diminished. Fields (1996) and Wehmeyer and Ward (1996) in their research on the transition of students with disabilities to adult life have found that the development of these skills are essential to success after school and strongly suggest that students begin developing them at the elementary level. In the October 1996 issue of the Inclusive Education Programs' newsletter, Lamb reports that student self-advocacy impacts teachers' practice. In her study on the impact of self-determination at Hart High, classroom teachers reported that once students with disabilities requested particular accommodations, they were willing to offer them to all students in their classes.

2. Developing an inclusive school includes restructuring the organization so that general and special education teachers can work as a team and consistently support one another. Lyle, Holly, and Jane indicated throughout the data the necessity for them to work consistently as a team to restructure teaching and learning to include students with disabilities in general education. Lyle was provided one hour of reallocated time through the monies of the PDS for several years to restructure the science curriculum. Jane used her one hour of planning time to work in partnership with Lyle. She was given one hour of reallocated time for one semester over a three year period to support her efforts in curriculum development. This limited support was due to the fact at Hart High teachers in core subjects were the primary recipients of one hour of release time and it was difficult to secure a certified special education teacher for one hour a day.

However, without additional human resources in special education it is extremely difficult for a special education teacher to team teach and collaborate daily with general education teachers and still meet the legal mandates of the special education law. The question is should special education teachers be expected to fulfill both obligations and support 25 students with disabilities. How long can one person sustain the energy to meet such a demand? The proposed revisions in the special education law will alleviate some of the paperwork currently required. However, as mentioned earlier the addition of secretarial support and more paraprofessionals to assist teachers would provide the special education teacher with more time to consistently support general education teachers in team teaching arrangements. The development of peer tutors and community volunteers to support teachers in facilitating the learning of all students is another organizational structure that has shown promising results in inclusive schools (Villa and Thousand, 1995).

Intellectual Resources

Chapter Six described the teacher knowledge that Lyle, Holly, and Jane drew on to support all students and argued that these resources were critical in supporting students with disabilities in inclusive settings. Further, these resources of teacher knowledge and pedagogical reasoning were the elements of practice that these teachers implemented to make a difference in the lives of individual students. The evidence on students at Hart High accessing advanced courses in increasing numbers and their GPA seems to indicate that these practices supported students with special needs.

Implications Regarding Intellectual Resources

The intellectual resources evidenced in this chapter have several implications for teacher education programs in both general and special education as well staff development programs.

- 1. Both preservice and veteran teachers need to develop the habits of inquiry and reflection in which they persistently question and examine their theories of teaching and learning and their effectiveness in teaching students.** Lyle, Jane, and Holly (a student intern) examined their theories and principles of teaching and learning of students with special needs with other university and school faculty during their weekly professional development time. Through these conversations and their classroom experimentation, their theories of teaching and learning changed over time as they worked to restructure science education to address the needs of students' at-risk and with disabilities. Through the processes of inquiry and reflection they questioned the ways that they had been teaching these students. Lyle and Jane, reported that, their four-year PDS project, they rejected the traditional teaching methods of lecture and memorization and embraced a more constructivist model of teaching in which teachers act as facilitators of knowledge with students learning in cooperative groups.

Teacher education programs need to ground preservice teachers in the examination of varying theories of teaching and learning and establish partnerships with schools, such as Hart High, in which university, veteran, and preservice teachers can collaborate and experiment with these theories and determine which practices best address the needs of all their students. Learning about the practice of teaching through collaboration, inquiry and reflection is critical for beginning teachers because it is a formative time (Fullan and Hargreaves, 1991). Schools must foster an environment in which collaboration, inquiry and reflection about teaching and learning of all students is the norm. The infusion of these practices into the culture of a school are critical for creating an inclusive school in which the special needs of all learners are addressed by all educators.

2. Preservice and veteran general education teachers need to increase their knowledge of the characteristics, perceptions and dispositions of diverse learners in order to address their special needs in their classrooms. Both Lyle and Holly developed an understanding of the characteristics of students with learning disabilities and emotional impairments through their conversations with Jane and their own classroom experiences. This knowledge assisted them in thinking about the adaptations of their curriculum and methodologies that would address these students' needs. Becoming familiar with the social and emotional characteristics of students with disabilities helped them develop strategies for dealing with the behaviors that interfered with their learning. Both Holly and Karen, the novice teachers, in this study reported that they felt their teacher preparation program was inadequate in this area. Providing preservice and veteran general education teachers with knowledge of the characteristics of diverse learners and the accommodations that support their learning will increase their abilities and confidence in addressing their needs. In addition,

perhaps this knowledge will contribute to their development as teachers with a moral purpose, who are committed to making a difference in the lives of all students.

3. In order to create inclusive classrooms both general and special education teachers need more preparation in subject matter knowledge and pedagogical content knowledge in their undergraduate programs, which are nurtured by a university and school partnership committed to restructuring schools and teacher preparation with a set of inclusive principles. The restructuring of the content and methodology of teaching science to all students was the main focus of the collaboration between Lyle, Jane, and Holly in their PDS project. Their conversations revolved around what concepts in biology were critical for all students to learn, how should they be taught, what types of assessments would best represent what students learned. Together they developed ways to adapt and tailor science concepts to meet the needs of individual students. In this PDS context, Holly had the opportunity to be mentored in school that subscribed to the same principles as her university teacher preparation program. Jane and Lyle had the opportunity to collaborate with university faculty interested in restructuring science education and preparing preservice teachers in this context.

Pugach and Warger (1996); Berres, Ferguson, Knoblock and Woods, (1996); Jorgenson, (1997 in press) call for general and special education teachers to collaborate as curriculum reformers as a way to create inclusive schools. Given that restructuring the teaching and learning of various academic subjects is the main focus of the collaborative work between general and special education in developing inclusive classrooms, then redesigning curriculum, pedagogy and alternative assessments ought to be at the core of their teacher education programs. According to Pugach and Warger (1996) in teacher preparation

programs curriculum or subject matter is approached in the form of pedagogical methods for teaching content rather than disciplinary frameworks. Most special education teacher preparation programs are devoid of content and only very few require concurrent certification in both general and special education (Pugach and Warger, 1996).

Some education reformers have proposed that general and special education teacher preparation programs be integrated (Pugach, 1992; Pugach and Lily, 1984; and Stainback and Stainback, 1985). "Bridging the curriculum gap necessitates an integrated, not a parallel, approach to joint teacher preparation in which general and special education teachers become knowledgeable about curriculum from the outset," Pugach and Warger (1996, p.242-243). However, the incorporation of more content knowledge, methods for redesigning curriculum, and characteristics of diverse learners into general and special education teacher preparation programs does not ensure that this knowledge and these skills will be nurtured and implemented in schools. Tomlinson, Callahan, Tomchin, Eiss, Imbeau, and Landrum, (1997) found that preservice teachers with knowledge in adapting curriculums for diverse learners were discouraged in their efforts to make these accommodations through their enculturation as novices in school systems indifferent to diverse learners. "Even when the novices held firm to beliefs in a need to modify instruction in ways responsive to academic diversity, the pull to do otherwise was overwhelming" (Tomlinson, et. al., 1997, p. 276).

Conclusion

This study has described in detail the resources that contributed to three teachers' capacity at Hart High school to support students with special needs in inclusive settings. The quotation at the beginning of the chapter captures the collective efforts of Lyle, Jane and Holly in their efforts to create a science curriculum that supported the needs of students at-

risk and with disabilities. "For complex change we need many people working collectively on the solutions and committing themselves to concentrated action together," (Fullan, 1994, p.34). Implied in this statement are the elements of change agency: collaboration, vision building, mastery, and inquiry. As Fullan (1994) argues these are the processes wedded to the moral purpose of teaching (making a difference in the lives of individual students) that are necessary to develop inclusive schools with a moral ecology. The development of a school with a moral ecology needs teachers who act simultaneously as change agents at the classroom level and at the institutional level. According to Fullan (1994),

One cannot make a difference at the interpersonal level unless the problems and the solutions are enlarged to encompass the conditions that surround teaching and learning and the social skills and actions that would be needed to make a difference (p. 11).

Merely changing the organizational structure to place students with disabilities in general education does not mean that inclusive practices will follow. Cultural change toward a moral ecology is fostered by changes in the beliefs and intellectual resources of general and special education teachers through collaboration to restructure teaching and learning for all students. Hopefully, this study has helped to clarify for both general and special educators the beliefs and intellectual resources necessary to make a difference in the lives of all students especially those at-risk and with disabilities.

EPILOGUE

Creating an inclusive school is an intense, arduous, and complex endeavor as the teachers in this study have found. The educators involved at Hart High School during this study have demonstrated that it is possible with the addition of specific environmental resources and the development of critical intellectual resources to create an inclusive culture

that addresses the needs of diverse learners. However, the moral ecology or inclusive culture of a school is fragile and is always at-risk with changes in administrators, funding, environmental resources and teachers' resistance to change.

Such is the case at Hart High School. Since the completion of data collection in the spring of 1994 the school has undergone many changes. Both the fiscal and human resources of the PDS partnership with Michigan State University have diminished considerably. This has greatly reduced the focus and frequency of collaboration about restructuring teaching and learning. Thus, new teachers hired by the school are not being encultured in the intense processes of change (vision building, inquiry, reflection, and collaboration) fostered and supported by the university and school partnership in past years.

There are three new administrators serving as principal and assistant principals. Over the last two years the voices of discontent with the PDS have strengthened and the new administration has responded by shifting restructuring away from curriculum to school reorganization. A new special education director was hired, who embraces a more segregated approach to special education services. Thus, more resource rooms and self-contained classrooms are being created in the Kindergarten through ninth grade. These changes in administrative positions are a source of great concern regarding the continuation of inclusive practices at Hart High. Jorgenson (1997, in press) has indicated that the visions of inclusive education rest foremost with school leaders, who must be unwavering in their commitment to include all students when faced with uncertainty about inclusive practices.

During the last five years the cost of special education services for Hart Schools has increased drastically because the percentage of reimbursement by the state and federal government has diminished. Since Michigan's reimbursement formula for special education

is based on students served in segregated settings, more inclusive schools, like Hart, get less reimbursement for services and must bear the costs locally. In addition to less reimbursement, Hart Public Schools' population of special education students has increased dramatically over the last five years, because many families with special needs students have moved to Hart so that their students can be educated in an inclusive setting.

The results of these burgeoning costs for special education in part has led to a financial crisis in the district. For the first time since the implementation of the special education reform in Hart Schools ten years ago, the elimination of the weighting of special education students in general education to lower class size is under serious consideration. By double counting students with disabilities in general education, class size is lowered and more teachers are required. Presently, this kind of support for teachers as an inclusionary practice costs the district nearly a million dollars.

In addition, the implementation of new state and federal reform initiatives further erode general and special education teachers time and energy. The Michigan High School Proficiency Test absorbs two weeks of instructional time for administration. General education teachers spend this time administering the tests and special education teachers provide the numerous accommodations necessary for diverse learners to take the test. The special education transition mandate is an additional responsibility of special educators without the addition of special education personnel. This new mandate has limited further the time for special education teachers to team teach on a consistent basis with general education teachers. All of these changes impact the culture over time and many of these changes serve to undermine the inclusive culture in the school. This is precisely why the development of teachers with beliefs that foster the moral purpose of teaching are essential to sustain inclusive

practices in schools. Teachers of moral purpose must continue to advocate for the rights of all individuals to learn in schools committed to providing everyone access to all knowledge and providing the support necessary for them to be successful (Goodlad, Soder, and Sirotnik, 1990).

However, the question remains will teachers with moral purpose be enough to sustain inclusive schools without the environmental resources and administrative support necessary. The answer at Hart High School is one of uncertainty. Jorgenson (1997, in press) offers the perspective of a special education director with nearly a decade's experience in developing and maintaining inclusive practices in schools. This director has found that it is very difficult to sustain the momentum of inclusion, unless the focus is constant and overt and with the educational smorgasbord of reform initiatives it is easy for inclusive education to become lost. Thus, without the environmental resources of constant support for inclusion and the opportunity for continual development of teachers' intellectual resources, the moral ecology of a school risks erosion and the moral purpose of some teachers may not be enough to sustain inclusive practices.

APPENDIX A

APPENDIX A

TEACHER INTERVIEW FOR COLLABORATIVE INQUIRY PROJECT: CASE STUDY SCOTT

Scott is an incoming tenth grader with above average ability. He was diagnosed as having both an attention deficit and hyperactivity disorder (AD/HD) in sixth grade and therefore was eligible for special education support. Since then, his education program has consisted of one hour of Special Education Resource Room study skills support and full participation in general education classes for the rest of the school day. He began taking medication to assist him with his attentional difficulties and hyperactivity at the time of his diagnosis. The school records indicate that the medication has helped his concentration and diminished his activity level. However, he still exhibits difficulty sitting and listening for longer than twenty minutes. After this time, he becomes quite fidgety and restless.

He continues to be quite impulsive in the classroom. For example, he participates in class discussions, but he often blurts out his questions or comments when others are talking. The impulsivity is also evident in his work habits. Although he is a good decoder, his comprehension is weak because he rushes through the text and often misses many important details and concepts. This is also true in his written work and tests; he does not read directions or questions carefully and therefore makes many errors. Scott usually begins most assignments, but stops working before he finishes. Therefore, many assignments end up incomplete or missing. Thus, he has struggled to pass his classes. Scott is a likeable fellow, but his peers find him quite frustrating to be around for long periods of time.

Name _____ Subject Area _____ Date _____

1. What are your thoughts about Scott being able to handle social studies class?

2. A. What issues or characteristics in the description seem most relevant to his success in your class?

2. B. What issues or characteristics in the description seem most likely to prevent his success in your class?

3. How would you approach teaching Scott? **PROBE:** Is there anything you would do differently in teaching Scott than you would do in teaching other students in your class?

4. How about your curriculum? **PROBE:** Would you alter your curriculum in any way, if Scott were your student?

5. How about your ways of assessing students? **PROBE:** Would you assess your students' learning, differently, if Scott was your student?

6. How about the social organization of your classroom? **PROBE:** Would you organize your students differently if Scott was a student in your class?

7. How feasible is it for you to make these accommodations in your classroom? Please explain.

8. What kind of resources or support would you need to make these modifications or accommodations?

9. Scott's major problem is his attention deficit and hyperactivity which affect his performance. Who do you think is responsible to help him develop more appropriate classroom behaviors and work habits? Please explain.

10. Some educators argue that the reason we have special education teachers in schools to precisely to deal with problems like Scott's. What do you think about that?

11. Other educators argue that ultimately it is the classroom teacher's responsibility to see that all students develop the work habits they need to learn effectively? What do you think about that?

12. When you think about your class requirements, how would you define success for a student like Scott in your class?

APPENDIX B

APPENDIX B

TEACHER INTERVIEW FOR COLLABORATIVE INQUIRY PROJECT: CASE STUDY JESSICA

Jessica is a sophomore at Holt High School. She was certified Learning Disabled in the fourth grade in the area of Basic Reading Skills. She started receiving one hour of Special Education Resource Support at that time and was mainstreamed in a general education classroom for the remainder of the day. At the Junior High, she received one hour of study skills support. Although she is of average ability, Jessica is presently reading at a fifth grade level and has difficulty in both decoding and comprehending. Her writing skills are approximately at the same level. She writes rather simple sentences with many spelling errors.

Her reports indicate that she is a good listener and tries hard. She participates occasionally in class discussions. Jessica attempts to read the text, but finds it difficult to decode some of the words and understand them. These difficulties are reflected in her written assignments as well. She often gets behind in her work and fails to complete some written assignments. She has difficulty taking written tests. She tends to write brief answers and often doesn't finish all of the test. In spite of these academic difficulties, Jessica has managed to pass her classes---barely---at the junior high school. She is very popular with her peers and is pleasant to have in class.

Name _____ Subject Area _____ Date _____

JESSICA CASE STUDY QUESTIONS

1. What are your thoughts about Jessica being able to handle a social studies class?

2. A. What issues or characteristics in the description seem most relevant to her success in your class?

2. B. What issues or characteristics in the description seem most likely to prevent her success in your class?

3. How would you approach teaching Jessica? **PROBE:** Is there anything you would do differently in teaching Jessica than you would do in teaching other students in your class?

4. How about your curriculum? **PROBE:** Would you alter your curriculum in any way, if Jessica were your student?

5. How about your ways of assessing students? **PROBE:** Would you assess your students' learning, differently, if Jessica was your student?

6. How about the social organization of your classroom? **PROBE:** Would you organize your students differently if Jessica was a student in your class?

7. How feasible is it for you to make these accommodations in your classroom? Please explain.

8. What kind of resources or support would you need to make these modifications or accommodations?

9. Jessica's major problem is that she is a poor reader. Who do you think is responsible to help her develop more appropriate classroom behaviors and work habits? Please explain.

10. Some educators argue that the reason we have special education teachers in schools to precisely to deal with problems like Jessica's. What do you think about that?

11. Other educators argue that ultimately it is the classroom teacher's responsibility to see that all students learn to read and write. What do you think about that?

12. When you think about your class requirements, how would you define success for a student like Jessica in your class?

APPENDIX C

APPENDIX C

TABLE 8-1 Summary of Data Analysis of Teachers' Beliefs

CATEGORY 1: BELIEFS ABOUT CLASSROOM PRACTICE									
	BELIEFS ABOUT LEARNERS				BELIEFS ABOUT TEACHERS' ROLES			BELIEFS ABOUT CONTENT AND ASSESSMENT	
	BENEFIT FROM HETEROGENEOUS CLASSROOM	ALL STUDENTS CAN LEARN	STUDENTS ARE RESPONSIBLE FOR THEIR LEARNING	ROLE REDEFINED	TEACH ALL STUDENTS	HOLD HIGH EXPECTATIONS FOR ALL STUDENTS	DIFFERENT VIEW OF CONTENT	ALTERNATIVE VIEW OF ASSESSMENT	
HOLLY	Stated	Stated	Stated	Stated	Implied	Stated	Implied	Implied	
LYLE	Stated	Implied	Stated	Stated	Implied	Stated	Implied	Implied	
JANE	Implied	Implied	Stated	Stated	Implied	Implied	Stated	Stated	
CATEGORY 2: BELIEFS ABOUT THE STRUCTURE OF EDUCATIONAL SYSTEMS									
	BELIEFS ABOUT SYSTEMIC CHANGE			BELIEFS ABOUT THE ORGANIZATIONAL STRUCTURE OF THE SCHOOL					
	SPECIAL EDUCATION FOSTERS LEARNED HELPLESSNESS	DEVELOP SELF-DETERMINATION K-12	GENERAL EDUCATION/ SPECIAL EDUCATION WORK AS A TEAM	CONSISTENT SUPPORT IN SPECIAL EDUCATION					
HOLLY	No	No	Stated	Implied					
LYLE	Stated	Implied	Stated	Stated					
JANE	Implied	Stated	Stated	Stated					

APPENDIX D

APPENDIX D

TABLE 8-2 Summary of Intellectual Resources

CATEGORY I: GENERAL PEDAGOGICAL KNOWLEDGE
1. Knowledge of the theories and principles of teaching and learning A. Theories about teacher as teller or facilitator B. Theories about directions for class assignments C. Theories about cooperative learning
2. Knowledge of diverse learners A. All learners are different B. Students' perceptions of themselves as learners C. Students' feelings about their disability
3. Knowledge of principles and techniques of classroom and behavior management A. Student participation is expected in class activities B. Student responsibility C. Collaborative effort for behavioral issues
CATEGORY II: SUBJECT MATTER KNOWLEDGE
1. Knowledge of the ideas, facts, and concepts of the discipline and their relationships. 2. Knowledge of the syntax of a discipline; i.e., process for generating and testing knowledge.
CATEGORY III: PEDAGOGICAL CONTENT KNOWLEDGE
1. Knowledge and understanding of the process of teaching a topic. 2. Knowledge of the methods to teach the topic.
CATEGORY IV: PEDAGOGICAL REASONING
1. Adapting--fitting the conceptual representation to the characteristics of the learners. 2. Tailoring--adapting the materials to the specific students in a class. 3. Reflecting--the process of evaluating one's own practice of teaching 4. Inquiring--the process of questioning the teaching of one's own practice and others.

APPENDIX E

APPENDIX E

TABLE 8-3 Summary of Environmental Resources

CATEGORY I: CREATION AND UTILIZATION OF PROFESSIONAL DEVELOPMENT TIME
1. Wednesday Morning Time for Collaboration 2. Time for Collaborative Partnerships 3. Time for Team Teaching
CATEGORY II: CONNECTING HUMAN RESOURCES
1. General Education Teachers 2. Counselors 3. Special Education Teachers 4. Administrators and their Administrative Leadership Role 5. University Personnel
CATEGORY III: CULTURAL COMPONENTS FOSTERED BY THE PDS PARTNERSHIP
1. Elements of a Professional Development School 2. Mission Statement of Hart High School 3. Teacher Generated Decision Making Model

BIBLIOGRAPHY

BIBLIOGRAPHY

- American Association for the Advancement of Science (1989). Science for all Americans: A project 2061 report on literacy goals in science, mathematics and technology. Washington, D.C.: AAAs.
- American Association for the Advancement of Science (1989). Science for all Americans: Project 2061. Washington, DC: Author.
- Anderson, C.W., & Fetters, M. (1996). Response: science education trends and special education. In Pugach, M. & Warger, C. (Eds.) , Curriculum Trends. Special Education and Reform Refocusing the Conversation. (pp. 53-67). New York, NY: Teachers College Press.
- Ashton, P.T., and Webb, R. B. (1986). Making a difference: Teachers' sense of efficacy and student achievement. New York: Longman.
- Association for Persons With Severe Handicaps, (February, 1994). Resolution on inclusive education. TASH Newsletter, (pp.4-5). Seattle, WA: TASH.
- Bandura, A. (1986), Social Foundations of thought and action: A social cognitive theory. Englewood Cliffs, N.J: Prentice Hall.
- Barry, A., Easing into inclusion classrooms. (December 1994/January 1995) Educational Leadership, 52, (4), 4-6.
- Berends, M. (1992), A description of restructuring in nationally nominated schools. A paper presented at the annual meeting of the American Educational Research Association, San Francisco.
- Berres, M., Ferguson, D., Knoblock, P., & Woods, C. (1996). Creating tomorrow's schools today stories of inclusion, change, and renewal. New York, NY: Teachers College Press.
- Brousseau, B., Book, C., & Byers, J. (Nov.-Dec., 1988). Teachers beliefs and the cultures of teaching. Journal of Teacher Education, 33-39.

- Burgess, L., Tomlinson, J., & Feathestone, H. (1990). An interview about teaching science in an inclusive classroom. Unpublished paper. Holt, MI: Holt Public Schools.
- Carlberg, C. & Kavale, K. (1980). The efficacy of special versus regular class placements for exceptional children: A meta-analysis. Journal of Special Education, 14, 295.
- Clark, C.M., (1988). Asking the right questions about teacher preparation: Contributions of research on teaching thinking. Educational Researcher, 17, (2), 5-12.
- Clark, C., (1990). The teacher and the taught: moral transactions. In Goodlad, J., Soder, R. & Sirotnik, K. (Eds.). The Moral Dimensions of Teaching. (pp.351-265). San Francisco: Jossey-Boss Publishers.
- Darling-Hammond, L., Bullmaster, M.L., & Cobb, V., (January, 1995). Rethinking teacher leadership through professional development schools, The Elementary School Journal, 96, (1), 87-106.
- Delpit, L. (1988). The silenced dialogue: Power and pedagogy in educating other people's children. Harvard Educational Review, 58, (3), 280-296.
- Education for All Handicapped Children Act of 1975, PL94-142 (August 23, 1975).
- Falvey, M.A., Givener, C., and Kimm, C. (1995), What is an inclusive School? In Villa, R.A. & Thousand, J. (Eds.) Creating an Inclusive School, (pp.1-12). Alexandria, VA: Association for Supervision and Curriculum Development.
- Featherstone, H., Pfeiffer, L., & Smith, S., (1993). Learning in Good Company: Report on a Pilot Study, Research Report 93-2, East Lansing, MI: Michigan State University, National Center for Research on Teacher Education.
- Ferguson, D. L., Willis, C., Boles, S., Jeanchild, L., Holliday, L., Heyer, G., Rivers, E., & Zitek, M. (1993). Regular class participation system (RCPS). Grant No. H086D90011: U.S. Department of Education). Eugene, OR: Specialized Training Program, University of Oregon.
- Ferguson, D.L. (December, 1995). The real challenge of inclusion confessions of a 'rabid inclusionist.' Phi Delta Kappan, 281-287.
- Ferguson, D. (1996). Is it inclusion yet? Bursting the bubbles. In Berres, M., Ferguson, D., Knoblock, P. & Woods, C. (Eds.). Creating Tomorrow's Schools Today Stories of Inclusion, Change and Renewal. (pp. 16-37). New York, NY: Teachers College Press.
- Field, S. & Hoffman, A., (1994). Development of a model for self-determination. Career Development for Exceptional Individuals, 17, (2), 159-169.

- Field, S. Self-Determination instructional strategies for youth with learning disabilities. (January, 1996). Journal of Learning Disabilities, 29, (1), 40-52.
- Floden, R. & Clark, C. (1987). Preparing teachers for uncertainty. Issue Paper 87-4. East Lansing, MI: Michigan State University, National Center for Research on Teacher Education.
- Floden, R., McDiarmid, G.W., & Weimers, N., (1990). Learning About Mathematics in Elementary Methods Courses. Research Report 90-1, East Lansing, MI: Michigan State University, National Center for Research on Teacher Education.
- Fuchs, L.S., Fuchs, D., & Hamlett, C.L., (1989). Curriculum based measurement: a methodology for evaluating and improving student programs. Diagnostic, 14(1), 3-13.
- Fuchs, D. & Fuchs, L.S. (1991). Framing the REI debate: Abolitionists versus conservationists. In J.W. Lloyd, A. C. Repp & N.N. Singh (Eds.), The Regular Education Initiative: Alternative perspectives on concepts, issues, and models, (pp. 241-255), Sycamore, IL: Sycamore.
- Fuchs, D., & Fuchs, L.S. (1994). Inclusive schools movement and the radicalization of special education reform. Exceptional Children, 60, 294-309.
- Fuchs, D. & Fuchs, L.S. (March, 1995). What's 'special' about special education? Phi Delta Kappan, 522-530.
- Fuchs, D. & Fuchs, L.S. (1994). Inclusive schools movement and the radicalization of special education reform. Exceptional Children, 60, 294-309.
- Fullan, M. & Hargreaves, A. (1991). What's Worth Fighting for in Your School?. Toronto, Ontario, Ontario Public School Teachers' Federation; Andover, MA, The Network; Buckingham, UK, Open University Press; Melbourne, Australia, Australian Council of Educational Administration.
- Fullan, M. and Stiegelbauer, S. (1991). The new meaning of educational change. New York, NY: Teachers College Press.
- Fullan, M., (1994). Change forces probing the depths of educational reform. Bristol, PA: Falmer Press, Taylor and Francis, Inc.
- Funk, R., (1987). Disability rights: From caste to class in the context of civil rights. In Gartner, A. & Joe, T. (Eds.), Images of the disabled: Disabling images. (pp.7-30). New York: Praeger.

- Gartner, A., & Lipsky, D.K. (1987). Beyond separate education: Towards a quality system for all students. Harvard Educational Review, 57, 367-395.
- Giangreco, M., Dennis, R., Cloninger, C., Edelman, S., & Schattman, R. (1993). "I've counted on Jon": Transformational experiences of teachers educating students with disabilities. Exceptional Children, 59, 359-372.
- Glaser, B.G. & Strauss, A.L. (1967). The Discovery of Grounded Theory. Chicago, IL: Aldine.
- Goals 2000: Educate America Act of 1994, PL 103-227, 20 U.S.C. 5801 et seq.
- Good, T. & Brophy, J., (1997). Looking in Classrooms Seventh Edition. New York, NY: Addison Wesley Longman, Inc.
- Goodlad, J., (1990). Teachers for Our Nation's Schools. San Francisco, CA: Jossey-Boss.
- Goodlad, J., Soder, R., & Sirotnik, K.A. (Eds.) (1990) The Moral Dimensions of Teaching. San Francisco, CA: Jossey-Boss.
- Hahn, H. (April 28-May 1, 1994). New trends in disability studies: Implications for educational policy. Paper presented at the National Center on Educational Restructuring and Inclusion invitational conference on inclusive education, Racine, WI.
- Hargreaves, A., (1994). Changing Teacher, Changing Times Teachers' Work and Culture in the Postmodern Age. New York, NY: Teachers College Press, Columbia University.
- Heath, S.B. (1983;). Ways with words: Language, life, and work in communities and classrooms. New York: Cambridge University Press.
- Holmes Group, (1990). Tomorrow's schools: principles for the design of professional development schools. East Lansing, Michigan. The Holmes Group.
- Holt Public Schools, (1993). Alternative Assessment. Holt, Michigan: Holt Public Schools.
- Individuals with Disabilities Education Act of 1990, PL 101-476 (October 30, 1990).
- Jeffrey, D.G., (1993). Identifying the roadblocks. What impedes the transition of secondary severely emotionally impaired students? Issues in Teacher Education, 2, 51-55.
- Jorgenson, C., (1997, in press). Restructuring high schools to include all students. Baltimore, MD: Paul H. Brookes Publishing.

- Judge, H., Carriedo, R. & Johnson, S.M. (1995). Professional development schools and MSU: the report of the 1995 review. Unpublished manuscript. East Lansing, MI. Michigan State University.
- Kauffman, J.M. & Hallahan, D.P. (1995) The Illusion of Full Inclusion A Comprehensive Critique of a Current Special Education Bandwagon. Austin, TX: PRO-ED.
- Kauffman, J., Lloyd, W.L., Baker, J., & Reidel, T. (March, 1995). Inclusion of all students with emotional or behavioral disorders? Let's think again. Phi Delta Kappan, 542-546.
- Kennely K.J., & Mount, S.A. (1984). Perceived contingency of reinforcements, helplessness, locus of control, and academic performance. Psychology in the School, 22, 465-469.
- Kohler, P.D. (1993). Best practices in transition: Substantiated or implied? Career Development for Exceptional Individuals, 20, (5), 107-121.
- Kugelmass, J. (1996). Reconstructing Curriculum for Systemic Inclusion. In Berres, M., Ferguson, D., Knoblock, P., & Woods, C. (Eds.). Creating tomorrow's schools today. (pp. 38-67). New York, NY: Teachers College Press.
- Lamb, M. & Bethell, S., (1992) Transforming low-track mathematics classes into empowering environments for mildly handicapped and at-risk students. Paper presented at the Council of Exceptional Children Conference, Baltimore, MD.
- Lampert, M., (1985) How do teachers manage to teach?, Perspectives on Problems in Practice, Harvard Educational Review, 55, 178.
- Laski, F., (1994), On the 40th anniversary of Brown v. Board of Education: Footnotes for the historically impaired. TASH Newsletter, 20(5), 3-4.
- Laski, F. (1994). Serving students with disabilities in post secondary education settings: A conceptual framework of program outcomes. Unpublished manuscript.
- Leinhardt, G. & Palley, A., (1982). Restrictive educational settings: Exile or haven, Review of Educational Research, 52, 557-78.
- Lincoln, Y.S. & Guba, E.G. (1985). Naturalistic Inquiry. Beverly Hills, CA: Sage Publications.
- Lipsky, D.K. (1987). Family supports for families with a disabled member. New York, NY: World Rehabilitation Fund.
- Lipsky, D.K. & Gartner, A. (Winter, 1996). Inclusion, school restructuring, and the remaking of American society. Harvard Educational Review, 66, (4), 762-796.

- Lipsky, D.K. & Gartner, A. (1997). Inclusion and School Reform Transforming America's Classrooms. Baltimore: Paul H. Brookes Publishing Co.
- Little, T., Gillett, J., Gray, M., Lamb, M. & Brice, L. (1995). A Handbook for Teaching Global Studies the Holt High School Experience. Holt, MI: Holt Public Schools.
- Lortie, D. (1975). School Teacher: A sociological study. Chicago: University of Chicago Press.
- Luchow, J.P., Crowl, T.K., & Kahn, J.P. (1985). Learned helplessness: Perceived effects of ability and effort on academic performance among EH and LD/EH children. Journal of Learning Disabilities, 13, 470-474.
- Madden, N. A. & Slavin, R.E., (1983). Mainstreaming students with mild handicaps: academic and social outcomes, Review of Educational Research, 53, 519-69.
- Meier, D., (January, 1995). How our schools could be. Phi Delta Kappan, 369-373.
- Mithaug, D.E., Martin, J.E., & Agran, M., & Rusch, F.R., (1988). Why Special Education Graduates Fail: How to Teach Them To Succeed. Colorado Springs, CO: Ascent Publications.
- National Association of State Boards of Education. (1990). Today's children, tomorrow's survival: A call to restructure schools. Alexandria, VA: NASBE.
- National Council of Teachers of Mathematics, (1989), Curriculum and Evaluation Standards for School Mathematics, National Council of Teachers of Mathematics, Inc., Reston, Virginia.
- National study of inclusive education. (1995). New York: City University of New York, Graduate School and University Center, National Center on Educational Restructuring and Inclusion.
- Oakes, J., (1985). Keeping Track: How Schools Structure Inequality, New Haven and London: Yale University Press.
- Ogbu, J.U. (1987). Variability in minority school performance: A problem in search of an explanation. Anthropology and Education Quarterly, 18, 318-334.
- Ogbu, J.U. (1992). Understanding cultural diversity and learning. Educational Researcher, 2, (8), 5-14.
- O'Neil, J. (December/January, 1994/1995). Can inclusion work? A conversation with Jim Kauffman and Mara Sapon-Shavin, Educational Leadership, 52,(4), 7-11.

- Pascale, P. (1990). Managing on the Edge. New York, NY: Touchstone.
- Powell, A.G., Farrar, E. & Cohen, D.K. (1985). The shopping mall high school winners and losers in the educational marketplace. Boston, MA: Houghton Mifflin Co.
- Pugach, M. & Lily, S. (1984). Reconceptualizing support services for classroom teachers: Implications for teacher education. Journal of Teacher Education, 35, 48-55.
- Pugach, M. & Warger, C. (1993). Curriculum considerations. In Goodlad, J.I. & Lovitt, T.C. (Eds.). Integrating General and Special Education. (pp.125-148). New York. NY: Macmillan Publishing Co.
- Pugach, M. and Warger, C. (Eds.). (1996). Curriculum trends, special education, and reform refocusing the conversation. New York, NY: Teachers College Press.
- Reason, P. (1988). Human Inquiry in Action: Developments in New Paradigm Research. London: Sage Publications.
- Rhodes, W.S., Blackwell, J., Jordan, C. & Walters, C. (1980). A developmental study of learned helplessness. Developmental Psychology, 16, 616-624.
- Roberts, R. and Mather, N. (1995). The Return of Students With Learning Disabilities to Regular Classrooms: A Sellout? Learning Disabilities Research and Practice, 10,(1).
- Rokeach, M. (1968). Beliefs, Attitudes, and values: A theory of organization and change. San Francisco: Jossey-Bass.
- Sapon-Shavin, M. (1988). Working towards merger together: seeing beyond distrust and fear. Teacher Education and Special Education, 11, 103-110.
- Sarason, S.B., (September, 1995). Some reactions to what we have learned., Phi Delta Kappan, 775-780.
- Schumm, J.S., and Vaughn, S., (1995). Getting ready for inclusion: Is the stage set?, Learning Disabilities Research and Practice, 10,(3), 169-179.
- Schutz, A., 1970. On phenomenology and social relations. Chicago: The University of Chicago Press.
- Schwab, J.J., (1964). The structures of the disciplines: Meanings and significance. In Ford, G.w. & Pagon, L. (Eds.). The Structure of Knowledge and the Curriculum. Chicago, IL: University of Chicago Press.
- Senge, P., (1990) The Fifth Discipline. New York, NY: Doubleday.

- Seventeenth Annual Report to Congress on the implementation of the Individuals with Disabilities Education Act. (1995). Washington, DC: U.S. Department of Education.
- Shanker, A. (1994). Full inclusion is neither free nor appropriate. Educational Leadership, 52,(2), 18-21.
- Shulman, L. S., (1986). Those who understand: Knowledge growth in teaching, Educational Researcher, 15,(2), 4-14.
- Sindelar, P.T. & Deno, S.L. (1979). The effectiveness of resource programming, Journal of Special Education, 12, 17-28.
- Sirotnik, K., (1990). Society, schooling, teaching, and preparing to teach. In Goodlad, J., Soder, R., and Sirotnik, K., (Eds.). The Moral Dimensions of Teaching. (pp. 296-327). San Francisco, CA: Jossey-Boss.
- Sizer, T. (July/August, 1996). The Disheartening Work of School Reform. Harvard Education Letter, XII,(4).
- Sizer, T. (1996). Horace's Hope What Works for the American High School. Boston, MA: Houghton Mifflin Co.
- Smith, D.D., (1989). Teaching students with learning and behavior problems (2nd Ed.). Englewood Cliffs, NJ: Prentice Hall.
- Stainback, S. & Stainback, W., (1985). Integration of Students with Severe Handicaps into Regular Schools. Baltimore: Paul H. Brookes, Publishing Co.
- Stainback, W., Stainback, S., & Moravec, J.S. (1992). Using curriculum to build inclusive classrooms. In S. Stainback & W. Stainback (Eds.). (65-84). Curriculum considerations in inclusive classrooms: Facilitating learning for all students. Baltimore, MD: Paul H. Brookes.
- Steele, C.M. (1992). Race and the schooling of black Americans. Atlantic Monthly, 269(4), 68-78.
- Supplement to TEACHING Exceptional Children, 26,(3), January, 1994.
- Teach Your Students How To Be Their Own Best Advocates in the Classroom. (1996, October). Inclusive Education Programs, 3, (10), 1, 10, 11.
- Thousand, J. & Villa, R. (1993). Strategies for educating learners with severe handicaps with their local home schools and communities. In Meyen, E.L., Vergason, G.A., & Whelan, R.J. (Eds.). Challenges Facing Special Education. Denver: Love Publishing.

- Thousand, J.A. & Villa, R.A. (December, 1995). Inclusion alive and well in the green mountain state. Phi Delta Kappan, 288-291.
- Tomlinson, C., Callahan, C., Tomchin, E., Eiss, N., Imbeau, M. & Landrum, M. (Winter, 1997). Becoming architects of communities of learning: Addressing academic diversity in contemporary classrooms, Exceptional Children, 63,(2), 269-283.
- Tralli, R., Colombo, B., Deshler, D., & Schumaker, J., (July, 1996). The strategies intervention model: a model for supported inclusion at the secondary level, Remedial and Special Education, 17,(4), 204-216.
- Udvari-Solner, A. & Thousand, J., (1995). Promising Practices that Foster Inclusive Education, In Villa, R. & Thousand, J., (Eds.), Creating Inclusive Schools. (pp. 87-109). Alexandria, VA: Association of Curriculum and Development.
- Vermont Educational Goals, 1990., Vermont State Department of Education, 120 State St., Montpelier, Vermont 05602
- Villa, R. & Thousand, J. (Eds.), (1995). Creating an Inclusive School, Alexandria, VA: Association for Supervision and Curriculum Development.
- Wagner, M., Newman, L., D'Amico, R., Jay, E.D. Burler-Nalin, P., Marder, C., & Cox, R. (Eds.). (1991) Youth with disabilities: How are they doing? The first comprehensive report form the National Longitudinal Transition Study of Special Education Students. Menlo Park, CA: SRI International.
- Wagner, M., Newman, L., Marder, C., D'Amico, R., & Blackorby, J., (1992), What happens next? Trends in-postschool outcomes of youth with disabilities. The second comprehensive report from the National Longitudinal Transition Study of special education students. Menlo Park, CA: SRI International.
- Walker, R., & Bunsen, T., (Fall, 1995). After High School: The Status of Youth with Emotional and Behavioral Disorders. Career Development for Exceptional Individuals, 18,(2), 97-108.
- Ward, M.J. (1991). Self-determination revisited: going beyond expectations. Transition Summary, 7,(12), 2-4.
- Ward, M.J. (1992). Introduction to secondary special education and transition issues. In F.R. Rusch, L. DeStefano, J. Chadsey-Rusch, L.A. Phelps, & E. Szymanski (Eds.), Transition from school to adult life: Models, Linkages and Policy, (pp. 387-389). Sycamore, IL: Sycamore.
- Warger, C. & Pugach, M., (February, 1996). Forming partnerships around curriculum., Educational Leadership, 53,(5), 62-65.

- Watson, N. & Fullan, M., (1992). Beyond school-university partnerships, in Fullan, M. and Hargreaves A., (Eds.). Teacher Development and Educational Change. (pp. 213-42). Lewes: Falmer Press.
- Will, M. C., (1986). Educating children with learning problems: a shared responsibility. Exceptional Children, 52, 411-415.
- Wilson, S., Shulman, L. & Reichert, A.E., (1987). 150 different ways of knowing: representations of knowledge in teaching. In J. Calderhead (Ed.), Exploring teachers' thinking. (pp. 104-124). London: Casell.
- Zigmond, N., (1990). Rethinking secondary school programs for students with learning disabilities. Focus on Exceptional Children, 23, 1-14.
- Zigmond, N. & Baker, J., (1990). Mainstream experiences for learning disabled students (Project MELD): preliminary report. Exceptional Children, 57, (2), 176-190.
- Zigmond, N., Jenkins, J., Fuchs, L.S., Fuchs, D., Baker, J. Jenkins, L. & Couthino, M. (March, 1995). Special education in restructured schools findings from three multi-year studies. Phi Delta Kappan, 531-540.

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