ROLES AND PERCEPTIONS OF FIVE STAKEHOLDER GROUPS IN A HIGH SCHOOL PROGRAM THAT EXEMPLIFIED SECOND-ORDER CHANGE

by

OliveAnn Davis Slotta

B.A., Hiram College, 1963

M.A., University of Colorado, 1992

A thesis submitted to the

University of Colorado at Denver

in partial fulfillment

of the requirements for the degree of

Doctor of Philosophy

Educational Leadership and Innovation

1999

This thesis for the Doctor of Philosophy
degree by
OliveAnn Davis Slotta
has been approved by

Lyn Taylor

Lyn Taylor, Chairperson

Ellen Stevens

Ellen Stevens

Marie Wirsing

Marie Wirsing

William Juraschek

William Juraschek

Maurice Holt

Maurice Holt

April 29, 1999

Date

Slotta, OliveAnn (Ph.D., Educational Leadership and Innovation)

Roles and Perceptions of Five Stakeholder Groups in a High School Program That Exemplified Second-Order Change

Dissertation directed by Associate Professor Lyn Taylor

ABSTRACT

This dissertation provides a historical, descriptive case study of a successful high school reform program. The intent of this study is to illustrate by example what has been described by Michael Fullan (1991) and others (Cuban, 1988; Elmore, 1988; Sarason, 1990) as second-order, transformational change and to carefully assess the roles played in one such program. The actions, attitudes, relationships and ideas of these five stakeholder groups were examined: students, participating parents, teachers, building administrators, and advisors. Emphasis is given to the different perceptions that characterize the different groups, and to the elements of the curriculum perceived by each group as being the most significant or useful. Also examined are the planning process of the program and the philosophies and assumptions articulated in its documents of initiation. Coded comments from participant interviews are presented in table format--one table for each of the stakeholder groups and two master tables. Findings include agreements and differences among stakeholders on the role of the other groups as well as key aspects of the curriculum process used.

Such an extensive characterization of the reform process will inform future curriculum and program design efforts. Ultimately, the purpose of this dissertation study is to understand why some efforts at school reform fail while others do not.

This abstract accurately represents the content of the candidate's thesis. I recommend its publication.

Signed Lyn Taylor

Lyn Taylor

DEDICATION

To Emily Anne Gilmore Slotta, my first grandchild, who was born during the writing of this document, in the hope that her generation of American children will have the opportunity to learn within the context of a peaceful planet.

ACKNOWLEDGMENTS

This work represents the cumulative learning of 30 years of professional experiences: experience as a high school mathematics teacher in a traditional urban high school in the 60s, experience working as a full-time volunteer with a social agency and its practical processes of educational transformation, and experience working with a teaching team to design and implement one comprehensive program of urban high school reform. Additionally and fortunately, these professional experiences happened in tandem with the reality grounding of parenting.

I would like to acknowledge those who, in the midst of these experiences, provided the foundational knowledge, investigative processes, academic guidance, and inspiration to proceed with this academic endeavor.

• All of the members of my doctoral committee--Lyn Taylor, William Juraschek, Marie Wirsing, Ellen Stevens and Maurice Holt. I could not have assembled a more dedicated or demanding group of academicians to guide my research and writing. Thanks, Lyn, for being my doctoral advisor; your thoughtful and continuous mentoring have kept me on this pathway. Thanks, Bill; your penchant for mathematical and academic rigor has inspired mine. And thanks, Marie; your shared love of the discipline of philosophy has provided great colleagueship.

• The members of the two Imaginal Education teams with whom I have worked most closely. In Chicago, Keith and George Packard, Karen Troxel Snyder, and Kristine Valdes, have worked tirelessly to design the Learning Lab format that provides practical direction toward new forms of image-based instruction. In Denver, Karen Bueno, and Burna and David Dunn, provided the consultant work that set the stage for the action research project documented here, and offered ongoing support for my work on this final product.

• My two friends and coaches--Michael O'Connor and RosaLee Mitchell. Your creative and endless support kept me on the writing track.

• My former colleagues at the Fred N. Thomas Career Education Center--teachers Lou Ann Fishering (now Townsend), Gordon Heaton, Eleanor Moller, Marc Nutter, Mel Spurlin (deceased), Sonya Pederson, and Carol Webb; and administrators Sharon Johnson, Tom Murnan, and Tom Stevens. It was their personal tenacity and dedication to reform that resulted in the implementation of a new plan, revised with great creativity and care, on an ongoing basis. Thank you for being willing to learn from the future.

• Finally, and of great importance, I would like to thank my family.
James G. Slotta, husband of thirty-six years, who encouraged both this study and the action research it documents. Your practical love for me and my work makes it possible on a daily basis. I have been truly blessed with wonderful offspring--two daughters, women of determination who are now excelling in technical fields, and

two sons who are thriving, with me, in the field of education. They have grounded my wild creativity in the worlds of real people and their professional prowess often diminishes my own. Thank you to each of them--to Elizabeth Ann Slotta, for sharing her precious personhood and computer expertise with me; to James Davis Slotta, whose doctoral studies preceded and now exist in concert with mine, for his practical support and academic inspiration; to Jon William Slotta, whose education studies coincided in time with mine, for his high energy and interest in education; and to Karen Ann Larson, foster daughter, for demonstrating that high expectations and a strong sense of family are worthwhile.

CONTENTS

APPENDIXES

FIGURES

Figure

TABLES

Table

CHAPTER 1

INTRODUCTION

This dissertation provides a historical, descriptive case study of a successful high school reform program. The intent of this study is to illustrate by example what has been described by Michael Fullan (1991) and others (Cuban, 1988; Elmore, 1988; Sarason, 1990) as second-order, transformational change and to carefully assess the roles played in one such program. I examine the actions, attitudes, relationships and ideas of five stakeholder groups: students, participating parents, teachers, building administrators, and advisors. Emphasis is given to the different perceptions that characterize the different groups, and to the elements of the curriculum perceived by each group as being the most significant or useful. I also examine the planning process of the program and the philosophies and assumptions articulated in its documents of initiation. Such an extensive characterization of the reform process will inform future curriculum and program design efforts as well as implementation. Ultimately, the purpose of this dissertation is to understand why some efforts at school reform fail while others do not.

The program under study was designed in 1986 to rescue at-risk high school juniors and seniors who were failing in traditional school settings, but succeeding in the more intense, hands-on approach of this career magnet school. The site was the

Fred N. Thomas Career Education Center[1] (CEC) in the Denver Public Schools (DPS).

As one of the four original teachers who worked with advisors to design the program, I maintained the documentation of the participants' demographics as well as the instructional processes and their effects. When the teacher in that position retired in 1988, I became the team leader, remaining with the program throughout its nine-year duration (1986 to 1995). Nearly seven hundred students were enrolled during that period of time. The curriculum was problem-oriented, community-situated and project-based. The program became known district-wide as *CEC's Academic Program* and received national recognition in 1991 through the Disney Company's American Teacher Awards.

The following, more specific questions framed my work: a) How do the five stakeholder groups, or "doers of educational change" (Fullan, 1991) describe their own and the others' roles in second-order change? b) Are any identified agreements or differences in perspective significant to future reform applications? c) How do the stakeholder groups recall and describe the problem-posing project that was the curriculum centerpiece? and d) How were the intentional processes used in planning both the initial program and its ongoing curriculum design related to its success?

First and Second Order Change

In his 1991 book, The New Meaning of Educational Change, Michael Fullan states that "sustained action over a number of years will be required if teachers are to

[1] The Fred N. Thomas Career Education Center was dedicated in Denver in 1976 as a magnet school where students from all ten high schools would explore career interests and learn technical and vocational skills.

work together in joint planning and adapting of teaching strategies to effect transformational change" (p. xiii). He cites Sarason (1990) in delineating change efforts into two types: first-order and second-order. By this definition, first order changes are those that set out to improve efficiency and effectiveness in present approaches. First-order changes "can be legislated and spell out objectives and competencies" (p. 287). Historical examples of such first-order reforms are the junior high school, intended to prevent underachieving pupils from dropping out, and the mainstreaming of disabled children, intended to encourage children with physical, mental and emotional disabilities to feel more a part of their school society. In each of these examples, a solution was adopted in response to a particular need; in each case, visible changes occurred in schools and districts as these programs were implemented, though new problems soon emerged as the systems reacted to the remedy.

Second-order changes are defined as those that set out to alter the fundamental ways of doing things. Fullan defines such transformational change as "changes which seek to alter the fundamental ways in which organizations are put together, including new goals, structures, and roles." Second-order changes require the altering of "the patterns and practices of individuals" (p. 287). In a later work, Fullan (1993) explains the difficulties of implementing second-order change and cautions that such efforts usually fail.

Examples of Second Order Change

This concept of transformational change is hardly new. Reformers of the Progressive Era in the early part of this century sought to *remodel* schooling to deal with the growth of industrialization, crime, and massive immigration (Tyack & Cuban, 1995). John Dewey advocated for change in the fundamental ways of doing things

(second-order change) when he suggested that schools must set up conditions that arouse and guide students' curiosity rather than hushing them up when they asked questions (Dewey, 1933).

Another example of such second-order "change agentry" is found in the work of The Institute of Cultural Affairs[2] (ICA). The ICA began its work with image identification and analysis in the early 1960s in order to occasion radical change in how people viewed themselves and their neighborhoods. ICA researchers applied Kenneth Boulding's image-change concepts to meet community development needs in line with the organization's stated mission (Griffith 1992). Eventually this focus on changing images in order to effect change in a broad context became institutionalized within the ICA as "Imaginal Education." For example, in a West side Chicago neighborhood project known as *Fifth City*, image analysis led staff from the ICA's precursor organization, the Ecumenical Institute, to conclude that the most debilitating image operative at that time was that of the black male self-image. Influenced by welfare practices and ghetto-like environments, male family members experienced uselessness and hopelessness. The staff of about fifteen people spent three years studying the issues before creating new community programs. When the new programs were started, one of the tactics used by the research team was the crafting of a small iron statue termed "The Iron Man" based on Old Testament poetry from the prophet Jeremiah. This small, black iron symbol was carried by volunteers walking the blocks within the boundaries of *Fifth City* and the narrative of the resilient Iron Man

[2] The Institute of Cultural Affairs (ICA) is a private, not-for-profit organization whose mission is research, training, and demonstration of participatory methods. The ICA's curriculum work articulates both measurable and existential objectives and intends for each student, empowered mental models. The agency's Imaginal Education work was substantially influenced by Boulding, Bruner, Montessori, and Piaget.

was retold many times. Results were observed and documented: new community economic and political leadership emerged over the next few years, which was widely thought to be a result of this and related efforts. This story serves to illustrate both the complexity of second-order change and the role that image strategy played in this particular implementation.

The educational component of this comprehensive effort eventually was replicated in a global network of preschools in primarily Third World environments (Cooperrider & Srivastva, 1987; Institute of Cultural Affairs, 1976).

Systemic Approach to Studying Second-Order Change

The progressive reformers who were affiliated with the Fifth City Project, and their strategies toward fundamental, second-order change provide a historical link to current change debates and to this study of one such episode. Fullan (1991) suggests that discussions about implementing successful transformational change should focus on the "work" of the "doers": what is required to achieve such change by the teachers, the principals, the students, the district administrators, the consultants, the parents, and the community. Fullan devotes a chapter to each of these groups. It is this query that drives the present study of CEC's *Academic Program*.--What did each stakeholder group in the school community do, and how were their actions perceived by the others?

Fullan's is a systemic approach that is consistent with that of Gregory Bateson. Bateson (1972), purports that it is futile to work only on parts of a system when change is intended, since the system always functions to conserve itself. Further, when

something new is introduced into a complex system. the system is disturbed and seeks to self-correct.

The results of the present study are discussed both in terms of Fullan's definition of second-order change and such assumptions of a systemic understanding. This research discusses the impact of embedding a community-oriented project within the curriculum and social fabric of the school itself. To date there has been no such comprehensive study of the "system" as it was involved in a successful education reform episode.

Historical and Social Context of This Study

> Change where it counts most--in the daily interactions of teachers and students--is the hardest to achieve, and the most important.
> (Tyack & Cuban, 1995, p. 10)

Schools, as social institutions, do change in response to changes in the larger society. For example, during this century the number of persons in the 5-19 age range who are enrolled in school has shifted from 50% in 1900 to 90% in 1995 (Tyack & Cuban, 1995). Schools change in response to new technologies, to new employment demands, and to new understandings of human cognitive development. In the past three decades, great efforts have been made to change our schools and their programs in response to actual and anticipated social and economic mandates. We have gained some clarity about the nature of successful reform, but are still striving for definitive knowledge. Meanwhile, the needs of the students have escalated, partly as a result of this very climate of change. The following two arenas of concern--school reform and

the state of our youth-- catalyzed the inception of the *Academic Program* and provide a historical context to the present study.

The State of School Reform--Concerns About Standards

While the political and social climate in the United States is ripe for educational reform, we cannot yet generalize about the ideal school community that we should be moving toward nor to what one model should prevail. The decade of the 1980s witnessed an explosion in public awareness regarding the need for education reform. In 1984, two books--John Goodlad's *A Place Called School* and Theodore Sizer's *Horace's Compromise*--reached best- seller lists and provided Americans of all social strata the opportunity to view the classrooms of their childhood memories from an adult/leadership perspective. In the 1990s, the nation's attention to education has increased even more. The annual Bracey reports (Bracey, 1997) published by Phi Delta Kappan, (1990-1998) critique the crisis-orientation of the media and provide a more objective review of student achievement data. Education issues have become the focus of political elections as well as the frequent subject of conversations in coffee shops and on talk shows.

Reformers today do not share the same goals about our schools and students. The standards movement, which began in specific discipline areas in the 1980s, is the driving force behind most reform efforts today. Standards advocates would have us believe that if the learning objectives are rigorous enough, the schools will be renewed and students will succeed at their next level of instruction. Others are troubled by the "impersonality" of this approach and advocate for a person-centered approach, or a "humane framework for the kinds of education required in a technological society"

(Greene 1988). Sadly, it seems easier for particular constituencies to reach agreement about the standards in a specific discipline area, than for the community of education reformers to agree about how we might arrive at excellence and who we want our students to become.

The State of the Nation's Youth--Malaise of Meaning

Urban youth. Chaos from the greater society always affects the well-being of our young. For example, teachers today cannot assume that students' general health and welfare needs are met before they enter the classroom. This is especially true in urban school districts. Thirty percent of our nation's urban children lived in poverty in 1990: 23% had neighborhood clinics as their only source of health care; 46% had changed schools more than once since first grade; and only 68% resided in a two-parent family (National Center for Educational Statistics, 1996). Many related physical and psychological spin-offs of these conditions--such as short attention spans, poor nutrition, and lack of motivation--affect the classrooms daily, influencing the learning of all the students there (Maeroff, 1998). In Colorado, the percentage of children living in poverty rose from 11.5 % in 1979 to 15 % in 1989, an increase of 30.4 %. Rates among minority and urban groups were much higher, triple those cited above (The Denver Post, 1992, p. 3A).

General Malaise Among Youth

Due to substantive changes in the larger society, "typical" youth activities like proms, football games, marching bands, and pep rallies have lost their adolescent following, resulting in a void of meaning and fun, and fostering within our youth a

general sense of confusion and malaise. During the industrial era, a spirit of competition had been the assumed mode of operation in all social strata. Today, gang activities and fear of violence may prevent or minimize large student gatherings beyond the regular school day. Once, military enlistment held out to our young people both a noble cause and a viable career option. Now, an anti-military, post-"M.A.S.H." (Movie and TV series) consciousness and a balanced-federal-budget mindset have converged to minimize this vocational pathway. Today's high school students exist in a present that lacks enthusiasm, eventfulness, and a positive vision of the future.

Programs Intended As Solutions Oblivious to Comprehensive Student Needs

Reform efforts responding to the needs recognized as growing out of these circumstances include some impressive and ambitious efforts:

• Professional associations such as the National Council of Teachers of Mathematics (NCTM) took aggressive measures to study and reform their own disciplines, and by the end of the 1980s NCTM's *Curriculum and Evaluation Standards for School Mathematics* was published (NCTM, 1989).

• In 1987, The National Board for Professional Teaching Standards (NBPTS) was established. It has formulated a volunteerism-based strategy for credentialing master teachers nationwide (NBPTS, 1994).

• In 1989, President Bush announced a set of eight new national education goals to be met by the year 2000. They included the goals to be first in the world in math and science; to have all children start school ready to learn; to increase high school graduation rates to at least 90%; and to have students leave designated grades

with demonstrated competencies in challenging subject matter (Goals 2000: Educate America Act).

- In 1992, President Clinton reaffirmed "Education 2000." They were adopted into law in 1994 as "Goals 2000: Educate America Act."
- In 1993, the Colorado legislature passed HB 93-1313 which mandated specific subject-by-subject content standards with uniform, correlated assessments to follow. The Colorado Model Content Standards (1995) were written by committees from across the state, in implementation of the bill.
- In 1997, supported by the nations' governors and accompanied by substantial funding, President Clinton again renewed commitment to the Education 2000 goals.
- New, more rigorous educational standards have been adopted in thirty-seven states.

Reform efforts in education have focused primarily on two areas: 1) *curriculum*, along with its complement, alternative assessment; and 2) *teacher quality*, as measured by pre-determined norms. Yet as various reform efforts and public debates intensify, it is important to assess the overall understanding of curriculum reform, whether these efforts are truly making helpful progress, and whether we are even asking the right questions.

Some initial critiques have suggested the need for a more deliberate study of the reform process based on points such as the following:

- Implementing the NBPTS plan for teacher certification will be expensive. President Clinton recently asked Congress for $105 million dollars for 1998-2002 operations, designed to put 100,000 teachers into the applicant process

and yield at least 35,000 teachers with National Board Certification over a five year period. The application fee for each teacher or for their district is $1000.

- There are additional costs indirectly, to the students. The substantial time required by both the volunteer teachers, and by the ambitious teachers who apply for certification translates directly to time away from lesson planning and student nurture.
- While standards advocate "high-level substance", the related planning process begins with content; the "positivist-realist" nature of this approach regarding what constitutes knowledge ignores the student as inquirer in the process.
- I have observed that virtually all major school reform efforts to date (1998) seek to commit all educators to one best way of educating all youth. They suggest uniform, predetermined, objectified, measurable, and discrete content and outcomes.
- Finally, we must be cautious not to think of school "reform" as a matter of tuning up the existing system. Improving student scores on national standardized tests is often viewed as the end to which all means should be directed. True reform will move beyond test scores and benchmarks to a totally new understanding of what it means to educate our nation's children--reform defined as "second-order change" (Fullan 1991).

These two stated areas of concern--the state of standards-driven school reform, the state of youth in the midst of turmoil--affirm the need for transformational, second-order change. The situation suggests that high schools should include, in addition to the usual mastery of technical and academic skills and knowledge, novel structures that can meet the needs of all students for meaning and well-being,

supported by an inclusive and interrelated approach to the curriculum. Schools are complex systems made up of people, curriculum, and all of the realities present in the larger society. Accordingly, educational change is complex. It "cycles and evolves" as professionals "tinker with and alter the hypotheses into hybrids" (Tyack & Cuban, 1995, p. 60). Tyack, Cuban, Fullan, and others concerned with lasting change focus on the educational constituencies. They discuss and analyze the stakeholder groups, the curriculum, and the various milieus, separately. In contrast, the present case study seeks to carefully explore the interrelations among all of the various constituencies and curriculum components found in one episode of school reform.

A Case Study of the *Academic Program* in the Denver Public Schools

The *Academic Program* at CEC was planned in response to the needs of urban high school students of the 80s and 90s, according to such an interactive and interrelated approach. It was implemented by four master academic teachers as a pilot program in the fall of 1986. During the spring 1986 semester, prior to the adoption of the image-based planning approach, all of the CEC teachers and administrators worked to identify the academic knowledge required for success in each of the career classes. The task of "covering" such a skill-based curriculum was eventually deemed impossible and the more student-centered, community-oriented, project-approach was then born. When this was recognized, CEC students were included in the curriculum planning through a workshop entitled "The Essential Elements of the *Academic Program*" (see Appendix A). This process-approach to the curriculum design became its hallmark; custom-made planning materials were developed and consistently used.

The program continued as a pilot, being evaluated and modified each semester for the next three years. In 1989, the *Academic Program* model became a formal DPS program and functioned as such for the following six years. Due to school and district reorganization, the program was closed down in January of 1995; at that time, however, it entered a replication phase with major components being adapted for use in other locations, district-wide. The following factors may have contributed to the *Academic Program*'s closure at CEC: 1) The high student energy level that was generated by the project's learning activities was viewed as disruptive by some school personnel; 2) All three of the school's principals, including the two who helped conceptualize the program in 1986, left for a different reason in June of 1994. The new principal was less than supportive of the program, and with no advanced notice to parents, teachers, or students--including graduating seniors--announced its immediate termination in January of 1995; 3) There was no official commitment to the *Academic Program* beyond the school site.

An academic program with a more traditional instructional approach was reinstated at the school in the fall of 1995 and, at the time of this writing, school administrators are working to again re-define important curriculum components, making them more interactive. However, there is no evidence of efforts to understand the original *Academic Program* curriculum--its comprehensive learning intents or unique planning processes.

Non-Traditional Features of the *Academic Program*

An examination of *Academic Program* artifacts indicates that this program differed from that of a traditional high school in these significant ways (see "Three Systems of Learning Chart" in Appendix A):

- Curriculum presentation format. Traditional high schools generally present curriculum in "Carnegie Units" delivered in forty-five minute periods and using a district scope-and-sequence format. Such a stringent plan is often a disincentive to individual student learning motivation (Carroll, 1994). In contrast, the *Academic Program* used time creatively and flexibly in periods never less than one hour long.
- Student involvement. Traditional high schools offer "extracurricular" activities designed to provide social skills and student leadership opportunities. Some choose to join clubs or do volunteer work within the high school setting. *Certain* students--generally those already possessing good social skills--are selected by teachers and peers for a finite number of leadership positions. Sadly, the majority of young people are not included in many of these interesting and formative activities. Students with family-support responsibilities, with part- or full-time jobs, with low motivation, or with debilitating self-images, generally "fall though the cracks." In contrast, the *Academic Program* was designed to include *all* students at all levels. It was designed with "academically disinclined" 11th and 12th grade students in mind and required them all to investigate project issues and share responsibilities.
- Focus on student uniquenesses. In most high schools, individual potential is seldom challenged and students' overall learning is rarely a category for

analysis or evaluation (Tyack & Cuban, 1995). Many students' talents and potential are consequently lost to the school community as well as to society. In contrast, the *Academic Program* implemented an academically rigorous and non-traditional approach to high school instruction, focusing on each individual's unique profile of learning strengths and relative weaknesses.

- A team approach to planning and assessment. The four teachers planned all curricula and provided all academic instruction. A teacher team leader provided coordination with the larger magnet school. Although each individual teacher had established grading policies, the interactive curriculum components--orientation and the selected project--were assessed by rubrics and portfolios. Students evaluated their project teammates (see Appendix B) on project work. Teachers were provided two additional hours of common planning time each week, making possible the ongoing, interdisciplinary curriculum design. Assessment of individual student progress and any needed adaptation of the curriculum plans to assure maximum interest and effectiveness occurred during that time.
- Multiple forms of assessment. Students participated in a team-based and self-assessment format for all project work (one class period per day), and an end-of-semester portfolio featured sections for learning achievements from all aspects of the CEC program. Academic teachers selected their own method for their other two classes. Course syllabi with clear expectations for grades and levels of achievement was sent home prior to each new semester.

Foundations and Assumptions of the Program

The mental image as fundamental to learning behavior. The model for the *Academic Program* was initially inspired by Kenneth Boulding, educator and economist. His theoretical treatise, The Image, (1956) states that a) much of human beings' thinking and behavior is based on their mental images; b) verbal, visual, or experiential messages form the images; and c) images affect behavior, which offers clues to the images. Finally, the images can be changed by strategic messages. Teachers and planners in the CEC program also later at various times studied the work of Peter Senge (1990) who presents a similar cognitive account, but uses the terminology of "mental models" and "actions" where Boulding uses "images" and "behavior". Senge's work reinforced and enhanced this understanding of the relationship between the students' images and their learning behavior.

Curriculum design based on image theory. The strategy of connecting curriculum to students' mental models or images was foundational in the design of the *Academic Program*. The curriculum was created by the *Academic Program* teachers and administrators with the assistance of two consultants from the Institute of Cultural Affairs (ICA) during the summer of 1986. The model was further significantly influenced by two conference events which took place at about this same time: a) the July 1986 Teachers' Institute at Spelman College in Atlanta, Georgia, an event that was sponsored by the Imaginal Education Program of the ICA and involved an international group of master teachers; and b) the June 1987 Education Summit at George Mason University in Fairfax, Virginia, an event that was co-sponsored by the ICA, New Horizons for Learning, a Seattle-based education think-tank, and others. Among the featured speakers at this gathering of prestigious political and education

leaders were Robert Aldrich, Barbara Clark, Reuven Feuerstein, Howard Gardner, Malcolm Knowles, David Perkins, and Edward Zigler. Information presented by these edge thinkers in their areas of research was shared with all of the teachers and consultants who were working with the *Academic Program* during its pilot phase.

Curriculum Design Included Intended Student Experiences

In addition to naming an image change or image to be shaped by each major curriculum component, *Academic Program* teachers also identified what they wanted these high school students to *experience* in these components (see Appendix C). This facet of the planning process served a "how-to" function in the learning plans, and encouraged comprehensiveness and creativity in teacher planning. It was always an intent of the program that students experienced success in academic achievement, positive personal interactions, and significant involvement in group decision-making.

Specific Agreements and Assumptions. The following agreements and assumptions guided the early planning of the *Academic Program*. Together the nine items represent a foundational belief that the experience of each separate part of a learning community is significant and that each affects the experience of each of the other parts as well as that of the whole (see Appendix A).

1. The students--their interests and needs--are the center or focus of the educational process.
2. Time is set at the present, i.e., while teachers planned somewhat with the nature of their students' future workplace in mind, learning activities were always delivered within the context of the present.
3. Work is presented as the pathway to life fulfillment.

4. All students are valued equally (in contrast to the common school practice of prioritizing the students from bad to good).
5. Teachers' time and students' time are considered to be of equal value.
6. Grades are used as symbols representing student achievement, to maintain continuity across the district. However, real-world project victories are the primary motivators and therefore better signs of actual achievement.
7. The interests and skills represented in each particular student body are always included in planning.
8. Teachers model effective teamwork, believing that more and better work can be done by an effective team than by individual efforts.
9. The larger Denver community is used to situate learning, providing an integral source of general information and learning project topics.

Procedural Underpinnings

Image-based curriculum. Curriculum planning for the program began by analyzing probable student images of themselves, their school, and the community, and then describing desirable images in each category. Each of the three semester schedule segments was defined by these desired images/image changes (see Appendix C), and these definitions guided further planning. During the first two weeks of school, student activities delivered messages designed to effect specific changes in student images. *Image of self* was encouraged to change from an "unsuccessful learner" to a "curious or successful learner," and from "high school kid" to "young adult." *Image of school* was encouraged to change from "a place to play" to "a place to work," from "a place where passive endurance is rewarded" to "a place where passive endurance

results in failure." and from an "inaccessible, pre-determined program" to "a learning community that requires everyone's participation." *Image of community* was encouraged to change from "a sometimes hostile and closed group of elected officials" to "particular, dedicated people working on special causes."

The mid-semester project targeted different image changes: *Image of self* from "disengaged high school student" to "effective, practical problem-solver"; *Image of school* from "a place where facts are dispensed in classrooms" to "a community resource center where problems are solved"; and *Image of community* from "inaccessible, scattered groups of people in unknown buildings" to "coherent groups of people whose causes need everyone's care". During the portfolio compilation and sharing sessions, these image changes were intended: *Image of self* from "student of facts" to "creator of products"; *Image of school* from "dispenser of rewards in segmented grades" to "acknowledger of learning accomplishments"; and *Image of Community* from "a place where luck is needed to succeed" to "a world in which the future is accessible" and "a source of resume recognition." Planning curriculum using this approach takes into account all of the ways messages are given and received including verbal, visual, and experiential (p. 14). Comprehensive planning processes were followed at each level, defining desired student images, measurable learning objectives, and experiential aims (see Appendix C).

The project approach. The *project* approach adopted by the *Academic Program* is of special interest due to its motivational nature and capacity to involve all stakeholders. It was the primary strategy to address the students' negative images of the community and school. While many educators would agree that a project-based curriculum provides a good way for students to learn (Valdes, 1998), research on the

topic has been situated mainly in the domains of science and social studies. The *Academic Program* employed curriculum projects that connected the four disciplines of English, math, science, and social studies, specifically to the 32 career classes offered at CEC at that time. These projects involved both students and teachers in problem-posing and problem-solving.

Key in framing the project was the semester schedule of learning-related events, designed with this rhythm: project topic, academic concepts, student research on the project, and synthesis activities. Before the beginning of each term, the teachers (with administrator consultation) selected a high-media-profile, issue-oriented topic that provided a real-world connection for academic studies and problem-solving, project-based applications. Teachers and admininstrators building-wide were encouraged to suggest possible project themes with interesting learning extensions, making for a highly creative and lively process. The topic was eventually consensed upon by the academic teaching team during an all day planning meeting that was held at least one month prior to the beginning of the next term.

The first two weeks of each semester were devoted to assessing the profile of learning uniqueness and the personal strengths or gifts of each student. At this time, a career exploration pathway was identified for each student.

Next, guest speakers from the community who had in-depth knowledge about the project topic frequently provided first-hand information and field trips were scheduled as appropriate. All learning activities were designed to send intentional and positive messages about school (as a place of resources), about the community (as a locus of care and creativity) and about the individual student (as possessing unique gifts and learning preferences).

Mid-semester, students worked in teams for two weeks, first to research the issues and then to make recommendations for a solution to the project challenge (Figure 1.1).

Community agency representatives with whom the student teams had worked, as well as administrators and parents, were invited to attend a final reporting session in which results were shared and a consensus was reached regarding the challenge topic (Figure 1.2) (Snodgrass & Slotta 1992). At the end of the semester, student portfolios included at least one final product from the project team's work. Students wrote evaluative comments summarizing both their own learning and the contributions of their teammates.

Figure 1.1 A team of students researches a project sub-topic.

Figure 1.2 Students and guests listen to project team reports.

The Project Approach motivated students to create solutions to problem situations that affected their community and world. In so doing, they applied already-mastered academic and practical skills, eliminating the all-too-familiar question, "When will I ever need to know this?" The process was formally termed "The Project Approach" by ICA consultant David Burns (pseudonym) at its inception.

The project topic frequently became the focus for monthly enrichment activities. Projects usually had a global dimension; they always had a local aspect that could be effectively problem-solved. Samples of project themes were: "Water Conservation on a Desert Plateau"; "Remembering the Rainforests"; "Exploring Another Continent" (Africa); "Drop-out Prevention"; "The Gulf War--Blood for Oil?"; "Our Global Neighborhood"; "Destination White House"; "Immigration--

Crowded Shores. Closed Doors"; and "Health Care 2000." (The curriculum and results of the Fall 1994 project on immigration entitled. "Crowded Shores. Closed Doors." is found in Appendix B.)

Many of the project topics naturally incorporated a fund-raising component for one of the teams. During the rainforest project, students on one of the teams worked with a local agency, Denver Digs Trees, to obtain and then plant trees along an eroding water canal; students on a different team raised money to adopt an acre of rainforest land in Central America. During the "Summer of Violence" (1993--in Denver) project students learned about the AFSC and other local agencies that teach conflict resolution skills; during the project on Africa, student teams learned about and raised money for the Wildlife Foundation (endangered animal species), the Sierra Club, and UNICEF. These activities all took place during one, one-hour class period for three weeks.

The Project Approach was designed to model and encourage these educational reform practices: *teamwork and cooperation*, as students experienced the mandate to design common solutions; *lifelong learning*, as students watched teachers learn about new and current topics; *individual motivation*, as students struggled to meet real deadlines; *connected learning and academic affirmation*, as students applied academic skills to real situations; and *the rewards of volunteering*, as students worked on behalf of the larger community's needs (Slotta, 1993).

Students. The *Academic Program* accommodated up to 100 students for up to four semesters. Six hundred eighty-five students participated in the program during its nine year duration. In general, the student body consisted of active learners who had not succeeded at their home high schools. Student mix was representative of the

population of the city of Denver in ethnicity and gender and often contained children of notable Denver area educators. Over 60% of these students worked full- or part-time (Spampanato, Becker & Johnson, 1991). Second-year students were required to provide leadership for small groups and for project teams. They were also encouraged to enroll in community college courses or to schedule career-related internships in tandem with their academic schedules.

Staff and advisors. Eight different teachers provided instruction in teams of four per contract year, each representing one of the disciplines of English, math, science, and social studies. One of three building administrators coordinated the staff and oversaw the learning activities. The original teachers were four master teachers, having come to the CEC from positions of leadership in their former school assignments. They were all parents of grown children.

In the fall of 1994, a board of advisors for the *Academic Program* was formed with representation from former students, and from parents, teachers, and administrators, as well as from both university and ICA advisors. One member, the parent of a former student, had also been a member of the DPS school board. This advisory board brought a comprehensive and informed perspective to the program, supported the students' project work, and sought to expand the program's influence within educational networks across the state (see Appendix D).

Success Indicators

The *Academic Program* at CEC is worth analyzing because it was widely deemed "successful" and it is an example of second-order change. But how can we provide some tangible measure of this success?

The following three criteria are suggested by Tyack and Cuban (1995) as a valid measure of success in educational reform settings: a) Fidelity to original design; b) Effectiveness in meeting pre-set outcomes and c) Longevity (pp. 61-63). Each of these factors was reflected in the success of the *Academic Program* and will be considered here. In addition, informal reports from students, teachers, and administrators provide testimony to success. Finally, a prior quantitative study of student achievement will be briefly revisited.

Fidelity to original design. While the *Academic Program* was modified each semester in small yet significant ways (p. 12), the original schedule, intentions, and curriculum designs were never modified (see Appendix A).

Effectiveness in meeting pre-set outcomes. The image-shaping strategies which directed learning activities toward the students' images of self, school, and community, were documented by a quantitative study (Slotta, 1991). This study indicated that students who had participated in the *Academic Program* exceeded normal expectations of young people in that age group in community involvement, had completed their high school education, and had not received public assistance of any kind. (See Appendix E).

Longevity. The *Academic Program* enjoyed a nine-year duration, six years past the pilot phase. The fact that this is long for an education innovation is not necessarily an indicator of success, as innovations can change over time and create

new problems within systems. The fact that replication was intended when the program was closed at the Career Education Center is of more significance. District administrators had intended the basic structure and schedule of the program was to be a model for at-risk and alternative programs at other secondary school sites.

Student, teacher, and administrator reports:

- The CEC programs were evaluated each semester for the administrators by the students. Results of these evaluations were always extraordinarily complimentary of this particular program.
- Throughout the program, CEC professionals reported unusually high motivation and achievement from the *Academic Program* students. Teachers and administrators regularly noted significant, observable changes in the student participants' attitudes.
- The *Academic Program* was sufficiently recognized and respected to be presented at several conferences, including the Colorado Council of Teachers of Mathematics' (CCTM) annual conference in 1989, and ICA West's annual meeting in 1992.
- The Project component has been a featured topic of ICA Chicago's Learning Lab[3], a two-week summer training program for teacher teams. "The Project" is

[3] The Learning Lab is an intensive, two week laboratory developed by The Institute of Cultural Affairs (ICA) Chicago in 1991. It features instruction, demonstration, and practice in image-based curriculum design and delivery. Labs have been sponsored in Chicago by the Golden Apple Program and attended by Golden Apple Scholars and Chicago Public School teachers. In 1996 a Learning Lab was held in San Jose, California; it was co-sponsored by the ICA, a River Alliance of five science magnet schools of San Jose Unified School District, San Jose State University, and Joint Venture (business-education) Silicon Valley. One of the five participating schools--John Muir Middle School--was honored later in 1996 by President Clinton as the site for his education address.

frequently mentioned on teachers' final evaluations as their Learning Lab program highlight.

- Requests for presentations and instruction regarding the *Academic Program* have come to the CEC from school districts across the country.
- The program received four Public Education Coalition grants and several federal title grants for particular project components (Slotta, 1991).
- Although the program was consensus-based and non-competitive in nature, students regularly received recognition in outside competitions during high school.
- Graduates of the program have succeeded in university work, earning baccalaureate and graduate degrees; others have excelled in post-high school careers. One former student in the *Academic Program* is now teaching the CEC career class he attended during high school.

While some of the above items are based primarily on casual teacher and school reports and on local contest documents, interview comments from the present qualitative study do support these claims.

Quantitative study of student achievement. In fulfillment of part of a master's degree requirement at the University of Colorado at Denver, I designed and conducted a quantitative study of *Academic Program* student achievements (Slotta, 1991)(see Appendix E). The inquiry was conducted at the end of the first four years of the CEC *Academic Program*. In order to determine whether image change had actually occurred, former students were surveyed after leaving high school. The following three facets of intended image formation or change were examined: image of school (measured by school completion), image of community (measured by degree of

political or community involvement), and image of self (measured by degree of economic self-sufficiency).

Results from this earlier study clearly indicated the success of the program. Approximately 87% of the at-risk students who had ever entered the program graduated from high school; an additional 9% had earned their GED. This compares with 78% for the district overall. (No graduation rate for At-Risk Students Only category was available.) Thirty-eight percent were registered voters, as compared with 3% of this same age group in the same county during the same time frame. Over half had attended college or technical school, and 95% were economically self-supporting. (No data for economic self-sufficiency were available for this selected age group.)(Slotta, 1991)

Summary

This is not a study about whether change is needed in schools today; rather, it assumes that schools need constant renewal in both content and process so that our students may "learn from the future." Neither does this study seek to recommend one major reform strategy over another; it assumes that teachers and administrators at an educational site will utilize the courses, schedules, and learning events that best meet student learning needs at a local site.

Rather, this is a study about second-order change. It is a study that scrutinizes one local team of *doers*--teachers, administrators, and advisors, together with representative students and their parents--who represent all the stakeholders in a reform process whose aim was to respond to their school community's perceived needs. It is a study that analyzes the comments of those who created this successful reform program and maintained ongoing documentation, buoyed up by its many

victories along the pathway. This study examines artifacts, documents, and personal experiences, and captures the significant attitudes, actions, and thoughts of the stakeholders in this particular reform episode. In short, metaphorically, it is a case study that examines both the actors and their script, plus the producers, the audience, the critics, and the reviewers.

If the journey from *reform* to *transform* requires radically altered organization then it must also require intentional model-building and experimentation. Such action research can only happen by including classroom laboratories that try, showcase, and carefully document reform efforts. This study is an analysis of one such program--the *Academic Program* at Denver's Career Education Center. It expands on the substantial quantitative documentation done after the first three years of the program's implementation (Slotta, 1991).

This study aligns the *Academic Program's* various features and accomplishments with recent definitions of second-order change. An important premise of both the case and this study is that students, parents, teachers, administrators, and advisors all have unique and important perspectives to contribute. This premise is supported by a second: There are appropriate and important philosophical assumptions and planning approaches that, when incorporated into the curriculum design process, produce meaningful and maximized learning experiences that prepare students for lifelong learning in this, the Information Age.

CHAPTER 5

IMPLICATIONS

The stated intent of this historical, descriptive case study is to examine closely one meaningful high school reform program and to identify the commonalities and differences found in the ways students and their parents, together with their teachers, school administrators, and advisors, perceived its important components. This study examines interview comments, artifacts, documents, and personal experiences, and captures the significant attitudes, actions, and thoughts of the stakeholders in this particular reform episode. Metaphorically, it examines both the actors and their script, plus the producers, the audience, the critics, and the reviewers (Chapter 1).

This study began with the premise that a significant and successful episode of second-order reform happened; it purported that reform literature would be enhanced with a clearer understanding of how the roles of the five key stakeholder groups had been acted out (Chapter 2); finally, it found that the way in which the project curriculum component of the program fit into the overall design to increase student motivation and interest was significant (Chapter 4). The image analysis method that was used in the initial design of the program provides a second summary of participants' comments (Table 4.7). This chapter synthesizes the findings as implications for stakeholders in the reform process, as insights about the nature and design of curriculum, and as implications for further research.

Implications for Stakeholders

Comparing and contrasting these stakeholder perceptions produces many correlations, but it is the disjunctions that most inform the questions of this study. This discussion draws from findings presented throughout Chapter 4, with a focus on important disjunctions or agreements and their implications; Tables 4.6 & 4.7 are primary references. The stakeholders' perceptions of their own roles may be read from the diagonal of Table 4.6 (in the form of coded comments) and Table 4.7 (in the form of corresponding images). These perceptions can be compared with the findings of Tables 4.1 through 4.5, which focused on specific aspects of the reform process (e.g., interactive curriculum, supportive parents, etc.).

Empowered Students

In all the summaries of parent comments (Table 4.2), administrator comments (Table 4.4), and advisor comments (Table 4.5), students were seen as empowered and involved in the *Academic Program* at several levels. That the teachers and the students themselves did not describe the students with this quality (Tables 4.1 and 4.3) may be explained by the fact that this outcome was unintended but significant. Initial Program Guidelines described in Chapter 1 (p. 21) and provided in Appendix A (program initiating artifacts) do not specifically mention the objective of student empowerment, although this is clearly an implicit goal. Because students and teachers, including those who participated in this study, were well aware of program goals, we might expect the observed absence of explicit statements about the student role. Still, the clear disjunction noted above suggests that parents, administrators and advisors perceived student empowerment as an important component of the *Academic Program*.

All educational communities are well advised to talk to the students. The *Academic Program* included students in the initial planning process, and always placed them in project leadership roles. Dewey (1938) suggests that "there is no defect in traditional education greater than its failure to secure the active cooperation of the pupils in the construction of the purposes involved in his (or her) studying" (p. 67).

The frequent mention of personal freedom and the responsibility of choice by both students and their parents implies that *there are in fact structural ways to assure that high school young people can be prepared for personal success in a public school setting*.

The students interviews had this to say about this aspect of the experience:

> I had never accepted ownership of my life {before the Academic Program}. It was kinda like, well, whatever happens, we'll see. But at that point I think I realized that actually it was me that makes things happen in my life. If I wanted to do something with my life I would have to do that. To have to make those decisions. My life is up to me.
>
> Teresa Spring-Andrews

> The best thing that CEC did for me was to change my attitude and to let me know that if things weren't really going well that I could go and find something else--like how I took college classes before I graduated. . . I know if I'm failing or not doing well it might not be me--it might be me in the wrong situation.
>
> Cloud Parson

While one might argue that this insight on the part of Cloud may mean that she retreats from personal struggle, the at-risk nature of adolescents is often a product of a no-win struggle of some sort and in the words of the song, "to know when to fold 'em", or even that "folding 'em" can be a self-conscious decision, is a true victory. References in Table 4.1 to personal freedom such as "choices in study topics", "leadership experience", and "gained confidence" and in Table 4.2, as "problem-solving activities" and "opportunities to do something for someone else" point to what

Maxine Greene calls "public spaces" (Greene, p. 13). In her theologically-oriented discussion of the topic of freedom, she calls for empowering students by creating in schools, "spaces of dialogue in their classrooms, spaces where they can take initiatives and uncover humanizing possibilities." If the *Academic Program* accomplished this, it would be important to probe further into the "how" of that particular curriculum design.

Trusting Administrators (of Teachers)

Administrators perceived themselves as trusting the teachers, and the teachers perceived that the administrators trusted them (from Tables 4.6 and 4.7). However, there is no indication anywhere in the tables that the teachers perceived the administrators as trustworthy. While these data represent a time span of several years of a creative working relationship between these teachers and administrators, it appears that the positive experiences were not sufficient to overcome tensions and prejudices on the part of the teachers doubtlessly derived from past disappointments and political battles. This implies that *planners of transformational change may logically assume that some distrust of administrators by the teachers is likely to exist, and should not underestimate the stability of such images.*

Proactive Teachers

Administrators agreed that they "should let the teachers do it," acknowledging that teachers are multi-talented and dedicated (from Table 4.4). Similarly, teachers saw their own role as effective and inspired (from Table 4.7). This agreement implies that

establishing and maintaining the teachers in a role of empowerment in the change process is highly advisable and perhaps even essential.

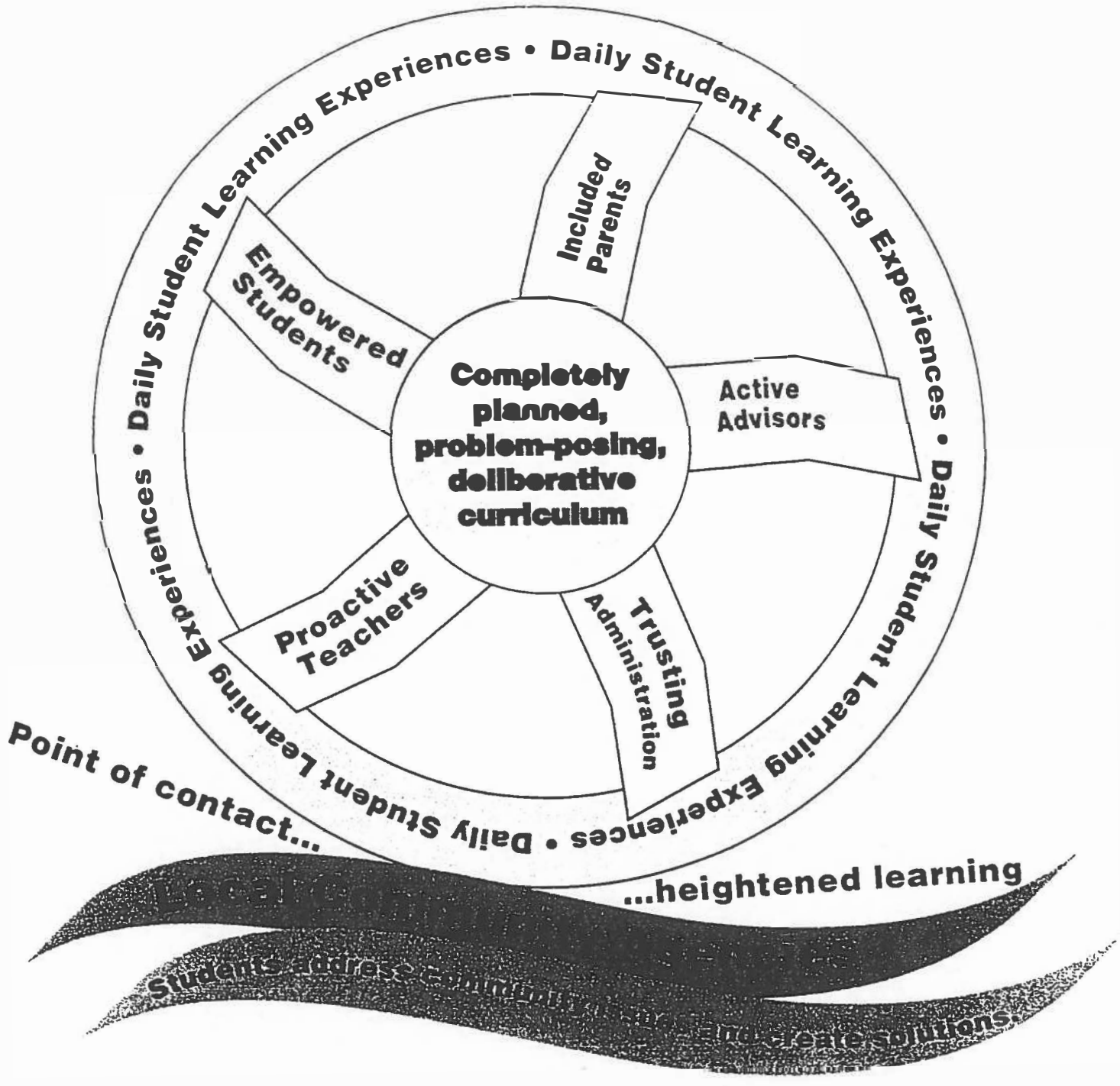
Who's Guarding the Treasure?

Reform always takes place in a reality of limited resources and competition. Whom should we assume will guard and protect a young and fragile program from damage or destruction by political tampering? While several of the coded comments pointed to an awareness of this need, there was no agreement from the stakeholders as to whose responsibility it ought to be. Advisors thought the administrators were responsible. while the teachers saw the advisors as being responsible (Tables 4.5 and 4.7). Administrators and parents failed to identify the need for this guardian function. None of the stakeholders identified their own role as that of "program guardian," and no one suggested that the parents might contribute to this role. If any single finding from this study could be seen as illustrative of the reasons for the closing of the *Academic Program*, it would be this one. When it came time for a decision about the future of the *Academic Program*, there was no responsible guardianship dynamic in place. Thus, in any transformational reform effort, *the importance of the guardian role should be recognized early on, and a consensus reached about the ways each group of stakeholders might contribute to that role.*

This study has identified particular qualities among the key players who are involved in a transformational change process. What final form might the findings and insights of this study regarding the stakeholders take? Tables 4.1-4.6 are informative, featuring numerical analyses of comments, titles of columns, and even the visual drama of empty table cells. They represent a synthesis of hundreds of pieces of identifiable

data and of comments and images regarding what worked. Table 4.7 is a unique and less verifiable presentation of the stakeholders' comments. It is one person's suggestion of the possible mental models (or images) that lie behind the stakeholders' comments (or messages). This image analysis product is included in this document because it provides additional insights into the operating assumptions of the stakeholders.

If the identified qualities of these five constituencies and their inter-relatedness do hold keys to successful systemic reform, a metaphor more appropriately encapsulates these insights. Many cultures throughout history have found utility and beauty in the wheel. Its elegant simplicity, ancient roots, and futuric formats make it a unique archetype and appropriate symbol for transforming education. The spokes of the wheel in this symbol would be: *empowered students, included parents, active advisors, trusting administrators*, and *pro-active teachers*; *problem-posing, completely planned, deliberative curriculum* becomes the hub. Action begins as the wheel turns on daily student learning experience with the point of contact community agencies on the grounded, real-world. When this wheel of transformation rolls into any school or district, it must have all five spokes, a solid structure, and more than kinetic energy behind it!



Insights About the Nature and Design of Curriculum

Today, our national goals and state standards are symbolic of the subject-orientation and knowledge-as-subdivided-pieces philosophy that drives much of educational reform. In school districts across the nation, standards are written in a language of what teachers will teach (benchmarks), what the students will know and be able to do, and how students will be assessed on that knowledge. The planners of the *Academic Program* intended their model of second-order change to be something quite different--change from the traditional high school with subject matter divided into Carnegie units and a knowledge-driven, curriculum-coverage approach. By examining the documents of initiation (see Appendix A) and the curriculum design methods (see Appendix C) it is clear that they intended a discovery-based, pragmatic approach to maximized learning. They intended interactive instruction, inspired by the needs of the community; they intended that the students would learn from the future.

It is curious that, in the objectives-oriented school climate of the 1980s, the administrators had the most to say about the students (Table 4.4) while the teachers had the most to say about curriculum (Table 4.3). Three hundred fifty-nine of the 401 non-role coded comments had to do with pedagogy and curriculum and 28% of the coded comments were about only curriculum. One might not expect to find *curriculum* as a central focus of the perceptions. It may be concluded from these analyses of the data that the curriculum of the *Academic Program* was understood by everyone, engaging and collaborative, and was connected to the real world. When these aspects are included in a reform event, second-order change is intended and enabled. It would be less likely to find agreement between young adults and their parents on a question like "what worked in high school?" The central position that learning holds

in the comment tables, however, reveals the memorable nature of the learning activities in the *Academic Program's* delivery model.

What exactly do we know about the curriculum of the *Academic Program*? This study has detailed many of the curriculum strategies implemented throughout the program, as well as the weekly and daily practices of the staff. From archival documents related to the planning phase (see Appendix A) as well as from program artifacts, several important values relating to the systemic nature of reform can be identified: (a) a student's time is equal in value to a teacher's time; (b) action takes place in and for the present--not just for the future; and (c) the community of learners as a whole has both needs and experiences, and must be cared for. These recurring values imply an awareness by the planners that serious reform involves changing a complex dynamic system, whose whole is greater than the sum of its parts.

In addition to the above esoteric framework, the examination of artifacts revealed that the *Academic Program* curriculum operated with these three foundational pieces (see Appendixes A & C):

- Each unit, project, and course learning plan had two different objectives statements--a "rational (or measurable) objective" and an "existensial(sic)(or experiential) aim." (The second form may have contributed to the stated sense of freedom and empowerment on the part of the students.)
- The program plan and many of the projects and units were framed in "desired images" about school, community and self.
- A project theme delivered in curriculum units over a semester of time and situated in the needs of the larger community made learning meaningful.

Let us examine each of these three aspects of the curriculum further.

Two Different Types of Learning Objectives

Each major unit and lesson plan of the curriculum of the *Academic Program* featured two types of learning objectives --a measurable objective and an experiential aim. While the measurable objectives are customary in instructional planning, a consideration of what experiences might enhance the learning objectives is a unique approach. The experiential component served to inform the "how" of lesson plan delivery and encouraged continuity of student experience. John Dewey writes of worthwhile educational experiences, or continuity of experiences: "Experiences, in order to be educative, must lead out into an expanding world of subject matter, a subject matter of facts, or information, and of ideas. . . .a continuous process of reconstruction of experience"(Dewey, 1938, p. 87). Dewey's mandate would seem enabled by this two-part planning approach and is consistent with Alfred North Whitehead's (1949) concept of "occasions of experience."

Image-Based Planning

This lesson planning strategy takes into account not only the major concepts and skills intended for mastery, but also the key assumptions brought by the stakeholders, generally the students, into the classroom. Previous applications of this approach have been documented in the area of community development; further action research in the field of education is implied by the findings of this study. As demonstrated in the *Academic Program*, there are at least these two additional applications for the methodology in education: 1). Teachers and advisors can use this method to formally articulate a desired image and design strategic curriculum messages that may produce it, much as a commercial message is beamed to a

television audience; 2). Teachers can use image analysis to gain insights into the habits and behaviors of a problematic student; (Example: "Do his resistant actions or statements indicate a negative image of algebra class, or a negative image of his own math abilities?" In this latter case, student comments and behaviors are the clues to hypothesizing the image.) Once a possible negative image has been identified, the teacher can deliver strategic messages to that particular student.

A Project Theme Each Semester

The curriculum of the *Academic Program* was community-situated and deliberative (Chapter 1). The frequency and nature of references by interviewees to the project component of the curriculum design have implications for encouraging active, connected learning and for the role of the larger community in overall high school design. Throughout nine years of project activities, I observed students collaborating with others on root causes of community issues, eventually formulating recommendations. As the math teacher on the original team of four teachers, I can witness to the amazing impact that these projects had on students of all backgrounds and abilities. During the "water project," for example, I watched in amazement as urban high school students got worked up over the effects of water policy on rural farmers, surprising themselves as much as the faculty. In general, the intensity of the projects motivated underachievers to excel and significated the talents of the gifted; the team assignments provided teachers with a way to structure intentional peer influence, while the teamwork itself provided an opportunity for latent leadership to flourish. The project products or solutions provided the community with a smorgasbord of possible solutions to real and troublesome problems. The project quickly took on an

instructional life of its own. It provided for the students an experience of vocational usefulness, a curriculum attribute that is difficult to achieve, yet critical for the young of our time.

The descriptions of the community-wide components of the *Academic Program* are consistent with the descriptions Dewey (1902) made of community linkages for schools. John Dewey is widely recognized as a great innovator in education. His writings have taken on a timeless quality. His reflections on student behaviors and teacher propensities seem often to refer to situations of the 1990s as well as the 1890s when they were first written. He recognized the need for synthesis of the social, the psychological, and the philosophical elements of schooling. His pragmatic approach was a natural combination of inquiry and relatedness. It was at odds with the artificial pedagogy of most classrooms. Instead, he called for "a mode of activity on the part of the child which reproduces, or runs parallel to, some form of work carried on in social life" (p. 132). The subject matter of the studies must be re-connected to the experience from which it has been abstracted. "It needs to be psychologized, turned over, translated into the immediate and individual experiencing within which it has its origin and significance" (p. 22). The project component of the *Academic Program's* curriculum served this function each semester.

Reid (1992) purports that deliberation of many groups & perspectives are important in the curriculum process. Teachers, students, subject matter milieus, and curriculum-making are all important and unique sources of knowledge that need to be given equal weight in deliberation. He further laments that in our time, few are trying to establish a common interest.

These interactive pedagogical practices are what education literature terms *critical pedagogy* (Knoblauch & Brannon, 1993). These authors define such teaching as being ". . . about the willingness of people to inquire and change and make changes, to accommodate themselves to differences, and to read the social world, in its complexity, for the promises it makes about the qualities of its members' lives and the extent to which it delivers on its promises" (p. 49).

They further cite Pamela Annas, in O'Malley's, Politics in Education as saying: "Radical teachers believe theory and practice are not separable" (p. 48).

That the *Academic Program* teachers practiced this approach was evidenced by teacher Cassidy Weber's description of the learning environment created by the projects:

> It was a learning process for all of us. . . there was a big contrast. {The students} had probably never been in a school where they did that kind of thing before . . [There was] a combination of their academics in a novel way . . they could bring their career skills into the classroom when we did the projects so they could see a practical use for what they were doing and how it all intertwined.

Is the Project Approach, as a process of engaging any student anywhere in his/her community's future, replicable? Probably not in its entirety. It is the creative response of one group of master teachers to the needs of one group of high school students in one particular urban school. The *Academic Program* at CEC did have as its story and impetus that it was important for students to respond to perceived needs in their community and world. The specifics of each particular project provided a context or narrative for the English, math, science, and social studies investigations that term. Such a process of devising a community-based, active learning experience with relevant ties to the future could certainly be every school's goal.

Other Connections

Central Park East Secondary School

In addition to the three aspects of the *Academic Program* curriculum detailed above, three other related aspects bear further comment.

One cannot help but notice the marked parallels between the *Central Park East Secondary School* (CPESS) and the *Academic Program*. While the planning team of CEC's program was not aware of its counterpart in the New York Harlem neighborhood, the two were programmatically alike in these ways: a) date--CEC's *Academic Program* began in 1986, CPESS began in 1985; b) size--Class sizes and staff sizes were about the same--both averaged about 100 total students at a time; CPESS having a slightly lower student-teacher ratio; c) entrance requirements--None; both were eager to serve a microcosm of society; d) culture--both sought to create a caring learning community with celebrations and mournings; e) philosophy--both subscribed to the progressive schools approach inspired by John Dewey (1938); f) experimental--both saw themselves as doing action research on behalf of the larger reform movement; g) demographics--both were urban-based with high minority enrollments.

In addition to the above striking similarities, there were also these major differences: a) CPESS was initiated by a school district incentive and with university advisors, while CEC's *Academic Program* was initiated by teachers and administrators with research agency advisors; (University advisors became involved at a later time.) b) urban Denver is less affected by drastic social and economic factors than is east Harlem; c) CPESS took place at multiple sites, while CEC is one unique magnet school; d) CPESS had an elementary program which preceded it; CEC's *Academic*

Program was always only at the secondary level, and primarily with 11th and 12th graders.

In light of these similarities and differences, one wonders how significant an ongoing information exchange would have been between these two programs, had they known of each other's work.

Motivational Nature

It is also worth noting that participants referenced learning activities as interesting, not boring, (Tables 4.1, 4.2, & 4.3). This may be a product of the planning methods used, or a simple decision to view learning in a different way. Curriculum theorist Maurice Holt, in his 1996 article "Casablanca and the Making of Curriculum," details the roles and tasks required in the making of an engaging movie, and applies this understanding to curriculum-making. Using the characters and plot of Warner Brothers' 1942 film *Casablanca* as his illustration, Holt says,

> If we suppose that, in curriculum terms, the analog of the movie and its story is the narrative that unfolds in the classroom, then teachers developing a curriculum assume at various times the role of writer, director, and part-producer of the movie. In the process of curriculum, teachers and students become both contract players and beneficiaries of the experience. The principal's role has production aspects.... (p. 5)

It may be assumed that the task of writing a movie script would be undertaken with different intents and expectations from that of writing a lesson plan, and that these very intents have everything to do with the final product and its effects.

Learning Community

Finally, a sense of community was both an internal and external reality for the *Academic Program*. The program itself became a learning community; though this was not stated as an initial intent, student interview comments defined and highlighted it. Within the school community, all students had important tasks for which they were responsible. Second year academic students (seniors) valued leadership assignments. The importance of social context to learning is detailed by Lave and Wenger (1991) Their theory of social practice claims that learning, thinking, and knowing are relations among people who participate in activity, in, with, and arising from the socially and culturally structured world (p. 51). Further on, they conclude that "Activities, tasks, functions, and understandings do not exist in isolation; they are part of a broader system of relations in which they have meaning. . . To ignore this aspect of learning is to overlook the fact that learning involves the construction of identities" (p 53).

In Democracy and Education (1916), John Dewey states, "The measure of the worth of the administration, curriculum, and methods of instruction of the school is the extent to which they are animated by a social spirit . . . In the first place, the school must itself be a community life" (pp. 415-416). The *Academic Program* at CEC intended and accomplished meaningful, connected learning, and a spirited community of learners evolved. Further interview comments illustrate this. For example, Cloud reflected on her experience of this learning community aspect:

> It's not that I said, "Oh! I want to be a leader, and I want to have leadership skills and so this is what I'm going to do." It was just a natural thing that--in that environment--that it would come out. . . .Everybody could be a leader because they would always be able to bring something that nobody else would have.

Assistant principal Theo Withos commented during his interview that "we did a whole lot . . to integrate the academics to make them come together--through the projects and the midterm session."

Advisor Rae Tennyson recalled primarily the "students' attitudes. and the educational process {in which} they were really learning how to do research and how to present--how to integrate . . . and things were connected."

Curriculum reformers advise that meaningful curriculum experiences have an element of deliberation in them. William Reid defines this as a method of inquiry that is applied in cases where the problem to be solved is a practical one (p. 78). Holt (1996) cites Reid: "The key to an effective curriculum for schooling is the question of *how* all the experience represented by teachers, students, subject matter, and the milieus can be brought together to yield a workable plan that solves problems faced by curriculum in both its institutional and its practical aspects" (p. 2). The planners, teachers, and students of the *Academic Program* accomplished this.

In conclusion, perhaps the last word in the curriculum section should go to the teachers. How do the *Academic Program* teachers explain their understanding of themselves and their success? Caron: "You have to have a compatible bunch of people who are creative together; we could choose new teachers (to the team); you have to understand {that} the background and philosophy of what we were doing was important" (Weber): "We had time (extended planning period-1/2 day on Fridays) to evaluate the kids, [plus] it gave us time to get together and plan." Heston: "We talked every week and every day about those kids; we were accountable to those kids; I loved the Fridays--it was a time to confer with the kids in a different kind of way."

Implications for Further Research

Specific education communities may want to peruse the findings of this study for insights relevant to their particular interests and for further investigations. For example:

Teachers and administrators should pay close attention to the teacher-administrator relationship findings. Also of relevance to these groups are the learnings about successful reform practices (pro-active teachers, and empowered students). Both stakeholder groups should be aware as well of the learnings about the importance of the community in creating meaningful and motivational learning experiences. The community is an interesting learning environment; the community needs the energy and support of its young, and the young need realistic and encouraging experiences with many diverse community groups.

District-level curriculum advisors and educational consultants have the daily responsibility of planning for change--the image-change strategies used by the *Academic Program* advisors could be investigated and practiced. Of special interest to this community may be the references to the "guardian role." The advisors may want to examine the findings on all of the stakeholder roles, their interactions, and the disjointed pieces. Further research into the history and development of the image-based instructional methods that are cited and documented by this study may be of interest.

State legislators make first-order reform decisions as regular practice . They might ponder how to encourage teacher-selected, strategically-planned local change initiatives. They might consider the social situation in its entirety as well as the improvement of instructional strategies. Where second-order change is needed in our

schools, they might address school-wide structures, individual students' needs, parents' perspectives and values, and previously-mandated curriculum content. They must recognize that mandates for structural changes must include resources and options for comprehensive implementations, as well as agreed-upon program assessment procedures. There is no quick fix or common reform approach that works for everyone.

Those involved with **teacher education programs**--both pre-service and in-service program instructors and agencies--should have interest in the findings about the teacher-administrator relationship, about pro-active teachers, and about results-oriented curriculum. Also of special relevance to this entity are the instructional planning techniques. This study has shown that image-based planning and instructional methods help to frame second-order change. It has also documented a curriculum design process that includes a stated experiential objective--that of desired student experience. Further investigation into these two methodologies would seem advisable.

What if there were to be developed a formal (interdisciplinary) link between the schools of education and the departments of cognitive psychology at the university level? Fullan (1993) strongly suggests that those who are involved in teacher education not recommend things that they themselves do not practice, and this particular interdisciplinary link seems an advisable and informative one for all parties--researchers, professors, and teachers in the field.

Funding agencies in charge of deciding to which education innovations precious resources should go, may want to examine this study's findings about stakeholder groups, and channel money into programs with components of

"empowered students," "included parents," "pro-active teachers," "trusting administrators," and "active advisors." School districts and other educational communities work hard to innovate, plan comprehensively, and disseminate large sums of money equitably and efficiently. The findings of this study provide a framework within which to work smarter and budget wisely.

Educational researchers are interested in all aspects of the reform process, especially those related to instructional methodologies and societal impacts. In this case, the frequency of interview comments about the project component of the curriculum suggests the need for further investigation into that process. The findings of this study suggest that the community representatives who were involved with the projects in the *Academic Program* have important insights needing documentation. Volunteers from the social agencies, political campaigns, elected officials, and special interest groups, who came into the school for presentations or worked with student teams during the two weeks of problem-solving, have learned something about what it really means for the community to become more involved in the schools at the classroom and instructional levels. What were the benefits and costs to these individuals and groups? What formal, structural links would enable regular involvements with the student population in the future? We must continue to seek out new and efficient ways to link the schools with the larger community, to engage students in learning that is both rigorous and connected. We must continue to struggle with this larger research question: "culture shapes mind; what we resolve to do in school only makes sense when considered in the broader context of what the society intends to accomplish through its educational investment in the young" (Bruner, 1996, p. ix).

Concluding Ruminations

Why do some reform programs succeed and others do not? While the question persists, there may never be a definitive answer as multiple variables--people, curriculum, local politics, national goals and policies, available funding, technologies, and warring philosophies and perspectives ebb and flow across historical time. However, this study has identified several markers that do seem to point towards success. This study began with the examination and comparison of the five constituencies of students, participating parents, teachers, building administrators and advisors. It produced detailed matrices that allowed the comparisons of interview comments. The findings provide extensive data about the roles of the five groups and the effective instructional approaches and planning processes used. The stakeholder findings are some of these success markers, as are the specific planning processes. The signification of academic learning--worthwhile tasks by imbedding of the subject matter in the community--is another. There are many impressive and noteworthy reform programs worth further investigation, and this research focus should continue.

Are the standards--not yet a reality when the *Academic Program* was in place--a piece of this puzzle? Another marker, perhaps? There is no question that high school graduates should know essential cultural information and be able to perform those tasks required for success in society. Yet standards do not address the "why" question; they do not take into account the human factor. Philosophical assumptions, unanticipated at the start of this study, were built into the curriculum design and eventually emerged as significant. The existentialist position, grounded in the experience of existence, influenced the project and lesson planning by design. As teachers considered what they wanted the students to experience in order to master a

particular concept, they were encouraged to include the needs of the student in the planning. It may help to account for the many comments about freedom and responsibility that comprise the *Personal* columns in Tables 4.1-4.5.

The relational aspects between the stakeholder groups and with the curriculum has been described and discussed. This relational aspect of stakeholder roles has also been examined and discussed at length by others. Fullan (1991, pp. 133-134) cites a study by S. Rosenholtz (1989) that links a collaborative work culture with successful schools. Rosenholtz found that:

> Where teachers request from and offer technical assistance to each other, and where school staff enforces consistent standards for student behavior, teachers tend to complain less about students and parents. Further, where teachers collaborate, where they keep parents involved and informed about their children's progress, where teachers and principal work together to consistently enforce standards for student behavior, and where teachers celebrate their achievements through positive feedback from students, parents, principal, colleagues, and their own sense, they collectively tend to believe... their instructional practice (p. 137).

Rosenholtz, according to Fullan, (1991, p. 134) further found that "teacher certainty and . . .commitment feed on each other. . . increasing motivation to do even better. . . all of these factors served to channel energy toward student achievement."

The *Academic Program* at CEC accomplished both collaboration and celebration, which enabled the participants to meet further goals that were enormously complex. Such relating among stakeholder groups might become a clear and simple goal for reform.

The word curriculum derives from the Latin verb curro (currere) "a verb that stresses process (Reid, 1992, p. 15). Examples of the processes used to plan and implement the *Academic Program* provided substantial data for this case study. But just what *is* process? A branch of philosophy called process philosophy, whose most

famous writer is Alfred North Whitehead, defines human experience in terms of "occasions of experience". A contemporary process writer states that "a process consists of integrated series of connected developments unfolding in conjoint coordination in line with a definite program" (Rescher, 1996, p. 38).

John Dewey was a pragmatist in his approach to education, but his metaphysic was that of a processist (Rescher, 1996). Process philosophy holds that "what exists . . . is not just originated and sustained by processes but is in fact ongoingly and inexorably *characterized* by them" (p. 8). Because the same could be said of the *Academic Program*, it may be described as processist as well.

Curriculum design was a biannual process (the semester project). The process of image-analysis guided the curriculum design and was used weekly to staff and counsel students. The experience of the whole learning community was always considered in the planning as well as in the guiding of the individual players (see Appendix A). These factors imply that process philosophy plays a role in the conceptualization of second-order change and meaningful learning. It is clearly a radically different way to plan for learning.

Philosopher and educator Maxine Greene envisions a "humane framework" for the kinds of education that will be required in the technological, 21st Century. My hope aligns with hers, which she describes as "reminding people what it means to be alive among others, to achieve freedom in dialogue with others for the sake of personal fulfillment and the emergence of a democracy dedicated to life and decency" (Greene, 1988, p. xii).

Driven by a yearning to provide interesting and effective schools for the children of the emerging generation, we might do well to remember these several, final

insights: brood on what it means to be alive among others; plan for the experience of the whole learning community; and recognize the related nature of the stakeholders.

Let the wheel of transformational change roll on!

BIBLIOGRAPHY

Adler, M. (1982). The paideia proposal. New York: Macmillan.

Barber, B. (1992). An aristocracy of everyone. New York: Oxford University Press.

Bateson, G. (1972). Steps to an ecology of mind. New York: Ballantine Books.

Beerman, S. (1996). Indiana "high schools that work" school-improvement pilot sites: Effects of programmatic change on administrative roles and responsibilities. Unpublished doctoral dissertation, Ball State University, Muncie, Indiana.

Belenky, M.F., Clinchy, B. M., Goldberger, N. R., and Tarule, J. M. (1986). Women's ways of knowing. New York: Basic Books, Inc.

Boulding, K. (1956). The image. Ann Arbor: University of Michigan Press.

Boyle, J. (1993). Comparisons of student and teacher perceptions relative to classroom climate and cognitive learning at two secondary schools. Unpublished doctoral dissertation, Texas A & M University, College Station.

Bracey, G. (1997). The seventh Bracey report on the condition of public education. Phi Delta Kappan, 79 (3), 120-136.

Brookfield, S.D. (1987). Developing critical thinkers. San Francisco: Jossey-Bass.

Brooks, J. G., & Brooks, M. G. (1993). The case for constructivist classrooms. Alexandria, VA: Association for Supervision and Curriculum Development.

Brown, A. L., & Campione, J. C. (1994). Guided discovery in a community of learners. In K. McGilly (Ed.), Classroom lessons: Integrating cognitive theory and classroom practice, (pp. 229-270). Cambridge, MA: MIT Press/Bradford Books.

Brown, S. (1996). Mathematics, pedagogy, and secondary teacher education:posing mathematically. Portsmouth, NH: Heinemann.

Bruner, J. (1996) The culture of education. Cambridge: Harvard University Press.

Carroll, J. M. (1994). The Copernican plan evaluated: The evolution of a revolution. Phi Delta Kappan, 76 (1), 105-113.

Cooperrider, D.L., & Srivastiva, S. (1987). Appreciative inquiry in organizational life. Research in organizational change and development , 1, 129-159.

Cuban, L. (1988). A fundamental puzzle of school reform. Phi Delta Kappan, 70 (5), 341-344.

Cuban, L. (1993). How teachers taught. New York: Teachers College Press.

Davis, E. A. (1997). Students' beliefs about science and learning. Paper presented at the 1997 annual meeting of the American Education Research Association, Chicago, Ilinois.

Dewey, J. (1902). The child and the curriculum. Chicago: The University of Chicago.

Dewey, J. (1915). The school and society. Chicago: The University of Chicago.

Dewey, J. (1916). Democracy and education. New York: MacMillan Co.

Dewey, J. (1933). How we think. Chicago: Henry Regnery Co.

Dewey, J. (1938). Experience and education. New York: Touchstone.

Ecumenical Institute and The Institute of Cultural Affairs. (1981). Image, XI. Chicago: Author.

Elmore, R. (1988). Contested terrain: The next generation of school reform. Paper prepared for the Commission on Public School Administration and Leadership, Association of California School Administrators. [city]

Epstein, S., & Dauber, S. (1988). Teacher attitudes and practices of parent involvement in inner-city elementary and middle schools. Paper presented at the Annual Meeting of the American Sociological Association.

Esterle, R. (1997). Teacher collaboration and curriculum construction: Political, cultural, and structural contexts. Unpublished doctoral dissertation, University of California at Los Angeles.

Fifth City: Chicago (1973). Fifth City: The rebirth of the human city. [Booklet]. Chicago: Author.

Fullan, M. G., (with Stiegelbauer, S.) (1991). The new meaning of educational change. New York: Teachers College Press.

Fullan, M. G. (1993). Change forces. London: Falmer Press.

Gardner, H. (1983). Frames of mind: The theory of multiple intelligences. New York: Basic Books.

Gardner, H. (1991). The unschooled mind: How children think and how schools should teach. New York: Basic Books.

Gardner, H. (1993). Multiple intelligences: The theory in practice. New York: Basic Books.

Gibson, R. (1991). A case study of parent involvement in school outcomes. Unpublished doctoral dissertation, Fordham University, New York.

Goodlad, J. (1984). A place called school: Prospects for the future. New York: McGraw-Hill Book Co.

Greene, M. (1988). The dialectic of freedom. New York: Teachers College Press.

Griffith, B. (1992). The development of advanced facilitator training for the Institute of Cultural Affairs, West. Unpublished masters thesis, California Institute of Integral Studies, San Francisco.

Hojnacki, S. K., & Grover, B. W. (1992, April). Thinking mathematics: What's in it for the students? Symposium conducted at the meeting of American Educational Research Association, San Francisco.

Holt, M., & Juraschek, W. (1998). Closely observed pendulums: Reflections on teacher professionalism. Teacher Development 2 (1), 17-25.

Holt, M. (1996). The making of Casablanca and the making of curriculum. Journal of Curriculum Studies 28 (3).

Hunderfund, J. (1992). Caring within a school community: Perspectives of teachers, students, and supervisors. Unpublished doctoral dissertation, Columbia University Teachers College, New York.

Institute of Cultural Affairs. (1976). Human development [pamphlet]. Chicago: Author.

Johnson-Laird, P. (1994). Mental models and probabilistic thinking. Journal of Cognition, 50, 189-209.

Johnson-Laird, P. (1995). Cognition on cognition. Journal of Cognition. [Special series]. Cambridge: MIT Press.

Joyner, J. (1996). A study of factors that contribute to success at New Directions Alternative School. Unpublished doctoral dissertation, University of Central Florida, Orlando.

Keith, S. (1988, December). Explorative writing and learning in mathematics. The Mathematics Teacher, 81 (9), 714-719.

Keller-Cogan, M. (1995). Student voices: high school students' perceptions of instructional and assessment strategies in traditional and alternative settings. Unpublished doctoral dissertation, University of Rochester, Rochester, New York.

Krathwohl, D. (1993). Methods of educational and social science research. New York: Longman.

Kuhn, D. (1989). Children and adults as intuitive scientists. Psychological Review, 96, (4), 674-689.

Kuhn, D. (1993). Science as argument: Implications for teaching and learning scientific thinking. Science Education, 77, (3), 319-337.

Lave, J., & Wenger, E. (1991). Situated learning. New York: Cambridge Press.

LeCompte, M., & Preissle, J. (1993). Ethnography and qualitative design in educational research. San Diego: Academic Press.

Lucas, H. (1996). Assistant principal-facilitated, teacher-generated strategies for the improvement of student motivation. Unpublished doctoral dissertation, University of Georgia, Athens.

Maeroff, G. (1998, February). Altered destinies. Phi Delta Kappan 79 (6), 424-432.

Martin, W., & Willower, D. (1981). The managerial behavior of high school principals. Educational Administration Quarterly, 17, (1), 69-90.

Meier, D. (1995). The power of their ideas. Boston: Beacon Press.

Minstrell, J., & Stimpton, V. (1966). A classroom environment for learning: Guiding students' reconstruction of understanding and reasoning. In Schauble, L., & Glaser, R. (Ed.), Innovations in learning: New environments for education (pp. 175-202). Mahwah, NJ: Erlbaum.

Mortimore, P., Sammons, P., Stoll, L., Lewis, D., & Ecob, R. (1988). School matters: The junior years. Sommerset, United Kingdom: Open Books.

National Board for Professional Teaching Standards. (1987). National educational goals--1984. Washington, DC: Author.

National Board for Professional Teaching Standards. (1994). Teacher pioneers. [1993 annual report] Washington, DC: Author.

National Council of Teachers of Mathematics. (1989). Curriculum and evaluation standards. Reston, VA: National Council of Teachers of Mathematics.

Parkay, F., & Stanford, B. (1992). Becoming a teacher. Boston: Alyn & Bacon.

Phelan, P., Davidson, A., & Cao, H. (1992, May). Speaking up: Students' perspectives on school. Phi Delta Kappan 73 (9), 695-704.

Piaget, J. (1952). The origins of intelligence in children. New York: International Universities Press.

Piaget, J. (1969). The mechanisms of perception (G. Seagrim, Trans.). New York: Basic Books. (Original work published 1961).

Poll of teachers' attitudes toward public schools. (1997, November). Phi Delta Kappan, 79 (3), 212-220.

Polak, F. (1973). The image of the future. (E. Boulding, Trans.). San Francisco: Jossey-Bass. (Original work published 1955).

Posner, G.J., Strike, K.A., & Gertzog, W.A. (1982). Accommodation of a scientific conception: Toward a theory of conceptual change. Science Journal, 66, 211-227.

Postman, N., & Weingartner, C. (1969). Teaching as a subversive activity. New York: Delacorte Press.

Postman, N. (1992). Technopoly. New York: Vintage Books.

Poverty rate of children rose in '80s. (1992, July 8). The Denver Post, p. A3.

Reid, W. (1992). The pursuit of curriculum. Norwood, NJ: Ablex Publishing Co.

Rescher, N. (1996). Process metaphysics. Albany: State University of New York.

Sarason, S. (1990). The predictable failure of educational reform. San Francisco: Jossey-Bass.

Scardamalia, M., & Bereiter, C. (1991). Higher levels of agency for children in knowledge building: A challenge for the design of new knowledge media. The Journal of the Learning Sciences, 1, 37-68.

Senge, P. (1990). The fifth discipline. New York: Doubleday.

Shanahan, L., Johnson, S., & Becker, G. (1991) Why kids stay in school. (Available from the Denver Public Schools, 900 Grant Street, Denver, CO 80203).

Simmers-Wolpow, R. (1995). Trauma, literacy, and the pedagogy of hope. Unpublished doctoral dissertation, Pennsylvania State University, State College.

Sizer, T. (1984). Horace's compromise-the dilemma of the American high school. Boston: Houghton Mifflin.

Slotta, J.D. (1997). Understanding constraint-based processes: A precursor to conceptual change in physics. Unpublished doctoral dissertation, University of Pittsburgh, Pittsburgh, Pennsylvania.

Slotta, O. D. (1991). The project approach to learning: Documentation of the success of an existential approach. Unpublished master's project, University of Colorado at Denver, Denver.

Slotta, O. D. (1993). The project approach: Revealing the wonder of learning. Denver: Author.

Slotta, O. D. (1995). An analysis and comparison of students' and parents' perceptions of the important components of a successful high school program: a case study of a successful program, phase one. Unpublished manuscript.

Slotta, O. D. (1995). Learning through participation: a high school model in which interdisciplinary curriculum is the norm. Denver: Denver Public Schools.

Slotta, O. D. (Ed.). (1996). Image-based instruction workbook . Denver: Institute of Cultural Affairs.

Snodgrass, C. A. & Slotta, O. D., (1992). The project approach. Edges 6 (1), 40-41.

Songer, N. B. (1993). Learning science with a child-focused resource: A case study of kids as global scientists. Proceedings of the fifteenth annual meeting of the Cognitive Science Society, (pp. 935-940). Hillsdale, NJ: Lawrence Erlbaum Associates.

Spencer, L. (1989). Winning through participation. Dubuque, IA: Kendall/ Hunt.

Stevenson, R. B. (1990). Engagement and cognitive challenge in thoughtful social studies classes: A study of student perspectives. Journal of Curriculum Studies, 22, 329-341.

Strauss A. & Corbin, J. (1990). Basics of qualitative research. Newbury Park, CA: Sage Publications.

Taylor, L., Stevens, E., Peregoy, J. & Bath, B. (1991, February). American Indians, mathematical attitudes, and the standards. Arithmetic Teacher, 38, 14-21.

Taylor, L. (Ed), (1996). Focus on learning problems in mathematics. Focus special triple issue on Gender and Mathematics.

Taylor, L. (1997). Integrating mathematics and American Indian cultures. NCTM 1997 yearbook: Multicultural and gender equity in the mathematics classroom: the gift of diversity. Reston, VA: NCTM.

Troxel, J. (1992). "A journey of affirmation": An appreciative inquiry into the Institute of Cultural Affairs. Unpublished manuscript. (Information available from the Institute of Cultural Affairs, 4750 N. Sheridan Road, Chicago, IL 60640).

Troxel, J. (1992, May). Appreciative inquiry: An action research method for organizational transformation. Unpublished manuscript. (Information available from the Institute of Cultural Affairs, 4750 N. Sheridan Road, Chicago, IL 60640).

Troxel, J. (1992, May). The results of the appreciative inquiry study of the Institute of Cultural Affairs. Unpublished manuscript. (Information available from the Institute of Cultural Affairs, 4750 N. Sheridan Road, Chicago, IL 60640).

Tyack, D., & Cuban, L. (1995). Tinkering toward utopia. Cambridge: Harvard University Press.

U.S. Department of Education, National Center for Education Studies. (1996). Urban schools: The challenge of location and poverty. (NCES 96-184). Washington, DC: U.S. Government Printing Office.

Valdes, K. (1998). An historical and philosophical context for adopting a project approach to teaching and learning. Unpublished masters thesis. North Park University, Chicago, Illinois.

Vygotsky, L. S. (1978). Mind in society. (Michael Cole, Ed.). Cambridge: Harvard University Press.

Vygotsky, L. S. (1987). The collected works of L. S. Vygotsky. (Robert Rieber, Ed.) New York: Plenum Press.

Wheaton, K. (1994). Secondary school principals' perceptions of and strategies for the academically deficient student. Unpublished doctoral dissertation, University of Alabama at Birmingham, Birmingham.

Whitehead, A. N. (1949). The aims of education. New York: Macmillan Company.

Wirsing, M. (1972). Teaching and philosophy: A synthesis. Boston: Houghton Mifflin.