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UNIVERSITY OF CALIFORNIA, SAN DIEGO

Using Purposeful Perturbations as a Strategy for School Reform:
A Design Experiment at an Alternative High School with Low-Performing Students

A dissertation submitted in partial satisfaction of the
requirements for the degree Doctor of Education

in

Teaching and Learning

by

David G. White

Committee in charge:

Professor James Levin, Chair
Professor Alan J. Daly
Professor Hugh Mehan

2011

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Chair

University of California, San Diego

2011

DEDICATION

To my wife, Rose

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VITA

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ABSTRACT OF THE DISSERTATION

Using Purposeful Perturbations as a Strategy for School Reform: A Design Experiment at an Alternative High School with Low-Performing Students

by

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Doctor of Education in Teaching and Learning

University of California, San Diego, 2011

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The goal of this research study was to develop, implement, and evaluate a school reform design experiment at an alternative high school with low-performing student. Like other school reform efforts, the goal was to achieve transformational change. While few educational reform efforts accomplish that goal, the reform efforts described here did result in transformational change.

The complexity sciences served as a theoretical framework for this design experiment. The goal was to create an environment for change by pulling the school far from equilibrium using a strategy I call “purposeful perturbations” to disrupt the stable state of the school’s setting.

The methodology for this study was a design experiment. Data sources for this study included documents and records and audio-recorded interviews of school staff and students. A technique I call Artifact Elicited Response, designed to provide a new dimension to conducting audio-recorded interviews, was used to provide a detailed picture and a description of respondents' social networks within the school and with the broader context of the school.

Analysis of data from documents and records and audio-recorded interviews served two purposes. First, the data was analyzed to investigate two research questions. If an innovative program, with the primary goal of academically preparing low-performing students for rigorous college coursework, is implemented at an alternative high school (1) What structures and patterns of behavior around academic preparation for college emerged as the program evolves? (2) In what ways did these emerging structures and patterns of behavior impact the organizational structure of the school's learning community? The data also served to allow design modifications to be made based on what emerged as a result of a particular purposeful perturbation. In this sense, the experimental design of my research was an iterative process.

The setting for this research study was Gonzago High School (GHS), an alternative school with low-performing students located on the campus of St. Diaz City College. In this research study, an innovative college prep program, Academic Commitment Creates Empowered Successful Students (ACCESS) was created that disrupted GHS's stable state, and the process of implementing this program transformed the school.

CHAPTER ONE

SCHOOL REFORM

Introduction

In my experience, if you ask a group of high school students if they want to go to college, most would say yes. However, not all high school graduates go to college. Nationally, of students age 18-24, 66.9 percent of white students, 61 percent of African American students, and 53.1 percent of Latino students participated in college in 2000 (Harvey, 2002). For those students who do attend college, adequate academic preparation for college-level coursework and support for developing learning strategies facilitates a successful transition to a college

Yet many high school graduates, in particular racial/ethnic minority students and students from low-income families, have neither the academic skills nor learning strategies necessary for college success (Hurtado, Inkelas, Briggs, & Rhee, 1997). The California Department of Education, in its 2008 high school accountability report, found that in the state of California for 2006-07, only 25.6 percent of all Hispanic high school graduates and 26.4 percent of all African American high school graduates met University of California and California State University course requirements compared to 38.4 percent for white high school graduates and 61.3 percent for Asian high school graduates.

White and Asian students are better prepared for college than African-American and Hispanic students. Students who come from middle income and upper income families are better prepared for college than students who come from low-income

families. Consequently, schools whose student populations are predominately African American, Hispanic, or from low-income families typically have lower academic performance levels and are less prepared for college than Asian, White, or middle and upper income students. The lack of college readiness by underrepresented racial/ethnic minority student and students from low-income families has implications for college enrollment (Jones, Yonezawa, Ballesteros, & Mehan, 2002), and the likelihood of success for those who do go on to college.

According to an ACT report on college readiness (2010), “Students who are not ready for postsecondary education are less likely to enroll in college, more likely to need remedial coursework during their first year of college, less likely to succeed in their college courses, and less likely to earn a college degree” (p. 5). This is especially problematic for underrepresented racial/ethnic minority student and students from low-income families. Not only do gaps exist in college enrollment rates across racial/ethnic groups and annual family income ranges, but gaps in college degree completion rates also exist across these groups and range of family incomes

These gaps in college success rates are also due in large part to a lack of preparation for college-level coursework during high school. Students who graduate from high school unprepared for first-year college coursework often need substantial remediation. For example, of students who take remedial reading, more than half take four or more remedial reading courses and more than two-thirds also take remedial mathematics; of students who take remedial mathematics, more than 70 percent take two or more remedial mathematics courses (Adelman, 2004; Carey, 2004). Nationally, about one-third of high school graduates who enroll in college take remedial coursework.

Underrepresented racial/ethnic minority students are almost twice as likely to take one or more remedial courses in college as Asian and White students (Parsad & Lewis, 2003).

This documented lack of college readiness by underrepresented racial/ethnic minority students and by students from low-income families was reflected in the student population at the high school where I teach, Gonzago High School (GHS), a pseudonym. GHS is an alternative high school for low-performing students and, despite its unique location on a college campus; virtually all GHS students lacked the necessary skills for success in college.

Research Setting

Gonzago High School (GHS), located in a large urban city in Southern California, is the first continuation high school in the United States, opening in 1921. California Education Code 48400-48438 defines continuation education as a high school diploma program designed to meet the needs of students 16 through 18 years of age who have not graduated from high school, are not exempt from compulsory school attendance, and are deemed at-risk of not completing their education. Continuation schools, also referred to as alternative schools, were designed for students who were having little success in their resident schools. GHS has been no exception.

GHS's student population consists predominately of low-income, underrepresented minorities. A Western Association of Schools and Colleges (WASC) self-study report from 2006 found that most GHS students came from low-income families and over 70 percent of all GHS students were Hispanic. By the 2008-2009

school year, 76 percent of GHS's student population was Hispanic and 14 percent were African-American.

When I began teaching at GHS in 1996, virtually all students who came to GHS were in the lowest academic quartile, as evidenced by California Standardized Test scores, severely credit deficient, and at risk of dropping out of school. Literally no GHS graduates met University of California and California State University course requirements. And very few, if any, GHS students enrolled in college after graduation.

In 1998, GHS moved to a brand-new facility physically located on the campus of St. Diaz City College (SDCC), a pseudonym. Because of the physical proximity to SDCC, GHS students needed only to walk across the street to be on a college campus. There were a variety of cross-enrollment programs with SDCC and a significant number of GHS students did enroll in SDCC courses, both before, and after graduating high school.

According to GHS's School Accountability Report Card (SARC, 2005-2006), at any given time, more than one-third of all GHS students were enrolled in a college class and approximately three-fourths of all students left GHS having completed at least one college class. However, while many GHS graduates espoused a desire to earn a college degree and many did go on to college, few graduated from higher education institutions, even from the institution physically co-located with their high school.

Research Problem

By the 2006-2007 school year, many GHS graduates were attending college, predominately at SDCC, but they still did not meet course requirements for enrollment in

four-year colleges and universities and they had little success at SDCC. This lack of college preparation, lack of success in college after graduation, and GHS's unique environment provided the motivation and the setting for my research.

A major reason why GHS students who were interested in pursuing a college degree were not successful is that GHS graduates lacked the necessary academic skills for success in degree-track college courses as evidenced by their scores on college assessment tests in math and English. Degree-track courses are transfer-level academic courses that are necessary to earn a baccalaureate degree in an academic discipline at a four-year college or university. This was problematic because academic preparation for college, especially in math, is of primary importance for success in academically rigorous college coursework (U.S. Department of Education, 1997). Adelman (1999, 2006) noted that mathematics coursework taken in high school is the single most important indicator of likely success in college.

There were a number of factors that contributed to GHS graduates lack of success in college. First, GHS's course offerings did not include some of the academic courses necessary for enrolling in four-year colleges or universities. For example, GHS did not offer any world language or intermediate algebra classes. The absence of intermediate algebra in GHS's course offering was especially problematic. Students who attend college, regardless of whether they attend a four-year college or two-year community college, must show competency in intermediate algebra as a prerequisite for variety of degree-track courses.

Second, according to GHS documents and records, virtually all college courses that GHS students enrolled in while in high school were non-degree track courses such as

personal growth classes or job skills programs. While these courses have value, they do not necessarily academically prepare students for rigorous college coursework. Third, the majority of GHS students graduated with a 24-credit, option 2 diploma through the joint diploma program (JDP), rather than the 44 credits for a regular high school diploma. The JDP option 2 diploma eliminates a significant number of courses that help prepare students for college.

To address this problem, an innovative college prep program, Academic Commitment Creates Empowered Successful Students (ACCESS), was introduced at GHS in February of 2007 to arm GHS students with the skills and knowledge that might help them academically prepare for college. Many of GHS's teachers, counselors, and administrators did not think GHS students were capable of higher education. So this program caused trouble because it confronted the existing everyday practices and belief systems of the individuals, and groups of individuals, that defined the organizational structure of GHS.

Research Questions

In February of 2007, GHS began to offer a college preparation program called ACCESS. Given GHS's context – the student body it enrolls, its historical student outcomes, the often tacit expectations of teachers, counselors, and school leaders toward students (and vice versa), and the school's sense of itself within the school district – the introduction of the ACCESS Program went beyond the routine scheduling of courses and re-assigning of teachers. In fact, the program by its nature was bound to introduce

disequilibrium in the school. My research questions were designed to investigate this disequilibrium. I ask, “If an innovative program, with the primary goal of academically preparing low-performing students for rigorous college courses, is implemented at an alternative high school,

- 1) What structures and patterns of behavior around academic preparation for college emerge as the program evolves?
- 2) In what ways did these emerging structures and patterns of behavior impact the organizational structure of the school's learning community?

Theoretical Framework

The theoretical framework for my research is complexity theory. I view my research through the lenses of three branches of complexity theory: Chaos theory (Gleik, 1988; Stewart, 1989), the theory of dissipative structures (Nicolis & Prigogine, 1989; Prigogine & Stengers, 1984), and the theory of complex adaptive systems (Gell-Mann, 1994; Holland, 1998; Kauffman, 1995; Langton, 1996). Since both the theories of chaotic systems and dissipative structures are deterministic, it is problematic to directly apply these theories to organizations such as schools, where the relationships are between people, who are capable of learning and evolving. However, theories of chaos and dissipative structures have significant value as metaphors for understanding organizational change.

Both theories demonstrate the fundamental unpredictability of interaction in conditions required for change. Uncertainty, a basic feature of both theories, calls into

question implementing a control model for change. In addition, dissipative structures show that a system, when perturbed, can move from one pattern of behavior to another when the system operates far from equilibrium. This sudden shift from one pattern of behavior to another, the self-organization of the system, which cannot be predicted from the previous pattern, severely challenges the top-down models of school reform.

A third branch of complexity theory, complex adaptive systems (CAS), views organizations such as school as self-organizing systems that, when pushed far from equilibrium, new structures and patterns of behavior emerge through the local interaction of elements in often-unpredictable ways (Morgan, 2006; Morrison, 2002; Stacey, 2007). Maroulis and Wilensky (2009) describe organizational change as continuous and emergent. Viewing schools as complex adaptive systems suggests a bottom-up approach to initiating school reform. There is a potential for incremental change at the micro-level that can lead to large, cumulative changes in structures and patterns of behavior at the macro-level (Brown & Eisenhardt, 1998; Weick, 1979).

School reform efforts aimed at raising student achievement levels have been studied using a variety of theoretical frameworks (Elmore & Burney, 1999; Fullan, 1999; Hubbard, Mehan, & Stein, 2006; Springfield & Datnow, 2000). While complexity theory has been used to describe and explain school reform efforts, to date, no studies have looked at how complexity theory could be used as a theoretical framework for designing and implementing a strategy for school reform.

In my research, complexity theory provided a lens for describing and explaining the reform process as it played out in the real-life context of one school, GHS. Complexity theory was also used as a framework for developing a strategy for creating

conditions for educational change that started, rather than ended, with students and a strategy for navigating the often turbulent and unpredictable waters of school reform efforts.

Methodology

The methodology used in my research study was to conduct a design experiment. The goal of the design experiment was to create conditions that were both necessary and sufficient for transformational change to occur at GHS. In addition, this research study documents and describes the changes that occurred at GHS from February of 2007 to March of 2011.

Treating ACCESS as a nested Complex Adaptive System within a larger complex adaptive system, GHS, I used features of complexity theory (equilibrium, emergence, self-organization, and feedback loops) as a framework to design a strategy for school reform. The goal was to create an environment for change by pushing GHS far from equilibrium. A key strategy for pushing GHS far from equilibrium was to use ACCESS to create what I call “purposeful perturbations”, that is, to disrupt GHS’s stable state in a purposeful way.

Research methods in this study consisted of two principal activities: review and analysis of GHS school documents and records, and review and analysis of individual, audio-recorded interviews with GHS staff and students. Data analysis provided a rich description of GHS and GHS’s relationship with SDCC. An approach called, Artifact Elicited Response Technique was used during audio-recorded interviews to provide a detailed picture and description of each respondent's social network within GHS and with

SDCC. In addition, data analysis during the experimental phase of my research guided my strategy for creating conditions for school reform.

In this sense, the experimental design of my research was iterative. Design modifications were made based on what emerged as a result of a particular purposeful perturbation. Since outcomes from perturbations were emergent, design modification was also a responsive process. I responded to analysis of data on the impact of one perturbation on GHS by modifying my strategy for change, introducing the next purposeful perturbation.

Significance of the Study

This study provided an in-depth look at school reform efforts at one alternative high school with low-performing students. Because it was a study of the educational change that occurred at a single school site, there are limits on the generalizations that can be made to reform efforts at other schools. However, this study is significant for a number of reasons:

- A college prep program designed for high schools students in the lowest academic quartile successfully achieved its goal of academically preparing its students for rigorous college coursework.
- A design experiment for school reform was conducted and documented over a four-year period.
- Complexity theory as a framework for designing school reform models has been used primarily through computer simulations, or used as a theoretical lens to view

examples of educational change in real-life contexts. This study used complexity theory as a framework not only for describing educational change but as a strategy for creating change in a real-life context.

- Artifact elicited response technique, an innovative method for constructing social networks, was developed, providing a new dimension to conducting audio-recorded interviews.
- Traditionally, students are the passive receptors of reform efforts. The reform model in this study started with the teachers, but the initial purposeful perturbation focused on engaging students to improve their academic performance on college assessment exams, during which they became agents for their own change. In this sense students became agents of change rather than passive recipients.

Organization of the Dissertation

Chapter two presents a review of the relevant literature. It includes a chronological review of the literature on systems from the early systems thinking of Kant to how the branches of complexity sciences characterized systems, and applications and implications of the complexity sciences for school reform efforts.

Chapter three presents the methodology used in the study. It includes: Methods used for data collection and analysis, a description of design experiments, and the rationale for using a design experiment approach to address my research questions.

Chapters four through eight present the findings of this study.

- Chapter four describes GHS's stable state prior to the start of ACCESS in February of 2007.
- Chapter five describes the evolution of ACCESS and ACCESS student outcomes from February of 2007 to March of 2011.
- Chapter six describes the first purposeful perturbation, raising GHS Students' Levels of Academic performance, and its impact on GHS.
- Chapter seven describes the second purposeful perturbation, the construction of a new social network for enrolling ACCESS students in degree-track SDCC courses, and its impact on GHS.
- Chapter eight describes the tipping point that occurred at GHS in June of 2009 and the resulting self-organization during a transition to period of co-construction that resulted in school-wide change.

Chapter nine presents a summary of findings about GHS's initial stable state, the evolution of ACCESS, the impact of ACCESS on GHS, the role of the school principal in the reform process, the importance (or not) of being physically located on a college campus, complexity theory as a strategy for school reform, implications for practice, and recommendations for future research.

CHAPTER TWO

LITERATURE REVIEW

Change is a journey, not a blueprint. (Fullan, 1993, p. 21)

As Fullan's pithy quote suggests, many well-designed school reform models do not translate automatically from one context to another. Indeed, school reform efforts seem to be flawed if the design team attempts to implement a reform based on a blueprint. One example, based on the "Balanced Literacy Model" (Fountas & Pinnell, 1995; 2001; New Zealand Ministry of Education, 1996), achieved considerable success when it was implemented in one local education authority (LEA) in New York City (Elmore & Burney, 1999). However, when the same model was exported to a LEA in San Diego, California, the results were very different (Hubbard, Mehan, & Stein, 2006).

For a decade, beginning in 1987, New York City's Community School District #2 implemented a strategy of instructional improvement. Based on a model called "Balanced Literacy," it was introduced system-wide under the direction of the school district's superintendent, Anthony Alvarado. When Alvarado left in 1998 to direct efforts to implement the same Balanced Literacy Program in San Diego, Community School District #2 was a mature, well-functioning organization. However, the reform efforts in California did not achieve the same level of success as in New York, even with the same model and director (Hubbard, Mehan, & Stein, 2006). The different approaches to implementing the model influenced different outcomes in the two school districts.

Besides differences in size (the San Diego School District was six times larger than District #2) and demographics (the San Diego school district had 37.7 percent Hispanic students compared to 20.3 percent in New York's District 2 and the percentage of English-language learners in the San Diego school district was twice the percentage in New York), the manner in which the reform was implemented was different. In District #2, the Balanced Literacy Program was not implemented using a strict top-down approach, as was the case in San Diego. Change was negotiated over time. Elmore and Burney (1999) described it as "a complex and evolving balance between central authority and educators in the field" (p. 7). This approach to change demonstrated that leadership respected the expertise of education practitioners. It also showed that district leaders were not only aware that modifications to the plan might be necessary, but were willing to approve modifications when necessary. School reform was a co-constructed and evolving process.

Similar to Fullan's (1999) use of complexity theory for understanding school reform, arguing that change emerges in unpredictable and non-linear ways through the interaction of individuals means that school reform efforts are more likely to be effective when educators at various levels have common goals and work together to co-construct school reform (Datnow, Hubbard, & Mehan, 1998; Stringfield & Datnow, 2000). Stringfield & Datnow (2000) argue for looking at school reform as a co-constructed process, in which educators' actions in schools shape and are shaped by actions simultaneously occurring in diverse contexts, including the classroom, school, district, reform design team, state, and federal levels" (p. 8). Hall & McGinty (1997) state that: "The interactions in one context generate "outcomes," which in turn potentially condition

the interactions of other actors in other contexts” (p. 461). Datnow, Hubbard and Mehan (1998) treat educators as active participants in educational reform. The implication of this is that, rather than just responding to external reform designs in a lockstep fashion, local educators should actively engage in the construction of school reform.

In San Diego, the reform plan was named The “Blueprint for Success”. Unlike in District #2, the Blueprint for Success was not organically developed through a co-constructed, evolving process. Instead it was presented to educators as a finished product, something to be assembled (Hubbard, Mehan, & Stein, 2006). The reform was centralized with most of the major decisions about the reform flowing from the top. This centralized control led to forced compliance, which showed little respect for teachers’ knowledge and acted to stifle any creative input about the need for modifications from education practitioners. In an attempt to implement the model “as is”, the need for negotiation and collaboration was overlooked.

The work of Brown and Eisenhardt (1998) provides some insight into the differences in a school reform that evolves as opposed to a school reform model being imposed. The authors ask the question what would be the best strategy to re-create a prairie, as it was 200 years ago? A likely strategy would be to get a plot of land, make a list of all the plant and animal species of a prairie ecosystem, obtain samples of all the relevant species, plant the seeds, release the animals, and cultivate. Brown and Eisenhardt (1998) call this the “assembly” approach and argue that this will not work.

A prairie is something that grows. It has to start small. It has parts that interact and build on each other. Once it is up and running, the prairie works as a complex system that is dependent on the interactions of the system. (p 195)

The various species of an ecosystem, or organizations such as schools, are too interdependent for a reform to be assembled in one massive act of change. Patterns emerge from complex interactions between agents in unpredictable ways (Stacey, 1995). Emergence occurs through a process of self-organization. This is the case whether it is components in an ecosystem or individuals and/or groups of individuals in organizations. It is impossible to predict how all the different components will interact to create the reformed system. Fullan (1999) argues that this is one reason why it is so difficult to import reform programs. “It is one thing to see an innovation that is working successfully; it is entirely another matter to figure out how to get there in your own organization” (p 4).

Self-organization, emergence, and uncertainty are key features of complex adaptive systems (CAS). In my research, complexity theory provided both a strategy for change and a theoretical lens for describing the changes that occurred in one alternative high school for low-performing students. A review of the literature on models of organizational change provides a look at the evolution of systems theory from early systems thinking and the nature of CAS.

Early Systems Thinking

In the Newtonian world of the seventeenth century scientists and philosophers held a deterministic view of the universe (Morrison, 2002; Stacey, 2007) where:

- The relationship between cause and effect was linear
- Systems were fixed and finite

- The universe was regular, controllable, and predictable
- The whole was equal to the sum of its parts
- Any system could be understood by analyzing its parts

With the development of the scientific method, empirical methods were employed to determine causality. Scientists, through observations of the natural world, formulated hypotheses about governing laws. They tested their hypotheses by controlling all variables but one, and observing the effects changing that one variable would have on the other system variables. In this manner, scientists believed they were moving toward a better and more comprehensive understanding of the laws that ruled the universe. In the words of Stacy (2007): “These laws were understood to take the form of universal, timeless, deterministic, linear if-then causal links” (p. 29). However, while this approach did take into account inanimate objects, it did not address the nature of human knowing and human choice.

During the eighteenth century Immanuel Kant (1951) introduced self-organization and emergence as the basis for making a distinction between inanimate objects and living organisms. The prevailing belief at that time was laws of biology are manifestations of the laws of physics and chemistry. Living organisms were viewed as complex machines. Kant argued that the parts of a machine, a mechanism consisting of parts, are assembled to form a functional unit while the parts of a living organism emerge as a result of interactions within a developing organism. That is, the parts of a living organism emerge in a dynamic process that is self-generating and self-organizing. Furthermore, this process occurs in a particular environmental context (Goodwin, 1994). In Kant’s “systems thinking” model, self-organization occurs in the interaction between parts, the

process is deterministic, and emergent forms are known and predictable. Stacey (2007) explains Kant's position on the development of living systems. The purpose is to move toward a final state that is already given at its origin. Nature is "unfolding" already "enfolded" forms.

Kant did not explain how new forms emerged, how the evolution of living organisms takes place. So emergence through self-organization was formative rather than transformative. In addition, Kant made a critical distinction between humans and other living organisms. He referred to humans as autonomous individuals, who have the rational capacity to choose their own goals and actions. Emergence was located in nature, intention in human individuals. This becomes problematic when you consider groups of individuals in a social context. Individual members of a system are also participating members in that system. They can, and often do, affect other individuals and other individuals, in turn, affect them.

Classical Organization Theory

Classic laws of physics and chemistry provide the basis for classical organization theory. Classical organization theory evolved during the first half of the twentieth century and was manifested in two predominate theories that influenced how organizations were structured, Scientific Management Theory and Bureaucratic Theory

Scientific Management Theory, developed by Frederick Taylor (1911) in the early twentieth century, was based on five principles:

- Using the scientific method, find the best way to perform each task

- Carefully matching individual workers to each task
- Training each worker to do the work efficiently
- Closely supervise workers and use reward and punishment as motivators
- The task of management was planning and control, that of workers, implementation

In Bureaucratic Theory, Weber (1947) emphasized

- The establishment of clear lines of authority and control
- A need for a hierarchical structure of power
- A formal set of rules embedded in the hierarchical structure of an organization to insure stability and uniformity
- Organizational behavior is a network of human interaction. All behavior could be interpreted in terms of linear cause-effect relationships

Scientific management made its way into schools at the beginning of the twentieth century with the introduction of a committee on “Tests and Standards of Efficiency of Schools and School Systems”, established by the National Education Association in 1911 (House, 1978). This committee demonstrated the production mentality of scientific management theory. Both bureaucratic theory and scientific management theory reflect the top-down, authoritarian views of school leadership that dominated the education landscape during most of the twentieth century. However, the classical management approach is considered problematic (Lambert, 2002, 2003; Morgan, 2006)

Morgan (2006) criticizes classical management theories, viewing them as too rigid and mechanistic. He believes that the main goal of the classical management approach was to make humans fit the requirements of a mechanistic organization, paying

little attention to the human aspect of organizations. Additionally, because organizations that follow a classical theory of organization were designed to achieve set, predetermined goals, they did not adapt well to change. Lambert (2003) argues that a philosophy that establishes leadership within formal authority roles and provides a hierarchical view of authority and power “produce short term, shallow and unsustainable results” (p. 421).

Systems Thinking

Cybernetics

Cybernetics (Beer, 1979; Wiener, 1948) uses strategic choice theory as the basis for a model of systems thinking. Cybernetic organizations are goal-directed, equilibrium-seeking systems. Goals, and strategies for achieving goals, are chosen by either the most powerful individual in the organization or a small group of managers that make up the dominant group.

Cybernetic systems operate on a principle of negative feedback loops. These feedback loops are recursive. Comparison is made between the outcome of a particular action and the desired outcome. The difference between the two is fed back into the organization, which guides the next action. The effect on the organization is one of a state of sustained, dynamic equilibrium. Disrupt a cybernetic system and it returns to equilibrium in a self-regulating way through negative feedback control.

One example of a self-regulating system that operates through a principle of negative feedback is a thermostat in a room. The thermostat is set at a target temperature. The thermostat detects any difference between room temperature and the target

temperature causing the thermostat to switch on or off in order to maintain the target temperature. Similarly, in humans, when our body temperature rises, the brain and central nervous system react by telling us to slow down, perspire, and breathe deeply to return our body to the desired temperature.

In Cybernetics, organizations are viewed as open systems, adapting to a pre-given environment. They have no internal capacity for change and therefore, they are incapable of self-organization.

System Dynamics

System Dynamics, first developed by Forrester (1958, 1961), differs from cybernetics with the introduction of nonlinear causality, positive feedback, and organizational learning into systems thinking. A set of nonlinear equations models the movement of some phenomena over time. This occurs at the macro level - that is, system dynamics looks at how the whole system changes over time (Stacey, 2007). The model is iterated over time. The calculated output of one period is used as input for calculating the output of the next period.

Parameter sets can result in three outcomes

- A particular set of parameters produces stable, predictable movement over time
- A particular set of parameters produces stable, predictable cycles
- A particular set of parameters values can produce explosive, unpredictable behavior.

The changing dynamics of the model are explained in terms of both positive and negative feedback loops. Negative feedback produces stable equilibrium. Positive

feedback produces instability. Stability and instability are due to the internal structure of the model rather than due to changes in the environment. Unlike cybernetics, no comparison is made to an external point of reference. Change in a system is not a result of interaction with the environment, but due to the internal structure of the model itself. Interactions tend to produce unexpected outcomes.

Systems Thinking and Learning Organizations

According to Senge (1994), systems thinking, based on system dynamics, is one of the five disciplines that form the core of what he calls a “learning organization”. Senge states that: “systems thinking is a way of thinking about and a language for describing and understanding the forces and interrelationships that shape the behavior of systems” (p. 6). In systems thinking, as in system dynamics, these interrelationships between individuals take the form of feedback loops.

Argyris and Schön (1978) describe two types of learning in organizations, single-loop learning and double-loop learning. Single-loop learning occurs when organizations detect and correct errors in order to continue their present policies or achieve their goals. Like cybernetics, single-loop learning is self-regulating. Double-loop learning is when error is detected and organizations make modifications to their underlying norms, policies, and objectives in order to correct error.

However, Edmondson and Moingeon (1999) argue that to achieve double-loop learning in organizations is difficult stating that:

The underlying theory, supported by years of empirical research, is that the reasoning processes employed by individuals in

organizations inhibit the exchange of relevant information in ways that make double-loop learning difficult – and all but impossible in situations in which much is at stake. This creates a dilemma, as these are the very organizational situations in which double-loop learning is most needed. (p. 160)

Integrating systems thinking into school reform efforts began when Brown (1990) introduced system dynamics into biology classes at Orange Grove Middle School in Tucson Arizona. A System dynamics strategy was used in classrooms to assess and modify existing structures and implement feedback loops. In Ridgewood, New Jersey, system dynamics incorporated systems thinking into classrooms from kindergarten to high school (Senge, 1994). Starting in small but incremental ways, teachers and students in Ridgewood were able to construct points of leverage that reformed schools from the inside out.

Organizations when viewed as cybernetic systems are self-regulating while organizations viewed through a system dynamics lens are self-influencing. Neither model allows for the process of self-organization. Both models assume that there is an external reality. In cybernetic systems, the individual can objectively observe reality. In system dynamics, individuals construct schema, or mental models that are abstract representations of reality. In both models, agents stand outside of the organization. Table 2.1 provides a comparison of cybernetics and system dynamics

Table 2.1: Systems Thinking Models

	Cybernetics	System Dynamics
Management Theory	strategic choice	organizational learning
Key features	goal-directed self-regulating linear causality negative feedback homeostatic	goal-directed self-influencing non-linear causality positive and negative feedback self-sustaining/self-destructive

Mathematical Chaos Theory and the Theory of Dissipative Structures

The development of the theories of mathematical chaos and dissipative structures dates back to the 1950s and are an extension of system dynamics. Because these theories are deterministic, the relationships between agents do not change. This makes it problematic to apply them to human relationships since humans are capable of change and can evolve. However, these theories do have value as metaphors for understanding complex systems such as organizations.

Chaos Theory

“The process of defining chaos theory is similar to trying to grasp gelatin. It is easy to see that there is some substance there, that the substance has some specific form, and that it appears solid. When one actually tries to pick some up, however, it quickly

becomes a challenge to manage and is transformed into a very different substance than it appeared while sitting on the plate” (Chamberlain as quoted in McClure, 1998, p. 1).

Chaos theory (Gleick, 1988; Stewart, 1989) represents an extension of system dynamics. To the three possible states in system dynamics, chaos theory adds a fourth state which lies between the borders of the stability of point and cyclical attractors and the instability of high-dimensional chaos (Table 2.2).

Table 2.2: Possible System States

System Dynamics	Chaos Theory
Stable, predictable movement over time	Point attractor
Stable, predictable cycles of movement over time	Cyclical attractor
Explosive, unstable behavior	High- dimensional chaos
None	Strange attractor

The strange attractor, called mathematical chaos, exhibits a pattern of movement that is paradoxical. The pattern is one of regular irregularity or stable instability. Stacey (2007) notes that: "Chaos does not mean total confusion, but patterns where stability and instability no longer mean what they do in their separate states" (p. 190). When a system is in a strange attractor state, it has a high degree of sensitivity to initial conditions. Small differences in input, an error or fluctuation, can and often do result in a large

difference in output. This feature of strange attractors makes long-term predictions impossible.

Edward Lorenz (1963), a mathematician and meteorologist, used a model of mathematical chaos to explain the earth's weather system. Lorenz determined that weather follows a strange attractor. Weather follows recognizably similar patterns. Those patterns are never exactly the same as they are at any previous point in time. Weather conditions are highly sensitive to small changes and can result in major changes in weather conditions. This last point is known as the "butterfly" effect. A butterfly flapping its wings in Brazil causes a tornado in Texas.

While the specific path of the weather over the long term is unpredictable, it does follow certain global patterns. There are boundaries outside of which the weather never moves, what Morrison (2002) calls bounded instability. For example the probability of heat waves in the Antarctic is highly unlikely.

As with system dynamics, chaos theory models cannot spontaneously move from one attractor to another (Stacey, 2007). Causality is formative rather than transformative. The system is unfolding already enfolded forms. Such systems are not capable of spontaneously generating novelty.

Theory of Dissipative Structures

In their laboratory experiments on open systems at equilibrium, (Nicolis & Prigone 1989; Prigone & Stengers, 1984), found that when you perturb nonlinear physical and chemical systems far from equilibrium, they display intrinsically

unpredictable behavior. When such a system is perturbed far from equilibrium, small changes, or fluctuations in the environment can cause the instability necessary to break an existing pattern of behavior and replace it with a different pattern of behavior. The process is one of destruction of existing patterns in order to make way for the creation of new patterns. When the system reaches a critical point, or bifurcation point, it spontaneously self-organizes. New structures emerge that cannot be predicted from previous states. These emergent states are called dissipative structures because it takes energy to sustain a system in that new state. One example of dissipative structures is what happens to a liquid when heat is applied from below (Stacey, 2007).

Consider the state of a liquid as an open system at equilibrium. The initial conditions are that at the macroscopic level the system is at rest. There are no bulk movements. At the microscopic level there is random movement of the liquid's molecules. Apply heat from the bottom and the system begins to develop a structure of thermal conductivity. Molecules at the bottom cease their random motion, and begin to move upward. As these molecules move upward, they displace molecules at the top of the liquid, which begin to move downward. The result is a circular movement of molecules, a bulk movement. Continue heating the liquid, and when it reaches a certain critical temperature a dramatic change occurs in the liquid. Microscopic random movement becomes ordered on a macroscopic level as hexagonal convection cells suddenly appear.

These convection cells have a hexagonal prism shape, and are called Bernard cells after the French physicist Henri Bernard who discovered them in 1900. The cells rotate in an alternating pattern from clockwise to counterclockwise as you move horizontally

across the liquid. The direction of each cell's movement is unpredictable and cannot be determined by the experimenter. Repeat the experiment, and for a particular position in the liquid, the rotation of the cells will vary from clockwise to counter-clockwise.

So a deterministic law at the microscopic level produces a non-deterministic arrangement of cells. As heat is applied, the system is pushed away from its initial equilibrium state (point attractor), through bifurcation, and ultimately towards deterministic chaos. First, microscopic perturbations of initial conditions produce a macroscopic effect. This is an example of the butterfly effect, an analogy used to describe how weather conditions are highly sensitive to initial conditions. In the strange attractor model for weather forecasting, small changes in initial conditions can result in major changes in weather conditions. Second, the temperature at which the cells appear is a bifurcation point where the system spontaneously self-organizes. Finally, increase temperature enough, and the system becomes turbulent and the liquid evaporates.

In this laboratory experiment, the experimenter is objectively observing from outside the system. The phenomenon of convection is due to the experimenter changing the parameters of the system by turning up the heat. Outside of the laboratory, in nature, there is an important difference. Convection in the natural world is one of the major processes creating our weather. The atmosphere's general circulation is due to convection as warm, moist air is going upwards and colder, drier and denser air will be sinking downwards. The patterns of convections in the earth's atmosphere are the result of variations in the earth's temperature, which, in turn, are partially caused by the convection patterns. The system itself is changing the parameters.

A key feature of dissipative systems is the addition of a 3rd attractor to those of stable equilibrium and explosive instability, a state of stable instability that is far from equilibrium. So a dissipative structure is not just a result, it is a process that uses disorder to change. While both chaos theory systems and dissipative systems are deterministic, such that neither system can evolve, there is an important difference between the two. A chaotic system cannot move on its own accord from one attractor to another whereas a dissipative system can. Dissipative systems produce behavior patterns that are regularly irregular, intrinsically uncertain, and emerge without a blueprint through a process of self-organization.

Complex Adaptive Systems

Complex adaptive systems (Gell-Mann, 1994; Holland, 1998; Kauffman, 1995; Langton, 1996) represent a departure from traditional system models. Complex adaptive systems (CAS) are made up of a large number of entities called agents, or elements, where each individual agent behaves according to a set of rules (Stacey, 2007). These rules require individual agents, through their interaction with other agents, to adjust their actions to that of the other agents, forming what Stacey calls “population-wide patterns”. In this sense, CAS differ from most other system models, which view systems at a macro level, in that CAS view systems at a micro level, through the local interactions of their agents.

Although local interactions are a feature of all CAS, Stacey (2007) makes a distinction between homogeneous and heterogeneous CAS saying that, unlike

homogeneous CAS, only heterogeneous CAS have the capacity for transformative change, spontaneous evolution to new forms. And, unlike homogeneous CAS, where all agents are the same, the diversity of agents in heterogeneous CAS can result in a capacity for spontaneous evolution leading to novel change. Furthermore, it might not be possible to predict the nature of that change (Morison, 2002). Morgan (2006) states that: “CAS are characterized by multiple interactions that can produce unpredictable events that reverberate throughout a system creating novel patterns of change” (p. 254).

There are many examples of heterogeneous CAS, such as biological evolution, the behavior of organisms in ecological systems, the mammalian immune system, the human brain and organization, including schools. However, in organizations such as schools, where agents are human, behavior and actions do not necessarily follow a set of espoused rules. Individuals’ behavior and actions may follow a set of tacit rules.

Agents with Schemata

In CAS models, it is common to characterize agent as following a set of rules (Gell-Mann, 1994). Rule-based models are also common in organizational theory (Carley, 1995) However, in organizations, where agents may be individuals, groups of individuals, or coalitions of groups, representing human agents in this way is problematic for a number of reasons (Anderson, 1999).

Institutional theorists have shown that rules are often rationalized myths (Meyer & Rowan 1977). Individual goals and intentions may only be loosely related to behavior (March & Olsen, 1976). Rules may be inferred from behavior instead of the cause of

behavior (Weick, 1979). Rules often do not govern actions. Rules can change without behavioral changes and behavior can change without modifications to rules. (Scott, 1992). Argyris and Schön (1978), in their research on organizational “theory of action”, make a distinction between espoused theories of action and theories-in-use and state that it is an individual’s theories in use, or groups of individuals’ theories-in use that are the more powerful predictor of human behavior.

While it may be difficult to characterize individuals in organizations as following one set of rules, they do share certain common features (equilibrium, emergence, self-organization and feedback loops) that qualify them as CAS.

Equilibrium

Dynamic equilibrium is movement over time in which a system continuously adapts to its environment in order to maintain a stable state. However, the equilibrating nature of a cybernetic system does not allow for any internal capacity for change (Stacey, 2007). CAS do have the capacity for internal change but change does not take place when systems are in a state of equilibrium. For new structures and patterns of behavior to be created, CAS must be far from equilibrium, otherwise changes will be temporary (Mischen & Jackson, 2008).

Like dissipative structures that need disorder for change (Prigogine & Stengers, 1984), for CAS that are in a stable state, equilibrium needs to be disrupted in order to create conditions for change. Introducing perturbations into a system that push a stable

system far from equilibrium may result in the emergence of a new system through interactions of its internal elements (Morrison, 2002).

Capra (1997) describes how systems can change when they are “pushed” far from equilibrium towards what Brown & Eisenhardt (1998) call the “edge of chaos”. When CAS are pushed far from equilibrium they can encounter bifurcation points, what Capra calls forks in the road, leading to self-organization, the emergence of new forms, or dissipation, where systems revert to a variation of their initial stable state. At bifurcation points systems have the possibility to develop in several different ways, and the new form cannot be predicted.

Self-Organization and Emergence

A key feature of all CAS is they are self-organizing systems. Capra (1997) identifies three characteristics of self-organizing systems. First, self-organization is the process of creating new structures and new patterns of behavior. Second, self-organizing systems are all open systems that operate far from equilibrium. The spontaneous emergence of new structures and new patterns of behavior occur only when a system is far from equilibrium. Third, self-organizing systems exhibit a nonlinear interconnectedness of the system components resulting in feedback loops.

According to Stacey (2007), these feedback loops “take the form of agents interacting locally according to their own principles, in the absence of an overall blueprint for the system they form” (p. 196). These self-organizing local interactions produce emergent population-wide patterns of behavior. Emergence describes the

patterns of interaction through the behavior of interconnected elements that both adapt to and construct their environment.

Emergence is the partner of self-organization (Morrison, 2002). Change emerges as the result of local interactions through a process of self-organization. Since change emerges over time interdependently, it is not possible to determine outcomes in advance with any certainty. In CAS such as organizations, individuals are interdependent none of them can simply choose what will happen to all of them. According to Stacey (2007), “what happens to all of them will emerge in the interplay of their intentions and no one can be in control of this interplay” (p. 239). Strategy for change in some sense emerges in the interplay of individual intentions.

The concept of “distributed leadership” refers to a model that distributes leadership responsibilities and activities to many participants who have varying roles within an organization (Gronn, 2000; Hart, 1995; Wallace, 2002). Leadership is distributed not by delegating it or giving it away, but by bringing together people, materials, and organizational structures in a common cause (Spillane, Halverson & Diamond, 2001). Harris & Spillane (2008) state that: “Distributed leadership focuses upon the interactions, rather than the actions, of those in informal leadership roles” (p. 31) and believe that distributed leadership is central to organizational redesign.

Since change emerges through the interactions of individuals in an organization, distributed leadership provides an effective approach for organizational change. In her research on school reform efforts in secondary schools in Hong Kong, Sui (2008) viewed schools as CAS, concluding that the ability to enact change in schools lies in the connections and interactions between individuals where a distributed leadership approach

facilitated connections among people by enhancing the flow of information throughout the schools.

Feedback Loops

Since change in CAS occurs through local interactions, feedback loops exist between interacting elements of a system (Marion, 1999). Mason (2009) states that: A central concern of complexity theory is on the relationships among the elements or agents that constitute a particular and sufficiently complex environment or system (p. 118). In extending this to organizations, Stacey (1995) argues that

Organizations are clearly feedback systems because every time two humans interact with each other the actions of one person have consequences for the other, leading that other to react in ways that have consequences for the first, requiring in turn a response from the first and so on through time. (p. 481)

While cybernetic systems rely on negative feedback, which is regulatory, to keep systems in a state of dynamic equilibrium, CAS rely on both positive and negative feedback. Positive feedback is a fundamental property of organizations (Forrester, 1958; Senge, 1990) and can result in behavior patterns that emerge contrary to intention. Furthermore, positive feedback uses information not merely to regulate, but to change, grow and develop (Wheatley, 1999). Positive feedback can amplify small change resulting in large effects.

CAS reliance on feedback loops means that agents need to be connected, creating social networks. Daly (2010) defines a social network as: “a group of actors who are connected to one another through a set of different relations or ties” (p. 4). In

organizations, individuals within a social network are interdependent since they share the same social network. Because of the connections between individuals, social network analysis provides a tool for studying the structure of the relationships between individuals in organizations. Cilliers (2001) and Stacey (2001) argue that one way to understand CAS is to study the patterns of interactions within a network.

A key feature of CAS is that local interactions generate global characteristics that change the way agents interact. In organizations, where individuals can change or evolve, social networks can change or evolve. The actions of individuals not only move along feedback loops, they can also change these loops. In organization science, studies of how social networks change provide insights for scholars who view organizations as CAS (Anderson, 1999) and may be used to develop effective strategies for change (Daly, 2010).

The Role of the Change Agent

In CAS there is no master controller or prescribed blueprint for change (Stacey, 2007). Instead, local interactions between agents, operating according to their own rules, result in a process of self-organization, giving rise to emergent, often unpredictable, new structures and new patterns of behavior. Leadership is the activity of enabling and growing rather than directing (Morrison, 2002).

Morgan (2006) states that: “The fundamental role of managers is to shape and create contexts in which appropriate forms of self-organization can occur” (p. 257).

Appropriate contexts can act to create instability within an established system, pushing

the system away from equilibrium until a bifurcation point is reached. In the language of chaos theory, for transformational change to occur, a new attractor pattern must be created that can break the hold of the dominant attractor pattern (Figure 2.1).

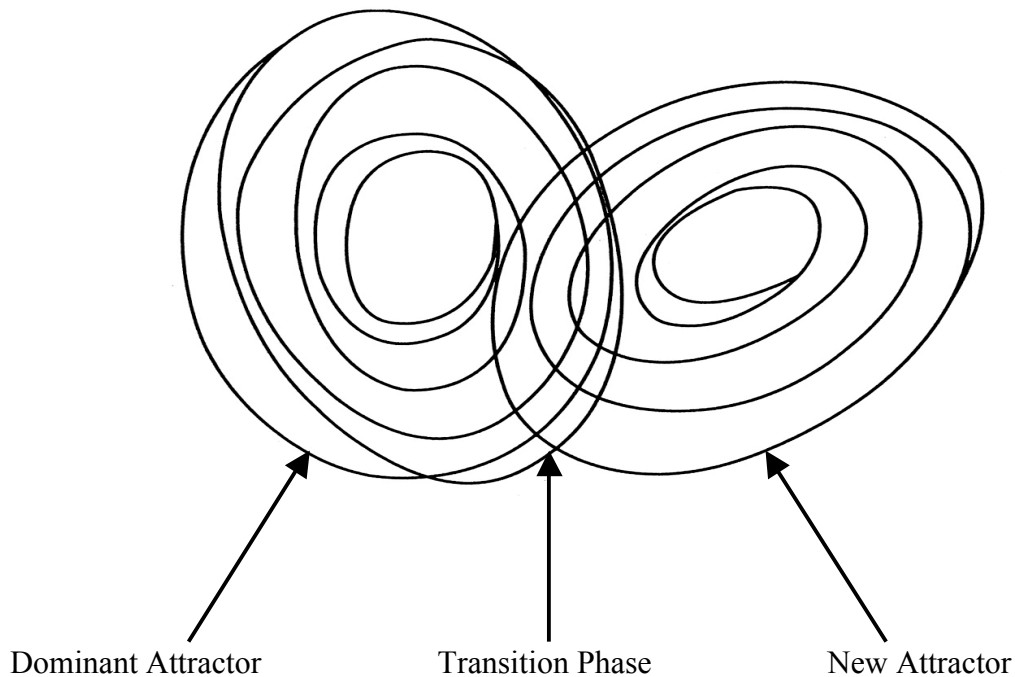


Figure 2.1: Competition Between Attractor Patterns

Figure 2.1 represents competing attractor patterns. Morgan (2006) asks the following questions:

- What are the parameters of the dominant attractor pattern and what are the forces locking an organization into this pattern?
- How is the transition from one attractor pattern to another achieved?
- What should the parameters of the new attractor pattern be?

Morgan (2006) says that one way to change context is to create a powerful coalition of key individuals that can develop a prototype of a new system. Simon (1996) has pointed out that CAS contain nested hierarchies of CAS. Furthermore, every aspect

of CAS, their agents, schemata, and the nature and strength of network connections can evolve over time. For example, changes in local behavior can generate global characteristics that alter the way agents interact. Actions not only move along feedback loops, they can also change these loops.

In organizations such as schools social networks can evolve, resulting in the formation of new social networks or alterations in existing networks and network connections. A new group or coalition of existing staff members may form a new group resulting in local changes that establish new network connections or result in the modification of existing network connections.

Turning up the heat:

In their research on dissipative structures, Prigogine and Stengers (1984) found that self-organization only occurs in open systems operating far from thermodynamic equilibrium, a condition that requires systems to constantly import energy from outside the system. Anderson (1999) views organizations as dissipative structures. In order for new structures or patterns of behavior to emerge through self-organization, organizations must be pushed far from equilibrium and this requires the input of energy.

However, energy does not necessarily need to be imported from outside the organization. Individuals or groups of individuals, with influence or authority within an organization can turn up the heat on the organization. For example, disrupting an organization's equilibrium in ways that create new challenges that cannot be effectively addressed by the existing structures and patterns of behavior within an organization could catalyze the emergence of new structures and patterns of behavior through self-

organization. Morrison (2002) refers to this as auto-catalysis, “the ability of a system to evolve itself” (p. 15). Morrison views auto-catalysis as a central feature of self-organizing systems.

Research Approach

Although complexity theory has its origins in the natural sciences (Kauffman, 1995; Mitchell, 2009), over the last few decades it has been increasingly used in the social sciences (Allen, 2001; Brown & Eisenhardt, 1998; Wheatly, 1999). Recently, complexity theory has been applied to school reform efforts (Maroulis & Wilensky, 2009; Mason, 2009; O’Day, 2002; Sui, 2008).

Studies that examine school reform efforts through the lens of complexity theory tend to rely on computer simulations. For example, Maroulis & Wilensky (2009) used computer simulation methods in a large public high school engaged in a “small school” reform effort to examine the inter-organizational dynamics that gave rise to organizational change. Stacey (2007) argues that complexity scientists use computers to simulate the behavior of CAS because “it is not possible to experiment with living systems in real-life situations (p. 196).

While complexity theory has been used to describe and explain school reform efforts, to date, no studies have looked at how complexity theory could be used as a theoretical framework for designing and implementing a strategy for school reform

CHAPTER THREE

RESEARCH METHODS

If creation is done with an eye toward the systematic generation and examination of data and refinement of theory, the result may be considered a design experiment. (Schoenfeld, 2006, p. 193)

The methodology used in my research study was to construct a design experiment. The goal of the design experiment was to create conditions that were both necessary and sufficient for transformational change to occur at Gonzago High School (GHS), an alternative high school with low-performing students. In addition, this research study documented and described the changes that occurred at GHS from February of 2007 to March of 2011.

According to Cobb, Confrey, diSessa, Lehrer, and Schauble (2003), “design experiments are conducted to develop theories, not merely to empirically tune “what works” (p. 9). Mehan (2008) refers to this approach as design research, and argues that design research attempts to go beyond writing a description of “what’s going on here” (p. 84).

Design experiments have a number of characteristics (Cobb et al., 2003; Collins, 1999; Schoenfeld, 2006). First, design experiments are set in the messy situations that characterize real-life contexts. Design experiments therefore constitute a means of addressing the complexity found in educational settings. Second, unlike the design of quantitative-analytical experiments where one variable is changed while all other variables are held constant, in design experiments there are many variables that matter.

Third, design experiments must be flexible, that is, they must be open to design revision. Design modifications are made based on what emerges. “The result is an iterative process featuring cycles of invention and revision” (Cobb et al., 2003, p. 10). Fourth, design experiments are primarily concerned with developing theory in local contexts.

Design research is useful in educational settings because it focus on improving practice while at the same time building theory (Mehan, 2008). A design experiment approach provided me with the means to address the complexity of school reform. The emphasis was on implementing the experiment in a real-life setting, in this case, a single school site, to produce data that enable me to draw warranted conclusions about school reform and what contributes to it.

However, conducting a design experiment that produces well-warranted research findings is difficult. Schoenfeld (2006) states that: “Making the case for research findings in a design experiment often calls for a combination of planning and opportunism. In complex endeavors, one cannot necessarily predict what will happen or what the most productive lines of inquiry will be; hence the iterative nature of design experiments” (p. 202). Schoenfeld’s view of the “complex” nature of design experiments is consistent with how change occurs in complex adaptive systems (CAS) (Anderson, 1999; Morgan, 2006; Morrison, 2002; Stacey, 1995, 2007).

Radford (2007) takes the position that understanding educational reform in terms of complexity theory means viewing schools as CAS and, as such, subject to a multiplicity of variables that interact in non-linear and dynamic ways. In CAS, change emerges through the interaction between elements or variables and in many instances is

unpredictable. This has two implications for practitioners who choose to conduct research on their own work.

First, since the nature of the interaction between variables is more significant than the variables themselves, complex systems are resistant to reductive analysis. Second, the less than predictable nature of complex systems means that practitioners have less control over outcomes. Rather than employing research methods that attempt to develop generalized prescriptions for change, research methods need to provide description, explanation, and evaluation of the change process of a particular phenomenon within a specific real-life context. In this sense, research is more an opportunistic form of activity than a planned form of activity. Radford (2007) states that “In this context the practitioner is less like the bulldozer driver carving a way through the landscape to a pre-conceived objective, more like a combination of a canoeist shooting the rapids and creative artist exploring possibilities and waiting for inspiration” (p. 275).

Research Questions

The focus and purpose of this research study was to promote educational change at (GHS), an alternative high school with low-performing students that is located in St. Diaz, California, through a design experiment and to provide a rich description of how that change unfolded.

My research methods were designed to investigate the following research questions. If an innovative program, Academic Commitment Creates Empowered Successful Students (ACCESS), with the primary goal of academically preparing low-

performing students for rigorous college courses, is implemented at an alternative high school.

- 1) What structures and patterns of behavior around academic preparation for college emerge as the program evolves?
- 2) In what ways do these emerging structures and patterns of behavior impact the organizational structure of the school's learning community?

Positionality

Mertens (2005) makes a point of describing the importance of researchers clarifying their personal closeness to the research topic and the inherent influence of their closeness on the research that they are conducting. Therefore, it is important to describe my own experiences as a teacher and leading agent in the development of the college prep program at the high school where I teach, and how these roles came to shape the research process.

I began teaching at GHS, the site of my research study, in 1996. I accepted the offer to teach at this particular high school primarily because the school was moving to a brand new facility physically located on a the campus of St. Diaz City College (SDCC) in 1998. In 1998, the year the high school moved to its new location, I was hired as an adjunct faculty member by SDCC to teach physical science at the very same location. During my research study, I was teaching chemistry and math at GHS, and physical science at SDCC. My teaching experiences presented both positive and challenging implications to both data collection and data analysis. While I had developed a working

knowledge of students, staff, and the basic organizational structure of both school sites that could inform my research, my experiences also led to a potential for bias in both my data collection choices and the subsequent analysis of that data.

In 2006, I took the lead in developing an innovative college preparatory program called Academic Commitment Creates Empowered Successful Students (ACCESS) at GHS, where I teach. Over a four-year period I interacted with many of the GHS staff that I worked with and students that I taught, some of whom I interviewed. As such, I needed to remain conscious of my relations with those I worked with and those that I studied. I also harbored a strong desire to see ACCESS have a positive impact on the organizational structure of GHS. Who I chose to interview, how I conducted those interviews, and how I transcribed and analyzed interview data were subject to a potential for bias based not only on any pre-conceived notions I might have had about students or staff, but additionally because of a desire to collect data that only supported my research questions.

I remained conscious of my positionality as I made choices of who to interview, conscious of my positionality when I conducted and transcribed audio-recorded interviews, and conscious of my positionality when I analyzed data from school documents and records and data from interviews. I attempted to avoid imposing my own views upon this research study by backing up any claims with transcripts of interviews and copies of school documents and records that were used in this study.

Since the purpose of my research was not only to describe and explain the changes that occurred during my research but also to create conditions necessary for transformational change at GHS by the design experiment, my positionality was that of

change agent, the leading change agent. In that sense, I was an active participant, a fundamental feature of design experiments.

Theoretical Framework

Complexity theory provided a theoretical framework for my research. In complexity theory, organizations such as schools are viewed as Complex Adaptive Systems (CAS). The key principles of CAS are:

- CAS are made up of a large number of entities called agents. Individual agents, through their interaction with other agents, adjust their actions to that of the other agents, forming what Stacey (2007) calls “population-wide patterns”.
- For new structures and patterns of behavior to be created, CAS must be far from equilibrium, otherwise changes will be temporary (Mischen & Jackson, 2008).
For systems that are in a stable state, equilibrium needs to be disrupted in order to create conditions for change. Introducing perturbations into a system that push a stable system far from equilibrium may result in the emergence of a new system through interactions of its internal elements (Morrison, 2002).
- Change is emergent, resulting from local interactions through a process of self-organization. In organizations such as schools, change emerges as a result of the interplay of individual intentions. Strategy for change in some sense emerges in the interplay of individual intentions. Since change emerges interdependently over time, it is not possible to determine outcomes in advance with high certainty.
- A central concern of complexity theory is on the relationships among the elements or agents in CAS. In CAS such as organizations, individuals are connected to and

interacting with each other in many different ways. (Mason, 2009). Since change in CAS emerges through local interactions, feedback loops exist between interacting elements of a system (Marion, 1999).

Research Setting

The setting selected for this study was Gonzago High School (GHS), an alternative high school that is physically located on the campus of St. Diaz City College (SDCC). GHS operates in the St. Diaz Unified School District (SDUSD) on a traditional school year (10 month) calendar. GHS serves a highly mobile student population that includes students who have been involuntarily transferred from other SDUSD high schools. Transfers to GHS may occur for a variety of reasons, including behavior problems, drug abuse, pregnancy, gang activity, course credit deficits, work schedules and truancy and attendance issues.

On average, GHS serves approximately 450 students, 350 in its continuation school program and 100 students in its independent study program. Students who transfer to GHS have not succeeded in the regular or intervention programs provided to them at their previous schools.

Research Design

Treating ACCESS as a nested Complex Adaptive System within a larger complex adaptive system, GHS, I used features of complexity theory (equilibrium, emergence, self-organization, and feedback loops) as a framework to design a strategy for school reform. The goal was to create an environment for change by pushing GHS far from

equilibrium. A key strategy for pushing GHS far from equilibrium was to use ACCESS to create what I call “purposeful perturbations, that is, to disrupt GHS’s stable state in a purposeful way.

The experimental design of my research was iterative. Design modifications were made based on what emerged as a result of a particular purposeful perturbation. Since outcomes from perturbations were emergent, design modification was also a responsive process. I responded to analysis of data on the impact of one perturbation on GHS by modifying my strategy for change, introducing the next purposeful perturbation.

Unit of Analysis

My research questions shaped my “unit of analysis”, the evolution of ACCESS and the phenomenon of the impact of ACCESS on the organizational structure of a school.

Data Collection

Research methods in this study consisted of two principal activities: review and analysis of school documents and records, and review and analysis of individual, audio-recorded interviews.

Documents and Records

The following school documents and records were collected:

- The ACCESS action plan
- College assessment test results

- Records of SDCC classes taken by GHS students
- GHS's School Accountability Report Card (SARC)
- GHS's Expected School-wide Learning Results (ESLRS)
- GHS's Western Association of Schools and Colleges (WASC) self-study report
- GHS's program improvement proposal
- Joint Diploma Program (JDP) documents and records
- City Middle College (CMC) documents and records
- SDCC grants for CMC and the Tech Prep Development Program (TPDP)
- The Memorandum of Understanding (MOU) between GHS and SDCC
- Standard operating procedures for enrolling GHS students in SDCC classes

Individual audio-recorded interviews

Between April of 2009 and September of 2009, I conducted audio-recorded interviews. Interview participants included:

- The principal of GHS
- Three GHS guidance counselors
- Four non-ACCESS teachers
- Three ACCESS teachers
- Three non-ACCESS students
- Three ACCESS students

The interview scheduling was flexible. Interviews were scheduled based on the most convenient time for each participant. The interviews took place in a private location convenient for the participant. Each interview was audio recorded. General topics covered in the interviews included respondents' background in education, respondents' views on ACCESS and the other GHS academic programs, respondents' views about being located on a college campus, and each respondent's social network within GHS and with SDCC. Audio-recorded interviews were transcribed using InqScribe, a transcriptional software program that supports digital video or audio analysis (InqScribe, 2011).

Artifact Elicited Response Technique

The primary source of data I used to construct a picture of respondents' social networks came from the interviews that I conducted in 2009. During those audio-recorded interviews I wanted respondents to provide me with a detailed picture and description of their social networks within GHS and with SDCC. To accomplish this, I used an approach that I developed: Artifact Elicited Response Technique. Like Tobin's (1989) use of a video elicited response technique, the use of an artifact elicited response technique was designed to provide a new dimension to conducting audio-recorded interviews.

The technique, as used during interviews, was to ask respondents to construct an artifact, in the form of a drawing, depicting their social networks within the school. Each respondent was provided with a magnetic white board and a set of magnetic squares with either a job title of a key GHS or SDCC staff member, a GHS department, or a GHS-SDCC program written on each square. There were also six blank magnetic squares that respondents could write onto and use. Respondents were also provided with instructions to guide them in the construction of their social networks. Figure 7.3 shows the prompt provided to respondents for the social network drawing step. Each respondent was given as much time as they needed to complete their drawing. The drawing was then used as a prompt to generate questions from me and responses from the interviewee. The amount of time devoted for my questions and an interviewee's responses varied depending on a number of factors. For example, some respondents created more extensive social networks than other respondents.

Gonzago is made up of a number of groups, departments, and key people that I have attempted to identify. Where you view a connection between you and an entire group, for example: A particular department, or key individual, for example: The principal, choose the appropriate square. Where you view a connection with a particular individual within a group or department, choose the appropriate square, and write the initials of that person on the square, for example – a specific teacher or counselor. There are blank squares if you think a particular group or individual should be added.

I would like you to position the squares you select on the white board based on your interactions with each group or person. Where you believe there is a connection between you and a particular group or person, draw an arrow. I would like you to represent the strength of the connection by how thick you draw your arrows. The thicker the arrow, the stronger the connection you believe you have with a particular group or individual square. Arrows can point in one direction or both directions depending on how you view your interactions with a particular group or individual square.

Examples:

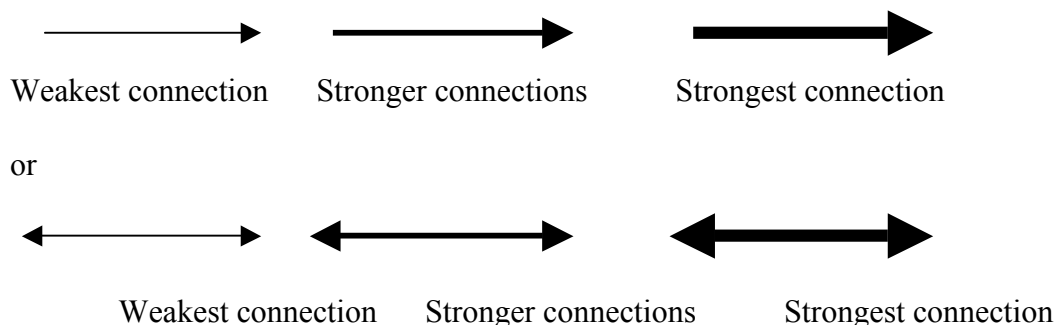


Figure 3.1: Guidelines for Constructing of Social Networks

Data Analysis

GHS stable state: 2006-2007.

A grounded research approach (Strauss & Corbin, 1997) was used to analyze school documents and records to provide a rich description of all aspects of GHS and its association with SDCC. Specifically, a review and analysis of documents and records

provided me with data to construct a profile of GHS's stable state for the 2006-2007 school year, when ACCESS started at GHS. Data included

- A demographic profile of GHS student and their parent(s)
- Programs offered at GHS
- GHS course offerings
- Programs between GHS and SDCC
- GHS students' college assessment test results in math and English
- SDCC classes that GHS students enrolled in
- Diploma options available to GHS students

Social networks.

Visual Understanding Environment (VUE) software was used to construct social network diagrams based on each respondents white board social network drawing.

VUE is a concept and content mapping application developed by the Academic Technology group at Tufts University (VUE, 2011).

Using social network diagrams for individual respondents, I constructed three "composite" social network diagrams, one for the ACCESS teachers that I interviewed, one for non-ACCESS teachers that I interviewed, and one for the counselors that I interviewed.

In order to create composite social network diagrams, I used a number scale from zero to three to designate the strength of a connection. A zero meant no connection, a one meant a weak connection, a two meant a moderate connection and a three meant a strong connection. Then, based on the diagrams I had constructed for individual respondents, I assigned numerical values to each respondent's connections. I arrived at an average strength of a specific connection by summing the numerical values for a particular connection within each group then dividing by the number of respondents in that group.

For example, for the four non-ACCESS teachers, the average numerical value for their connections to GHS counselors was 2.75. So on the composite diagram for non-ACCESS teachers, I show them having a strong connection to the GHS counseling staff. These composite diagrams were used to compare and contrast the social networks of the three groups.

Through the interviews that I conducted, I created diagrams of network connections for enrolling GHS students in classes at SDCC based on the drawings that respondents constructed during our interviews, and their responses to questions that I asked about their drawings. However, to get a more complete picture of the social networks that determined how GHS students enrolled in college classes at SDCC, and why they enrolled in the classes that they did, I analyzed the documents describing the other two academic programs that outlined the enacted standard operating procedures for enrolling GHS students in those programs.

Based on composite social network diagrams for teachers and counselors, the social network diagram for GHS's Principal, the social network diagram for the head guidance counselor, and GHS documents detailing standard operation procedures for enrolling GHS students in SDCC courses and CMC, I constructed a social network diagram describing the process of enrolling GHS students in SDCC courses.

Analysis of data from school records, audio-recorded interviews, and social network diagram informed the design of my experiment on an on-going basis. That is, design modifications were made in a responsive and opportunistic way based on analysis of data throughout the experimental phase of my research.

Validity

School documents and records were analyzed. Audio-recorded interviews were transcribed and analyzed. Data was triangulated to ascertain emerging themes across methods.

CHAPTER FOUR

GONZAGO HIGH SCHOOL'S PREVIOUS STABLE STATE

Demographics

Gonzago High School (GHS) opened its doors in 1921 as the first continuation high school in the United States. Continuation schools are also referred to as alternative schools, or A-typical schools. In this study, I refer to GHS as an alternative high school. Continuation education is a high school diploma program designed to meet the needs of students 16 through 18 years of age who have not graduated from high school, are not exempt from compulsory school attendance, and are deemed at-risk of not completing their education (California Education Code, 48400-48438). In addition to state-mandated academic courses for high school graduation, continuation education emphasizes guidance, career orientation and/or a work-study schedule. Supplemental programs and services may include independent study, Regional Occupation Programs (ROP), career counseling, job placement and apprenticeships.

Located on the campus of St. Diaz City College (SDCC), in a large urban city in Southern California, GHS operates in the St. Diaz Unified School District (SDUSD) on a traditional school year (10 month) calendar. GHS serves as both a dropout prevention and dropout recovery school. Students, referred to GHS through SDUSD district counselors, are typically 16-17 years old, are seriously credit deficient often having 10 or fewer credits – and are unable to catch up to their graduating class. These students have not succeeded in the regular or intervention programs provided them at their resident schools.

GHS serves a highly mobile student population that includes students who have been involuntarily transferred from other SDUSD high schools and students who have chosen to transfer from other high schools to GHS. Transfers to GHS may occur for a variety of reasons, including behavior problems, drug abuse, pregnancy, gang activity, course credit deficits, work schedules and truancy and attendance issues. Some students trying to make up credit deficiencies may enroll to take advantage of flexible schedules for course completion.

On average, GHS serves approximately 450 students, 350 in its continuation education program and 100 students in its independent study program. However, these numbers tend to vary month by month. During the 2006-2007 school year GHS reached a peak enrollment of 547, including 420 students in the continuation education program and 127 students in its independent study program. Virtually all students who enroll at GHS are referred because they were at risk of dropping out of school. Of the students enrolled at GHS during the 2006-2007 school year, 100 percent were referred because they were at risk of dropping out of school. Fifteen percent of these students were pregnant and/or parenting.

Ethnic/Racial Characteristics

GHS has a predominately minority student population. For the 2008-2009 school year, the student population was 76% Hispanic and 14.0% African American. From the 2005-2006 school year through the 2008-2009 school year there was a 15.6 % increase in Hispanic students and a 46.5 % drop in white (Non Hispanic) students. The large drop in

white (not Hispanic) students was due primarily to a decrease in the number of students enrolled in GHS's independent study program.

Primary Languages

For the 2006-2007 school year, approximately 29.1 percent Of GHS's student (112 students) were designated English Learners (ELs). Of the schools ELs, over 90 percent spoke Spanish at home.

Socioeconomic and Parental Educational Characteristics

Student eligibility for free or reduced-price meals, based on household size and income, is one measure of low income among a school's families. For the 2006-2007 school year, 69.7 percent of GHS students (268 students) were eligible to participate in the free and reduced-price lunch program and thus were identified for support from the Title 1 program. In comparison, the average percentage of students eligible for free or reduced-price meals in the district's high schools in that year was 43.8 percent.

Data for parental education (Table 4.1) was taken from the student answer document portion of the 2007 California Standardized Test (CST) that is administered yearly by the Standardized Testing and reporting Program (STAR). Of those GHS students taking the test, only 41 percent included information about parent education levels.

Table 4.1: Parent Education Characteristics 2006-2007

Parent(s) Level of Education	Percent
Did not graduate high school	43
Graduated from high school	31
Some college education	11
A parent had graduated from college	14
Participated in post-graduate education	2

Transience

The SDUSD classifies a student as *stable* if he or she was enrolled at the beginning of the school year and remained enrolled through the end of the school year. The *stability rate* is the percentage of students at the beginning of the school year who maintained enrollment at the same school through the end of the school year. In 2004-2005, the rate of students who started the school year at GHS and remained for the entire year was 57.0 percent. The average stability rate for district high schools was 86.8 percent.

The district classifies a student as *mobile* if he or she was enrolled at the beginning of the school year and was not enrolled at the same school through the end of the year. The *mobility index* represents the amount of movement in and out of the school during the school year relative to its official enrollment. The 2004-2005 mobility index for GHS was 185.2. The SDUSD mobility index for high schools for the same year was 24.2. No district wide data on student stability or mobility was available for the 2005-2006 and 2006-2007 school years.

The Western Association of Schools and Colleges' (WASC) March, 2006 self-study visiting committee report identifies GHS's high student transience rate as one of

the school's greatest obstacles. The report further concludes that the high mobility rate negatively impacts the school in its standardized test results, and has a detrimental effect on growth in the areas of literacy and math.

Dropout Rates

The California Department of Education (CDE) defines a *dropout* as any student in grades 7-12 who left school before graduation or before attaining the legal equivalent, and did not return to a school or education program by October of the following year.

One way to measure dropout rates is by the estimated four-year rate. This method measures the dropout rate for a high school graduation class based on the individual grades 9-12 rates for the current year. This rate estimates the percent of students in grade nine who are expected to drop out during the course of four years of high school. This presumes that the underlying grade-level dropout rates remain unchanged during the current year. This rate is computed using a relatively complex formula. The 2005-2006 estimated four-year dropout rate for GHS was 28.8 percent compared to a district wide average of 14.7 percent.

Graduation Rates

According to the No Child Left Behind Act (2001), the high school graduation rate is "the percentage of students, measured from the beginning of high school, who graduate from high school with a regular diploma (not including an alternative degree that is not fully aligned with the State's academic standards, such as a certificate or a

General Education Diploma (GED). The GED is a group of five subject tests which, when passed, certify that the taker has high school-level academic skills in the standard number of years. The federal law leaves to the states the choice of a formula for calculating graduation rates. In 2001 The California Department of Education (CDE) determined that high school graduation rates would be determined by the following formula:

$$\begin{aligned} \text{Graduation rate} = & \text{Number of Graduates (year 4)} + \text{Grade. 9 Dropouts (Year 1)} + \\ & \text{Grade. 10 Dropouts (Year 2)} + \text{Grade. 11 Dropouts (Year 3)} + \\ & \text{Grade. 12 Dropouts (Year 4)} \end{aligned}$$

School records show that GHS's graduation rate had increased from 57.0 percent for the 2001-2002 school year to 78.2 percent for 2006-2007. The district graduation rate for 2006-2007 was 82.3 percent. It should be noted that during this time period, there was an increase in the number of GHS students earning a 24-credit Joint Diploma Program (JDP) option 2 diploma. By the 2006-2007 school year, the majority of GHS graduates were earning the option 2 diploma. The district graduation rate was for a 44-credit diploma.

GHS Course offerings

The courses offered at GHS provide students with the opportunity to meet course requirements for a 44-credit diploma in math, English, history, and science. The one art course offered at GHS met the fine arts requirement and Regional Occupational Program (ROP) courses met the practical arts requirement. ROP is a program that prepares students, 16 years of age and older, for further education and employment. However,

since the requirement of four physical education credits was replaced by an additional four elective credits, GHS students would need to earn 15 elective credits for a 44-credit diploma. GHS did not offer enough electives to meet that requirement.

GHS did not offer all of the courses required for admission to four-year colleges and universities. For example, GHS did not offer any world language courses or intermediate algebra courses. In addition, GHS did not offer any advanced courses in any of the academic disciplines. Figure 4.1 shows the four-year educational plan used by GHS counselors. Each GHS student, guided by their counselor, received one of these educational plans.

FOUR-YEAR EDUCATIONAL PLAN AND CREDIT REVIEW WORKSHEET

Name
Last First MI Birth date Sequence Class

Date Entered Counselor Teacher

SCORES Career Interests
Reading Math

ENGLISH /		GRADE	DATE
1	English 1		
2	English 2		
3	English 3		
4	English 4		
5	American Lit 1		
6	American Lit 2		
7	Contemporary Voices 1		
8	Contemporary Voices 2		

MATH /		GRADE	DATE
1	Algebra 1		
2	Algebra 2		
3	Geometry 1		
4	Geometry 2		
5	Unifying 1		
6	Unifying 2		

SOCIAL STUDIES /		GRADE	DATE
1	WHGE 1		
2	WHGE 2		
3	US HISTORY 1		
4	US HISTORY 2		
5	GOVERNMENT		
6	ECONOMICS		

BIOLOGY /		GRADE	DATE
1	Biology 1		
2	Biology 2		

PHYSICAL SCIENCES 0 /0		GRADE	DATE
1	Physics 1		
2	Physics 2		
3	Earth Science 1		
4	Earth Science 2		

FINE ARTS /		GRADE	DATE
1			
2			

PRACTICAL ART /		GRADE	DATE
1			
2			

ELECTIVES /		GRADE	DATE
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

COURSES IN PROGRESS		GRADE	PERCENT	DATE
1				
2				
3				
4				
5				
6				

GPA

Comp Lit completed

CaHSEE: Language

CaHSEE: Math

Senior Exhibition Date

Leave Date

Figure 4.1: GHS Four-Year Educational Plan

Educational Programs

During the 2006-2007 school year GHS offered a variety of educational programs. Documents such as the Annual School Accountability Report Card (SARC) and the Western Association of Schools and Colleges (WASC) self-study visiting committee report were reviewed to provide a brief description of some of these programs.

Continuation education program (The Day Program) offered its students core academic courses necessary to receive a high school diploma. GHS also offered its students a variety of electives, including art, culinary arts, event planning, and fitness and nutrition. Students could enroll in elective type courses at SDCC through the Middle College Program (CMC) or Joint Diploma Program (JDP). New students entered classes approximately every six weeks, following successful completion of the Giving Everyone a New Educational Start (GENESIS) program. No more than 25 students were enrolled in the day program per class at any time.

Giving Everyone a New Educational Start In School (GENESIS): Incoming students were oriented through the GENESIS program, a two-week course emphasizing school attendance and skill development in the areas of goal setting, responsibility, problem solving, and conflict resolution.

Operation Restart: A Contracted Learning Experience (ORACLE) was an independent study program through which students are offered all basic courses needed to meet high school diploma requirements. Students who applied for ORACLE were required to read at the grade nine level or above.

The Expectant Teen Classroom (ETC) offered an opportunity for any students who were expectant parents to continue their academic studies while learning parenting

skills in an environment that addressed the students' changing physical and emotional needs. Students prepared for labor and delivery, developed parenting skills, studied family life and relationships, and learned about good nutrition and exercise habits.

Regional Occupational Program (ROP) offered students in culinary arts and event planning classes the opportunity to learn and train under a local professional chef hired to teach on campus and to work with local chefs in the community.

Advancement Via Individual Determination (AVID) Program: AVID is a program developed to increase enrollment of underachieving students in four-year colleges and universities by placing them in the same academic, or college prep, classes as high-achieving students. The GHS AVID program was in existence from September of 2005 through May of 2006.

In addition to these programs, GHS offered three programs in partnership with SDCC:

Joint Diploma Program (JDP): Beginning in 1994, the JDP offered older, severely credit-deficient student the opportunity to earn a joint diploma issued jointly by the SDUSD and the St. Diaz Community College District (SDCCD). Students earning a joint diploma must complete selected high school courses and take at least one college course at SDCC.

City Middle College (CMC): Beginning in 2000, this introductory experience into college life gave 75 students per year intensive and highly supportive coursework and work experience, including internships, and provided students with mentors and tutors.

Tech Prep Demonstration Project (TPDP): Beginning in 2003, the St. Diaz Tech Prep Demonstration Project was designed to prepare GHS students for entrance into some of the technology programs offered at SDCC.

The Joint Diploma Program (JDP)

In the SDUSD, forty-four semester credits are required for graduation. Students are expected to meet the California State Standards in English, mathematics, science, history/social science, visual, performing, and practical arts, and physical education. Students at alternative schools such as GHS have the option of earning a high school diploma through the JDP.

The JDP is the result of partnership between the St. Diaz Community College District Continuing Education Centers (SDCE), a pseudonym, and St. Diaz Unified School District's Adult Education Office of Extended Learning Opportunities, a pseudonym. The JDP was designed specifically to offer older, severely credit deficient students (ages 17-19) an alternative diploma. To receive a joint high school diploma from the St. Diaz Continuing Education Program (SDCE), GHS students may choose from two diploma options, a standard 44-credit diploma, or a 24-credit option 2 diploma. The JDP option 2 diploma is aligned with the California Education Code Section 51225.3 which specifies a minimum set of courses required for high school graduation that local school districts have the authority to augment with additional requirements

The SDCE has exercised some flexibility in determining how course requirements are met. For example prior to the 2006-2007 school year, the SDCE determined that

passing the General Educational Development test (GED) could be used to fulfill two years of English requirements. In effect, students were only required to complete one year of English. When the California High School Exit Exam (CAHSEE) replaced the GED, this practice was discontinued.

In 1994, SDCC and GHS created a partnership that provided GHS students with the option to enroll in specific courses at SDCC in order to fulfill the JDP option 2 requirement of successfully completing one college course. GHS students are not eligible for the option 1 diploma. However, GHS students could earn the 44-credit high school diploma adopted by the SDUSD, which has almost identical course requirements as the JDP option 1 diploma (Table 4.2). For GHS, the four physical education credits were replaced with an additional four elective credits.

Table 4.2: Credit Requirements For GHS Diploma Options

Credit requirements By Subject	44-Credit Diploma	JDP Option 2 Diploma
English	8	6
Mathematics	6	4
Physical education	4	0
Science	6	4
History/Social Sciences	6	6
World Languages		
Option A	2	NA
Option B	0	0
Practical/Performing Arts		
Option A	1	NA
Option B	3	2
Electives	11	2
Total required credits	44	24

Additional requirements for both the 44-credit diploma and the 24-credit option 2 diploma are:

- Competency in computer literacy: Students can fulfill this requirement in one of two ways: completion of a computer education course or completion of an approved course that incorporates computer education and computer applications. A test may be used for grades 9-12 when a course is not accessible or possible.
- Senior exhibition: All graduating seniors are required to present a Senior Exhibition as part of their graduation requirements.
- Minimum GPA: A grade point average of 2.0 or higher in scholarship, computed on the basis of A=4, B=3, C=2, D=1, F=0, is required. A grade-point average for graduation is computed on courses completed in grades 9-12.
- California High School Exit Examination (CAHSEE): Beginning with the class of 2006, all students in California have been required to pass the California High School Exit Examination (CAHSEE) to receive a diploma in the State of California. The examination is based on the California State Content Standards for English Language Arts and Mathematics. All the tenth-graders are required to take the exam in the spring. If either or both of the English Language Arts and Mathematics portions of the test are not passed, the student will continue to retake the parts not passed during grades 11 and 12 until both parts have been passed.

For the option 2 diploma only, students are required to earn two units of college credit with a minimum "C" grade. College credit courses may be taken in lieu of high school courses. A two-unit college course is equivalent to two semesters of high school

credit. The 44-credit diploma option for GHS replaced the four physical education credit requirement with four electives, bringing the total number of required electives to fifteen.

Table 4.3: SDCC JDP Course Enrollment by GHS Students for 2006-2007

Course	Students Enrolled	Successful Completions	Success rate (percent)
PERG 127 Personal Growth: College Success and Lifelong Learning	58	39	67.2
PHYN 100 Survey of Physical Science Lecture	22	14	63.6
PHYN 101 Survey of Physical Science Lab	22	16	72.7
BUIS 101 Business Mathematics	29	11	37.9
CBTE 120 Beginning Microsoft Word	10	5	50.0
*ENGL 042 College Reading & Study Skills	13	9	69.2
*ENGL 043 English Review	7	3	42.8
**MATH 096 Intermediate Alg. & Geom.	1	1	100.00
Total	162	79	48.8

*Basic skills courses that do not count for an associate degree and do not transfer to four-year colleges and universities.

** Represents college courses that require students to take the college placement test.

These courses can be used to fulfill the JDP college class requirement.

During the 2002-2003 school year, the first year that data was collected for college enrollment, 98 GHS students enrolled in JDP courses at SDCC. However, no data was kept on specific college course enrollment. Over the next four years, enrollment in JDP courses continued to increase. During the 2006-2007 school year, 162 GHS students enrolled in JDP courses at SDCC. With a peak enrollment of 547 students at GHS, that represented 29.6 percent of GHS's student population enrolling in at least one college course at SDCC (Table 4.3). Data for specific JDP course enrollment does exist prior to the 2006-2007 school year.

While the JDP was designated for older, severely credit-deficient students, a review of school records show that many younger students, who did not meet JDP age and credit deficiency requirements, were choosing the option 2 diploma.

When I asked JW, one of the GHS counselors to talk about one of his students, he told me about a 16 year-old girl whose goal was to earn an option 2 diploma.

DW: So tell me about one of your students...and how you're counseling them

JW: OK. I have one young lady in mind right now. She is sixteen years old going on seventeen. She came to me with about five credits. She has not passed either of the two high school exit exams. I think she's leaning towards going for an option 2 diploma but at the moment she's not eligible for the option 2 diploma because she hasn't passed either CAHSEE. But that's what she's shooting for. (7/09)

Many GHS students were enrolling in college courses based on institutional need rather than for college preparation. One example of a student taking a college class to fulfill a JDP diploma requirement came during a discussion I had with an eighteen-year old senior.

DW: So are you taking any college courses?

JC: Yeah.

DW: What are you taking?

JC: Human..uh..human something...

DW: Human services?

JC: Yeah. I think that's it.

DW: When does it start?

JC: Uh..I'm not sure.

DW: So why are you taking it?

JC: My counselor says I need a college course to graduate. (5/09)

While fewer course credits are required in science, math and English for the option 2 diploma than the 44-credit diploma, GHS counselors stressed that the main difference in the two diplomas is the number of elective credits students need. When I asked two GHS counselors about the JDP I got the following responses:

DW: So what's this joint diploma program?

JW: The major difference between option 2 diploma and the traditional 44 credit diploma are the number of electives. There are 4 electives required on the option 2 diploma and more like about 14 to 16 electives required on the traditional diploma. Beside that, for the joint diploma there is a college class that is required to be taken in order to receive it. (7/09)

AV: Well. It's an option of the diploma...umm...it's available through a collaboration with St. Diaz City Schools and St. Diaz Unified School District and the St. Diaz Community College District to enable the older student, at least seventeen or seventeen and a half, that is extremely credit deficient, but has passed both high school exit exams to kind of get through to some of the main coursework. Like it eliminates a lot of electives more than anything. And it pares it down a few classes so it's less than 44 credits. (6/09)

When I asked all three of the counselor that I interviewed who should be recommend for JDP I got three different responses. JW felt that it was a good program for students who wanted to speed up their graduation from high school so they could move on to college.

JW: It's a good program for students who want to get out of high school and go to college and they are just...they are getting too old in their mind for high school. I think it's good. (7/09)

A second counselor, AV, made the point of saying that she did not really recommend the JDP. She simply let her students know what the two diploma options were. She seemed to justify her response to my question by saying that if she did not tell her students about the JDP, someone else would.

AV: You know generally it is not really a recommendation. All the counselors let the student know their options because really the way it goes around Gonzago...I mean if we didn't tell them, somebody else would. (6/09)

BG, GHS's head counselor, did not answer the question directly. However, he did point out that the JDP was about more than just getting a high school diploma. The JDP was also designed to get students taking a college course on a college campus.

BG: The joint diploma was designed to physically make the older student get to the college campus, take a course, and realize that they're no different than anyone else...the whole purpose of the joint diploma wasn't just to get the student a diploma, it was to make them get onto the college campus. (6/09)

Middle College Programs

A Middle College Program, or Middle College High School (MCHS), offers an alternative to the traditional high school program. It is collaboration between a high school district and a community college to allow high school students that are struggling or need a different learning environment to thrive. Students take a combination of core high school courses and college courses to receive their diploma and graduate.

The first MCHS began as a charter school at LaGuardia Community College in Queens, New York. It opened in 1974 as an alternative high school under the joint auspices of the New York City Board of Education and LaGuardia Community College of the City University of New York. It was designed to proactively address the large

number of students that were dropping out of New York City high schools. The model of a high school physically located on a college campus and integrated into the community college environment was developed to lower high school dropout rates among what were termed “high-ability”, “at-risk” youth.

In California, the initial sites for MCHS programs were at Los Angeles Southwest and Contra Costa community colleges. Taking note of the positive impact of the LaGuardia model, California educators persuaded state legislators to provide planning and startup funding for these two California pilot programs, both of which began operating in 1989. By 2006, there were a number of MCHS programs throughout California with three middle college programs in the St. Diaz area, Grossmont Middle College High School (GMCHS), St. Diaz Metropolitan Regional Career and Technical High School, (The St. Diaz Met), and City Middle College (CMC). Both GMCHS and The St. Diaz Met place a strong emphasis on preparing high school students for college.

GMCHS, located on the campus of Grossmont College in El Cajon, California began operating in 2001. It was developed to provide a bridge from school to career utilizing real life experiences through internships and enriched and challenging educational opportunities. The GMCHS mission is to assist college capable students in the successful completion of high school while concurrently completing coursework that earns college credit and meets freshman entrance requirements. GMCHS student outcomes include:

- Fulfilling high school graduation requirements.
- Successfully transitioning from high school to college
- Completing nearly one year of college credits

- Establishing career pathways and post-high school plans.
- Participating in the world of work through internship/service learning experiences.
- Securing acceptance to post high-school institutions of higher learning.
- Challenging themselves and fulfilling their potential.

The St. Diaz Met, modeled after the Providence, Rhode Island Met, opened in 2004. Located on the campus of Mesa College in St. Diaz, the mission of the St. Diaz Met is to prepare students for college and the workforce through active learning, academic rigor, and community involvement. St. Diaz Met outcomes include:

- Ensuring that all students meet state performance standards in reading, mathematics, and writing.
- Writing an essay with a thesis, clear organization, and compelling supporting evidence
- Solving linear equations and inequalities with mathematical properties.

Their first graduating class had a 100 percent pass rate on the CAHSEE, 98 percent completion of “A through G” requirements and 98 percent of their first graduating class went on to attend a two-year or four-year college or university. “A through G” refers to the high school courses required for entrance to the University of California and the California State University systems (figure 4.4). They are so-called because there are seven general subject areas labeled “A” through “G”.

Table 4.4: “A” Through “G” Requirements

A: History/Social Science – 2 years required.

Two years of history/social science, including one year of world history, cultures and geography; and one year of U.S. history or one-half year of U.S. history and one-half year of American government.

B: English – 4 years required.

Four years of college-preparatory English that include frequent and regular writing, and reading of classic and modern literature. No more than one year of ESL-type courses can be used to meet this requirement.

C: Mathematics – 3 years required, 4 years recommended

Three years of college-preparatory mathematics that include the topics covered in elementary and advanced algebra and two- and three-dimensional geometry. Approved integrated math courses may be used to fulfill part or all of this requirement, as may math courses taken in the seventh and eighth grades that your high school accepts as equivalent to its own math courses.

D: Laboratory Science – 2 years required, 3 years recommended

Two years of laboratory science providing fundamental knowledge in at least two of these three foundational subjects: biology, chemistry and physics. Advanced laboratory science classes that have biology, chemistry or physics as prerequisites and offer substantial additional material may be used to fulfill this requirement, as may the final two years of an approved three-year integrated science program that provides rigorous coverage of at least two of the three foundational subjects.

E: Language Other than English – 2 years required, 3 years recommended

Two years of the same language other than English. Courses should emphasize speaking and understanding, and include instruction in grammar, vocabulary, reading, composition and culture. Courses in languages other than English taken in the seventh and eighth grades may be used to fulfill part of this requirement if your high school accepts them as equivalent to its own courses.

F: Visual and Performing Arts (VPA) – 1 year required

A single yearlong approved arts course from a single VPA discipline: dance, drama/theater, music or visual art.

G: College-Preparatory Electives – 1 year required

One year (two semesters), in addition to those required in “a-f” above, chosen from the following areas: visual and performing arts (non-introductory level courses), history, social science, English, advanced mathematics, laboratory science and language other than English (a third year in the language used for the “e” requirement or two years of another language).

City Middle College

City Middle College (CMC), developed under the auspices of SDCC, SDCCD Continuing Education centers and GHS opened in the Spring of 2000. According to the initial CMC grant proposal (1999):

The overall project goal has been to enhance college and career options for high potential, low achievement students who are older, and more at risk of not completing high school diploma requirements than the usual middle college student. (p. 3)

And

It is understood that the 75 students participating in the CMC Bridge Project will be more difficult to serve than the traditional middle college student. (p. 4)

CMC's intended target student population were GHS students seventeen and a half to nineteen years of age, who were severely credit deficient, seriously at risk of dropping out of school, not completing their high school diploma and entering the workplace without the skills required for securing quality employment. Students who wished to participate in CMC needed to first be referred to GHS by the SDUSD. Once at GHS, counselors recommend students to the CMC through a GHS teacher, who is also the high school lead-teacher for CMC at GHS, who interviewed them before they were accepted into CMC.

CMC was offered in three sessions through the school year, 25 GHS students per session. This ten-week program consists of three parts:

Part one of CMC was a two-week Introduction to College Success (fondly referred to as Boot Camp), which was taught by the GHS lead teacher. During Boot Camp, GHS students participated in a variety of team-building activities led by the GHS

lead teacher for CMC, a former AVID coordinator. CMC students attended Boot Camp at GHS.

Part two of CMC was six weeks of self-contained college classes on the SDCC campus that was taught by SDCC faculty. These classes, based on a “job skills program” offered by City College’s business department, included the following courses:

Business 90A: Learning Skills - A 1.5 semester unit course designed to teach the skills necessary to become a successful learner, both in college and in the years beyond college. Emphasis is placed on time management, organizational skills, and basic thinking, reading and writing techniques. Students will be able to successfully learn, retain and communicate information. This course is intended for the beginning or returning certificate student planning to major in vocational education.

Business 90B: Work Success - A 1.5 semester unit course designed to teach the skills necessary to become a successful employee. Emphasis is placed on understanding and developing the skills necessary to secure and keep a job. Students will be able to look for employment, prepare for an interview, and model the qualities of a successful employee. This course is intended for the beginning or returning student planning to seek gainful employment.

Business 90C: Business Internship Seminars - A 1.0 semester unit course. The purpose of this course is to introduce students to employment opportunities in the local job market. Each class includes five industry presentations that require students to research the particular business, write a practice resume for that business, and conduct a mock interview for that business.

Business 90D: Workplace competencies - A 1.5 semester unit course that teaches the

necessary skills for a student to become a successful participant in today's workforce. Emphasis is on time management, organizational skills, and basic thinking, reading, and writing techniques. Students are able to successfully select, learn, retain, analyze, and communicate information. This course is intended for the beginning or returning certificate student planning to major in vocational education.

Part three of CMC was a two-week internship. During the final week of CMC, students were placed with selected businesses or organizations. Some of these included: The St. Diaz Trolley, The St. Diaz Hall of Justice Courthouse, The St. Diaz Marine Corps Recruit Depot, and administrative offices on the campus of SDCC.

Students who successfully completed the CMC program received five and one-half college credits and a College Certificate of Completion, which hopefully would encourage them to seek further education and job preparation at SDCC. For high school, students received five elective credits and had their senior exhibition requirement waived. The five elective credits could be used to meet elective requirements, practical and fine arts requirements and the college course requirement for an option 2 diploma. For the first three years, beginning in 2000, all students who completed CMC received a four hundred dollar stipend. This practice was discontinued in 2004.

By the 2006-2007 school year, CMC had a consistently high completion rate of their ten-week program. Some of the expected goals for students completing CMC were: Reduced high school dropout rate, improved academic performance, increased high school diploma completion and increased college entrance rates. The only written evidence documenting the success CMC had in meeting these goals was in a 2004 document that showed that for the period between the Fall of 2002 and the Spring of

2004, 150 GHS students completed CMC and 91 GHS students earned a high school diploma. Since the program began in 2000, no GHS students had earned an associate degree or certificate of completion for any program other than CMC and no GHS students that successfully completed CMC had earned 60 transferable college credits or transferred to a four-year college or University. Since there was no comparable data for non-CMC students during this time period, it would be difficult to make the claim that the CMC program was to any degree meeting their espoused goals.

Initially, participants in CMC were drawn from GHS students enrolled in the JDP. The selection criteria for CMC was to be based on student academic performance, the attendance records and a student's desire to enter the program. However, by the 2006-2007 school year, both joint diploma and 44-credit diploma students were being recommended for CMC, students as young as 16 years of age were being enrolled in CMC, and good school attendance was no longer a criteria for selection. When I asked JW, one GHS counselor, why he enrolled a sixteen year old student in CMC I got the following response:

JW: I'm trying to give her some experiences of the traditional academic scheme to give her some motivation to continue to attend school.

DW: Like what?

JW: She attended the City Middle College Program and she successfully completed it. She had an internship out in the community... That was through CMC and I helped set that one up. And I did that because I want to find more motivation, more reasons for her to continue attending school and more reasons for her to continue taking more classes. (7/09)

JW went on to say that while age was a factor, there were other students that could benefit from CMC.

JW: I would like to see the program so that more kids can benefit from a program that that. Yes I know for some view, they think that the older

students benefit most. For me...yes 17 year olds can benefit because they are closer to the college age but there is also another population of kids that have low attendance rates that this might be the program that can help bring them in to the school. (7/09)

In addition to some of the selection criteria for CMC, some of the espoused objectives of CMC had not been addressed. They include:

- Providing CMC Project personnel with a comprehensive program to train faculty and staff that focuses on promoting student success and strengthens weakness in the current program:
- Developing intensive math curriculum workshops for GHS and SDCC math instructors to develop high school math courses that mirror the college courses in algebra and geometry.
- Providing training for SDCC faculty and mentors in teaching using peer-led study teams as a student support strategy. Strongly endorsed by the National Science Foundation, peer-led study teams was viewed an effective strategy for increasing student achievement, particularly in math and science courses.
- Expanding the alignment of college and high school curriculum in English and social studies.

Tech Prep Development Program (TPDP)

In 2003, the United States Department of Education awarded a seven hundred thousand dollar grant to a consortium that included SDCC, GHS, and business partners that included two local technology companies, and the Greater St. Diaz Chamber of Commerce's Business Roundtable for Education. The grant stated that "students to be

serves in the project were ethnically diverse, low-income, and at high risk of dropping out of school.” (TPDP Grant, 2003, p. 11)

At the high school level, the primary goals of the TPDP were to improve the academic performance and school retention of students attending GHS. Post-high school goals included increasing college entrance levels and associate degree completion and improved employment prospects for the low-income, at risk students enrolled at GHS.

The TPDP grant stated that the project was

Built on the joint Diploma Program and the academically focused Middle College Program to develop and implement an integrated educational program that will lead to an associate degree and employment in a targeted field. (2003, p. 19)

The proposed Tech-Prep program was designed to offer a formally articulated program designed to prepare young people for careers in the fields of, information technology, mathematical computer, electronic technology (Mecomtronics) and small business management.

- *Information Technology (Microsoft)*: Focused on Microsoft certifications. In 2002 SDCC implemented the curriculum for MOUS, A+ and Microsoft Certified Systems Engineering (MCSE) training. Gonzago students were to be given priority registration in these classes.
- *Mecomtronics*: Designed to meet the industry’s need for multifunctional technicians who were competent in mechanical, computer, and electronic technology. Mecomtronics was to academically prepare students for transfer to four-year colleges and universities. The curriculum was based on integrated technical and core competencies in English, math and physics.

- *Small business management*: Designed for the individual planning to start, operate, or work in a small business, the program focuses on managerial, marketing, financial, legal, communication and practical decision-making concerns in small businesses.

The goal of the TPDP to prepare students for these three programs was changed in its second year. Information technology, Mecomtronics and small business management were replaced with cosmetology, human services and vocational nursing. While no reason for this change was given, one only needs to look at the sequence of high school math courses outlined in the TPDP grant and how they articulated with postsecondary math courses to be taken during freshman year in college to identify a major problem (Figure 4.5).

Table 4.5: Math Course Sequences for TPDP

Field	High School		College
	Junior Year	Senior Year	Freshman Year
Microsoft	Elementary Algebra	Geometry	Business math
Business	Elementary Algebra	Geometry	Accounting math
Mecomtronics	Pre-Algebra	Pre-Algebra	Calculus

For Microsoft and small business management, students were required to take college-level math courses during their freshman year. In order to enroll in college-level math courses at SDCC, students needed to demonstrate proficiency through intermediate algebra and geometry by taking a college assessment test. At that time, GHS did not

offer intermediate algebra. Although college assessment tests were offered to GHS as part of the TPDP as a way to ensure that students were achieving high standards, with one exception, GHS students tested no higher than pre-algebra.

For Meccomtronics the plan was for students to go from pre-algebra and geometry right into college calculus during their freshman year. In effect this meant skipping one year of high school intermediate algebra, one college semester of trigonometry and one college semester of pre-calculus.

The TPDP grant stated that in their senior year of high school, all TPDP participants would enroll in Business 90 A through D, the course sequence for CMC. Furthermore, with the exception of the addition of a part-time, hourly college counselor, all grant monies were going to provide continuing support for CMC. For all practical purposes, the TDPD became a funding source for CMC and an extension of the JDP, a rather insignificant one at that. By the Spring of 2007, only six GHS students enrolled in one TPDP course at SDCC, human services.

So what impact did these college programs have on GHS? For a number of years leading up to the 2006-2007 school year, GHS was moving in the direction of becoming an all JDP school. In the 1999 grant application requesting funding for CMC it was stated that: "The Gonzago staff hope that the JDP becomes the model program for all GHS Students" (p. 2). , This statement also appeared the 2003 grant application requesting funding for the Tech Prep Development Program.

There is data to support this stated objective. In interviews with GHS counselors, I got the following responses when I asked them to describe the JDP:

JW: The joint diploma program... it's becoming more and more district-wide now. Joint diploma is a program that can help students finish high school...umm...where before they didn't think they'd have a chance. (7/09)

BG: The Joint Diploma Program was originally designed, and I helped create that, as the way it was being used, expanding it for Gonzago. When I first got the JDP...the students traditionally only took personal growth, or maybe physical science. Possibly they would take something else. But, mainly it was personal growth. I came here, I think we only had maybe 30 joint diploma graduates and of the 30, 25 took personal growth. Then it started expanding like crazy. (6/09)

Furthermore, during 2006-2007, GHS students enrolled in 168 JDP and TPDP courses, primarily to fulfill an option 2 college course requirement. In addition, 75 GHS students enrolled in CMC, which also fulfills the option 2 college course requirement. Taking into consideration that only a small number of GHS students enrolled in more than one college course, approximately 44 percent of GHS students enrolled in courses at SDCC. All of these courses met the college course requirement for an option 2 diploma. In June of 2007, 76 percent of all GHS Graduates received an option 2 diploma.

A relatively stable state

There were four outcomes directly related to the JDP, the CMC program and the TPDP (Figure 4.2). First there was a decrease in the number of students dropping out of GHS. Second, a higher percentage of students were earning a high school diploma. Third, more than half of all GHS students enrolled in at least one college course. Fourth, a significant number of GHS graduates were enrolling in classes at SDCC.

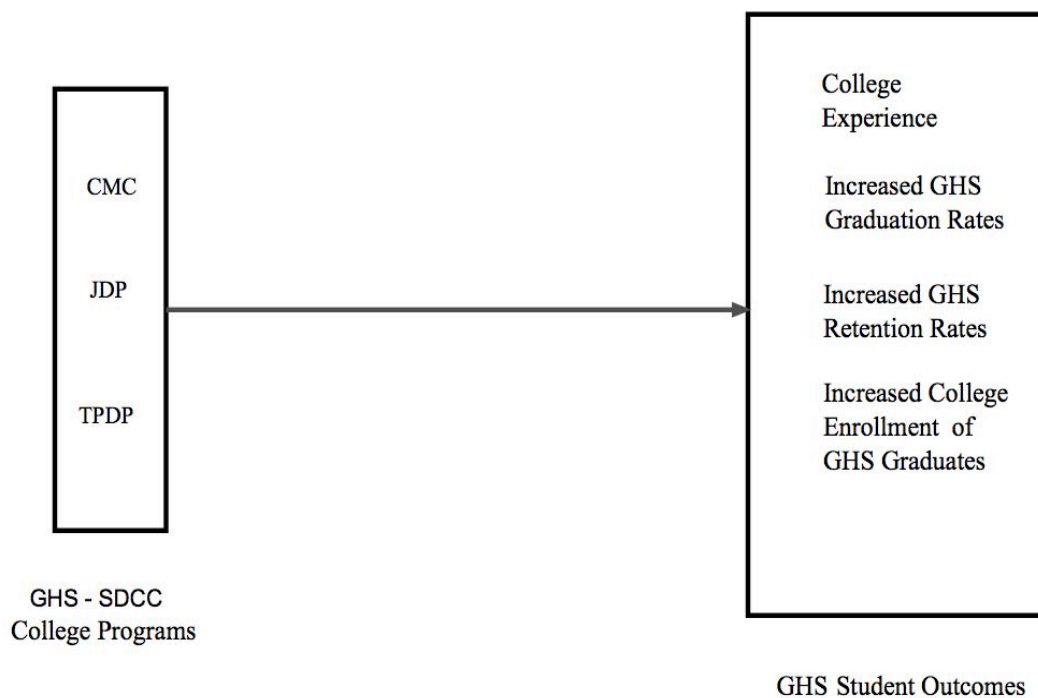


Figure 4.2: Outcomes Related To JDP, CMC and TPDP

The design of these college programs becomes problematic if one of the desired outcomes is academic preparation for rigorous college courses. Through these programs, students were not acquiring the level of academic skills necessary for enrollment in degree-track core courses. For those GHS graduates who did take the community college assessment tests in math and English at SDCC, they were placing into the lowest level basic skills courses. However, college preparation was not the focus of GHS during the 2006-2007 school year, nor had it been in the past.

GHS's primary goal, although it is not reflected in its mission statement, was to get as many students graduated as possible and as quickly as possible. The programs developed between SDCC and GHS and the way they functioned provided an effective way to achieve this goal. Evidence to support these claims exists in

- The failure to implement strategies to realize the espoused goals of CMC and the TPDP of articulating the college and high school curriculum in the areas of math, English and social studies, providing training for college faculty and mentors in teaching using peer-led study teams as a student support strategy and providing opportunities for collaboration between SDCC and GHS teachers.
- The concerted efforts by key members of GHS staff to increase the number of students pursuing the option 2 diploma who did not meet the age criteria nor the credit deficiency criteria.

In addition to the partnerships between GHS and SDCC that put students on a fast track to an option 2 diploma, by which students could graduate with 24 credits, the lack of course offerings such as world language courses, intermediate algebra, and academic electives left GHS graduates without a realistic path to continue their education in higher education.

CHAPTER FIVE

**THE EVOLUTION OF GONZAGO HIGH SCHOOL'S COLLEGE
PREP PROGRAM:**

FROM AVID TO ACCESS

By September of 2005 Gonzago High School (GHS) had been physically located on the campus of St. Diaz City College (SDCC) for seven years. During that time period, GHS had three partnerships with SDCC, The Joint Diploma Program (JDP), City Middle College (CMC) and The Tech Prep Development Program (TPDP), each described in the previous chapter.

The JDP, created in 1994, provides a 24-credit, option 2 diploma to GHS students in addition to the 44-credit diploma adopted by the St. Diaz Unified School District (SDUSD). One requirement for the option 2 diploma, the successful completion of one college course, was the result of an agreement between the St. Diaz Community College District Continuing Education Centers (SDCE) and St. Diaz Unified School District's Adult Education Office of Extended Learning Opportunities.

CMC, developed under the auspices of SDCC, the SDCE and GHS in 2000, provides a job skills program for GHS students. Like the JDP, CMC was designed for older (17 ½ to 19 years of age) students who are severely credit deficient. GHS students who successfully complete CMC earn five and a half associate semester units through SDCC and five high school elective credits. CMC also fulfills the JDP requirement of successfully completing one college course.

The TPDP, developed in 2003, was a partnership between SDCC, GHS, and a number of business partners in the community. At the high school level, the espoused goals of the TPDP were to improve the academic performance and school retention rates of students attending GHS. The TPDP did not adequately address its goal of improving academic performance of students at GHS. Most of the grant monies that were to fund the TPDP ended up providing financial support for CMC.

None of these partnerships adequately addressed academic preparation for college. Furthermore, up until the year 2005, despite being located on a college campus, GHS had no college prep program nor had any GHS students enrolled in any courses at SDCC necessary for a baccalaureate degree in an academic discipline at a four-year college or university.

AVID Comes to Gonzago

During the 2005-2006 school year, an AVID program was initiated at GHS. AVID, an acronym for Advancement Via Individual Determination, is a program for students from 5th to 12th grade that was developed to increase enrollment of underachieving students in four-year colleges and universities by placing them in the same academic, or college prep, classes as high-achieving students. According to The California Department of Education, AVID is designed for the students in the “academic middle”, those having a 2.0 to 3.5 grade point average and relatively high scores on state standardized tests (AVID, 2011).

Despite concerns I expressed about the feasibility of implementing such a model

at GHS, an AVID elective was offered beginning in September 2005. DP, one of GHS's English teachers, volunteered to serve as the AVID coordinator. He agreed to develop and teach the required AVID elective course. Students who elected to participate in AVID were required to enroll in that elective class. However, despite these initial efforts to implement an AVID program, there were significant differences between GHS's AVID program and the traditional AVID program.

AVID accepts students as early as the 5th grade. The rationale for starting with students while they are still in elementary school is that it gives children time to develop the skills necessary for entrance into and success at four-year colleges and universities. When students came to GHS they were already in high school, often 16 to 18 years of age. With few exceptions, students at GHS had not had an AVID experience. At best, GHS would have one to two years to prepare students for college before they graduated.

According to established curriculum guidelines, the primary goal of the AVID elective course is to prepare students for entrance into four-year colleges. GHS did not offer some of the courses necessary for entrance into four-year programs. Also, GHS did not offer any advanced placement courses, a key feature of AVID. The best the GHS AVID program could hope for was to prepare students for entrance into two-year community colleges.

All AVID students are required to take the AVID elective. The AVID elective was designed to provide a significant amount of time per week for tutor-led study groups. The purpose of the tutorials is to provide academic support for the college prep courses that AVID students have been mainstreamed into, a key feature of the program. Unlike a traditional AVID program, GHS AVID students did not enroll in college prep courses

since GHS did not offer any. Without college prep courses, the purpose of the tutorials could not be fully realized. In addition, AVID did not assign any tutors to GHS. Without AVID tutors, the tutorials were teacher-led rather than tutor-led.

Another reason AVID has for enrolling students in college prep courses and providing the AVID elective is to prepare them for college entrance exams such as the Scholastic Aptitude Test (SAT) and college assessment exams. GHS students did not take the SAT. While GHS's AVID program had an espoused goal of preparing its students for college assessment tests, without college prep courses in math and English this was problematic as evidenced by AVID students' scores on college assessment tests taken at St. Diaz City College (SDCC) in May of 2006, described in the next paragraph.

Based on GHS AVID students' results on college assessment tests, the AVID program was not achieving its goal of preparing students for college, at least not academically. No students met the competency levels required for placement into transfer level math and English courses on the SDCC assessment test. Of the 18 students enrolled in AVID, 15 students took the assessment tests in math and English at SDCC. All 15 students placed into math and English basic skills level courses. Placement results for math were particularly low. With the exception of one student who placed into elementary algebra and geometry, all students placed into either basic math (arithmetic) or pre-algebra.

So why did GHS's AVID students do so poorly on SDCC assessment tests? To be fair, GHS's AVID program had only been in existence for one year. Perhaps it just needed more time. Another possibility is that the approach to creating a college prep program at GHS ignored a key premise.

According to Anthony Alvarado, the principal architect for reform efforts in school districts in New York and St. Diaz, “Every reform has to be built in the soil of its city” (quoted in Magee, 1998). While Alvarado was talking about school districts, the same applies to individual schools. The idea that a college prep program can be assembled based on some existing blueprint ignored the special conditions existing at GHS that worked against the implementation of the AVID model as an effective strategy for college preparation. GHS has older students who do not meet AVID grade point average criteria. At that time, GHS did not offer college prep courses, nor did it offer all of the courses necessary for meeting minimum requirements for admission to four-year colleges and universities. For the 2006-2007 school year, the goal at GHS was to develop a college prep program that better addressed these existing conditions.

AVID Begins to Evolve

While I was not involved in AVID in any formal manner during its first year, I did have a number of discussions with the AVID coordinator about what might be done to make GHS’s AVID program more successful. We agreed that if the goal was to more effectively work toward preparing students for college, GHS needed college prep courses. As GHS’s principal would later comment when asked about the lack of college prep courses during the first year of AVID, “We sort of put the cart before the horse.” It was this belief that drove the changes in AVID that occurred during the 2006-2007 school year.

The first change was to add two college prep classes to GHS's schedule of course offerings. One college prep math class and one college prep English class were added to the schedule. Though I was hired by the school district to teach science, I volunteered to teach the math class. The AVID coordinator volunteered to teach the English class. English was chosen because competence in reading and writing is necessary for success in most college courses. Math was chosen because competency in college-level math is considered necessary for success in college (U.S. Department of Education, 1997).

For a number of reasons, I believed that it was important to align our curriculum with SDCC basic skills courses in English and math. Since GHS was physically located on the campus of SDCC, students could enroll in SDCC courses while attending GHS and most GHS graduates who went on to college choose SDCC. It was decided to articulate our college prep course curricula with the second-year basic skills courses in English and math offered at SDCC. For the college prep math course, I decided to use the same textbook and course outline that SDCC used for their elementary algebra and geometry classes.

The second change was to drop the AVID elective from the schedule. In its place, students were required to attend after-school study groups to receive additional academic support. Rather than attempting to acquire AVID tutors for these study groups, students at SDCC served as study-group leaders. These students received college units in the form of service learning credit through a peer-led study group program offered at SDCC. Additionally, through a partnership agreement with University of California St. Diaz (UCSD), students enrolled in an education course at UCSD would serve as tutors in the AVID math and English classes.

Prior to entering the college prep math class, students were given the SDCC pre-algebra final as a pre-test to determine their level of math skills. Although most students had already successfully completed two semesters of elementary algebra, not one student was able to pass the pre-algebra test with the minimum required score of seventy percent. While we did not have a pre-test for English, students were required to provide a writing sample. I decided that the post-tests would be the math and English college assessment tests. One reason for choosing these assessment tests is that they would provide us with some idea of how well we were preparing students for college. Another reason was to help students make the connection between learning math and English in high school and being academically prepared for college.

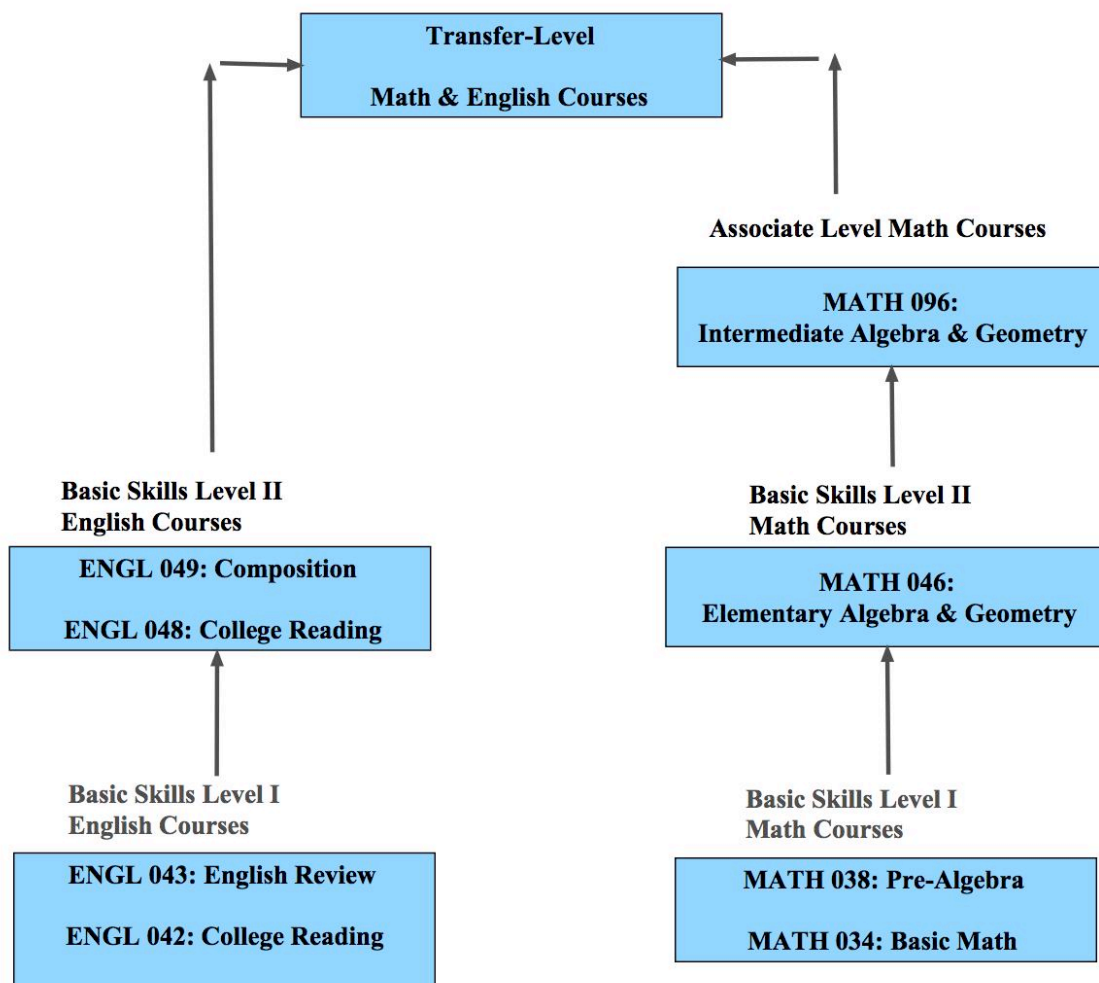


Figure 5.1: SDCC English And Math Flowchart

I believed that it was important for our students enrolled in AVID English and math to understand how these classes could affect their future success in college, to help them to “connect the dots” from high school to college. AVID students were told what basic skills courses were offered at SDCC in English and math and their sequence (Figure 5.1). I explained what it meant in terms of time, effort and money if they tested into the lowest basic skills level courses and that GHS students historically tested into the lowest

levels. I told them that, based on their current test results on practice assessment tests, they did not have the skills in English and math necessary for college-level courses and that the purpose of the AVID classes was to change that.

I also wanted to provide a classroom environment for AVID student that was more stable than the regular classroom environment at GHS. Enrollment in classes at GHS could be best described as a situation of “dynamic equilibrium”. New students would enter classes while others departed throughout the school year, but class enrollment numbers remained fairly constant. The AVID English and math classes, first offered during the spring semester of 2007, represented a change from the norm in a number of ways.

First, students enrolled in day program classes would enter and leave classes at varying points in time throughout the school year as a matter of standard operating procedure for a number of reasons:

- Course progress was based on the percent of course requirements a student had completed. When a student successfully completed 100 percent, they earned a credit for the course. In most cases, this meant a schedule change and being moved from that particular class to another.
- The amount of time it took for students to earn a course credit varied. Different students completed their work at different rates. Often students would enter a class with a percentage for prior work. For example, if a student entered a class with 50 percent, they would only be required to do an additional 50 percent to earn a course credit.

- New students, those who were being transferred from their home school, enter GHS throughout the year, usually in groups of 25 to 40 students every six to eight weeks. After students go through a two-week orientation in GHS's Giving Everyone a New Start in School (GENESIS) program, they were mainstreamed into classes in the day program.
- GHS counselors could add or remove a student from a class at their discretion, and for a variety of reasons other than course completion.

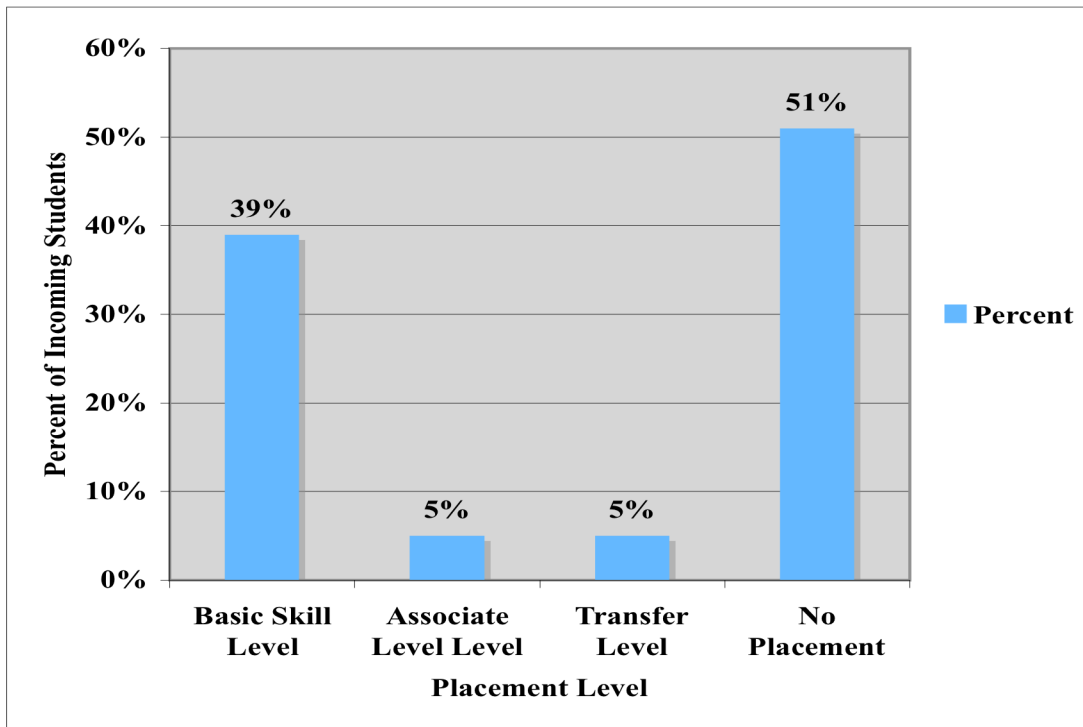
In contrast, AVID classes were run as semester-long classes. While course completion was still based on a student meeting all course requirements, student progress was not based on a percentage. A student had to complete the required coursework with a minimum "C" grade to earn high school credit. There was no percentage for partial completion. In addition, AVID students were required to attend one regularly scheduled, after-school study group per week to meet course requirements. Peer-Led Team Learning was used as the model for these study groups. Peer team leaders were recruited from students enrolled at SDCC and UCSD.

Second, the goal for day program classes was to maintain an enrollment of 25 students per class. First-year enrollment in AVID English and math classes was small. Twelve students from the day program enrolled in the AVID classes at the beginning of the semester. Four of these students transferred out without completing the AVID classes. Four weeks into the semester, two students enrolled in AVID classes after they had completed the GENESIS program. These students were chosen based on their English and math test scores, recommendations by the GENESIS teacher, and the students'

willingness to participate in the AVID program. By May of 2007, eight students had successfully completed the English and math AVID courses.

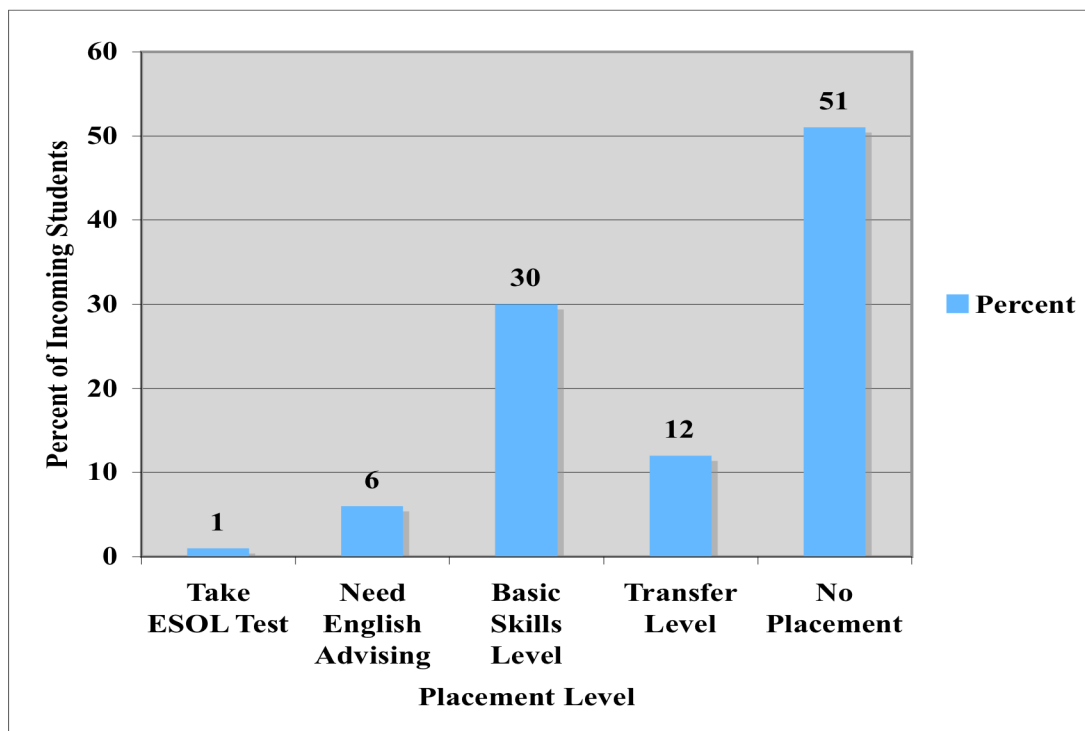
In May 2007, the eight students who successfully completed the AVID classes took the college English and math assessment tests. Rather than have our students take the English and math assessment test at SDCC, I chose Granville College (a pseudonym), a community college located in St. Diaz's East County. This choice was based primarily on the fact that there was a three-year waiting period before students could retake the SDCC assessment tests, while students who took assessment tests at Granville College need only wait one year to retake the tests.

The 2006-2007 AVID students showed improvement over the scores of GHS students who had taken these college assessment tests in the past. In English, six GHS students tested into the second year basic skills courses (ENGL 48/49) and two GHS students tested into first year basic skills courses (ENGL 42/43). In math, five GHS students tested into intermediate algebra (MATH 96), an associate degree-level course at SDCC and three GHS students tested into elementary algebra (MATH 46), a second-year basic skill level course at SDCC. AVID students performed well in comparison to that of a five-year average for incoming SDCC students. SDCC data for the five-year period from 2004 – 2008 show that the majority of incoming students who tested placed into basic skills level math and English courses. Only five percent tested into transfer level math (Figure 5.2) and twelve percent into transfer level English (Figure 5.3). Half of all incoming students did not take an English or Math placement test.



Data Source: SDCC Basic Skills Briefing. (Fall 2009). Office of institutional Research and Planning.

**Figure 5.2: SDCC Math Assessment Test Results For Incoming Student
5-year Average: 2004-2008**



Data Source: SDCC Basic Skills Briefing (Fall 2009). Office of institutional Research and Planning.

**Figure 5.3: SDCC English Assessment Test Results for Incoming Students
5-Year Average: 2004-2008**

While the goal to prepare a small group of GHS students for rigorous college courses was not achieved, no students tested into transfer-level math or English, I was encouraged by student placement results. With the support GHS's principal, I was determined to improve AVID during the next school year.

AVID: 2007-2008

During the 2007-2008 school year we were able to run our AVID classes for the entire school year. For those students who were enrolled in AVID classes at the beginning of the school year, this meant twice as much time to prepare for college and

the potential to improve on the previous year's college assessment exam results. While no enrollment quotas had been placed on AVID classes during the previous year, the GHS principal asked that we maintain a minimum enrollment of 15 students per class, still well below the norm of 25 students per class.

While no additional AVID classes were added to GHS's schedule, the number of staff members involved in AVID doubled. An AVID site team was formed which included the two existing AVID teachers, and two new teachers from the science department. Although there was no set meeting time, GHS's principal provided AVID teachers with three release days from teaching during the school year in order for the AVID site team to plan. The site team's primary objectives during this release time were to developing an AVID action plan that included:

- AVID program goals, strategies for achieving our goals, and the rationale for these strategies
- Guidelines for student enrollment in AVID classes including a formal application process
- Expanding AVID to include additional classes in other disciplines such as marine science, biology, and history
- Planning an AVID parent night - The first AVID parent night was held for AVID in October 2007. The purpose was to provide parents of AVID students with information about GHS's AVID program.
- Expanding our community and college partnerships

While one of the objectives of GHS's AVID program was to expand our college partnerships with SDCC, the need for such an expansion emerged somewhat

unexpectedly as a consequence of SDCC agreeing to waive the SDCC's policy that stipulates that once someone has taken the college assessment tests, they must wait three years to retake the tests. In the fall of 2007, SDCC had agreed to let some of our students take the assessment tests during the fall semester with the understanding that they would be able to retake the tests during the spring semester of that academic school year. This agreement was only for the 2007-2008 school year.

Eight of our AVID students took the SDCC college assessment tests in December of 2007. Of those eight students, one student tested into transfer-level math and one student tested into transfer level English. This was problematic since both these students were still enrolled at GHS, and GHS did not offer any English or math classes at the level at which these two students had tested. In order to meet their immediate academic needs, they would need to turn to SDCC for the appropriate classes.

With the assistance of a SDCC counselor, I was able to enroll the student who placed into transfer-level math into a trigonometry course at SDCC and the student who placed into transfer-level English into a college English class at SDCC for the 2008 spring semester. While the student who took the trigonometry course earned a "B" grade, the student taking English withdrew at mid-semester because she was failing the course.

English and math were not the only areas where GHS could not meet the academic needs of students who were planning on pursuing a college degree after high school. GHS did not offer any world language classes, a requirement for enrollment at four-year colleges and universities. To meet the world language requirement, I chose to enroll some of our AVID students in Spanish classes at SDCC. Spanish was chosen for two reasons. First, I believed that our students would have the best chance of success in

college Spanish. Approximately 80 percent of GHS's student population was Hispanic and most spoke Spanish at home. Second, it would provide an opportunity to develop a relationship with the language department at SDCC.

Two of our AVID students who had expressed an interest in taking a Spanish class at SDCC took the assessment test that is a requirement prior to enrolling in classes beyond first semester Spanish. Both demonstrated enough proficiency on the advanced Spanish assessment test to enroll in third semester Spanish during the spring semester of 2008. One student earned an "A" grade, the other student a "B" grade. Although GHS had been physically located on the SDCC campus for nine and a half years, this was the first time any GHS students had taken a Spanish course at the college, or any other world language classes at SDCC.

For the 2007-2008 school year, AVID showed a small growth in numbers. The peak enrollment in AVID was 21 students. Fourteen students were enrolled in AVID English and 18 students were enrolled in AVID math. The reason for the difference in enrollment numbers was that, unlike the previous year, not all AVID students enrolled in both AVID classes.

Since most of these students were enrolled in AVID classes for the entire school year, we were able to cover more material. For example, in AVID math, four students completed the elementary algebra and geometry course, and made significant progress in the intermediate algebra and geometry course. This was the first time AVID taught intermediate algebra. In fact, on reviewing student records going back to the 1930's, this was the first time GHS offered intermediate algebra.

By adding intermediate algebra to the AVID math curriculum, I hoped that our AVID students' college assessment test results would improve from the previous year. In May 2008, 12 students took college English and math placement exams at Granville College. Three students placed into transfer level English and four students into transfer level math. Only two of the twelve students placed into basic skills level I classes, one student in English and one student in math.

ACCESS: 2008-2009

For the 2008-2009 school year GHS's college prep program name was changed from AVID to ACCESS. ACCESS is an acronym for Academic Commitment Creates Empowered Successful Students. There were a number of reasons for the change. First, GHS could not become an official AVID school, a fact we were reminded of on a number of occasions by local AVID leaders. Second, a significant number of GHS staff members knew that the goal of AVID was to prepare students for enrollment in four-year colleges and universities. Since this was not the primary goal of our college prep program at that time, the AVID name caused some misunderstandings. Third, the goal of the college prep program was for students to gain access to transfer-level college courses and, by doing so, become active agents of change rather than passive participants.

In September of 2008 the AVID site team became the ACCESS site team. One of the site team's first tasks for the 2008-2009 school year was to develop a more comprehensive ACCESS action plan (Figure 5.4). The ACCESS mission statement became more general, to prepare student for post-secondary education. We added a

college prep course in marine science and a second math teacher to teach ACCESS math. With few exceptions, students enrolled in ACCESS classes were attending after school study groups. However, some of our female students who were mothers had their children in the infant care lab during school hours, and could not stay for the after school study groups.

The mission of ACCESS is to prepare students for post-secondary education through rigorous college- preparatory coursework with a primary focus on improving reading, writing, and math skills. And to support a school culture that fosters school team spirit, and students' emotional health.

Strategies

- Enrollment in rigorous college prep courses that articulate with St. Diaz City College courses and prepare students for rigorous college coursework.
- Enrollment in degree-track courses at St. Diaz City College
- Participation in a minimum of one study group per week.
- Collaboration is used as a basis for instruction in the ACCESS classroom
- A significant number of tutors are available in the ACCESS classes to facilitate student access to rigorous curriculum.
- Educate students in what it means to be academically and culturally “prepared” for college

Assumptions/Rationale for Strategies

- Students need the academic skills necessary for rigorous college-level coursework
- First generation college-going students need support in developing the academic cultural skills, in many cases lacking at home, necessary for college success.
- Competency in basic literacy and numeracy skills provide access to a variety of career pathways
- Increased levels of academic performance will elevate academic expectations and self-efficacy of Gonzago High School students and staff.
- Gonzago High School is physically located on St. Diaz City College.
- A collaborative learning environment helps to develop a community of learners and a sense of team-effort.

ACCESS site team

An active interdisciplinary site team that collaborates on issues of:

- Student access to, and achieving success in rigorous high school college preparatory courses and St. Diaz City College “core” courses.
- Student access to applications for college financial aid and college scholarships
- Providing in-class tutors during regular school hours through UCSD partnership.
- Communicating with parents, including two ACCESS nights per school year
- Providing after-school peer-led study groups.
- Developing partnerships through Service Learning with St. Diaz City College as well as other local institutions of higher learning and members of the community
- Coordinating college placement test for ACCESS students in Math and English

Figure 5.4: ACCESS Action Plan

Site Team Participants

- School principal
- Teachers: Math, Science, English, and Social Studies
- Gonzago counseling staff
- Gonzago college coordinator
- City College counselor
- Parent representative
- Student representatives

ACCESS students

Students enter the ACCESS program on a volunteer basis. General requirements include:

- Good Attendance
- Application Process including letter of commitment
- Personal File (FAFSA, letters of recommendation, transcript, personal statement, resume)
- Approval of student's counselor
- Assessment of math and literacy skills*
- Writing sample*

* Applies to specific courses

ACCESS study groups

Peer-led study groups provide a fifth period class from 2:45 – 4:00 Mondays thru Thursdays. A minimum of one study group per week per ACCESS course is required.

Figure 5.4: ACCESS Action Plan - Continued

In many ways, the ACCESS action plan represented not so much where we were at, but where we wanted to go. We had SDCC and UCSD students as after-school study group leaders and in-class tutors, but still had to use some of GHS's staff as study group leaders. We had yet to fully implement our espoused procedures for student enrollment in ACCESS classes. The site team was made up of four teachers, the ACCESS English teacher, the ACCESS math teacher, who was also the science department chair and the remaining two teachers from the science department. While the GHS principal, the GHS Outreach coordinator, a SDCC faculty representative, and some of our ACCESS students

were occasional attendees at ACCESS site team meetings; we did not have any parent involvement, or a GHS counselor as a member of the site team.

For the 2008-2009 school year student participation in ACCESS increased. Peak enrollment in ACCESS classes was 35 students, approximately ten percent of GHS's day school population. This increase was due in part to the addition of an ACCESS marine science class, and the addition of a second GHS math teacher to the ACCESS program. The second math teacher and I team-taught the ACCESS math class in my classroom. Because the math class had two teachers, we were able to reach a peak enrollment of 30 students in math, which represented 85.7 percent of the students enrolled in ACCESS classes.

Enrollment in degree-track college courses also increased. Degree-track courses are transfer-level academic courses that are necessary to earn a baccalaureate degree in an academic discipline at a four-year college or university. Twelve ACCESS students enrolled in degree-track college classes at SDCC with a high rate of success. Eleven of twelve students successfully completed these classes with a grade of "C" or better (Table 5.1). With the exception of two ORACLE (Operation Restart: A Contracted Learning Experience, a program described above) students, no other GHS students enrolled in degree-track, college classes during this school year.

Table 5.1: GHS Students 2008-2009 Enrollment In SDCC Degree-Track Courses

Student	Course Title	Course Grade
1	1 st Semester Spanish	C
2	3 rd Semester Spanish	B
3	3 rd Semester Spanish	A
4	3 rd semester Spanish	A
5	3 rd Semester Spanish	A
6	3 rd semester Spanish	A
7	3 rd semester Spanish	F
8	Introduction to American Sign Language	B
9	*Intermediate Algebra & Geometry	A
10	Trigonometry	C
11	Trigonometry	C
12	Reading and Composition	B

* Associate level course

While the physical science lecture and lab courses that I teach at SDCC met four-year degree requirements for students who were not majoring in science, math, engineering, and technology (SMET), I did not include them in the degree-track courses in table 5.1. However, of the 17 students who took the physical science classes that I taught, 12 were students enrolled in ACCESS math. This was by design. This was my tenth year teaching these courses and the first year that I required GHS students to be proficient in math at a minimum level of elementary algebra. Of the remaining five students, three students were enrolled in Operation Restart: A Contracted Learning Experience (ORACLE), GHS's independent study program.

In May of 2009, 11 students took English and math college assessment tests. Even though we had more students enrolled in ACCESS classes, one less student took the

college assessment tests than the previous year. Since Granville College now required students to wait two years before they could retake their placement tests, the ACCESS site team decided that only graduating seniors or, in the case of returning students, only those students we believed would test into either transfer-level English or transfer-level math should take the assessment tests. Of the 11 students, two students tested into transfer-level English and five students tested into transfer-level math. One of the students who tested into transfer-level English and three of the students who tested into transfer-level math would be returning to GHS or the 2009-2010 school year.

ACCESS: 2009-2010

Prior to the 2009-2010 school year, other than being provided with three release days by the GHS principal, the ACCESS site team did not have officially scheduled meetings. Instead, we often met informally during lunch or occasionally after school. In the fall of 2009, on the recommendation of the GHS counseling staff, and with the support of GHS's principal, it was decided that ACCESS site team meetings would be held after school every Tuesday. Site team participants included the GHS principal, members of the GHS counseling staff, the GHS outreach coordinator and the ACCESS teachers.

ACCESS marine science was dropped, but one biology class, one government class and one intermediate algebra class were added to the list of ACCESS courses. Enrollment in ACCESS classes reached a peak of 67 students for the year. With the exception of math, ACCESS courses maintained class enrollments of approximately 25

students. ACCESS math had a peak enrollment of 30 students in elementary algebra and 16 students in intermediate algebra for a total of 46 students.

The addition of an intermediate algebra class had some importance. First, prior to 2009-2010, the highest level of algebra offered at GHS was unified math, which did not meet the California state university A through G requirements. Intermediate algebra did. Second, the ORACLE program and the day program are separate programs. In the past, students from one program did not cross-enroll in the other program. Since ORACLE did not offer intermediate algebra, three ORACLE students enrolled in the ACCESS intermediate algebra & geometry.

Although the number of students enrolled in ACCESS classes grew, enrollment by ACCESS students in SDCC degree-track courses dropped from the previous year. Due to severe budget cuts, SDCC significantly reduced their course offerings for the 2009-2010 school year. At the same time SDCC experienced an increase in enrollment. While in previous years, spots were available in degree-track courses, these classes had full enrollment, and in many cases, long waiting lists well before class registration deadlines. The fact that GHS students have had to wait until the last week to register for classes made an already problematic situation even worse. In all, eight ACCESS students enrolled in degree-track classes at SDCC with six of those students successfully completing their class (Table 5.2).

Table 5.2: GHS Students 2009-2010 Enrollment in SDCC Degree-Track Courses

Student	Course Title	Course Grade
1	3 rd Semester Spanish	B
2	3 rd Semester Spanish	B
3	3 rd Semester Spanish	A
4	Introduction to Sociology	B
5	Trigonometry	B
6	Trigonometry	C
7	Trigonometry	Withdrew
8	Trigonometry	Withdrew

Since ACCESS had a relatively large number of students take college assessment tests, we took them in two groups. Fourteen students who had completed the Intermediate class were the first group to take the Granville assessment test. This particular testing date was a math only assessment.

With one exception, all students in this ACCESS group were of Hispanic ethnicity. When the testing supervisor saw our students she made the assumption that they were English language Learners (ELs). She informed them that although EL students were not allowed to take the test, she would let them because “they were probably all going to fail anyway.” Despite the testing supervisor’s prediction, of the 14 ACCESS students who took the test, nine graduating seniors and four juniors tested into transfer-level college math. Of those, six tested into precalculus. Three of the four returning juniors tested into precalculus. Only one student did not test into transfer-level math, but did test into associate level college math.

There were 10 students in the second group to take the assessment tests, all graduating seniors. Six students who had completed the ACCESS elementary algebra and

ACCESS English courses took both math and English assessment tests. The remaining four students who had only completed the ACCESS elementary algebra course took the math assessment test only. Since Granville College did not offer an English-only assessment test day, no students who only completed the ACCESS English course tested. Nine students placed into associate-level college math and one student placed into transfer-level math. Of the six students who took the English assessment test, two students tested into transfer-level English, two students tested into basic skills level II English, and two students tested into basic skills level I English.

Overall, 24 students took college placement tests. All 24 students took the math placement test with 13 students testing into transfer-level college math and 11 students testing into associate-level math. Only six students took the English placement test and while two students did test into transfer-level college English, two students tested into the lowest basic skills level English.

ACCESS: 2010-2011

For the 2010-2011 school year, ACCESS reached a peak enrollment of 74 students by February of 2011. A precalculus class and a second English class was added to the ACCESS program's course offerings. There were eight GHS teachers teaching ACCESS classes in four academic disciplines.

Due to continuing statewide budget cuts it became increasingly difficult to enroll GHS students in degree-track college courses. For the Fall 2010 semester, no GHS

students were able to enroll in degree-track courses at SDCC. For the Spring 2011 semester, only three GHS were able to enroll in third semester college Spanish.

Since data analysis for my research concluded in March of 2011, no GHS students had taken college assessment tests, which are scheduled for May.

Overview of Gonzago's college prep program: 2006-2011

During the five-year period from when college prep courses were first offered at GHS through the March of 2011, there was a steady increase in the number of students enrolled in college prep classes (Figure 5.5). From a total of 15 students enrolled in AVID classes in the spring of 2007, the college prep program grew to a peak enrollment of 74 students enrolled in ACCESS classes during the 2010-2011 school year.

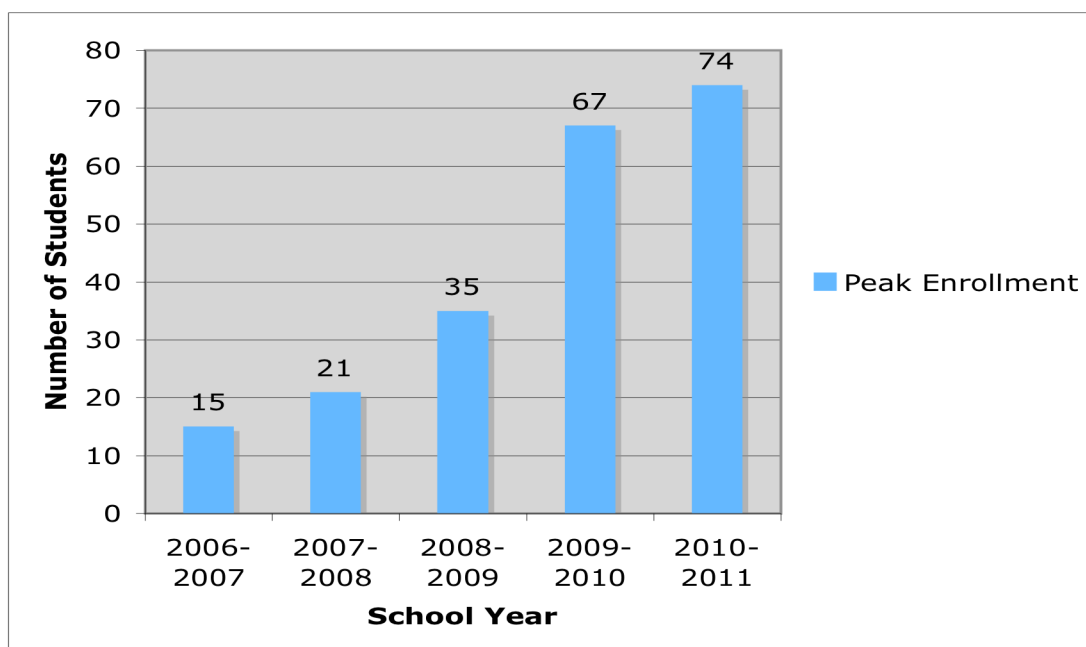


Figure 5.5: ACCESS Enrollment 2006-2011

One reason enrollment numbers had increased is that more college prep courses were added to GHS's course options (Table 5.3). In the spring of 2007 GHS offered only two ACCESS Classes college prep classes, one in English and one in math. By the 2009-2010 school year there were eight ACCESS classes in four subject matter disciplines.

Table 5.3: GHS ACCESS Classes 2006-2011

2006-2007	2007-2008	2008-2009	2009-2010	2010-2011
1 English 1 Elem Algebra	1 English 1 Elem Algebra	1 English 1 Elem Algebra 1 Marine Sci.	1 English 1 Elem Algebra 1 Inter. Algebra 1 Biology	2 English 1 Elem Algebra 1 Int. Algebra 1 Precalculus 1 Marine Sci. 1 Biology 1 History

However, there were other reasons for enrollment growth. GHS students knew about ACCESS and understood that it was about preparing for college. According to DA, who teaches an ACCESS biology class:

DA: And then there's the kids, the other population, the rest of the kids know about it and that whole social dynamic, like, "Oh you're in ACCESS, so you must be wanting to go to college."

Students were enrolling in ACCESS classes because it would help them do better in school. MS, a history teacher at GHS who did not teach an ACCESS class explained the increase in enrollment as follows:

MS: Students wanted to join ACCESS because they knew it could help them excel in school.

Yet while many students were learning about ACCESS, primarily through their peers, not all of them knew about ACCESS. I asked YD, a 2009 GHS graduate who had not taken any ACCESS classes about the ACCESS program.

DW: Do you know anything about the ACCESS Program? Do you know what it is?

YD: No.

DW: Have you heard about the college prep classes here at school at all?

YD: Not really.

DW: So nobody's talked to you about that?

YD: No.

A primary objective of the college prep program, from its inception as AVID through its evolution to ACCESS has been to academically prepare GHS students for college. One measure of the success in achieving that goal was through college placement test results in English and math. Figure 5.6 and figure 5.7 show ACCESS students' college assessment test results from the 2006-2007 school year through the 2009-2010 school year.

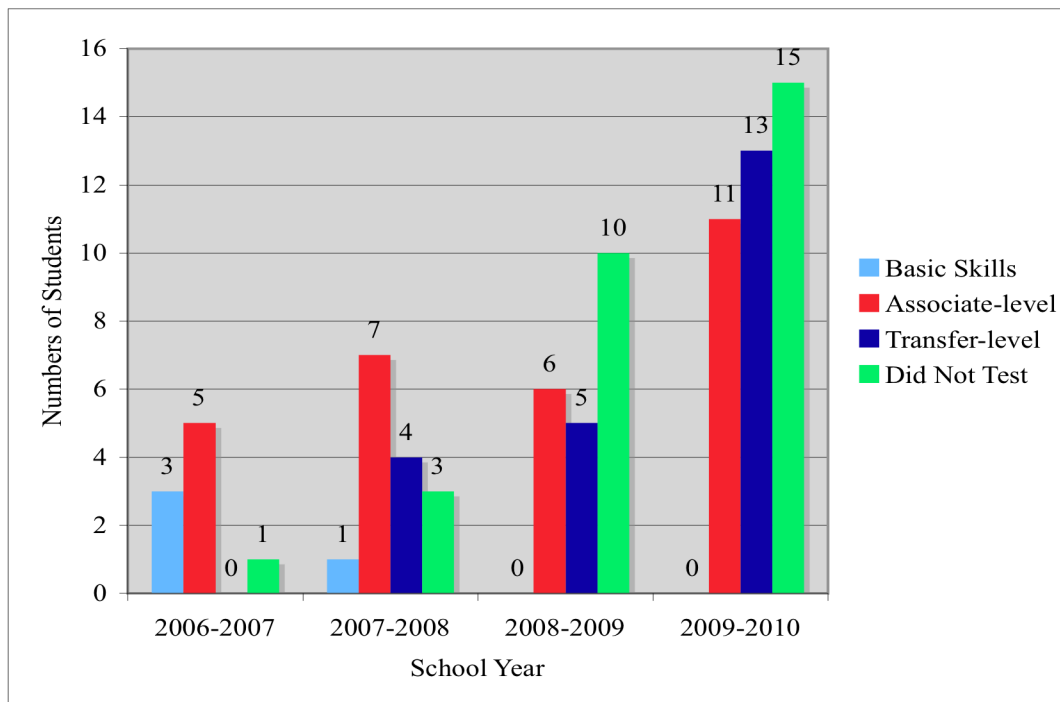


Figure 5.6: ACCESS Students' College Math Assessment Test Results

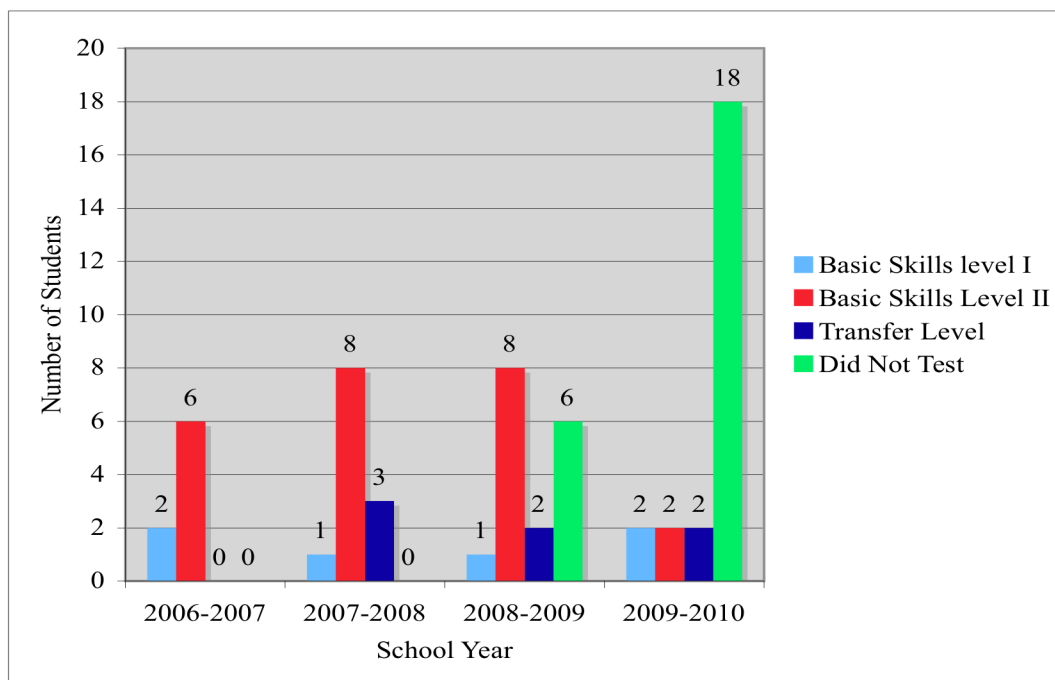


Figure 5.7: ACCESS Students' College English Assessment Test Results

In May of 2007, eight students took college math and English assessment tests. None of those students tested into transfer-level math or English. In May of 2010, 24 students took the college math assessment tests and six of those twenty-four students took English assessment tests. Thirteen of those twenty-four students tested into transfer-level math. None of the 24 students tested below MATH 96, an associate level course at SDCC. Of the six students who took the English assessment test, two students tested into transfer-level English.

One emergent feature of the college prep program was an increasing need to enroll GHS students in degree-track courses at SDCC while they were still in high school. When students, who would be returning to GHS for the following school year, began testing into transfer level English and math on college assessment test, GHS no longer had the course offerings to meet the academic needs of those students. Figure 5.8 shows degree-track SDCC courses ACCESS students enrolled in from 2006 through 2011.

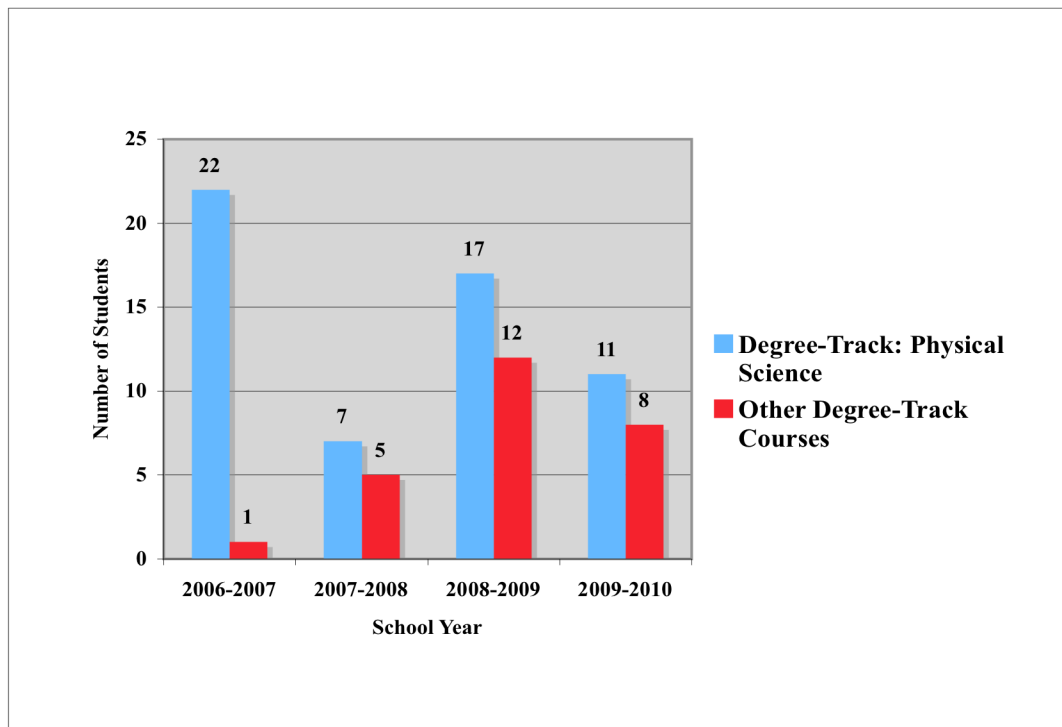


Figure 5.8: ACCESS Student Enrollment in Degree-Track College Courses

For the 2006-2007 school year only one ACCESS student enrolled in a degree-track course other than physical science at SDCC. By the 2008-2009 school year, twelve students enrolled in degree-track courses other than physical science at SDCC. Beginning in 2010, the number of students enrolled in degree track courses at SDCC dropped, despite having more ACCESS students who met degree-track course prerequisites. The California budget crisis was directly responsible for that drop.

The Success of ACCESS Math

Over the five-year period from 2006 through 2011, ACCESS math had achieved more success in academically preparing GHS students for college than ACCESS English. While both ACCESS math and English started with eight students and one class for each subject, by May of 2010, ACCESS math offered more classes, enrolled more students and had more students testing at the transfer level than English on college assessment tests. There are a number of factors that contributed to the success of ACCESS math students.

First, ACCESS elementary algebra and intermediate algebra math courses were articulated with SDCC elementary algebra and intermediate algebra math courses. Textbooks, adopted by SDCC in these subjects were used as the textbooks for ACCESS math. In addition, ACCESS math used the SDCC course outlines for elementary algebra and intermediate algebra as guidelines for developing the syllabi used by ACCESS for elementary algebra and intermediate algebra at GHS. All this was done in an attempt to strengthen the view in the eyes of GHS students who were enrolled in ACCESS math, that these were indeed college prep classes and that successfully completing these courses would increase their chances of testing out of these courses on the college math assessment test. It was not until pre-calculus was offered beginning in February of 2011 that ACCESS used the math textbook adopted by the SDUSD.

Second, by the 2007-2008 school year the majority of GHS ACCESS students were enrolled in ACCESS math for the entire year. The majority of returning students who completed the first year of ACCESS math continued in ACCESS math during the

following school year. For those returning students, ACCESS could provide them with two years of college prep math.

Third, I viewed the relationship between academic expectations and student academic performance as a matter of reciprocal causality. Teachers' academic expectations influence levels of student academic performance. Conversely, levels of student academic performance influence teachers' academic expectations. I represent these not as cause-effect relationships, but as a feedback loop (Figure 5.9).

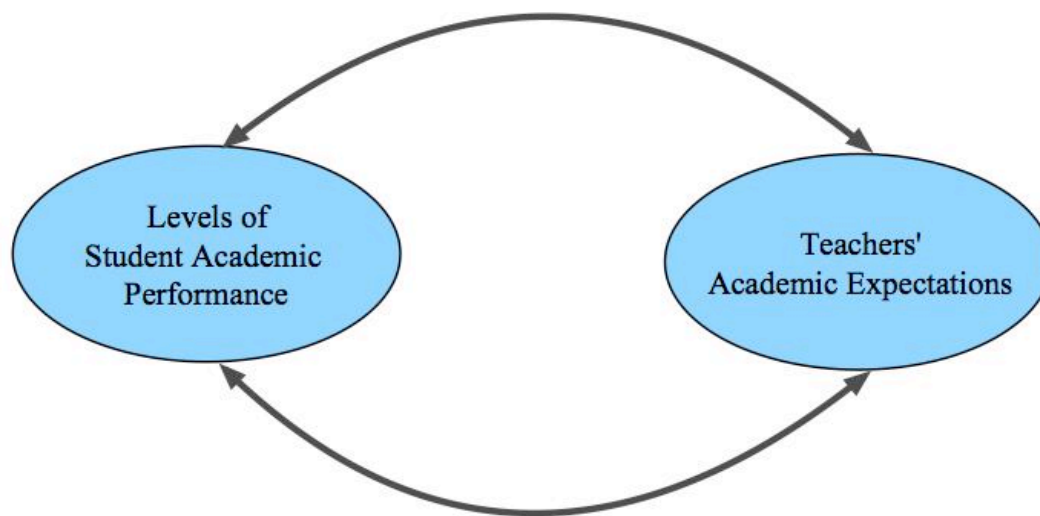


Figure 5.9: Teacher-Student Reciprocal Causality Feedback Loop

In the first year of ACCESS math, my academic expectations for ACCESS students were to successfully complete the ACCESS elementary algebra course and test into intermediate algebra on the college math assessment test. When the majority of first year ACCESS math students successfully completed elementary algebra and tested into intermediate algebra, I raised my academic expectations. In the second year of ACCESS

math, my goal was to get some students through both elementary and intermediate algebra ACCESS courses and test into transfer-level math on the college math assessment test. This “raising the bar” of academic expectations and the increasing level of academic performance in math resulted in eight ACCESS students enrolling in precalculus by February of 2011.

Fourth, the addition of a second ACCESS math teacher by the 2008-2009 school year allowed ACCESS to expand in order to meet the increasing number of GHS students wanting to enroll in ACCESS math classes and, based on ACCESS students’ rising levels of academic performance in math, the need for more advanced math courses.

Fifth, the first “C” in ACCESS stands for commitment. I believed that when students enrolled in an ACCESS class, they were making a commitment. In fact, by the 2009-2010 school year, ACCESS student were required to sign a commitment form. I took that commitment seriously and I expected my students to do the same. When a student made a commitment I held them to it. A response by JP, the GHS principal, when I asked her to describe one ACCESS student illustrated my point. She chose a student who had come to GHS having failed elementary algebra 12 times with the same math teacher at her previous high school.

JP: For this student I think one of the things that Gonzago offered for this student was to set up a situation. To...um...I'm trying to think of a better word that force [Laughs]... some situation where she was made to produce in an area where she had no self-confidence. So this student was put in a class that she would not probably... would not have selected for herself...and had to stick it out and had to finish the class...um...did well. And by forcing her in a sense to do something that she may not have selected herself, I believe that that had to have given her...I haven't asked her. But it had to have given her a sense of confidence...she actually could do the work. She could achieve. I think that that one experience was probably very critical potentially for some choices that she makes that could really affect

her whole life. You'll never really know. But those are the types of experiences that, to me, we are supposed to do for our students. Because she...that student would just as soon avoid everything that we had her do...like most people would because that means work. But she wasn't able to avoid it. So she had to plow through it. But that's what we're supposed to do. That's our job. (7/09)

The student that JP was talking about was intelligent, had earned “A” grades in the chemistry courses that I taught at GHS and I wanted her to enroll in ACCESS math. It took me some time to convince her to enroll in the ACCESS elementary algebra class that I taught. I had to fight with her to keep her in the class but in the end she successfully completed the course, tested into intermediate algebra on the college assessment test, and successfully completed intermediate algebra at SDCC with a “B” grade in her first year of college. She scored 88 percent on the final exam.

ACCESS had an impact on GHS. MS, a GHS history teacher believed that ACCESS helped to discredit the misconception that GHS students could not become academically accomplished.

MS: Many people have given up on the students at Gonzago or believe that these students could not become accomplished in the academic endeavors. The ACCESS program is helping these students prove these misconceptions wrong and prove that even if they come from a not so perfect past with support and encouragement they can accomplish anything they put their minds to.

RR, a GHS junior enrolled in ACCESS felt that ACCESS had changed things by giving new life to GHS.

RR: This new ACCESS Program, this new College Prep Program, has given new life to Gonzago. Just for the fact that now we have students who actually stay after school. We have teachers from classrooms actually willing to come in and work. I think the Teachers like it even more than the kids do just because they're a little bit more involved. It definitely changes things because now you can... it's kind of like you see a light, like you know, well, maybe it's not that bad after all.

From 2006 through 2011 ACCESS had an impact on GHS, and GHS changed. In chapters six, seven and eight, I will describe the strategies used to transform GHS and the role that ACCESS played in that transformation.

CHAPTER SIX

THE IMPACT OF ACCESS:

**RAISING GHS STUDENTS' LEVELS OF ACADEMIC
PERFORMANCE**

Before the college prep program Academic Commitment Creates Empowered Successful Students (ACCESS) was initiated at Gonzago High School (GHS), the school's primary goals were to improve student attendance and increase the percent of its students earning a high school diploma. Preparing students for college was not a goal at GHS. GHS's goals, designed to put students on a fast track to a high school diploma, were based on the belief that GHS students could not acquire the necessary academic skills for success in college and that the best that the school could do was get students graduated.

Data from 2001 through 2007 provided evidence that the school had achieved a significant degree of success in meeting those goals. Although attendance had improved and graduation rates were up, the vast majority of GHS graduates were earning a 24-credit, option 2 diploma, and existing partnerships between GHS and St. Diaz City College (SDCC) such as City Middle College (CMC) and the Joint Diploma Program (JDP) enrolled virtually all GHS students in non degree-track college courses. Degree-track courses are transfer-level academic courses that are necessary to earn a baccalaureate degree in an academic discipline at a four-year college or university. Also, the breadth of courses offerings at GHS did not academically prepare students for

rigorous college coursework. This lack of college preparation was the reason for creating ACCESS.

The first goal of ACCESS was to prepare GHS students for post-secondary education, primarily college. However, to effectively achieve that goal, GHS would need to change. A second, and equally important goal of ACCESS was to have the kind of impact on the school that would serve as a catalyst for change, transforming the school to effectively establish college preparation as a primary goal for its students. And, from February of 2007 through March of 2011 ACCESS played a major role in that transformation.

School Reform

School reform efforts for the most part focus on raising students' levels of academic performance. To do this, reform efforts seek to transform schools. The choices made for how to best raise levels of students' academic performance at GHS, and in the process transform GHS, were based on a number of considerations.

Many school reform efforts proceed in a top-down fashion. Regardless of the particular level that a reform effort begins at, it tends to be hierarchical. This approach can be problematic. In "Putting Students At the Centre in Education Reform", Levin (2000) addresses the role of students in the school reform process. He argues that, in a hierarchical, top-down approach, students tend to be at the bottom of the hierarchy, treated as passive receptors of the reform. Levin argues for the need for students to have a more active role stating that:

Education reform cannot succeed and should not proceed without much more direct involvement of students in all its aspects. Indeed, greater student involvement would constitute an important reform in its own right. (p. 155)

Not everyone views a top-down, hierarchical approach as the most effective way to enact change. Hubbard, Mehan & Stein (2006) and Datnow (2008) have called for a co-constructed approach to school reform. One example of a co-constructed school reform that worked was The Balanced Literacy Program (Fountas & Pinell, 1995; 2001; New Zealand Ministry of Education, 1996). Designed to improve student achievement, the program was adopted in New York's District #2 in July 1987. According to Hubbard, Mehan & Stein (2006), the reform owed much of its success to the fact that its development was "negotiated over time, not constructed from above" (p. 47). Murphy and Datnow (2003), in their research on comprehensive school reform (CSR), view school reform efforts as not only co-constructed but also contextualized.

Even when schools use a common framework (or CSR design), the reform agenda must be tailored to the needs of a specific school community and must be co-constructed at the site level – it must focus on what is important for that particular school community. (p. 11)

Like Levin, I believed that students should have a more active role in school reform. I believed that there was better chance of success if reform efforts at GHS began with a change in student behavior. I also believed that reform efforts, to affect school-wide change, should be co-constructed. However, within the context of GHS, I did not view co-construction as a viable option.

While I believed that change begins with the students, I did not make the assumption that a bottom-up approach to change would start at the bottom and work its way up in a unidirectional and linear fashion. Schools are systems, and in systems,

change occurs through more complex forms of causality (Capra, 1997; Morrison, 2002; Stacey 2007). Senge (2006) argues that organizational change requires thinking in terms of mutual or circular causality.

In schools, individuals and groups of individuals within the school are interconnected and interdependent. Change emerges through the interactions of individuals. This means that change is not only nonlinear, but also unpredictable. Hubbard, Mehan, and Stein (2006), in pointing out the unpredictability of change, state that: “When change is introduced in any part of the system, it reverberates throughout the system in ways that cannot be anticipated.” (p. 8). In light of these considerations, I chose the complexity sciences as my theoretical framework (Anderson, 1999; Capra, 1997; Fullan, 2007; Levin, 2000; Morrison, 2002; Senge, 2006; Stacey, 2007).

Complexity Theory as a Framework for School Reform

In my research, complexity theory provided both a strategy for school reform and a theoretical lens for analyzing the change process as it evolved. I viewed GHS as a complex adaptive system. According to complexity theory, in complex adaptive systems (CAS) such as schools, structural and behavioral changes can emerge from the local interactions of individuals and groups of individuals, in the absence of any overall blueprint for change (Stacey, 2007). These emergent structural and behavioral changes can bubble up, impacting higher levels of a system, resulting in systemic change on a larger scale through a process of self-organization.

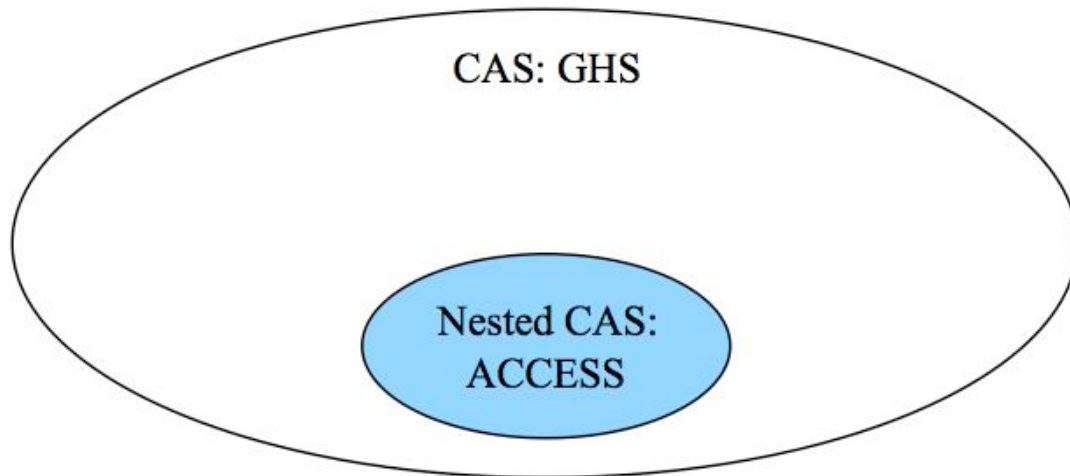


Figure 6.1: The ACCESS Program as a Nested Complex Adaptive System (CAS)

Complex adaptive systems contain other CAS, or nested CAS (Simon, 1996). In this research study I treated ACCESS as a “nested” complex adaptive system within a larger complex adaptive system, GHS (Figure 6.1). To provide a rich description of the role of ACCESS in the changes that occurred at GHS between February of 2007 and March of 2011, it was necessary to understand the strategies and the rationale for the strategies chosen to affect change within the school as ACCESS evolved; how emergent structures and patterns of behavior within ACCESS worked to guide the development of ACCESS; how emergent structures and patterns of behavior within ACCESS impacted the belief systems and patterns of behavior of other individuals and groups of individuals at GHS; and how both existing and emergent structures and patterns of behavior within GHS impacted ACCESS.

Purposeful Perturbations: Pushing a System Far from Equilibrium

A key feature of CAS is that in order for change to occur, a system must be in a state far from equilibrium. The equilibrium of systems in stable states must be disrupted if one wishes to create conditions where real transformational change can occur. While disrupting the equilibrium of a complex adaptive system does not need to be by design, change can occur in response to external factors, the efforts to push GHS far from equilibrium were by design - what I call “purposeful perturbations”.

First Perturbation: Raising levels of students’ academic performance

Effective school reform efforts result in transformational change. By transformational change, I mean a shift in the school’s organizational structure and culture resulting from a change in the underlying strategies and processes that were used in the past. In CAS such as schools, transformational change ultimately involves the creation of “new contexts” that challenge the existing organizational structure by creating conditions where the stable state of the system no longer works. In order to create a “context” in which appropriate forms of change could occur, it was necessary to understand the existing context, the stable organizational state that existed at GHS in 2007.

When ACCESS was first introduced, there was an existing state of dynamic equilibrium at GHS with regard to academic performance that manifested itself in low academic expectations of students by the GHS staff, and low-levels of academic performance by GHS students. While individual student performance levels varied, there

was an upper level of academic performance beyond which students did not go. Virtually no GHS students graduated with the skills necessary for success in rigorous college coursework.

One might argue that low academic expectations for GHS students by GHS teachers, counselors, and administrators had operated as a self-fulfilling prophecy, what Rosenthal and Jacobson (1968) referred to as the “Pygmalion effect”, contributing to the historically low levels of academic performance by GHS students. Students were merely responding to school-wide academic expectations. However, one could make the argument that academic expectations were merely a reflection of student academic performance. West and Anderson (1976) viewed student behavior as influencing teacher expectations.

For ACCESS, I chose to view the relationship between academic expectations and student academic performance as a matter of reciprocal causality. I believed that academic expectations of teachers would influence students’ level of academic performance and, reciprocally, increased levels of students’ academic performance would influence the academic expectations of teachers. I also believed that the academic expectations of GHS staff influenced their patterns of behavior with students and as result, influenced levels of GHS student academic performance. And, I believed that the academic expectations of GHS staff and their patterns of behavior were reinforced by levels of students’ academic performance (Figure 6.2).

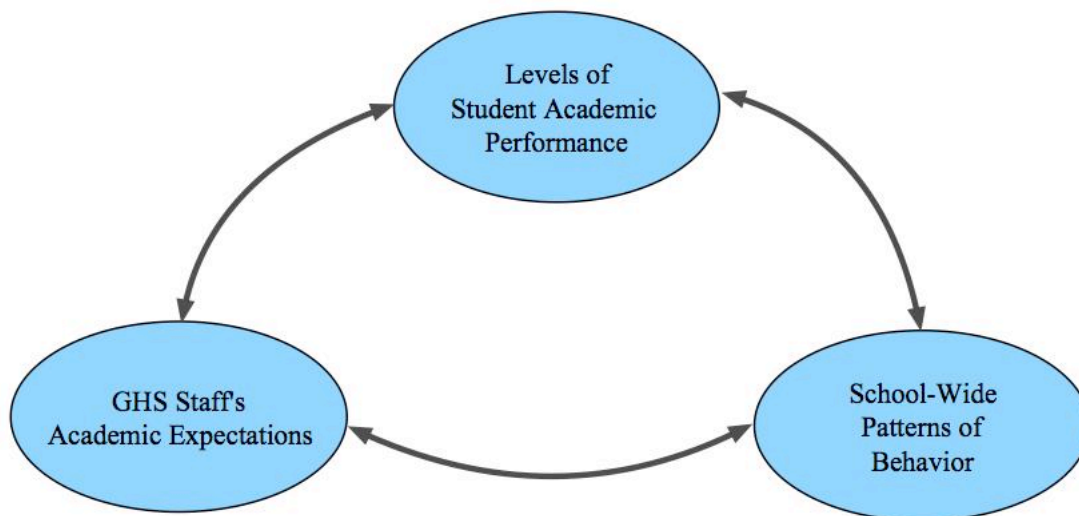


Figure 6.2: Reciprocal Causality Feedback Loop

To disrupt this stability in a purposeful way, I looked at the primary factors that contributed to GHS students' lack of success in college. By 2006, GHS had been physically located on the campus of SDCC for eight years. During that time, many GHS students had enrolled in courses at SDCC after they graduated from high school. Yet there were only two documented cases of GHS graduates earning a four-year college degree. Also, of those GHS graduates that had taken the college assessment tests, virtually all placed into the lowest basic skill levels in math and English. These results sustained the expectations of GHS staff that GHS students generally would be successful in college.

In order to change these trends, one could argue there was a need for school reform, including adding high school courses with more academic rigor, more of a focus on college preparation, and higher academic expectations of students by GHS staff. But, historically, there had been an overriding assumption by GHS teachers, staff and students

that GHS students were not capable of acquiring the level of academic skills necessary for academically rigorous college coursework. Furthermore, this assumption was entirely justified by factors external to the school, in particular, the perceived nature of the students that attended GHS rather than in any way a consequence of the school's standard operating procedures.

My question was would raising the level of academic performance of a group of GHS students push the school far enough away from equilibrium to change academic expectations at GHS and the stable patterns of behavior that resulted in no GHS graduates being academically prepared for college?

The "purposeful perturbation" strategy for educational reform used ACCESS to introduce perturbations into GHS's organizational structure that would challenge the existing academic expectations and disrupt existing structures and stable patterns of behavior. By students changing their academic patterns of behavior and raising their level of academic performance, ACCESS students would become agents of change, rather than the passive recipients of some reform model.

To be specific, the first "purposeful perturbation" was to raise the academic performance of a small group of students to a level necessary for success in rigorous college courses. I hoped that this would create the kind of disconfirming evidence that would challenge the belief systems of GHS staff members and provide the kind of disconfirming evidence needed for a change away from a school organizational structure that put students on a fast track to a high school diploma without adequately preparing them for post-secondary education (Figure 6.3).

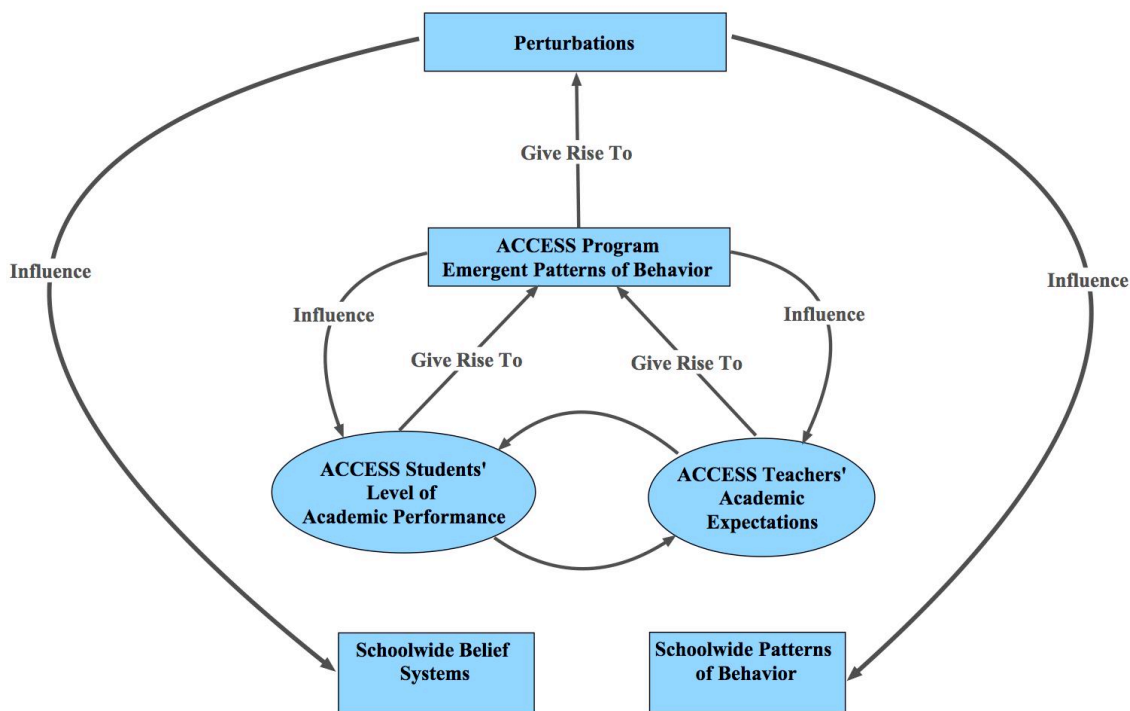


Figure 6.3: Intended Impact of Raising Students' Level of Academic Performance

As I stated in chapter five, the decision to begin ACCESS with an emphasis on math and English was based on two considerations. First, competency in math, reading and writing was prerequisite for success in rigorous college coursework. Second, ACCESS students' results on college math and English assessment test would provide a measure of feedback on how effectively ACCESS was meeting its primary goal, that of preparing students for post-secondary education. However, there was also a third consideration. Significant improvement on college placement test scores would provide disconfirming evidence in the form of hard data that would challenge the existing belief systems of GHS's staff about students' academic abilities.

Since the primary goal of the ACCESS program was to better prepare students academically for post-secondary education, there was not only a need for some

instrument to measure students' academic performance, but a point of reference by which to quantitatively measure the degree of success of the program in meeting that goal. With GHS AVID students' scores on college math and English assessment test from the previous year as a baseline, any overall improvement in assessment test scores would be viewed as a positive outcome. Furthermore, scores on college assessment tests in math and English, taken by ACCESS students at the end of the 2006-2007 school year, could be compared to the results on college assessment tests of all incoming SDCC students to determine the relative effectiveness of ACCESS in academically preparing students for college. Again, given that GHS students had a history of placing into the lowest levels of remedial math and English, any overall improvement would represent some measure of success. However, ACCESS was a new program and the degree of success, or failure, in meeting our goal was uncertain.

Going into the tests, the only expectation was for GHS students to show some improvement. In fact, they showed major improvement. ACCESS students tested higher than the AVID students from the previous year, particularly in math. While no ACCESS student tested into transfer-level math, five of the eight students who tested placed into intermediate algebra, an associate level course at SDCC. Based on data for all incoming SDCC students from 2004 through 2008 (figure 5.1), these five students had tested into the top ten percent in math of all students entering SDCC. And, although only a small number of students took the college assessment tests, by scoring two or three levels higher than GHS AVID students from the previous year, and placing students in the top ten percent of incoming SDCC students, the results were promising.

Viewing the ACCESS program as a complex adaptive system, new patterns of behavior had emerged through local interactions between teachers teaching and students learning math and English. I use the term new patterns of behavior because a small group of GHS students had reached levels of academic achievement that had not been achieved by GHS before. These patterns of behavior were emergent because, based on pre-existing patterns of behavior, these test results had not been predicted.

The 2007 college assessment test results had an immediate impact within ACCESS. Feedback in the form of college assessment test scores provided evidence that ACCESS could extend the upper boundary of student achievement, and at least some GHS students were more capable, and willing, than was assumed. ACCESS teachers believed they were moving in the right direction and their response was to raise the bar, that is, increase their expectations.

The Impact of Raising Students' Academic Performance Levels on GHS

For the 2007-2008 school year the primary goal of ACCESS was more specific, to have some ACCESS students test into transfer-level math and English courses. But, while extending the boundary of students' academic skills had an immediate impact inside ACCESS, the impact on individuals, and groups of individuals at GHS who were not a part of ACCESS was of a more limited nature.

Counselors at GHS, who had initially been reluctant to place their students in ACCESS classes, gradually came to accept these classes over time. However, the counselors were concerned about how credits earned in ACCESS courses would meet

high school graduation requirements. Specifically, they questioned what math and English credits students would earn, and why student would take these courses if they did not need them to graduate. In addition, counselors did make changes in how they interacted with ACCESS teachers and how they enrolled students in classes when it came to ACCESS.

Prior to ACCESS, the standard operating procedures at GHS were that counselors decided which classes to place their students in with little or no input from teachers. In fact, prior to ACCESS, interactions between counselors and teachers had been almost exclusively centered on issues of student behavior. When I asked RW, a social studies teacher who was not involved with ACCESS to describe the nature of the interactions he had with GHS counselors he said:

RW: It's almost always behavior. It's almost always lack of motivation and attendance. Why isn't this kid coming? We're talking about strategies to get the kid to attend more. We're talking strategies to get the student to come after school for help. We're talking over strategies about getting the student to be on time, those kinds of disciplinary areas. I don't usually go to the counselors for academic help. I'll depend on my Social Studies colleagues, and the English Department for that. (7/09)

I got a similar response from DA, a science teacher who was a member of the ACCESS site team but was not teaching an ACCESS class, when I asked her the same question.

DA: I feel like we have a relationship because we have to have a relationship. Like, I have to talk to them about kids that are not doing well. I have to inform them and I have to talk to them when I have problems with kids. And I feel like that's the majority of our relationship-- back and forth about kids that are either not making progress or becoming an issue in the classroom. (6/09)

For ACCESS classes, ACCESS teachers were not only recommending students for ACCESS courses, but also asking counselors to discuss potential candidates for ACCESS chosen by the counselors with the appropriate ACCESS teacher first. When I asked DP, the ACCESS English teacher, if his relationship with the counselors had changed over the past three years his response was:

DW: Do you think that over the past two or three years that there's been any kind of change or difference in your relationship with the counselors?

DP: Tremendous change, because two, three years ago I was a strictly... it would be a one-way arrow from them to me. Even though I may have felt there was a two-way arrow, there really wasn't any. I was made to think maybe with platitudes and things like that that I was being an agent of change or some part of some thing when, in fact, I was just being dictated policy to, and I was unaware.

DW: So what's different now?

DP: What's different now is that we've taken...myself and some of my colleagues have taken a more active role in particularly the postgraduate educational plan, if you will, for students. It's more of how we evaluate our students and assess our students, what we expect of our students. The counseling staff has been made to hear what we think is best for our students, not just what *they* think is best for our students. So it's more a collective than it was two or three years ago. (3/09)

ACCESS did have some impact on how counselors placed students in classes at GHS. Prior to ACCESS, counselors put students in classes without much input from teachers. This practice continued with non-ACCESS classes. For ACCESS classes, the counseling staff gradually accepted ACCESS teacher recommendations, or got the approval of a particular ACCESS teacher prior to placing a student in that teacher's ACCESS class.

The GHS Counselors did have some impact on ACCESS. Initially, student selection procedures by ACCESS teachers did not provide an opportunity for all GHS to enroll in ACCESS classes. In math, students needed to score a minimum of 50 percent on

the pre-test prior to enrolling in ACCESS math. At the request of the counselors, the ACCESS site team created a commitment form detailing the responsibilities of students entering ACCESS. Any student who signed the commitment form, along with the signature of a parent, could enroll in ACCESS classes.

However, raising levels of students' academic performance had little impact on the types of courses GHS students were enrolling in at SDCC and the type of diploma GHS graduates were earning. Despite the growth of ACCESS and the evidence that at least some GHS students were willing and able to achieve levels of academic performance necessary for rigorous college courses, there was no perceptible change in GHS's goal of becoming an all JDP school.

This is evidenced by two sets of data. First, trends in enrollment in SDCC non degree-track courses by GHS students from 2007, the year ACCESS was started, through the summer of 2009, when interviews were conducted, show no change (figure 6.4). Second, the types of high school diplomas that GHS graduates were earning were predominately option 2 diplomas. For the 2008-2009 school year, 81 percent of all GHS graduates received the option-2 diploma.

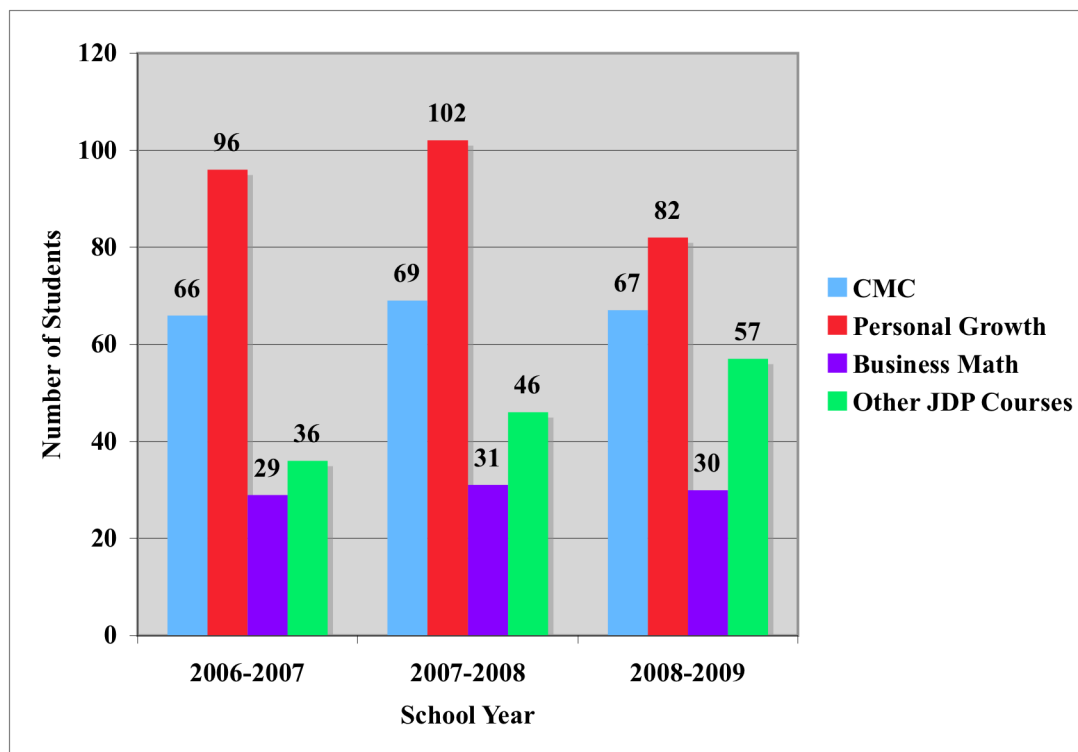


Figure 6.4: GHS Enrollment In Non Degree-Track SDCC Classes: 2006-2009

To better understand why GHS students continued to enroll in non degree-track courses in such large numbers, I looked at responses from audio recorded interviews conducted from March 2009 through September of 2009 when I asked GHS counselors, GHS teachers, GHS students and the GHS principal about CMC, the JDP, and ACCESS. I asked question about these three programs of these key stakeholders for three reasons. First, I wanted to understand what each stakeholder thought about these program. Second, I wanted to understand the rationale of GHS counselors for recommending students for each program. Third, I wanted to compare the responses across stakeholder groups.

CMC

One of CMC's espoused goals was to increase college access for GHS students. CMC's key strategies for achieving this goal had been to provide GHS students with the opportunity to take college classes while they were still enrolled in high school. Specifically, students who participated in CMC were required to enroll in the job skills program at SDCC described in chapter four. By the spring of 2009, CMC had been in existence for nine years. During that time over 500 GHS had students successfully completed the CMC Program. When I asked about CMC, I got the following responses.

GHS Counselors.

When I interviewed the GHS counseling staff, I asked each interviewee to describe CMC. All three counselors that I interviewed, JW, AV and BG, expressed the belief that GHS students being able to enroll in college classes was one of CMC's strengths:

JW: City Middle College...it's a program that I think can benefit all students on campus. They go over to City College and they take a college course. (7/09)

AV: Well you know it started...it's an opportunity that our students have to earn...you know...college units while they are still in high school. (6/09)

BG: It's an opportunity to let the student take a college course during the time of day when most students their age are taking college courses. (6/09)

Taking a college course was not the only reason counselors were advising their students to enroll in CMC. CMC met certain institutional needs for the 24-credit, option2 diploma. Successfully completing CMC fulfilled one of the requirements for an option-2 diploma, taking a college class. Also, students could earn high school elective credits (GHS offered very few electives) and receive credit for their senior exhibition.

When I asked the counselors JW and AV what some of the benefits of CMC were, I got the following responses:

JW: They have the ability to earn a practical art credit. They also have the ability to earn a college credit that can help them earn their option 2 diploma. They also have the ability to earn...umm...a passing mark for their senior exhibition. (7/09)

AV: It [CMC] also allows students to choose between two diplomas. (6/09)

CMC was designed to target older students, seventeen and a half to nineteen years of age that were severely credit deficient. One concern that I had was that counselors were enrolling students in CMC who did not meet CMC's espoused age criteria. This practice continued as late as the summer of 2009 as evidenced in the following exchange I had with JW:

DW: So tell me about one of your students...and how you're counseling them academically and for a career.

JW: OK. I have one young lady in mind right now. She is sixteen years old going on seventeen...and she's fairly low when it comes to the different reading and math scores that we've received from her past schools. I'm trying to give her some experiences of the traditional academic scheme to give her some motivation to continue to attend school.

DW: Like what?

JW: She attended the City Middle College Program and she successfully completed it. (7/09)

Teachers.

GHS teachers' opinions about CMC differed depending on whether or not the teacher was involved with ACCESS. When I asked DA, one of the ACCESS science teachers about CMC, she agreed with GHS counselors that CMC helped students meet credit requirements for graduation but felt students were pushed into taking CMC to meet graduation requirements.

DA: Here's what I know about CMC. There's not much of a selection process other than needing the credits is what I gather from the impressions that I get. So, if a kid needs a lot of credits and is planning to graduate with a Joint Diploma, it seems as though they get pushed into this program. (6/09)

When I asked DP, the ACCESS English teacher about CMC's academic pathway, his response was:

DP: The academic pathway, there is no academic pathway. I'd say that it's in some measure a social pathway in that it... they feel a part of something for some period of time. They are familiarized with the campus, I guess in some sense. (3/09)

Teachers who were not involved with the ACCESS had more positive views when asked about CMC. One English teacher, when asked to describe CMC, gave the following response:

DC: All I know is that students that go through CMC have a really positive experience as far as academically, feeling like they've really progressed, like they really do a lot of good things in there and as far as getting excited about learning, getting excited about going to college, it seems to really bring that out in them. (7/09)

When I asked RW, a history teacher who had been teaching at GHS for 35 years what he would tell a new teacher about CMC, he said:

RW: I would say to a new person that here at Gonzago we believe that a rising tide floats all boats, like I said before. One of the key programs that do that is CMC, and teachers have to recommend students for this program and students who supposedly don't come to school and don't do this, and don't do that, suddenly they get in to that program and they take it seriously because they have to... CMC is sort of one of our jewels here at Gonzago. (7/09)

Students.

When I asked ACCESS students about CMC, most described it as a program that helps you to get a job rather than being an academic program that prepares you for

college. When I asked RR, a GHS senior enrolled in ACCESS about CMC, I got the following response:

DW: I'm a new student here at Gonzago. What is this CMC program?

RR: I would say that the City College Middle Bridge Program is a program that prepares students for life, meaning work ethics. So, they teach you how to do proper resume filling, do proper interviewing skills, time management. They're good skills to learn-- it's good to acquire—however, in a situation like this, I don't think I would take my time to do it. (4/09)

When I asked another GHS senior who was also enrolled in ACCESS the same question, I got a similar response:

JH: The only thing I know is that it helps you. It shows you the life of a college student. Some of the students have told me it's not really true. It helps you with your job techniques or whatever. (7/09)

I asked SJ, a GHS senior, if CMC prepares students for college.

DW: Now, I want to go to college, and I want to get a degree. Should I take CMC or not?

SJ: No, I wouldn't take CMC if you want to go to college.

DW: Why is that?

SJ: Because I think they focus more on the job than the education part of it. (9/09)

I got a different response from EG, a junior at GHS who had not taken CMC. However, his counselor had recommended CMC to him and he was considering it.

DW: So I'm a new student, and I want you to tell me about...what do you know about CMC?

EG: What I really know about the CMC is that it offers you a great opportunity to experience college at the fullest, so you will know what it's like. It will give you an idea of how everything will work out. (7/09)

One reason GHS students chose to enroll in CMC is that their counselors and the CMC lead teacher told them that they would earn five college units at SDCC. This was true. Yet despite repeated requests by ACCESS teachers, neither GHS counselors nor any member of the CMC staff told CMC students that the college units that they earn were for

associate level courses, and would not transfer to four-year colleges and universities.

When I asked one non-ACCESS student who had successfully completed CMC to tell me about the program I got the following response:

YD: CMC helps you to get a job...it's pretty easy and you get five college credits for it.

DW: What kind of college credits?

YD: I don't know...just college credits. (6/09)

Since GHS students, on entering ACCESS, typically did not understand that there were different levels of courses offered at SDCC, ACCESS teachers made it their policy to explain these different levels to students when they enrolled in ACCESS and, when necessary, informed ACCESS students that CMC courses were associate level courses.

When I asked RR about receiving college credit for CMC she said:

RR: Yeah, you get college credit for it, but you can also get college credit for a class that counts. (4/09)

GHS Principal.

When I asked JP, GHS's principal, about CMC, she described it as an introduction to college, stressing the importance of the team-building skills that CMC stresses during the first two weeks of the program.

JP: OK, the City Middle College Bridge program is an introductory look at, um, what colleges have to offer and it gives kids a kind of a sneak peak, call it, into potentially what they can pursue after they get out of high school. So it provides them with, um, it introduces them to the skills they would need, for example, teamwork types of thing, as far as their lessons with regards to working with your peers and I think that is an important thing for kids to understand the necessity of working with their peers in order to navigate through college system.

JP pointed out that CMC was established before she became principal at GHS and, while it gave students a first look at college, it was not necessarily a program that she would have wanted for GHS students.

JP: I think it is a good program for kids who are not even considering college, haven't thought about it before. Most of our kids, actually the majority of our kid's families-the last time we surveyed them- had not even graduated from high school, let alone college. So, for a lot of them, college is not in their scheme, their mindset of an option. I would say, um, you know this was a well-established program before I got here. But...um...it is not necessarily...um...and because it is so well established and it is fine. It serves a function and it works for a lot of students. But it is not necessarily something that personally I would have worked to develop.

JDP

Counselors.

As I stated in chapter four, the JDP partnership between GHS and SDCC had been in existence since 1994. Over the years, the JDP grew. More and more GHS students were receiving a 24-credit, option-2 diploma. GHS was moving in the direction of becoming an all JDP school. By the summer of 2009, according to GHS counselors, GHS was still on that path. For example, when I asked JW, a GHS counselor, to describe the JDP, I got the following response:

JW: The joint diploma program it's becoming more and more district-wide now. Joint diploma is a program that can help students finish high school...umm...where before they didn't think they'd have a chance. (7/09)

BG, GHS's head counselor, had a similar response

BG: When I came here [GHS], I think we only had maybe 30 joint diploma graduates and of the 30, 25 took personal growth. Then it started expanding like crazy. (6/09)

One of the main responsibilities of high school guidance counselors is to help students develop a four-year plan that not only meets graduation requirements, but prepares them for life after they graduate high school. At GHS there were two diploma options. According to the counselors that I interviewed, at some point students were allowed to decide which diploma option to pursue. The rationale for JW was that for students who felt they were too old for high school, advising them to pursue a 44-credit diploma might result in them dropping out of school.

JW: It's a good diploma [JDP] to get for students that want to go to a two-year college and they are just...they are getting too old in their mind for high school. I think it's good. I do traditionally urge all my students to go for the 44-credit diploma but then I see that that's just not in their best interests...for them to get as much education as possible and not to drop out. I think option 2 is wonderful. (7/09)

For AV, another counselor, she felt the responsibility was on the student to choose a diploma option, as long as they decided to stay in school.

AV: So talking about their career paths was part of my conversation with him. Talking with them about the two options of the diplomas. But the student, acting for themselves...the responsibility was on the student to make those decisions, other people were just happy the student decided to stay in school. The student chose the option 2 diploma. (6/09)

Teachers.

Teachers that I interviewed offered varied views when they were asked to describe the JDP. And, unlike their views about CMC, their views about the JDP did not depend on whether they were, or were not involved with ACCESS. Some teachers felt that the JDP had its place at GHS, but in some cases, that the program was misused. DP,

the ACCESS English teacher, correctly pointed out that the JDP was for older students who were severely credit deficient. However, he felt that the JDP was a problem because it allowed some students to opt for graduating as fast as possible.

DP: The Joint Diploma program is misused. It's for older students who need to finish and probably won't finish in time and too often it's an option for students that just want to graduate quickly, which is a big problem. (3/09)

BN, who teaches math at GHS and business math at SDCC, pointed out that the JDP "meets state requirements." But when I asked him about sixteen year old students entering the JDP he said that while some students could do a 44-credit diploma, a lot of them need to get a job to support their family.

DW: But what about sixteen year olds? I'm getting the impression, and I may be wrong, that we may be gearing just about everybody in that direction. Do you think the program's ever abused here?

BN: Yes! We have a lot of students, I don't want to say a lot, we have a handful of students that could do a forty-four credit but don't. I don't know if it's age, but a lot of them need to get out and work. Their families need the money. But A. Morrison, she was incredibly brilliant in my class, and, "Nope, I'm going to go JDP". (6/09)

Some teachers voiced some very negative opinions when I asked them to describe the JDP. DA, an ACCESS science teacher and MS, a non-ACCESS history teacher felt that letting students graduate with an option-2 diploma was a disservice to the students.

DA: The Joint Diploma, now that I think about it, it's kind of sad that we tell kids that they graduate and they get a diploma but it's not like a real diploma. I feel like it's just a way to rush kids out of here and just give them something that says that they finished, some smidgeon of a high school education. I don't necessarily think that it's very fair to them or to anyone to put forth that impression that it's some kind of diploma. I don't understand why we push this Joint Diploma on them. And I feel like, if they were the ones that for some reason missed out on so much of school and were so far behind, then we should just invest the time to have them make it up. I don't think there's a shortcut around a diploma. I think that you should do the time. If you missed out on it, then you just make it up

and you'll just be an older graduate but you could say that you have a real diploma. (6/09)

MS: Joke! Are you kidding? Twenty-two credits instead of getting forty? How can we do that? How can we look them in the face and go you only need these many credits? Let's graduate you as a sophomore rather than a senior because that's what it is, half the amount of credits. (7/09)

Only one teacher that I interviewed felt that it was appropriate to let a sixteen year-old students choose the option -2 diploma. When I asked DC, a non-ACCESS English teacher if I should talk to a sixteen year-old student about the JDP I got the following response:

DW: Now I've got some sixteen year-old kids I'm going to teach. Do you think I should be talking to them about Joint Diploma?

DC: I do. Let's say they're very mature and you're feeling like, ok this kid is really trying, is ready to try and really do a lot in their life. It's a way for them to get up to college much quicker than having to go through forty credits, so I think that's the time. (7/09)

Students.

When I asked students to describe the JDP, I got one response consistently. All students I interviewed stated that it is better to go for the 44-credit diploma. Their reason was because the 44-credit diploma would prepare them for college. When I asked the question: "Should I do the Joint Diploma Program?" I got the following responses from JH and RR, two ACCESS students:

JH: If you're going to go to school [college] you might as well finish the forty-four credits. In my opinion, I think it's a better option to get the high school diploma not the Joint Diploma. They're trying to find like an easy way out. (7/09)

RR: Joint Diploma Program allows you to get twenty-two credits instead of the regular forty-four. That way you don't have to do certain maths, or English or Science, but it ends up being detrimental to you because you're just cutting off classes that ultimately you're going to need anyway. (4/09)

When I asked YD, a non-ACCESS student, the same question, I got a similar response.

YD: Well it depends on how many credits you have. Because if you have more than twenty, I'd recommend that you go for the forty-four credits...Because they're going to prepare you more for college. They're going to give you more classes to know more things about college, what you're going to use...With the Joint Diploma you're going to take some classes, but not all of what you need. (6/09)

GHS Principal.

When I asked JP, GHS's principal, about the JDP, she was very specific about the criteria for a joint diploma, essentially saying that the JDP is for students of an age, and so credit deficient, that they simply did not have enough time in the K-12 system to earn a 44-credit diploma.

JP: It [JDP] is an alternative diploma for a student who is very old and has very few credits, who is probably going to drop out of school if they don't have an end in sight, so to speak. For example, you have a kid who is seventeen...um...with three credits. Um...he is going to be eighteen soon. We still need to serve him. He is still a minor in the K12 system. Um...he knows, he can do the math...um...hopefully, that he is probably not going to get to 44 credits even if we keep him well into his 18th year because he is really far behind. (7/09)

JP liked the fact that JDP students were required to take a college class, regardless of the nature of the class. Her reason was that it would introduce them to the adult education system by getting them on to a college campus. She hoped that this experience would lead to them to pursue some sort of education after they leave high school.

JP: So the Joint Diploma is an opportunity to keep kids involved in the educational world. And introduce them to the adult education world. They have to take a college course of some sort. It can even be...um...even just a personal growth type of course, depending on where their academics skills are. The idea is to introduce them the adult education world while they are finishing up the state requirements, the minimum state requirements to earn a high school diploma. So the students earn minimum California state requirements for a high school diploma and they take one college class. But,

you also introduce them to the adult education system in the hope that they will pursue some post secondary education once they leave us. (7/09)

ACCESS

Counselors.

By the summer of 2009, ACCESS had been in existence for two and one-half years. When I asked the three GHS counselors I interviewed to describe ACCESS, I got three different responses. JW felt that ACCESS added to the academic rigor at GHS, and that ACCESS was more for students who are planning to attend college after they graduate high school. His response when I asked him to describe ACCESS was:

JW: It's something that I see this growing every year. I think the ACCESS program is developed to really enhance, heighten, or add to the academic rigor that high school students can receive at Gonzago. Umm...I see that it...it's...it's geared me toward students that I believe want to be going to college after high school. (7/09)

BG was a counselor at a traditional high school before coming to GHS as head counselor. At his previous school he counseled AVID students. At one point he made the claim that ACCESS and AVID were the same. However, he did point out that the AVID and ACCESS programs were different. Because GHS did not offer all of the University of California "A through G requirements", ACCESS was not preparing students for admission to four-year colleges and universities.

BG: If you've ever heard of or worked at a school that dealt with the AVID program, it's the same. The only difference is they were not allowed to use the name AVID because the students traditionally don't go to four-year colleges. It's not because the programs not good. It's not because the teachers are not good. It's because we don't offer foreign language, we don't offer the additional level of math. We don't offer the things that the four-year schools require. (6/09)

When I asked AV, the third counselor that I interviewed, to describe ACCESS, she began by talking about how moving onto a college campus made it easier for GHS students to take college classes. She said that in the past, she believed that the JDP was the best GHS students could do and that we should get them graduated as quickly as possible, but that her beliefs had changed.

- AV: Now... seeing that our students are capable of taking other classes regardless of what their diploma option is and seeing this as more of a way of preparing for the next step, like not to just get high school out of the way.
- DW: So your talking about...what do you mean? Be a little more specific with..
- AV: So before looking at the joint diploma, okay this is what our students are capable of and let's just get them out the quickest way we can.
- DW And one of the requirements for the joint diploma is they need to take a college course is that right
- AV: Right. I think that was the mentality right at the other, the old Gonzago but it wasn't as accessible. Now we're here and yes it's an option but now we are thinking beyond high school, we're thinking beyond the easiest way to get em through. Or let's just get them a diploma at all cost...we're thinking about preparing them for the next step...and seeing many kids that are coming through Gonzago voluntarily because they want the options. (6/09)

At this point in the interview I asked AV if she thought that being on a college campus was the only reason that GHS students were seeking options other than the JDP. She attributed the support of the ACCESS team to the increase of her academic expectations of GHS students.

- DW: Now do you think that's just because of the easy access that students are starting to expand their options at the college?
- AV: Well I think that seeing the support of the ACCESS team you know getting involved in these other programs that kind of go outside of the normal...you know...classes that our students traditionally take like personal growth or even just the City Middle College, you know CMC or Business 101, English 42...seeing that our students are more capable of at higher levels. (6/09)

Teachers.

By the summer of 2009, there were five GHS teachers involved with ACCEES, either teaching ACCESS classes or supporting the ACCESS program. When I asked one of the ACCESS science teachers to describe ACCESS I got the following response:

DA: Academic Commitment Creates Empowered Successful Students. We've memorized that. ACCESS to me, if I were to describe it to someone and if I were telling this new teacher about ACCESS, I'd say it's a group of people that saw a lot of potential in kids that were coming here and a lot of potential for that physical placement next to a college campus, and using our experience to try and find a way to get these kids to think of their future, and giving them the support that they need in order to attain a future after high school.

The majority of teachers who were not involved in ACCESS knew little or nothing about the program. DC, an English teacher at GHS, gave the following response when I asked her about ACCESS.

DW: What's this ACCESS Program? Do you know anything about that?

DC: No, I wish I knew more. Again, it's something I want to learn more about. I know it has a Math and an English component and the students are... it's a small group. The teachers that are teaching it are really enthusiastic and there seems to be a camaraderie that develops perhaps because it's a group that is oriented toward, you know, we're going to do these things, and it doesn't exclude anybody else. (7/09)

Not all non-ACCESS teachers were unaware of what ACCESS was. MS, a GHS history teacher, gave the following response when I asked him about ACCESS:

MS: The Access Program is great. I am completely behind the Access Program. I'd like to be more a part of it. I think it's the only true gateway. I don't even think the kids should go to college unless they go through that program [ACCESS], because if they're not going to show the dedication... that right there shows that they're going to be dedicated and they're going to be putting an effort forth. Like you said, what does it mean to go to college? That's what it means to go to college. That's what it means...to stay after school and really understand a core curriculum. (7/09)

One unintended consequence of ACCESS was an atmosphere of growing tension between ACCESS teachers and GHS counselors. I got the following response from CF, who teaches an ACCESS marine science class, when I asked her if ACCESS was having any impact on the school:

DW: Do you feel like it's [ACCESS] having an impact on the school and if so, in what ways?

CF: In some ways, for some teachers, it hasn't had an impact because they didn't know about what ACCESS was doing. In other ways it shook up the counseling office. There was a lot of frustration and lack of communication and toes stepped on and I think it definitely changed the relationships, at least some of my relationships with the counseling staff.

DW: In what way?

CF: We don't communicate or talk as much anymore because of what's been going on. I hear of grievances possibly being filed [against ACCESS teachers] for advising students about their futures. (8/09)

Students.

Students learn about school programs such as CMC, JDP, and ACCESS in a number of ways. However if a teacher or counselor does not recommend a student for a particular program, they may know little about that program other than what they hear from other students. I had the following exchange with YD, a student who was not enrolled in any ACCESS classes when I asked her about ACCESS:

DW: Do you know anything about the ACCESS Program? Do you know what it is?

YD: No.

DW: Have you heard about the college prep classes here at school at all?

YD: Not really.

DW: So nobody's talked to you about that?

YD: No. (6/09)

During an interview with one ACCESS student I was told that at her previous high school, teachers had high expectations for their students where at GHS there were some teachers with low expectations. When I asked her whether ACCESS could have an

impact on GHS teachers' expectations she made a key point. She felt that we could increase the likelihood of ACCESS having an impact on GHS by involving more teachers in ACCESS. In fact, one strategy for pushing GHS away from its equilibrium state was increasing the size of ACCESS by involving more teachers and students in the program.

DW: Do you think there are people here whose expectations aren't high enough?

RR: Yes. I've seen the teachers that have really low expectations.

DW: Do you think ACCESS can have an impact on that?

RR: Yeah!! I think it could. I think getting more of the teachers involved would really help out. (4/09)

When I asked JH, a GHS senior enrolled in ACCESS classes to tell me about ACCESS she stated a recurring theme. GHS counselors want to get students graduated as fast as possible and the easiest way to do that is enroll them in the JDP. But more than that, she offered two contrasting views about how counselors and ACCESS teachers advised students.

JH: Yeah. The ACCESS Program I think is really good. It helps the counselors...it keeps the counselors on track (laughs)

DW: So what do you mean by that?

JH: Because if counselors see the Joint Diploma student, if they need a credit like a college course, they give them the easy ones. The ACCESS Program gives you the ones you should be taking that will help you and give you what you need.

DW: And you think with your Counselor that happens, you're in the ACCESS Program that you're actually going to ...

JH: No. Because the teachers get in there and they fix the problem.

DW: I'm not clear, you mean the counselors and the teachers are saying different things?

JH: Yeah.

DW: So, explain.

JH: The teachers are just trying to get rid of you.

DW: The teachers?

JH: I mean the counselors. And they're just giving you anything you need. They're not giving you what you need but they're giving you what they think you need without asking you what you really need or want. (7/09)

When I asked her if ACCESS was changing how GHS students counsel their students, she talked about how her counselor had changed. Her counselor was AV, who stated that her academic expectations for GHS students had changed. JH's account of her relationship with her counselor, AV, supported what AV had said when I interviewed her.

DW: Do you think the ACCESS Program is changing that?

JH: Yeah the ACCESS Program is changing the counselors right now.

DW: And that's partially because of what you said you were seeing from your experiences with your counselor over time?

JH: Yeah.

JH: My counselor's AV and I think at the beginning she thought I was like a troubled kid like any typical student at Gonzago. But since I was a different one-- I had my credits and I liked to work and everything-- so I guess she didn't know how to handle me very well because she wanted to give me easy classes and I wanted some classes to challenge me. Like for example she wanted to give me Hospitality, and I don't think that class would have helped me a lot. So I decided not to take the class and have a free period, and I think it worked pretty well. I think at the end of the year she realized what I needed.

DW: And that's partially because of what you said you were seeing from your experiences with your counselor over time?

JH: Yeah. (7/09)

GHS Principal.

When I asked JP to tell me about ACCESS she said that ACCESS was a program that provides rigorous academic coursework in an effort to begin preparing students for college-level courses, to move them as far along academically as possible.

JP: The Access program is a program where we endeavor to, um, to hook students into higher education. And what I mean by that is to provide the students, while they are with us at Gonzago, with rigorous academic course work to best prepare them for post high school course work. Um, college level work, um if it's appropriate, university level work; but um, college level work. So the idea is to move the students as far, academically as possible, and look at students who, if they will do the work, the student can be involved. (7/09)

JP went on to say that the purpose of ACCESS was to prepare kids for college and by doing so, ACCESS had challenged the mindset that continuation schools were founded on, to just get kids through high school by taking the path of least resistance. She also emphasized the importance of most GHS students earning a 44-credit diploma so that regardless of whether they went to college or not, at least it would be their choice.

JP: The whole idea is to prepare the students for college so they have more doors open to them. And in the past, the thing about this group is, um, a change in mindset, if you will, for continuation students. Continuation students, schools were founded on the premise of just getting kids through high school. So it is kind of like the path of least resistance. Just finish your high school diploma; as opposed to the mindset, um, instead of thinking diploma bound, academic and skill wise bound; and increasing your capacity to grow as a student...so to push the students as much as possible academically. And move them in the direction for most of our students of a regular high school diploma [44-credit diploma] so they have more options available to them. So that when they leave us, they can comfortably move into a college and be successful, or at least have that as an option. If they choose not to do that, that is fine; but they chose not to do it with the skills, I'm more comfortable with that, than choosing not to do that; and not having the skills. If they don't have the skills, the choice is made for them. (7/09)

Summary

JP, GHS's Principal, was very specific about the criteria for students earning a 24-credit, option 2 diploma. While she believed that some students should choose the option 2 diploma due to time constraints, most GHS students should earn the 44-credit diploma. JP felt that CMC provided a college experience for students to consider going to college after graduating high school. However, she pointed out that CMC was not the kind of program that she would have developed. JP was very positive about ACCESS and its goal of preparing GHS students for college by offering academically rigorous courses.

She pointed out that ACCESS challenged the prevailing mindset of continuation high schools, to get students graduated following a path of least resistance.

Unlike the principal, none of the counselors I interviewed expressed any concerns that students earning a 24-credit diploma might not prepare them for life after high school, much less college. One counselor said the option-2 diploma was a good program for students who wanted to go on to two-year colleges. In fact, a major reason counselors viewed CMC and the JDP as viable programs, and continued to make enrolling students in these programs a priority was because they provided a quicker pathway to a high school diploma, an option-2 diploma. Although GHS counselors viewed taking college classes at SDCC as a strength, they made no mention of the fact that the college courses that students took as part of CMC and the college courses students took to fulfill an option-2 diploma requirement were non transfer-level courses. While all three counselors I interviewed were positive about ACCESS, only one counselor said that it changed her belief about what GHS students were academically capable of.

For the most part, teachers' views about CMC and the JDP depended on whether they were, or were not involved with ACCESS. Non-ACCESS teachers held views about CMC and the JDP that were similar to the views of the counselors. Only one non-ACCESS teacher that I interviewed expressed negative views about students earning an option-2 diploma. ACCESS teachers had very different views than counselors about CMC and the JDP. ACCESS teachers felt that students were "pushed" into these programs by their counselors who wanted to get students graduated as fast as possible. ACCESS teachers also believed that CMC and the JDP did not provide an academic pathway to college. Both ACCESS teachers and GHS counselors acknowledged that

ACCESS had created tension between the two groups. Teachers who were not part of ACCESS knew little about ACCESS.

While all GHS students interviewed expressed the belief that the JDP was a good program for older students who were severely credit deficient, not one student felt that the option-2 diploma prepared students for college, a view not expressed by any counselor or a majority of the non-ACCESS teachers. All students interviewed described CMC as a job skills program. However, only ACCESS students pointed out that college units earned through CMC did not transfer to four-year colleges and universities. Neither GHS counselors, nor any of the CMC staff informed CMC students that the college units that they earn are for associate level college courses. ACCESS students learned which college courses were transfer-level and which college courses were not from ACCESS teachers, not their counselors. Knowledge about ACCESS was not school-wide. Like non-ACCESS teachers, students who were not enrolled in ACCESS knew little about it. Table 6.1 provides a summary of views that the different groups of stakeholders had about CMC, JDP, and ACCESS.

Table 6.1: Summary of Views of GHS Stakeholders About CMC, JDP and ACCESS

	CMC	JDP	ACCESS
Principal	CMC provides a college experience. Not the kind of program that she would have developed.	Most GHS students should earn the 44-credit diploma.	ACCESS challenges the prevailing mindset of continuation high schools, to get students graduated following a path of least resistance.
Counselors	Enrollment in college classes is a plus. It fulfills some of the requirements for an option-2 diploma.	The program is expanding. Counselors allow students to choose diploma option. Prevents students from dropping out of school. Prepares students for two-year colleges.	It adds academic rigor to the school. The program is growing. Increased academic expectation (One counselor)
ACCESS Teachers	Students are pushed into taking CMC to meet graduation requirements. Does not prepare students for college.	Program is misused. It rushes students out of high school. It does not prepare students for college.	It helps students prepare for college. It created tensions between ACCESS teachers and counselors.
Non-ACCESS Teachers	Views similar to those of the counselors	Some teachers held views similar to those of the counselors. Some teachers held views similar to those of ACCESS teachers.	Most know little about ACCESS. The only true gateway to college at GHS (one teacher).
ACCESS Students	Helps you to get a job rather than preparing you for college. Credits earned through CMC do not transfer to four-year colleges and universities.	It does not prepare you for college. It is better to earn the 44-credit diploma.	It helps prepare you for college. It has had an impact on my relationship with my counselor.
Non-ACCESS Students	CMC is easy. You earn 5 college credits. Unaware that college credits do not transfer.	It does not prepare you for college. It is better to earn the 44-credit diploma.	Most know little about ACCESS other than what they hear from ACCESS students.

The documented ability of ACCESS to raise the levels of academic performance of at least some GHS students had little impact on how the counselors advised their students regarding diploma options or recommendations for enrollment in college classes. In general, ACCESS students were not being counseled to go for the 44-credit diploma. Counselors were not recommending degree-track college courses for ACCESS students, even for those students who had tested into transfer-level math and English. The success of ACCESS students in raising their level of academic performance was not enough to affect school-wide change in these areas as of August of 2009.

In the next chapter I will document the purposeful perturbations that led to a "tipping point", after which the impact of ACCESS became broader, changing GHS more generally. I will describe the social networks that existed within GHS, the social networks that existed between GHS and SDCC, the creation of a new GHS-SDCC social network and the impact of the new social network on GHS.

CHAPTER SEVEN

THE IMPACT OF ACCESS ON THE ORGANIZATIONAL STRUCTURE OF THE SCHOOL:

CONSTRUCTING NEW SOCIAL NETWORKS

JANUARY 2008 – JUNE 2009

As stated in chapter six, an important condition for transformational change to occur in complex adaptive systems (CAS) is that a system needs to be in a state far from equilibrium (Mischen & Jackson, 2008). Since Gonzago High School (GHS) was in a state of equilibrium in 2007, my strategy was to purposefully disrupt that equilibrium through what I called “purposeful perturbations”, by raising the academic performance of GHS students enrolled in an innovative college prep program, Academic Commitment Creates Empowered Successful Students (ACCESS), to a level necessary for success in rigorous college coursework.

Raising levels of student academic performance did provide disconfirming evidence that challenged the academic expectations at GHS. However, initial efforts to disrupt the equilibrium of GHS, even in a purposeful way, was not sufficient to promote the kind of changes that were desired. That is, raising students’ levels of academic performance did not result in changes in the patterns of behavior that determined which college courses GHS students enrolled in and the type of diploma they earned. GHS students were still being advised to enroll exclusively in non degree-track courses at St. Diaz City College (SDCC) by their high school counselors. Degree-track courses are transfer-level academic courses that are necessary to earn a baccalaureate degree in an

academic discipline at a four-year college or university. Furthermore, the vast majority of GHS graduates were still earning a 24-credit, option-2 diploma rather than the 44-credit diploma required by the St. Diaz Unified School District (SDUSD) at comprehensive high schools. To understand why, one must understand the emergent nature of change in complex adaptive systems (CAS).

A key feature of CAS is that change emerges, often in unpredictable ways. Yet emergence does not mean that everything happens by chance, nor does emergence mean that change cannot be designed, or at least influenced by powerful, effective individuals with intention. However, Stacey, in *Strategy Management and Organizational Dynamics: The Challenge of Complexity* (2007), argues against what he calls “strategic choice theory” as an effective model for change, and states:

Strategy as a population wide pattern of action cannot be chosen by anyone but rather emerges in the interplay of individual intentions and choices in local interactions. (p. 238)

From this point of view, emergence and intention are not at opposite poles. In complex adaptive systems (CAS), change emerges through the interplay of the intentions of individuals and groups of individuals. Patterns of behavior emerge in local interactions rather than being intentionally created by someone. So while individuals in their local situations interact with each other in intentional, planned ways, the consequences of the interplay of these intentions give rise to something that has not been planned: patterns of behavior that emerge without an overall blueprint. These emergent patterns of behavior, in turn, influence individual intentions (Figure 7.1).

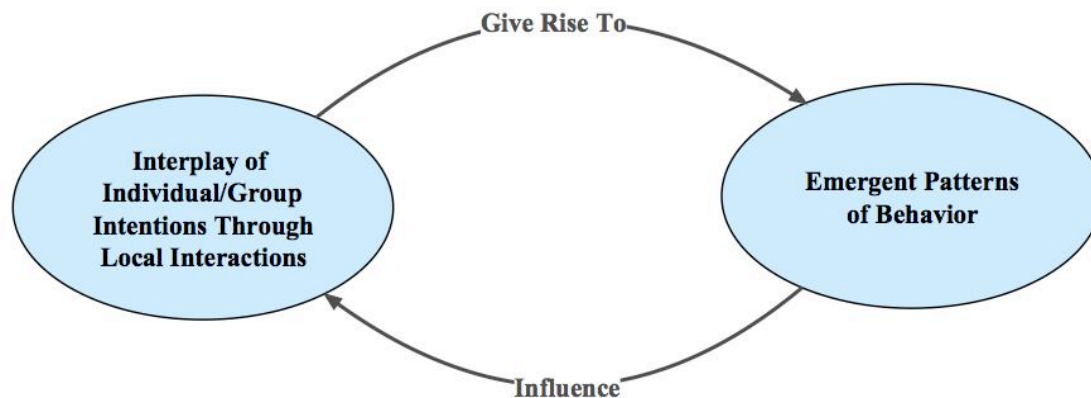


Figure 7.1: Relationship Between Emergence and the Interplay of Intentions

Since patterns of behavior emerge through local interactions in CAS, and I viewed GHS as a CAS, it was important that certain individuals and groups of individuals at GHS had the opportunity to interact in ways that would facilitate change. Of particular importance was the nature of interactions between GHS counselors and ACCESS teachers. ACCESS, an acronym for Academic Commitment creates Empowered Successful Students, was a GHS program with the primary goal of preparing students for college. But, it was the counselors who guided students' decisions about the college courses they enrolled in and the type of diploma they earned. That was problematic because there were some basic differences in the intentions of GHS counselors and ACCESS teachers.

The counselors' goals were to keep their students attending school, to make sure their students graduated high school, to provide their students with a "college experience" and to provide their students with some career possibilities post-high school. In all but a few cases, counselors supported students earning an option-2 diploma and virtually all

GHS students were advised to enroll in non degree-track joint diploma program (JDP) college classes and City Middle College (CMC), a non-academic, job skills program. In contrast, ACCESS teachers wanted ACCESS students to enroll in degree-track college courses and to pursue a 44-credit diploma. These differences of intentions provided the rationale to create a climate for conversation. It was important to provide a forum where the various actors, most importantly ACCESS teachers and counselors could interact with each other.

The ACCESS Site Team: The Creation of a New Social Network

During the second year of ACCESS, a site team was developed to provide support for ACCESS students. At that time there were four teachers that were involved with the ACCESS program, and about 25 students that were enrolled in ACCESS classes. The goal was to develop a site team that included teachers, students, a school counselor, and the principal. The site team would provide a social network where local interactions could guide the continuing development of ACCESS. That was the intended social network. However, our inability to get a GHS counselor on the ACCESS site team created unintended consequences.

The ACCESS site team asked the GHS counseling staff if one of them would be willing to become the ACCESS counselor and represent their department at ACCESS site team meetings. And for reasons that had a lot to do with the nature of the school, we were unable to get one of them to agree to be the ACCESS counselor. At GHS, counselors feel a real commitment to their students and this is one of the strengths of GHS. Furthermore,

GHS had a relatively small population of students and counselors were assigned a small number of students to counsel, approximately 80 students per counselor, compared to counselors at comprehensive high schools within SDUSD where the average was approximately 300 to 400 students per counselor (School Accountability Report Card, 2007-2008). Because of that relatively small student to counselor ratio, GHS counselors got to know their students very well, often developing strong interpersonal relationships with their students.

For those reason, counselors opposed the idea of giving any of their students up to another counselor. What might have worked in a traditional comprehensive school did not work at GHS. What might have work for a college prep program like AVID (Advancement Via Individual Determination) did not work for ACCESS as evidenced by a response from BG, GHS's head counselor, during an interview conducted in 2009. During that interview, I reminded BG that the ACCESS site team had requested that he become involved as a counselor with the ACCESS site team. His response was:

BG: Well I understand that they wanted it and my answer was that I didn't really feel there needed to be one particular ACCESS counselor. Cause I've never worked at a school that had one particular AVID counselor. I worked at a school that they broke up the case-load and one counselor was the counselor for the 9th and 10th graders but the head counselor was the counselor for the AVID students in the 11th and 12th. (6/09)

So what happened was we did not get a counselor to join the ACCESS site team. We had a social network where members of the ACCESS site team were connected to the students that were taking ACCESS classes, the ACCESS students were connected to their counselor, but the site team had been unable to establish a connection with the counseling

department. The emergent social network was not the intended social network (Figure 7.2).

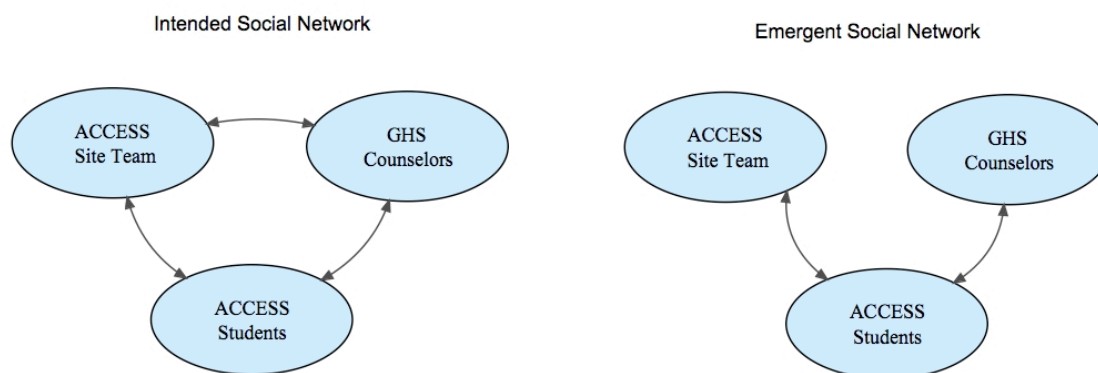


Figure 7.2: ACCESS Site Team Social Networks

One outcome that emerged as a result of that lack of connection between ACCESS teachers and GHS guidance counselors was that students who were enrolled in ACCESS classes were getting conflicting advice. Since the goal of ACCESS was to prepare students for post secondary education, ACCESS teachers believed that their responsibilities went beyond ensuring that students learn the particular subject that ACCESS teachers were teaching. In some cases, contrary to the advice of their counselors, ACCESS teachers advised students not to enroll in non degree-track college courses at SDCC such as business math, personal growth, or CMC. ACCESS teachers believed that these types of courses did not provide an effective pathway leading to academic preparation for college. This created tensions between ACCESS teachers and GHS counselors in two ways.

First, at GHS counselors believed that counseling students was, first and foremost, the job of the guidance counselors. They believed that counseling a student as to which

courses to take, high school or college, and which diploma to pursue, was exclusively the job of that student's counselor. And, at GHS, that was something that teachers did not do. Second, ACCESS teachers and counselors had different ideas about which courses ACCESS students should be taking and which diploma ACCESS students should pursue. Counselors may have wanted students to have a college experience but they also wanted college courses to fulfill an institutional need, meeting a requirement for the option-2 diploma.

By the second year of ACCESS a few ACCESS students had raised their level of academic performance to qualify for enrollment in rigorous, degree-track college courses as evidenced by math and English scores on college assessment tests taken at the end the regular school year. For GHS students who would be graduating in June of 2008, this meant that they had qualified to enroll in transfer-level college courses. However, for those continuing GHS students who had tested into transfer-level math and English, this was problematic. By testing into transfer-level math and English on college assessment tests, continuing students may have met requirements to enroll in transfer-level courses at SDCC but they were not being counseled to enroll in these kinds of college courses. The problem was further compounded by the fact that those students' level of academic performance in math and English went beyond the level of courses offered at GHS.

To understand why ACCESS students, or for that matter, GHS students in general, were not enrolling in degree-track courses at SDCC, I needed to understand the existing social networks between GHS and SDCC and the relevant standard operating procedures that determined the stable patterns of behavior for enrolling students in

college courses at SDCC. If I was going to develop an effective strategy for changing these stable patterns of behavior, I needed to understand what was going on and why.

GHS Social Networks

Artifact Elicited Response Technique

The primary source of data I used to construct a picture of the social networks that existed within GHS and between GHS and SDCC came from interviews I conducted in 2009 with the GHS teachers, GHS counselors, and the GHS principal. During those audio-recorded interviews I wanted respondents to provide me with a detailed picture and description of their social networks at GHS and with SDCC. To accomplish this, I used an approach that I called an “Artifact Elicited Response Technique.” Like Tobin’s (1989) use of a video elicited response technique, the use of an artifact-elicited response technique was designed to provide a new dimension to conducting audio-recorded interviews.

The technique, as used during interviews, was to ask respondents to construct an artifact, in the form of a drawing, depicting their social networks within the school. Each respondent was provided with a magnetic white board and a set of magnetic squares with; either a job title of a key GHS or SDCC staff member, a GHS department, or a GHS-SDCC program written on each square. Respondents were also provided with instructions to guide them in the construction of their social networks. Figure 7.3 shows the prompt provided to respondents for the social network drawing. Each respondent was given as much time as they needed to complete their drawing. The drawing was then used as a

prompt to generate questions from me, and responses from the interviewee. The amount of time devoted for my questions and an interviewee's responses varied depending on a number of factors. For example, some respondents had more extensive social networks than other respondents.

Gonzago is made up of a number of groups, departments, and key people that I have attempted to identify. Where you view a connection between you and an entire group, for example: A particular department, or key individual, for example: The principal, choose the appropriate square. Where you view a connection with a particular individual within a group or department, choose the appropriate square, and write the initials of that person on the square, for example – a specific teacher or counselor. There are blank squares if you think a particular group or individual should be added.

I would like you to position the squares you select on the white board based on your interactions with each group or person. Where you believe there is a connection between you and a particular group or person, draw an arrow. I would like you to represent the strength of the connection by how thick you draw your arrows. The thicker the arrow, the stronger the connection you believe you have with a particular group or individual square. Arrows can point in one direction or both directions depending on how you view your interactions with a particular group or individual square.

Examples:

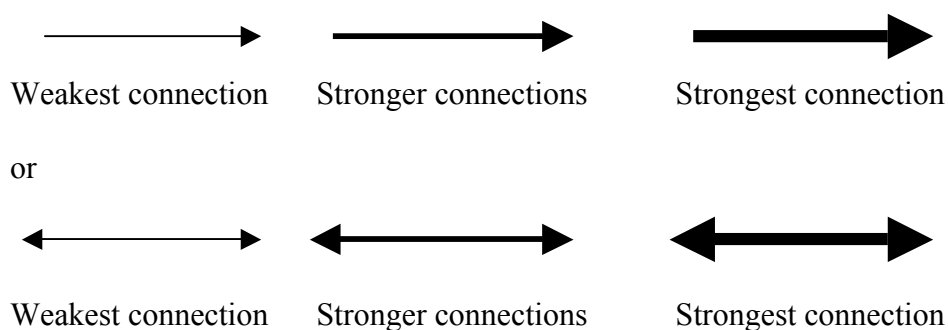


Figure 7.3: Guidelines for constructing social networks

There was some variation in how respondents represented the strength of their connections. The head counselor, BG, used a ten-point scale to represent the strength of

his connections. I designated the numbers eight through ten for strong connections, the numbers five through seven for medium connections, and the numbers one through four for weak connections. A second respondent, BN, used single, double, and triple arrows to represent weak, moderate, and strong connections respectively. The rest of the respondents I interviewed followed the guidelines in the instructions for depicting the strength of their connections. Figure 7.4 shows a photograph of the artifact constructed by CF, a GHS ACCESS science teacher.

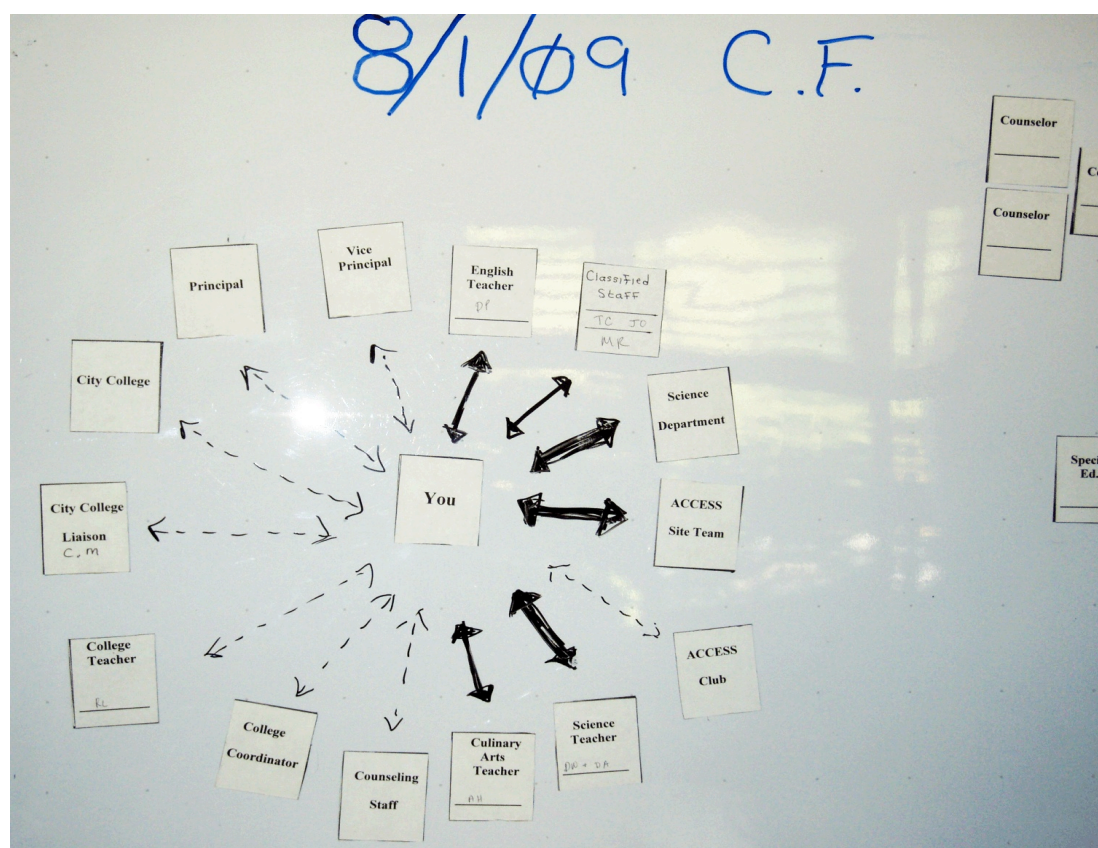


Figure 7.4: White Board Representations of CF's Social Network

I used the Visual Understanding Environment (VUE, 2010) software to construct social network diagrams based on each respondents white board social network drawing. VUE is a concept and content mapping application developed by the Academic Technology group at Tufts University. Figure 7.5 shows the social network diagram that I constructed using VUE based on CF's white board drawing in figure 7.4. A thicker solid line represented a strong connection, a thinner, solid line represented a medium connection and a broken line represented a weak connection. No line represented the absence of a connection. Connections were represented by either one-way arrows or two-way arrows depending on how connections were represented on a respondent's drawing.

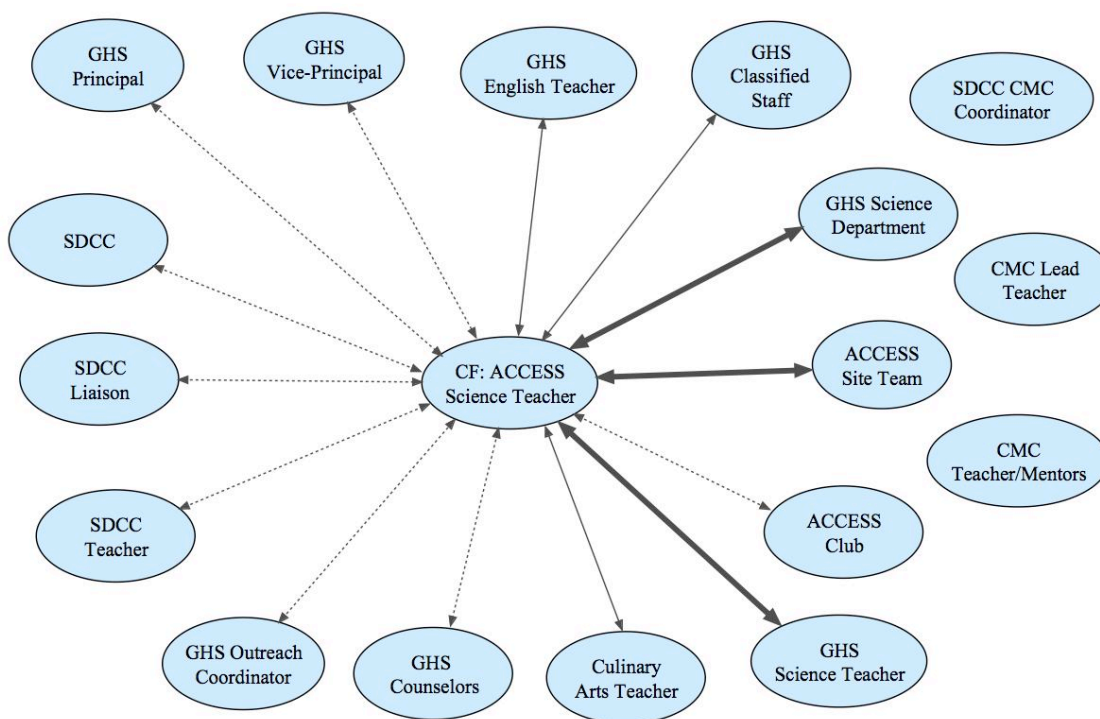


Figure 7.5: Diagram of CF's Social Networks

GHS Teacher Social Networks

Using the diagrams for individual respondents, I constructed two “composite” social network diagrams, one for the three ACCESS teachers that I had interviewed and one for the four non-ACCESS teachers that I had interviewed.

In order to create composites I used a number scale from zero to three to designate the strength of a connection. A zero meant no connection and a three meant a strong connection. Then, based on the diagrams I had constructed for individual teachers, I assigned numerical values to each teacher's connections. I arrived at an average strength of a specific connection by summing the numerical values for a particular connection within each group then dividing by the number of teachers in that group. For example, for the four non-ACCESS teachers, the average numerical value of their connections to the GHS counselors was a 2.75. So on the composite diagram for non-ACCESS teachers, I show them as having a strong connection to the GHS counseling staff. Figures 7.6 and 7.7 represent composite diagrams of social networks of ACCESS teachers and non-ACCESS teachers. These composite diagrams were used to compare and contrast the social networks of these two groups.

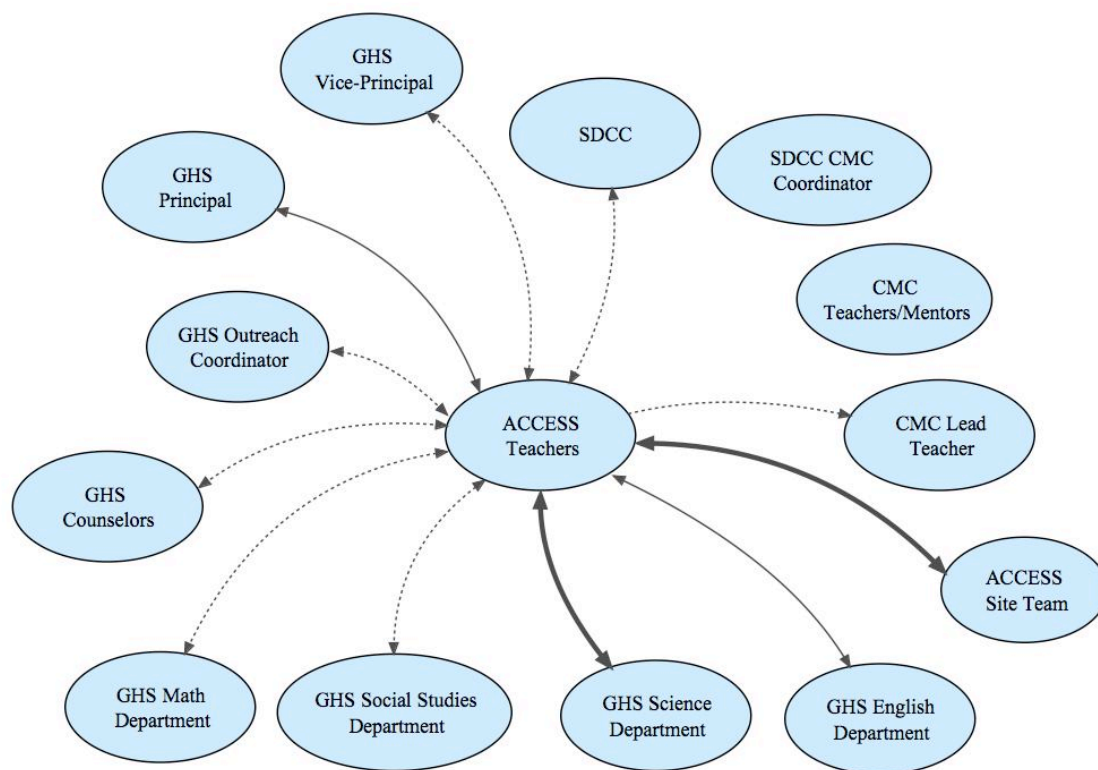


Figure 7.6: Composite of Social Networks for ACCESS Teachers

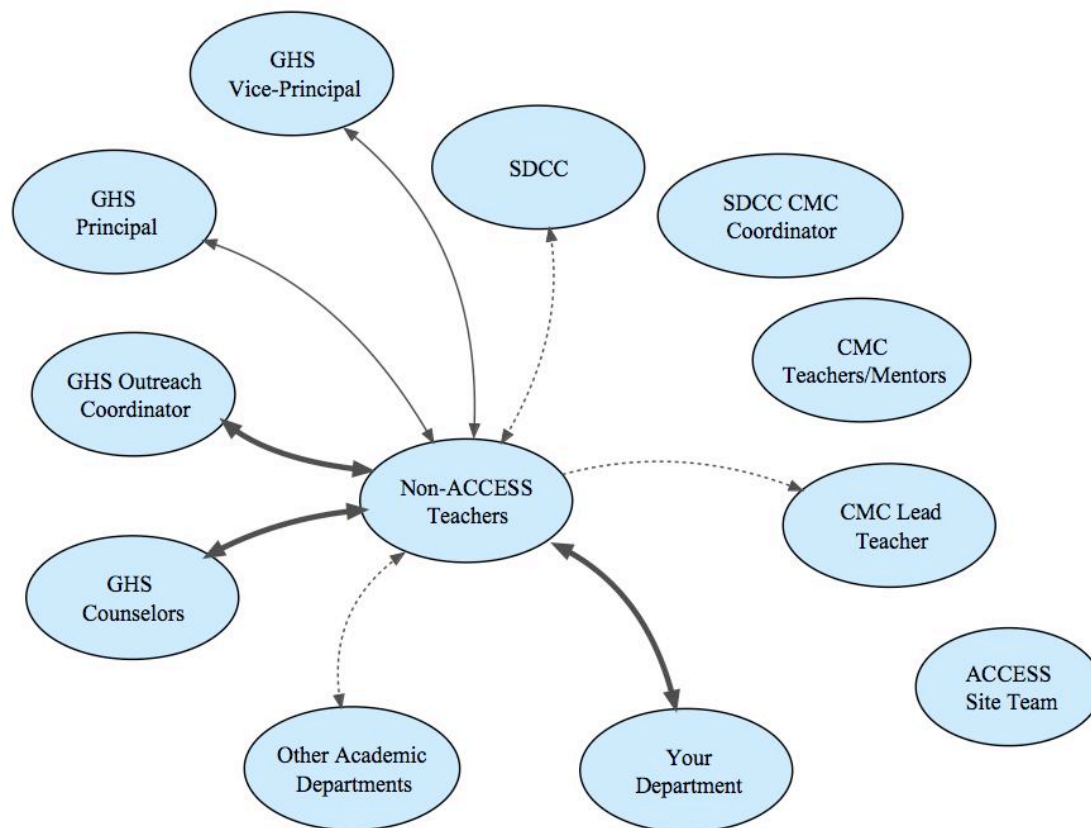


Figure 7.7: Composite of Social Networks for Non-ACCESS Teachers

Teacher-counselor connections.

With one exception, social network artifacts for non-ACCESS teachers showed a strong connection to the counseling staff. In general, non-ACCESS teachers believed that communication between themselves and GHS counselors was good. For example, BN, a GHS math teacher, viewed his relationship with the GHS counseling staff as more positive than his relationship with counselors when he had previously taught math at a traditional high school.

BN: I talk to them, they talk to me...I feel in general we communicate relatively well. We're constantly in contact about the students that we have. So it's

not like at CHS, where I didn't even know who the Counselors were for the students I had. (6/09)

As I pointed out in chapter six, most teacher-counselor interactions revolved around issues of student behavior. However, when I asked the non-ACCESS teachers during individual interviews if they interacted with the counselors about academics, got similar responses. RW, a GHS history teacher and adjunct faculty member at SDCC, said that he depended on other teachers for academic help.

RW: I don't usually go to the counselors for academic help. I'll depend on my Social Studies colleagues MS, DP, and the English Department for that. (7/09)

MS, another GHS history teacher, felt that any interaction around student academics was between him and his students.

DW: Do you have any interaction with the counselors within the terms of student's academics? So anything other than behavior issues?

MS: The academics! The students come in and I question where they're getting these percentages, you know, especially sometimes I question the manner in which they come in to me. But as far as them coming to me, their academics is between the student and I, and not the Counselor and I, and if they have academic difficulty I try to fix that between us first, then I try to bring in every helper that I can. The Counselors, what are they going to do as far as academics? Tell them to do better? (7/09)

By contrast, social network drawings for ACCESS teachers showed a weak connection with the GHS counseling staff. Like non-ACCESS teachers, they said that they did communicate with the counseling staff about students, and that prior to ACCESS their conversations with GHS counselors were primarily about issues of behavior. However, DA, an ACCESS Science teacher, felt that since ACCESS teachers had become involved in helping ACCESS students plan their course of study, her relationship with the counselors had become somewhat negative.

DA: I feel like we have a relationship because we have to have a relationship. Like, I have to talk to them about kids that are not doing well. I have to inform them and I have to talk to them when I have problems with kids. And I feel like that's the majority of our relationship-- back and forth about kids that are either not making progress or becoming an issue in the classroom and due to the ACCESS Site Team that relationship has been not as positive. (6/09)

When I asked her what she meant by her relationship with counselors not being positive she said:

DA: Like, prior to ACCESS, I had interaction just for that sake, like, this kid's not doing well. Now it's more like having to deal with them on a different level about planning for kids, about getting involved in their schedule, having this relationship where they feel they're left out and we're not informing them and it's more like a combative kind of relationship. (6/09)

DP, the ACCESS English teacher, agreed that he did communicate with the counselors about his students, but felt that he had different intentions than the counseling staff and neither he nor they discussed these differences.

DP: They do keep me apprised of things and they're interested in their students and I certainly am as well. We just have different values, different goals it seems, and we don't articulate them clearly to each other often enough. So I think they, they are left somewhat in the dark about what I think and I'm certainly not sure what they're thinking. (5/09)

While all of the teachers that I interviewed wanted students to do well academically, non-ACCESS teachers believed that issues concerning students' academic performance should be worked out between teachers or between teachers and their students. The idea that it might be problematic for a GHS counselor to determine a student's course of study without input from teachers never came up. ACCESS teachers acknowledged that there were differences between their views and those of the counselors and believed this was a problem and felt that when ACCESS teachers began

taking an active role in helping students academically prepare for college, tensions developed between them and the GHS counseling staff.

Teacher-CMC connections.

Both ACCESS and non-ACCESS teachers felt that they had no connection to CMC other than signing forms recommending students for the program. Both groups of teachers showed a weak, one-way connection to the CMC lead teacher, and no connection to any of the CMC teachers. For example, when I asked DP, the ACCESS English teacher, about his connection to CMC, his response was:

DP: The only input I have to CMC Bridge is to sign a document saying that I think this student is qualified to be in the program and that's it, and I'm invited to a luncheon. Other than that, I am acted upon, not part of. (5/09)

BN, a non-ACCESS math teacher at GHS, gave the following response to my question about his connection to CMC:

BN: I know about the program, I have students that go in it. I've seen the forms that they fill out. Most of the students talk very little about it. I've read some of the papers that they write for it. I think I understand the concept of it in terms of bridging to take a college class so that they can see that they can be college people. (6/09)

CMC is run out of the business department at SDCC. When I asked BN, who also teaches business math at SDCC as an adjunct, if he had any interactions with the CMC teacher, he said:

BN: No, because they are [GHS students]...because what happens is once they go in to CMC, almost always they take them out of my class. (6/09)

GHS teachers-SDCC connections (Other than CMC)

With three exceptions, GHS teachers saw no connection between themselves and any SDCC faculty. For example, DP saw very little significance to GHS being physically

located on the campus of SDCC. He felt that it would feel more like a college campus if more people from SDCC were visible at GHS.

DP: I think... I always think of it [GHS] as a high school. The only time I'm reminded of that [being physically located on a college campus] is when somebody mentions it. It's as far away from a college as any other structure. If I saw more people from City [SDCC] here wanting to be part of this, that would make it feel like a college campus. It feels like a college campus when it is infested [A number of students enrolled in education courses at UCSD tutor at GHS throughout the school year.] with UCSD students and that's a good thing. (5/09)

DA said that it was unfortunate that there was not more interaction between GHS teachers and SDCC faculty and expressed the desire to develop relationships with SDCC faculty. However, like DP, she did believe that SDCC had the same desire.

DA: I think it's pretty cool. I think it's sad that we don't do more with it. I never really knew we were supposed to have an association with them until we started talking about this ACCESS Team. When I first started working here no one ever mentioned we're on City College's campus. I thought we were just right next to them. It wasn't like, we're with them; we're just physically next to them. I think it's unfortunate there's not more interaction between the teachers here and the staff over there because if most of our kids attend City [SDCC] after Gonzago [GHS], it would be nice to get some more collaboration just to prepare the students a little bit better for the kind of classes they're going to take over there. (6/09)

While MS, a non-ACCESS social studies teacher, thought that being on a college campus was "a good thing", he took exception to the type of partnerships that existed between GHS and SDCC.

MS: I think that it's neat. The idea of a partnership program between a high school and a college is incredibly good. What I don't like is the fact that because of students able to go to junior college, they get these twenty credit high school diplomas. That bothers me. The other thing is, if we're truly going to have a relationship with City College, I'd like to see the kids take classes that are going to go towards transferring, or even towards building their abilities. I don't like to see the kids taking these Student Improvement, or what is it, Study Habits, or Personal Growth [classes]. To

me that's a waste of time. If we're going to allow these kids to get a break, such a big break, I want to see them have to extend themselves. (7/09)

Three of the teachers that I interviewed did have connections to academic departments at SDCC. Two of those teachers held adjunct faculty positions at SDCC. BN, a GHS math teacher, had been teaching business math at SDCC for seven years. Since the college course he taught was listed as one of the approved courses by the JDP, GHS students could take his course to meet a requirement for an option-2 diploma. When I asked BN about his connection to SDCC he said that his connection to SDCC provided him with the ability to get procedural information about enrollment and other administrative issues.

BN: Because I'm over there so I feel that I have access to the people at City College. I do talk to Angela in Admissions [JDP specialist], I talk to the people in records, so I'm learning about the way it works. We have Oswaldo [a SDCC counselor who was assigned part time at GHS] downstairs; I talk to him a bit. But because I'm over there, I feel like if we need something, if I need something, if I have a question and need an answer, I have a way to get it. I have access to it because I work there. (6/09)

However, as evidenced by BN's response when I asked if any [GHS] students asked him about the college course he taught, despite teaching at SDCC, he had no knowledge of where his course fit into any degree-track program

DW: Well you teach over at City College. Do you have some of your students ask you sometimes about your course over there? Unless you tell them, they don't know you're over there.

BN: True, and there, they'll ask me other things. What does this course lead in to? You know, this is the only course I teach. I'm very stuck in that one spot. I don't really even know what my course leads into. I'm not really that familiar with the City College Curriculum. (6/09)

RW, a GHS history teacher, taught a basic skills reading class at SDCC. RW's class did not fulfill the JDP requirement for a college course, nor did it count for high school credit. When I asked him about his connection to SDCC his response was:

RW: I've been there for ten years. City College? I was determined from the beginning, even though I'm at a job that doesn't require me to go to a lot of the meetings, I went to all the meetings. I went to them [SDCC English department] for advice when I was having problems

The third GHS teacher with a connection to an academic department at SDCC was CF, an ACCESS science teacher. Although in an early stage, her involvement with the SDCC life sciences department's Step-Up Biotech Program represented only the second partnership between GHS and SDCC where GHS students could enroll in degree-track, academic college courses. The other partnership was between GHS and the SDCC physical sciences department and the college courses that I taught at SDCC. CF and I discussed her partnership with SDCC during our interview:

DW: City College. You put a weak connection to City College. Talk about your connection with City College.

CF: I think it's weak only because it's in the early stages. Working with the Step Up Biotech Program I've been able to collaborate with a City College professor, but still I think there are some limitations. But I think we're still trying to get to know each other and I'm hoping those connections will strengthen. It's kind of been an email, a few meetings here and there.

DW: So what are you meeting about?

CF: We're meeting about the Step Up Biotech Program, which is a grant to get students from St. Diaz High and Gonzago High School to enroll in college level courses to serve as a pipeline. It's a St. Diaz Work Force partnership grant and the goal is to enroll ten students in the first course in Biotech, and hopefully those students will go on to the second course which is a more rigorous course, but also it's taught by industry professionals to help them eventually get job placement.

DW: When you're talking about ten students, are you talking about graduates, or high school students?

CF: High school students or graduates. (8/09)

GHS Counselors' Social Networks

GHS Head Counselor.

The GHS counseling department was made up of four guidance counselors. That number included BG, the head counselor. Figure 7.8 shows a diagram of BG's social network.

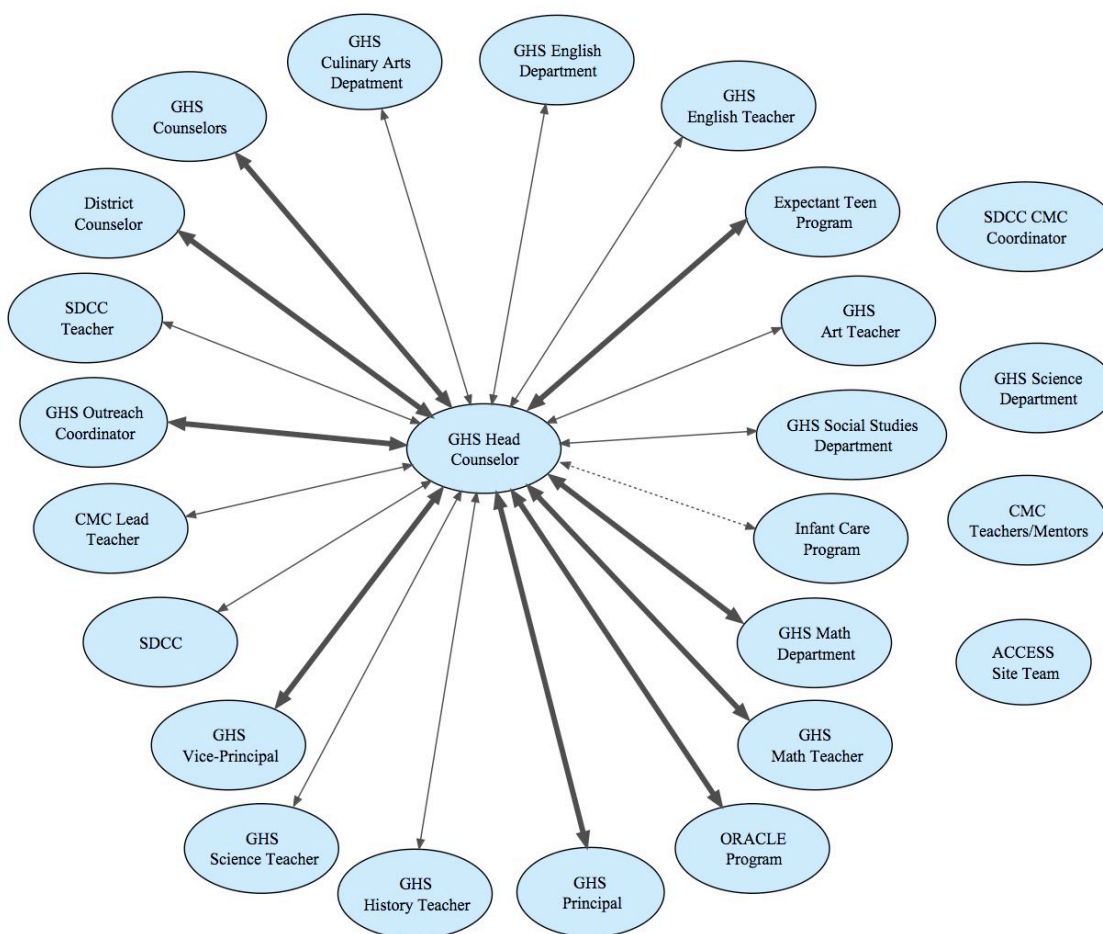


Figure 7.8: GHS Head Counselor Social Networks

While all counselors had a caseload of students that they advised, the head counselor was the supervisor of the counseling department. As such, he was a regular

member of the GHS administrative team and served as a link between administration and the other GHS counselors. When I asked BG about his strong connection to GHS's principal he said:

BG: Well each week there is a meeting with the administration team that consists of the principal, vice principal, head counselor, head business operations person, BSS - business site supervisor, as well as anyone else that might be appropriate. So each week we review a variety of things that range from calendar of the events for that day, that week, that month. Testing formats...uhh...scholarship programs, particular field trips that various staff might want to do. So I'm interacting with her, with the principal and the vice principal on a regular basis just to maintain the normal function of the school. To verify that we don't have the counseling staff doing one thing that isn't supportive of the teachers or being supportive of the families and students. (6/09)

BG's social network drawing also showed a strong connection to the counseling department. BG was viewed as a liaison between the GHS principal and the counseling staff. When I asked AV, a GHS counselor, about her relationship with the GHS principal, she responded by saying that she felt that while the principal was available, she described the head counselor as an "intermediary" between the principal and the counseling staff.

DW: You mentioned the principal. You don't show a very strong connection to the principal. How do you interact with the principal?

AV: Well it's not because she's not available. She's very busy but I feel like BG [the Head counselor] is our liaison to her and so as the head counselor he really...he sits on the admin team, he brings back the information. Last year either the principal or vice principal attended our counseling meetings but this year she's [the principal] been too busy. She's approachable but it's just that we rely on BG to be our intermediary. We could go to her at any time if we needed something. (6/09)

BG also had a strong connection to CT, who was the GHS outreach coordinator. CT acted as the college liaison between GHS and SDCC for the JDP. When I asked BG about his connection to the GHS college liaison, his response was:

BG: I meet with her [GHS college liaison] a minimum of once a week as I do all the key people in the counseling department, that is to review how the students get into college, which courses are appropriate for our students and not appropriate, which courses we should be urging the students to take.
(6/09)

While BG had a strong connection to CMC during the early years of that program's existence, he stated that his interactions with CMC had decreased and he primarily interacted with the CMC liaison between GHS and SDCC, the GHS lead teacher.

BG: I helped start the City Middle College Program [CMC] about 11 years ago. I was an integral part of starting it and creating it and making it so that the students who were at-risk to not just not get their diploma but at risk to not be looking at options at the college...that would be the students at risk. I used to meet with them on a regular basis twice a week but I didn't need to do that after they got underway. So my interaction initially was at a nine or a ten and then through each couple of years it's gone down a little bit, and now that's why is at a seven.

DW: So do you make any distinction between the coordinator [GHS lead teacher for CMC] and the program [CMC]?

BG: Nope. Originally when we had meetings I would not only meet with the coordinator once a week, I was also meeting with the City College Professors once a week.

DW: You don't meet with the City College faculty anymore?

BG: Nope. (6/09)

BG's social network drawing depicted in Figure 7.8 showed no connection to the CMC coordinator, the CMC teachers, the CMC mentors, or SDCC. BG's connections to SDCC were through the GHS outreach coordinator, who was the liaison for the JDP and the GHS lead teacher, who acted as the liaison for CMC.

Other GHS counselors' social networks

Figure 7.9 provides a composite diagram of the social networks for the other two GHS counselors that I interviewed. Both counselors felt that the connection between themselves and the other counselors was strong. JW, a GHS counselor, felt that he had good communications with the other counselors, which led to a consistency in their approach to their jobs.

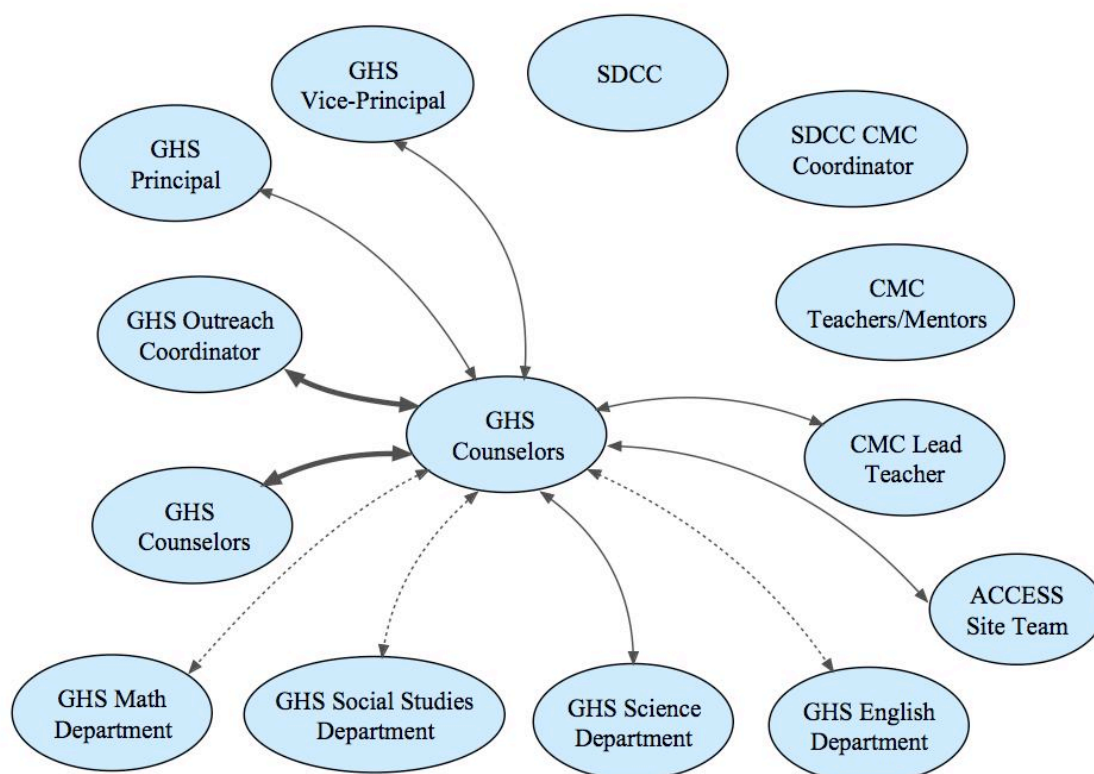


Figure 7.9: Composite Social Networks Diagram for GHS Counselors

When I asked JW about his relationship with the other GHS counselors I got the following response:

JW: Well I think the thing that I like about it is that I felt that if I have a question, or if someone else has a question, we're always very good about

bouncing ideas off of each other. We're attempting to be consistent across the board between counselors. But the thing that I like is that we communicate with each other what we're trying to accomplish. We don't just do it independently without communicating with each other. So that's something that I find is really strength of the department. (7/09)

AV, another counselor, stated that even though the counseling staff had problems with each other in the past, with the help of the principal, they had worked through their problems.

AV: Well we've had problems, but in the past... and I think this year since we dealt with those problems with JP [GHS Principal]...you know we have made great strides and now it's better than ever. (6/09)

The only other strong connection that GHS counselors had was with CT, the GHS outreach coordinator. In addition to working with CT to enroll GHS students in JDP courses at SDCC, GHS counselors said that they depended on her for feedback about how their students were doing in their college classes. One counselor, JW, said he was working with CT in an attempt to provide more vocational experiences for GHS students.

JW: She [CT] and I have been doing some joint ventures trying to get more of a vocational experience for our students. We now know the vocational interests of every student in the school, we've done surveys of every student in the school and now we're going back and going through and analyzing the data from those surveys and trying to come up with different experiences that will benefit those kids and using what the highlighted interests are. We're going to try and identify more experiences for the kids so we can tie them into the school more and give them more reasons to take the classes that we are recommending. (7/09)

All GHS counselors were instrumental in determining which college course their students would enroll in and who they recommended to take those courses.

BG: In the counseling meetings we devote about 30 minutes to just talking about college issues. Who gets in, who shouldn't get in, who should be allowed to repeat a course or go a different direction, and who should wait. (6/09)

However, as evidenced by their social network drawings and their responses to my interview questions, none of the counselors indicated that they had any connection to either the CMC staff and mentors, or SDCC in general. Their connections were with the GHS lead teacher for CMC and with the GHS outreach coordinator for the JDP.

JP: GHS Principal Social Network

Figure 7.10 shows a diagram of JP's social network based on her drawing of her connections to individuals, groups of individuals and programs at GHS and with SDCC.

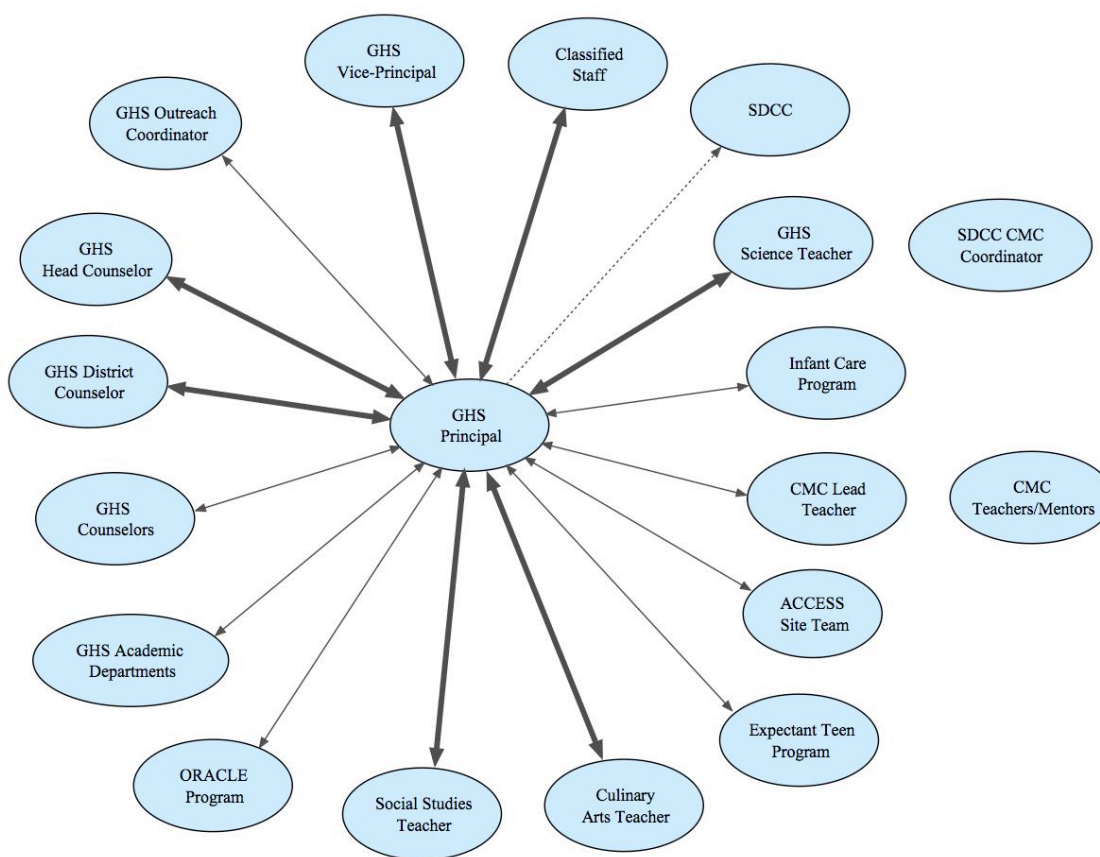


Figure 7.10: GHS Principal's Social Network

In general, JP depicted her connection to the various departments at GHS as moderate, viewing her connections to key individuals as strong. For example, when I asked her about her relationship to the GHS counseling staff, her response was that it was consistent with the strength of her connections to other departments but felt that it was not as strong as it should be.

JP: Well it is the staff. and as I put most of the departments if you will, kind of out here [moderate connections]. Um...because...um...I think there will always critical individuals and persons within a school. And then the next step outside of that becomes groups of people. So the counseling department... is critical. My working relationship... communications with them...um...it is not as strong as it should be. (7/09)

Yet she viewed her connection to the GHS head counselor as strong.

JP: This person also is...ah...critical person for our school because he helps to lead and, ah, direct the counseling staff. Um...he's involved with...you know...him and the counseling staff, with guiding all of our students. So anyway, the relationship with him... um...close, very close to the relationship, say with the...um...vice-principal. He [head counselor] is kind of part of the...he's a quasi- administrator. (7/09)

One group that JP felt that she had a stronger connection with than other groups was the ACCESS site team. She felt that the ACCESS site team was more representative of the kind of school culture she wanted to see at GHS in that the ACCESS site team was more academically progressive than other GHS departments. She viewed the ACCESS site team as “always moving forward”, which is what other groups should be doing.

JP: I put the group [ACCESS site team] more on this side [depicts a stronger connection that with other groups]. I think that...ah...there's a good working relationship, like it's a new group; partly because it's...it's the way groups should be, always forming, always changing. So it always feels new and moving. It is not fully established, if you will, within the culture of the school...um...which we are getting there. Um...but I put it closer than say the regular departments...um...partly because this group is moving and changing and more...um progressive, if you will academically than necessarily the departments. (7/09)

JP felt that the purpose of any school is to focus on students' academic growth and in order to do that, the staff needed to work together toward that common goal. When I asked JP about how the connection between school culture and staffing I received the following response:

DW: You mentioned this developing a school culture and its connection to staffing. Could you talk to me a little bit about what you mean by that...and could you do that with Gonzago?

JP: Well our purpose, no matter what school...our purpose is to move students forward in their learning, in their academic growth. And I think in order to do that, the adults have to be on the same page, or at least moving in the same general direction. Collectively, as a group, we need to work together...to achieve a common goal or mission if you will. (7/09)

JP's social network drawing showed a strong connection to me, the ACCESS coordinator. When I asked her about our relationship, she said that I had been the key person in pushing GHS towards an increase in academic rigor for its students. She felt that my being a teacher was an important factor in the success of ACCESS, since other teachers were my colleagues. She believed that one of her responsibilities as principal was to find people to lead.

JP: This guy [Points to ACCESS coordinator]? I think good [referring to our relationship]. I put you here because I see you as...especially over the last two... two and a half...whatever...years...three years or whatever as a...the critical person who has started this mass of pulling some staff members up...or pushing staff members in the direction of developing programs... processes and procedures to increase the rigor for our students. So...um...you know, we speak frequently and part of that is the reason why I put you here [close in proximity to JP]. But professionally because I see you as having a huge impact in the correct way as far as helping to propel and move our staff. Um...and often times it takes actually a teacher to help lead that because the other teachers are your colleagues. I'm not...anymore [a teacher]. And my role is to try to find people who will help do that. And so these folks are critical in assisting in doing those things. (7/09)

I asked JP if she thought that getting key staff members to take the lead was a part of the school culture that she was trying to develop. In response to my question, she said that getting key people to take the lead was necessary to develop the kind of school culture that she desired. For JP, top-down administrators may get staff to do what they ask but the result may be a culture of compliance, a culture that disappears when those administrators leave the school.

DW: Do you think that ties into that school culture you were talking about developing? You know. Getting key people to...you know in positions like that?

JP: Yes. It's critical. Um...If the people who work at the school aren't doing...aren't leading and doing that work to develop the culture, the culture won't develop. Um...I think you can have an administration who can be driving top down some edicts, like we will do this or are going to do that and then you remove those administrators and then there is no culture...um...and people just did the things they were asked to do. There was just a culture of compliance and when you remove those persons, that culture disappears. It truly becomes "the school" as opposed to what people are asked to do. Um... or mandated to do... or told they had to do. You know sometimes.... some things that are required to help to develop...you know... a part of a culture but it really has to come grassroots, because then it is part of peoples' philosophy and desire, or their motivation to do it as opposed to me. (7/09)

When I asked JP if the kind of grassroots change she was talking about could happen without the support of administration, she said that it would be difficult.

DW: Do you think that can happen without the support of the administration? By that I mean principals in particular?

JP: I, I think it can by some degree; but it would be really difficult and it depends on who that person is. If the person ...ah, is say, laissez-faire, and doesn't take a position on something, quite possibly it could. But say the person is heavy handed and opposing something people want to do. That would be potentially very difficult. (7/09)

JP went on to explained that part of her job was to relieve tensions between people so that worthwhile things can be accomplished:

JP: People are very sensitive; and people don't like, whether it is appropriate, to feel that way or not. Sometimes people feel threatened by other people, especially if it's their peer colleague and I need to relieve that type of a situation because... I don't care if you threatened by me because I'm the administrator; and that is part of job, is to be aware of people are trying to achieve things that worthwhile. To be able to remove that sort of scenario so that they can get the work done that they need to get done. (7/09)

When I asked her for an example, I got the following response:

JP: So for example. Let's take the ACCESS group. There have been issues...um with communication issues and sometimes feelings get hurt. All that stuff is actually unimportant with what we are trying to achieve. But the reality of dealing with people...so sometimes, there are times... I need to be the one to figure out how to relieve that tension, if you will, and make it right. So people do not feel threatened by each other...um, and so that is my job. (7/09)

When I asked JP to provide me with an overall view of the social network she drew her response was:

JP: Well, the interesting part about networks is regardless of what I do or don't do, I realize by way of my position I am always...um...have some level of threat, if you will, to people. So if people typically always have some level of guardedness because "I am the principal", I am aware of that. So I always have to temper some of these things and keep a level of detachment, too because I am the principal. (7/09)

When I asked JP about the weak connection to SDCC depicted in her drawing she said that while there were individuals at SDCC that she worked with, in general, her relationship with SDCC was a one-way connection going from her to SDCC. When I asked JP about her connection to SDCC her response was:

JP: Yea, as an entity, there's really very limited relationship with college itself...um I mean certain individuals from the college and some specific liaisons; but the most part something...um... that I may need to work with them on. This is the only one-way arrow that I did because I never have communications coming this direction here [points to the direction from SDCC to GHS] with the exception of individual persons within the programs that we already work with. So if there is something that I need to

pursue, or do with them, it needs to be me initiating that. I never feel that something comes this direction. (7/09)

Standard Operating Procedures For GHS Students Enrolling in Classes at SDCC

Through the interviews that I conducted, I created diagrams of network connections for enrolling GHS students in classes at SDCC based on the drawings that respondents constructed during our interviews, and their responses to questions that I asked about their drawings. However, to get a more complete picture of the social networks that determined how GHS students enrolled in college classes at SDCC, and why they enrolled in the classes that they did, I analyzed JDP and CMC documents that outlined the enacted standard operating procedures for enrolling GHS students in those programs.

Standard operating procedures for enrolling GHS students in classes at SDCC

- A student and their counselor determined which college course, or courses, the student wanted to take. A list of approved courses was provided in the memorandum of understanding (MOU) between The St. Diaz Continuing Education Program (SDCE), SDCC and GHS.
- The student filled out an admissions form, designed specifically for high school students, requesting a specific course, or courses. The form must be signed by a parent or guardian and returned to the student's counselor.
- The counselor gave the completed form to the school vice-principal for approval and signature.

- Once approved, the form went to GHS's outreach coordinator who then submitted the form to the JDP specialist at the SDCC admissions office. The JDP specialist was specifically designated to process all high school student applications.
- The JDP specialist processed the application and the student was enrolled in the class, or classes they had chosen. The JDP specialist was authorized to enroll Gonzago students in college courses during the last week of open enrollment.
- While the student was taking a college course, the outreach specialist received progress reports from the course instructor every four weeks. The outreach specialist provided a copy of each progress report to the student's counselor.
- If the student's counselor determined that the student needed to withdraw from the course prior to the deadline, they informed the outreach coordinator who withdrew the student.
- If the student successfully completed a college course with a minimum "C" grade, the student's grade was submitted to the GHS registrar for high school credit.

Standard operating procedures for enrolling GHS students in CMC

- GHS counselors targeted students for CMC, discussed the benefits of CMC and encouraged students to enroll in the program.
- GHS counselors submitted a list of candidates who expressed a desire to enroll in CMC to the CMC lead teacher, a GHS history teacher.
- The CMC lead teacher reviewed the candidates' high school attendance records, CAHSEE (California High School Exit Exam) scores, and high school transcripts. From these records, the CMC lead teacher selected those students who he felt met

the necessary criteria for CMC and provided a list of those students to GHS counselors.

- Students who had been approved for CMC were given a college application form that was identical to that for CMC with one exception. The JDP application was blue and the CMC application was yellow.
- Students were required to complete the application and submit it to the CMC lead teacher within seven days.
- The CMC lead teacher reviewed each application and selected 25 students. Those 25 students received a letter of acceptance from the CMC lead teacher. Students who were not accepted were placed on a wait list in the event any of the 25 students who had been accepted chose not to enroll in CMC and given top priority for acceptance into the next CMC cohort.
- The CMC lead teacher submitted the application forms to the SDCC JDP specialist who processed the applications and enrolled students in the CMC courses.
- Once a cohort of students began CMC, the CMC lead teacher acted as a liaison between the CMC teachers and GHS counselors, primarily informing a student's counselor if the student was not meeting minimum requirements to successfully complete the CMC program.
- When a cohort of students completed CMC, the SDCC coordinator submitted their grades to the SDCC registrar and the GHS registrar.

GHS-SDCC Social Network for Enrolling GHS Students In SDCC Courses

Based on social network diagrams constructed from audio-recorded interviews and from GHS documents detailing standard operation procedures for enrolling GHS students in SDCC courses, I constructed a social network diagram for enrolling GHS students in SDCC courses (Figure 7.11). The inability to change the institutionalized procedures for enrolling GHS students in non-degree track college course at SDCC, labeled stable, population-wide patterns of behavior in figure 7.11 could best be understood by examining the GHS-SDCC social network.

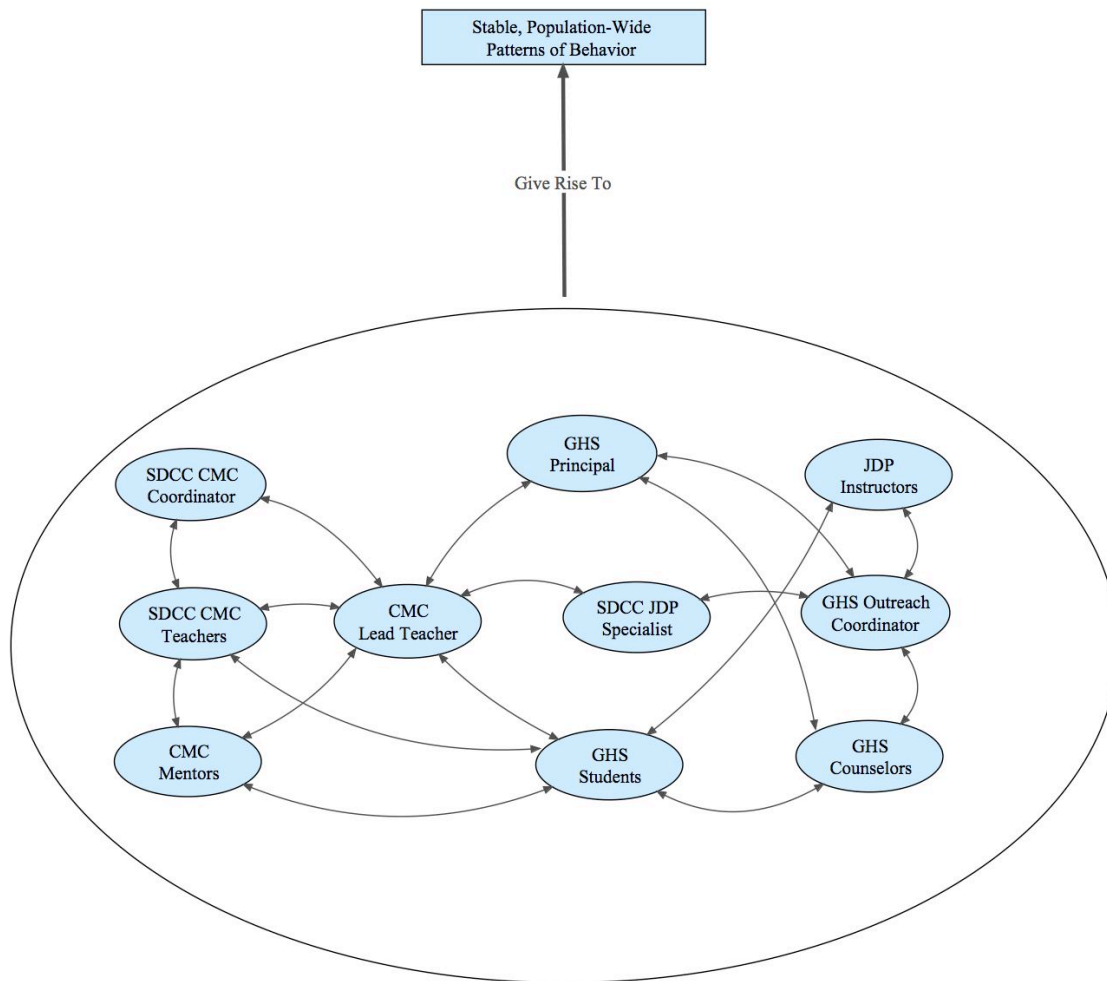


Figure 7.11: GHS-SDCC Social Network

What the social networks diagram illustrated in figure 7.11 shows is:

- There were two programs for enrolling GHS students in SDCC course, the JDP and CMC.

GHS-SDCC network connections for CMC

The connection between GHS and SDCC for CMC was through LV, a GHS teacher who was the CMC lead teacher. There were no direct connections

between the SDCC CMC coordinator, any of the SDCC CMC teachers, or any of the CMC mentors with the GHS principal, any of the GHS counseling staff, or any of the GHS teachers. In that sense, The CMC lead teacher was the bridge that connected GHS and SDCC for CMC.

GHS-SDCC connections for the JDP

The connection between GHS and SDCC for enrolling GHS students in college courses for the JDP was through CT, the GHS outreach coordinator. Other than the GHS teachers who were also teaching at SDCC, there were no direct connections between any SDCC instructors and the GHS principal, any of the GHS counselors, or any GHS teachers. The GHS outreach coordinator was the bridge that connected GHS and SDCC for the JDP.

Diagram 7.11 also shows that

- GHS students were connected to non degree-track JDP courses at SDCC such as personal growth and business math through their counselors and the GHS outreach coordinator, and to CMC through their counselors and the CMC lead teacher. GHS students were also connected to CMC and JDP instructors through the classes they were taking at SDCC.
- While GHS counselors determined what college courses to recommend for their students, they had no direct connection to anyone at SDCC.
- Other than the GHS teachers who were also teaching at SDCC, GHS teachers had no direct connection to anyone at SDCC and were not part of the social network for determining which college classes that GHS students enrolled in at SDCC.

- The ACCESS site team was not part of the social network for enrolling GHS students in SDCC courses.

The social network in figure 7.11 is informative not only for what it shows, but for what it does not show. While network connections for enrolling GHS students in non-degree track college course through the JDP and CMC were well established, there were no social network connections between GHS and the various academic departments at SDCC. The existing social network did not include connections that would allow GHS students to enroll in degree-track college classes.

From the time GHS ACCESS students first tested into college-level math and English, despite my efforts, I had no success in getting GHS administrators and counselors to focus on enrolling those ACCESS students who met the necessary prerequisites in degree-track courses at SDCC. The existing GHS-SDCC social network was designed for enrolling GHS students in CMC and non degree-track JDP courses. If GHS students were going to have the opportunity to enroll in degree-track course, either the existing social network needed to be modified or a new social network needed to be created between GHS and SDCC. I chose to construct a new social network between GHS and SDCC that would establish the necessary connections for enrolling ACCESS students in degree-track college courses.

A Second Purposeful Perturbation: The Creation of New GHS-SDCC Social Network Connections and the Consequences of Competing Networks

In theory, GHS students could enroll in any SDCC course, provided they met the necessary prerequisites and go through the admission process. However California

Education Code section 76001(e) placed the following condition on high schools students seeking on current enrollment at community colleges.

The governing board of a community college district shall assign a low enrollment priority to special part-time or full-time students described in subdivision (a) in order to ensure that these students do not displace regularly admitted students.

California Assembly Bill AB 967 (2005) also assigns a low enrollment priority to high school students who want to take courses at California Community Colleges.

To comply, SDCC established the policy that high school students may enroll in SDCC courses only during the last week of open enrollment. Furthermore, for classes that reach enrollment quotas, high school students would be placed at the bottom of any waiting lists. This was problematic since most degree-track, transfer-level courses tended to fill up and had waiting lists prior to the start of the high school student enrollment period.

However, there were alternative ways to enroll high school students in degree-track courses, ways that would require some kind of connection between GHS and SDCC academic departments. Rather than try to establish direct connections between the GHS counseling staff, or any other individuals or groups at GHS, and SDCC's academic departments, I adopted the role of mediator to create the connections necessary for enrolling ACCESS students in degree-track college courses.

In the Fall of 2008, a process was created by the ACCESS site team for enrolling ACCESS students in degree-track courses at SDCC. The process began by targeting specific SDCC courses, and in some cases specific SDCC instructors for those courses.

Initially, three courses were targeted: Reading and Composition (ENGL 101), Trigonometry (MATH 104) and Third Semester Spanish (SPAN 201).

ENGL 101 and MATH 104 were targeted for the following reasons:

- As early as the Spring of 2008, a small number of ACCESS students, who would be returning to GHS for the next school year, began testing into ENGL 101 and MATH 104 on college assessment tests.
- Neither trigonometry, nor an advanced English course comparable to ENGL 101, was offered at GHS. If ACCESS students were going to have the opportunity to take more advanced courses in math and English, they would have to do so at SDCC.

SPAN 201 was targeted for the following reasons:

- California education code requires two years of a world language for a 44-credit high school diploma.
- Students who successfully complete SPAN 201 and SPAN 202 at SDCC fulfill the humanities requirement for a baccalaureate degree at four-year colleges and universities in California.
- For the majority of GHS students, Spanish was their first language. ACCESS students were no exception.
- GHS did not offer Spanish classes as part of its curriculum.

Selection procedures were developed to determine which ACCESS students should be considered for enrollment in the targeted courses. Those procedures for selecting an ACCESS student for a targeted course were:

- The student met the prerequisites for a particular college course by taking the appropriate college assessment test. In order to be eligible to enroll in MATH 104, ENLG 101, or SPAN 201, a high school student needed to demonstrate the necessary level of proficiency on college assessment tests in math, English and Spanish.
- The student had a valid social security number.
- The student expressed the desire to enroll in one or more of the targeted courses.
- With few exceptions, class sections for targeted courses met during the day, when GHS students were in class at the high school. A student's counselor would need to determine if they could work the student's schedule of high school classes around the college class.

Even though GHS students could not enroll in classes at SDCC until the last week of open enrollment, there were a number of options for attempting to enroll ACCESS students in degree-track courses at SDCC. The first option I chose was to approach the language department chair, JE, to see if he would adjust the enrollment cap for the one daytime SPAN 201 class that was offered for the Spring semester of 2009. JE was scheduled to teach that class, so he would not need to get instructor approval prior to adjusting the enrollment cap.

I got the idea for this approach from my own experiences with adjusting enrollment caps for courses that I taught at SDCC. Beginning in 2001, I was able to get my department chair to adjust the enrollment caps for the physical science courses I taught at SDCC in order to hold spots for GHS students. For one physical science lecture course that I taught the enrollment cap was 50 students. An adjusted enrollment cap of 40

students was placed on that course during open enrollment. On the first day of class for that course, I could add up to 10 GHS students that had been selected to enroll in that course. For the physical science lab course that I taught, the enrollment cap was adjusted to enroll the same 10 GHS students.

JE agreed to adjust the enrollment cap for his SPAN 201 course so that we could enroll five ACCESS Students. He offered to come to GHS to administer the Spanish assessment test to those ACCESS students that were selected by the ACCESS site team. Eight students took the Spanish assessment test, with all eight testing into SPAN 201. Based on the student selection criteria, five ACCESS students were chosen to enroll in SPAN 201. At that point the ACCESS team sent a recommendation to each of the five students' guidance counselors asking that these students be allowed to enroll in JE's SPAN 201, assuming that their high school schedules could be adjusted around the Spanish class. All five students were able to enroll in, and successfully complete SPAN 201.

I did not have the same success when I approached the SDCC math department chair about adjusting the enrollment cap on any of the MATH 104 classes, or the SDCC English department chair about adjusting the enrollment cap on any of the ENGL 101 classes. For that reason, I chose an alternative approach to enrolling ACCESS students in these courses. Since the targeted math and English courses had already reached their enrollment caps prior to the last week of open enrollment and I had not had any success getting department chairs to consider adjusting enrollment caps, I decided to contact individual course instructors to determine if they would be willing to add ACCESS students on the first day the class met. However, I decided not contact them directly.

I needed a contact person, someone connected to both GHS and SDCC. I chose CM, who I refer to as the SDCC liaison. CM was an academic counselor at SDCC who also administered the CMC and Tech Prep Development Program (TPDP) grants. She not only knew many of the SDCC instructors, she also worked closely with the GHS principal and GHS outreach coordinator. I knew CM because she worked with me to get an education course, that I had designed, approved by the St. Diaz Community College District (SDCCD) curriculum committee. She also had expressed the desire to support the ACCESS program in any way she could.

In May of 2008, two ACCESS students tested into transfer-level math and one ACCESS student tested into transfer-level English on college assessment tests. All three students returned to GHS in the Fall of 2008 for their senior year. The goal for the Spring 2009 semester was for the two students who tested into transfer-level math to enroll in MATH 104 at SDCC and the student who tested into transfer-level English to enroll in ENLG 101.

I met with CM to determine which sections of MATH 104 and ENGL 101 would be best for these three ACCESS students. Once we determined which section to target, CM contacted the instructors for those sections, asking them if they would be willing to enroll these ACCESS students on the first day of class. Both the math instructor and the English instructor agreed to do so. Similar to the procedures for enrolling ACCESS students in SPAN 201, the ACCESS team sent a recommendation to each of the three students' guidance counselors asking that these students be allowed to enroll in either the selected MATH 104 section or the selected ENGL 101 if their high school schedule could

be adjusted to work around these classes. All three students were able to successfully enroll in these degree-track courses at SDCC.

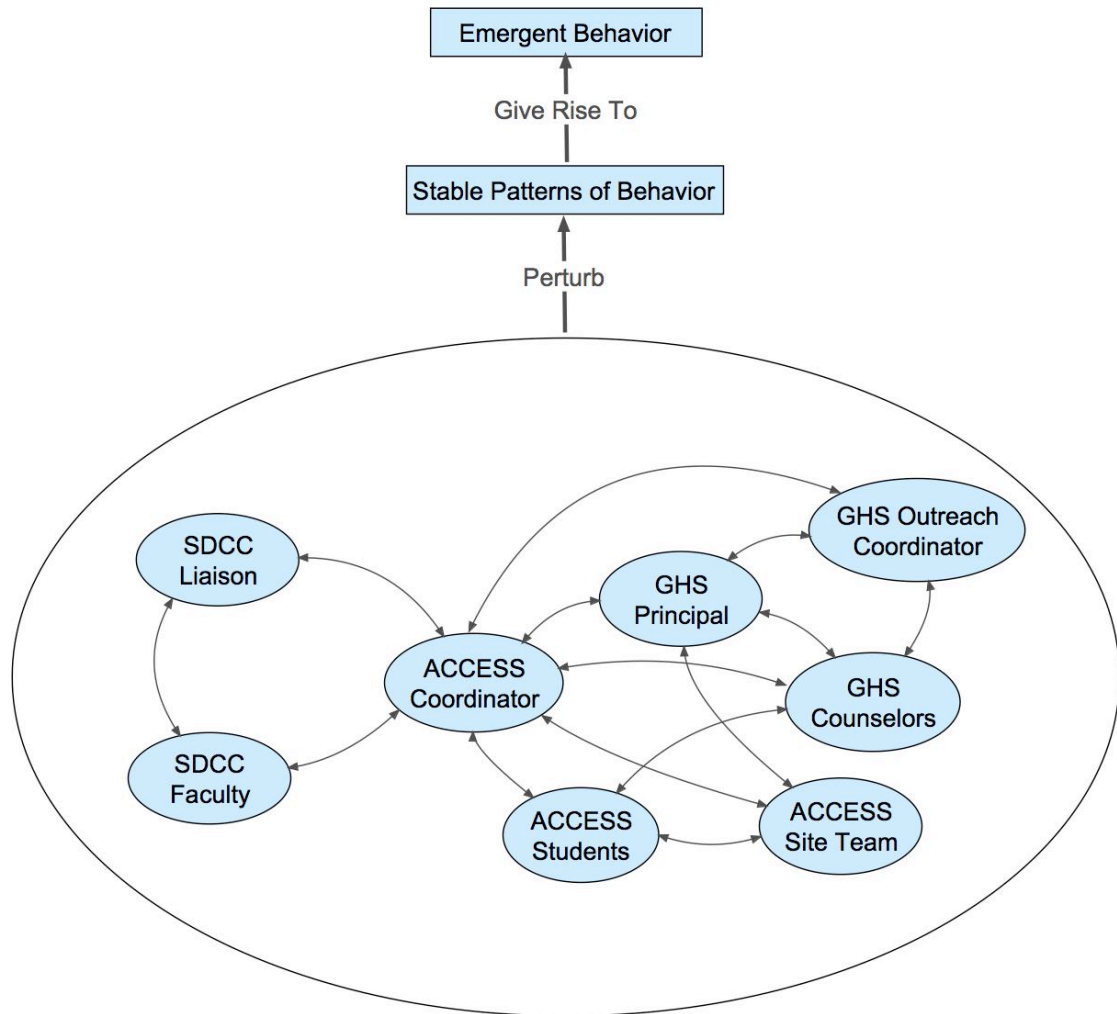


Figure 7.12: New Social Network For Enrolling ACCESS Students in SDCC Degree-Track courses

In order to enroll students in the degree-track courses that had been targeted by the ACCESS site team, it was necessary to create a new social network (Figure 7.12). However, the new social network did not replace the existing social network. Once an ACCESS student was guaranteed admission to a degree-track course at SDCC and had

the approval of their high school guidance counselor, enrolling the ACCESS student in that course followed the same standard operating procedures as those for enrolling GHS students in JDP courses (Figure 7.11). GHS counselors were still recommending which SDCC courses their students should take and prior to the existence of the new social network, a GHS student would chose to enroll in a specific SDCC course based solely on the recommendations of their high school counselor. What had changed was that ACCESS teachers were recommending specific SDCC courses to their ACCESS students and I was coordinating efforts to get students enrolled in those courses.

Competing Social Networks

GHS counselors continued to recommend JDP courses and CMC to their students where ACCESS teachers were recommending selected degree-track courses. One example where this happened was with SJ, an African-American student, who had been an ACCESS student for two years. Based on the advice of her ACCESS teachers, she completed one semester of transfer-level courses at City College in science, math, and English during her senior year in high school. In an interview, SJ credits the ACCESS teachers, not her counselor, with providing her with support for college preparation.

DW: How much counseling did he [SJ's counselor] do for your college prep here? In other words, the courses you took, sort of advising on what you should take and things like that?

SJ: He wasn't much involved in that at all. I kind of had my own little plan of what I wanted to do, wanted to get done, based on what I really wanted to do but I wanted to get all my General Ed done and he wanted me to take like Personal Growth or something. I mean, it was an ok class but I just wanted to focus on my General Ed so I could go forward.

DW: You said earlier that you got some sort of direction from some of the ACCESS Teachers?

SJ: Yes.

DW: Did most of that academic discussion come in that area [with the ACCESS teachers] rather than your counselor?

SJ: Yeah it did. They [ACCESS teachers] helped me focus where I really wanted to focus my energy and studying and the classes I wanted to take more than he did. (9/09)

SJ's responses illustrated a common problem. ACCESS teacher and GHS counselors frequently recommended different college courses for the same student. This environment of competing social networks created perturbations that impacted the existing patterns of behavior for enrolling GHS students in classes at SDCC. ACCESS students were receiving conflicting advice about which college courses they should take and in the process, emerging tensions between ACCESS teachers and GHS counselors escalated. As one counselor said, "The problem is my students now have two counselors."

In response to escalating tensions I attempted to act as a bridge between the ACCESS site team and the counselors in an effort to mediate any differences we might have. Since the ACCESS site team had been unsuccessful in getting one of the GHS counselors to become the ACCESS counselor, I decided to meet with counselors one-on-one to discuss which SDCC course the ACCESS site was recommending for ACCESS students on a case-by-case basis. One example where I was able to successfully work through the recommendation process with a GHS counselor was in deciding what college course to recommend for RR, a sixteen-year old junior in high school who had been in ACCESS for one year.

I wanted RR to take third semester Spanish at SDCC during the Spring 2009 semester. I went to JW, her counselor, and he said: "Well you know her English

skills are low. I'd like her to take English 42." English 42 was the lowest level basic skills English course offered at SDCC. I pointed out that in order to enroll a GHS student in an English course at SDCC, the student would need to take the SDCC English assessment test. I told him that she would most likely test higher than English 42. I also told JW that based on her score on the SDCC Spanish assessment test; I felt that RR should take third semester Spanish at the college.

At that point her counselor suggested that RR discuss it with me, then she could decide which college course she wanted to take. After discussing her options with me, RR chose to take Spanish rather than the remedial English course. In an interview with RR, when I asked her why she chose to take Spanish she said:

RR: Well, before actually picking up the Spanish class that we did, we had just taken the practice PSAT and I'd scored... it was a good grade. However, he wanted me to take an English class in City College instead of the Spanish one because I had scored kind of low on the English part and he was telling me to go to sort of a remedial course. But he told me to counsel you on it and you told me it would be better to take the Spanish class because the people that would be there first of all would be, like, older, and because the class was really low. If I still worked on it, if I would have took the placement test, it was likely I would score out of that class so it wouldn't be a class I'd want to take. (4/09)

This turned out to be a good choice since four months later RR tested into transfer level English at SDCC with a recommendation for honors English.

When I asked RR to describe the path she took to enroll in Spanish at SDCC, she used the white board drawing she had constructed to show her social networks (Figure 7.13). She wrote the letters A, B, C and D next to specific network connections to illustrate how she ended up enrolling in Spanish at SDCC. When I asked her to explain the significance of the letters, we had the following exchange:

DW: Which gets me around to-- you sort of put SDCC here. Are you connected to SDCC, or is this sort of a process that ...?

RR: It's just sort of a path to how I got there. I kind of set them up in the way that's how they branched out.

DW: So it started with you and your Counselor. And when you say Math Department, how did it connect through the Math Department [RR was enrolled in the ACCESS math class that I teach at GHS]?

RR: Because you were the one who encouraged me to go to the Spanish class at SDCC and had us do the [Spanish] placement test. (4/09)

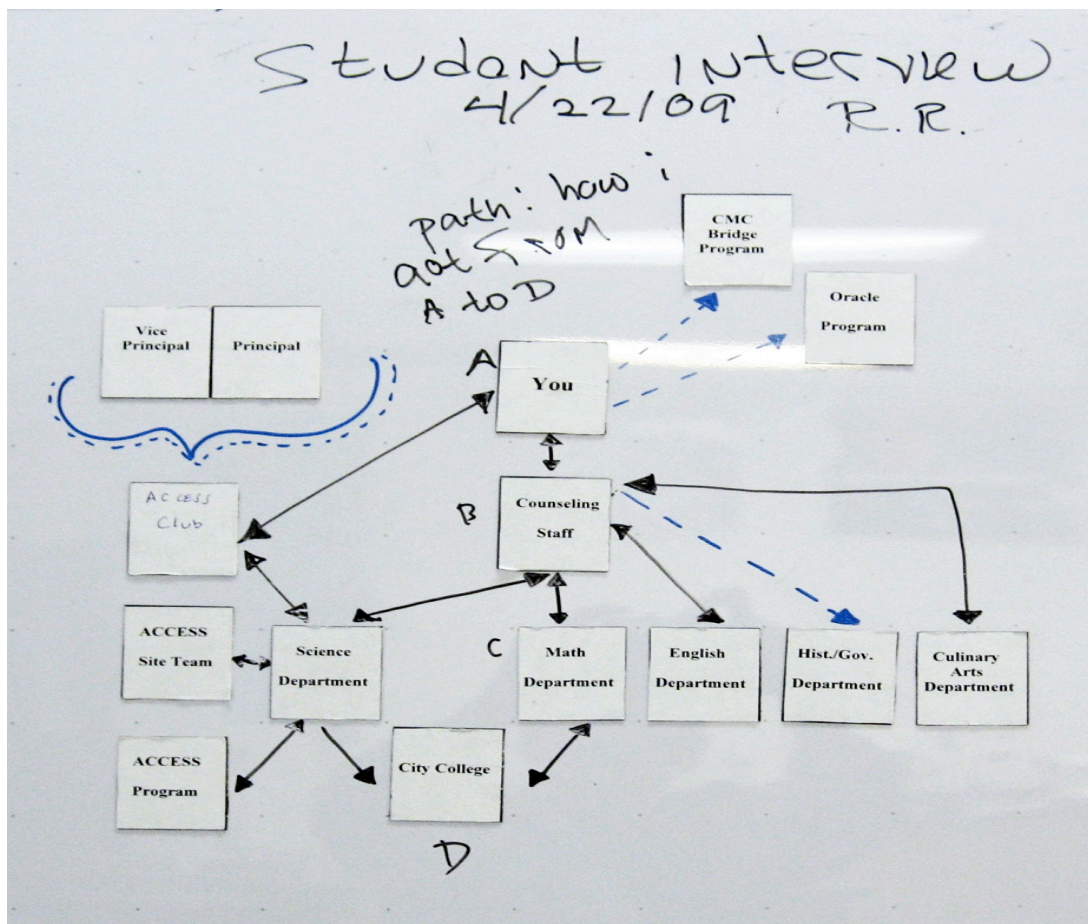


Figure 7.13: Social Network Drawing for RR

Despite my efforts to work with GHS counselors when recommending ACCESS students for enrollment in degree-track college course, many ACCESS students

continued to receive conflicting advice from their ACCESS teachers and their counselors about which college courses to take. And, in most cases, ACCESS students chose to take the advice of their ACCESS teachers over their counselors. While I was aware that GHS counselors were upset about ACCESS teachers advising ACCESS students about which college courses to take, I was not aware of the depth of the counselors' anger with ACCESS teachers until I interviewed the head counselor in May of 2009.

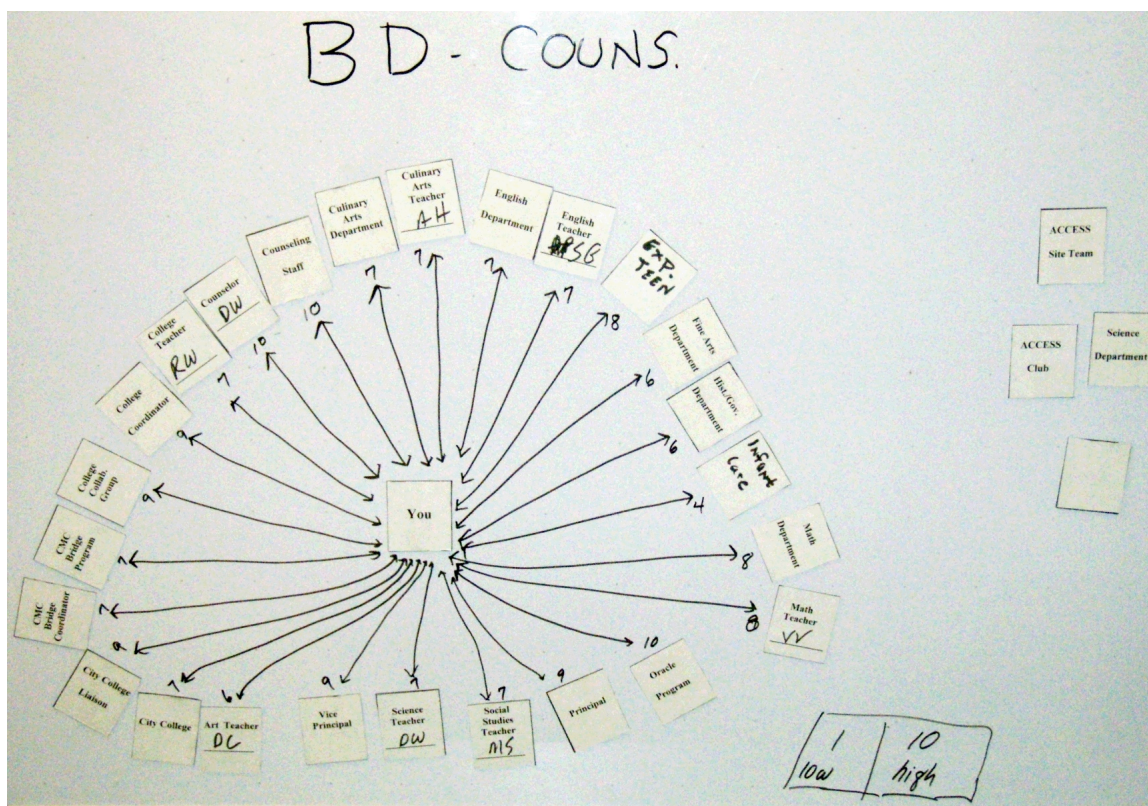


Figure 7.14: GHS's Head Counselor Social Network Drawing

Figure 7.14 is the drawing of the social network constructed on a white board by BG, the head counselor, during an interview conducted in June of 2009. BG's drawing

shows connections with every key individual and department at GHS with the exception of the ACCESS site team and the Science department (All the teachers in science department were members of the ACCESS site team). When I asked BG about his lack of any connection with the ACCESS site team, he said that he was shocked that we had not once invited a counselor to an ACCESS site team meeting.

BG: But I have not been, as a head counselor, invited, to the point that its appropriate to go [to an ACCESS site team meeting]. I'm shocked. I'm surprised. I'm stunned. I've been a site person [a member of an AVID site team], when I was an in-school counselor for the AVID Program, which is similar to our ACCESS program. (6/09)

In fact the ACCESS site team had requested a counselor join the ACCESS site team on a number of occasions and specifically requested the head counselor become a member of the site team. I did not mention this during our interview.

BG spent a lot of time telling me how he felt that the ACCESS teachers had overstepped their bounds. He felt that ACCESS teachers were counseling students without a counseling credential and we were jeopardizing our jobs, and the school.

BG: And if the ACCESS team, of which there's no one with a counseling credential is advising students, I think it's against Ed code. I've mentioned this to the principal. That I question what would happen if a family they came in and came back and said: You told my student that? Where did you get the idea that you had the right to advise my students? I've been in schools where they [teachers] were not allowed to have meetings with students unless there was a counselor there. That they couldn't have an ACCESS or an AVID meeting discussing college careers without someone there who really had a credential and the knowledge. (6/09)

BG did acknowledge me as a bridge between SDCC and GHS.

BG: Now you represent the college because you work at the college. So to me that's a good... good bridge for the students cause it's first-hand information. (6/09)

But despite my efforts to discuss any recommendations for college course for ACCESS students by the ACCESS site team, BG felt that the counselors were not aware of what was going on.

BG: But there is not very much communication. The counselors don't know which students are going to be taking which college courses. And when I share this information with other people, they're stunned. (6/09)

Summary

According to complexity theory, complex adaptive systems (CAS) can undergo transformational change if pushed “far from equilibrium”. While Prigogine’s experiments on dissipative structures (Nicolis & Prigogine 1989) did not result in transformational change, they provided not only a metaphor for understanding how change occurs in CAS, but a strategy for change. For change to occur in a system in a state of equilibrium, the equilibrium of that system must be disrupted.

In 2007 GHS was in a state of equilibrium. I used an approach that I called “purposeful perturbations” in order to disrupt the stable patterns of behavior that determined which college courses ACCESS students enrolled in at SDCC, and which diploma option they chose. Like Prigogine in his experiments on open systems of liquids, I turned up the heat. But unlike Prigogine, who turned the up the heat from outside the system, I turned up the heat internally. ACCESS had effectively disrupted the equilibrium of GHS by challenging the existing stable patterns of behavior that determined which college courses ACCESS students enrolled in at SDCC, and which diploma option ACCESS students chose. It did so in the following ways:

- Increased levels of academic performance in math and English, as evidenced on college assessment tests, challenged the widely-held belief that GHS students could not academically prepare for rigorous college work. While this alone did not change patterns of behavior that determined which college courses GHS students enrolled in at SDCC and which diploma GHS graduates earned, it did take the argument that GHS could not academically prepare for college off the table.
- Although unintended, the inability of the ACCESS site team to establish a connection with GHS counselors resulted in a climate of competing intentions without an effective environment to resolve differences. ACCESS students were getting conflicting advice about which college courses to enroll in. ACCESS teacher were encouraging ACCESS students to enroll in degree-track college courses. GHS counselors were recommending CMC and non degree-track JDP college courses. In most cases, ACCESS teachers were recommending that ACCESS students pursue the 44-credit diploma, while GHS counselors were recommending the 24-credit diploma for the majority of ACCESS students.
- The GHS-SDCC social network did not allow for enrolling GHS students in degree-track courses at SDCC. In response to that existing social network, a new social network was created for enroll GHS students in targeted degree-track SDCC courses. The existing social network and the new social network became competing social networks despite efforts on my part to act as mediator between ACCESS and GHS counselors,

As a result of the creation of ACCESS and the strategy to use ACCESS to disrupt the equilibrium of GHS, tensions within the school, primarily between ACCESS teachers and GHS counselors, existed from the beginning of ACCESS and increased over time.

By the summer of 2009, those tensions had reached a critical point.

CHAPTER EIGHT

A TIPPING POINT AND SELF-ORGANIZATION

A Tipping Point

On June 18th 2009, the Gonzago High School (GHS) counseling staff was having a meeting at GHS in an open area adjacent to the counseling offices. The counselors were sitting around a large round table and I could hear them discussing ACCESS. ACCESS, an acronym for Academic Commitment Creates Empowered Successful Students, is a program designed to academically prepare GHS students for college. I had some materials to give the counselors, so I walked over to their table and asked if I could give them an updated list of students that the ACCESS site team was recommending for the ACCESS program for the next school year.

At that point, BG, the head counselor, told me, "We just want you to know that we are discussing whether we are going to vote to file a grievance with the district against you and your fellow ACCESS teachers." I asked him why. He said, "Because you are counseling students, you don't have a credential, and we are considering filing a grievance with the district against the ACCESS teachers." BG added that the counselors were meeting with the principal in two hours to discuss their decision. I asked if he wanted me at the meeting with the principal and he said, "I really don't care whether you are there or not."

I knew that there were no procedures for filing a grievance but I did not mention that. Instead, I sat down at the table and the counselors began to tell me why they were considering filing a grievance. The counselors felt that the ACCESS teachers had stepped

in and that we were contradicting them, that we did not have counseling credentials, and that we were putting the school at risk. They said that they could not tolerate that anymore. I told them that I was no longer willing to put up with the existing situation either. I added that if we could not come to some kind of agreement, I was not going to be part of the ACCESS program anymore. I then asked them if they had any suggestions.

AV, one of the counselors, said: “ACCESS is becoming the largest program in the school. We think that what the ACCESS teachers are doing is great for our students but we have their best interests at heart too.” At that point BG suggested that what we needed to do was set up a time when the counselors and the ACCESS team could meet on a regular basis to try and work things out. I told them I thought that this was a good idea. BG said that the counselors would like to come up with a list of suggestions before they met with the school principal. I told them that I would return when they met with the principal and left the meeting. The last thing that I said was: “Just tell us what you want”.

About one hour later, the counselors and I met with the principal and our discussion was very positive. The GHS counselors presented the following list of suggestions at that meeting:

- Set up a day and time for ACCESS teachers and counselors to meet. We agreed to meet after school at 3:00 pm on Tuesdays. Initially, we would meet every Tuesday. The following GHS staff members would attend the meetings: The GHS principal, at least one GHS counselor, the GHS outreach coordinator and the ACCESS teachers. In addition, the GHS vice-principal should chair these meetings.

- All students would be informed of the number of credits required for both the 44-credit diploma and the 24-credit, option 2 diploma.
- Procedures should be formalized for entrance into the ACCESS program and exiting the ACCESS program.
- The GHS counseling staff will provide ACCESS teachers with important deadlines.

In addition, the GHS counselors added the following questions to their list of suggestions:

- How will students be referred to ACCESS?
- Are students able to be in both ACCESS and the Joint Diploma Program (JDP) at the same time?
- Should the City Middle College (CMC) lead teacher attend meetings?

It was agreed upon that our first meeting would be on September 15th, 2009. The first item on our agenda would be to discuss the list of suggestions submitted by the counseling staff at that June meeting.

At that June 18th meeting, that I happened to attend, a tipping point was reached. Over a period of about ninety minutes, the atmosphere of the meeting changed from the counselors considering filing a grievance against the ACCESS teachers to “we need to work together”. Furthermore, by agreeing to work together, we had a self-organizing moment. And, I believe it to be an elegant example of self-organization. What happened at that meeting was unpredicted, emerging from local interactions. You cannot get more local than a group of people sitting around a table discussing their differences.

As I stated in earlier chapter, in order for change to occur in complex adaptive systems (CAS) that are in a stable equilibrium state, it is necessary to push the systems

far from equilibrium. Change occurs at critical points, or bifurcation points in the language of complexity science. You can think of a pile of sand. If you keep adding sand to the pile, it will build up. But at some critical point, it will collapse. Change occurs at the point where the pile of sand is just about to collapse and change happens through a process of self-organization, or self-reorganization. Self-organization means that change emerges through a process of local interactions, that is, in interactions between individuals or groups of individuals that are locally connected rather than by some sort of top-down strategy or blueprint for change.

As ACCESS evolved, it pushed GHS further and further away from equilibrium. Over time, tensions between ACCESS teachers and GHS counselors reached a critical point. At that critical point, self-organization occurred through local interactions between the GHS counseling staff, the ACCESS coordinator, and the GHS principal. A comparison of the changes that occurred at GHS paralleled how change occurs in CAS (Table 8.1).

Table 8.1: Comparisons Between the Change Process in CAS and GHS

Complex Adaptive systems (CAS)	GHS
In order for change to occur, CAS must be in a state that is far from equilibrium.	ACCESS disrupted stable patterns of behavior, pushing the school away from equilibrium.
Change occurs at critical (bifurcation) points.	The relationship between ACCESS teachers and counselors reached a critical point on June 18 th , 2009
Change occurs through a process of self-organization that emerges through local interactions.	Interactions between GHS's principal, GHS counselors and the ACCESS coordinator led to the emergence of a formal connection between school leadership, counselors, the ACCESS coordinator and the GHS outreach coordinator.

On September 15th, 2009 the GHS principal, GHS vice-principal, GHS outreach coordinator, counseling staff, and teachers from the ACCESS site team met to discuss the ACCESS Program. The agenda for that first meeting included sharing the mission of ACCESS with counselors and school administrators, reviewing a list of recommendations that the counselors had given to me at the June 18th, 2009 meeting, and a discussion of how ACCESS fits into the school's academic objectives/goals. The meeting began with a brief introduction by JP, the GHS principal. JP emphasized that the primary focus of ACCESS was on "improving reading, writing, and math skills." She said that ACCESS was not about "college-track" versus a "go-to-work track", but rather "a quest to push academic and thinking skills as far as possible for every student."

A number of agreements were reached during the meeting. A day and time for weekly ACCESS meetings was set. It was agreed that; either the principal or vice-principal, at least one counselor, the outreach coordinator, and the ACCESS teachers would attend these meetings. For the first time, the principal formally identified me as the ACCESS coordinator and said that she wanted me to chair the meetings. The head counselor informed all those in attendance that he planned to vary the days and times of the weekly counseling meetings to provide an opportunity for teachers in GHS's academic departments to attend. This meant the ACCESS teachers would be able to arrange to attend the counseling meetings too.

There was a brief discussion about the need to develop an application process for students entering ACCESS and a process for students exiting ACCESS. We agreed that there was still work to be done in these areas and set this as one of our first agenda items. The issue of which students should be in ACCESS was also discussed. JW, a GHS counselor, asked who was eligible for ACCESS. The principal said that all students aged sixteen and seventeen should be considered potential ACCESS candidates. She added that, "Joint Diploma Program (JDP) students, for example those students seventeen and a half to nineteen years of age, with few high school credits could still potentially benefit from ACCESS".

I requested that the counselors provide the ACCESS site team with timelines and deadlines for receiving the names of potential ACCESS students for scheduling purposes. The principal and head counselor suggested that identifying kids right out of Giving Everyone a New Educational Start In School (GENESIS), GHS's two-week orientation program for new students, would be really beneficial.

DP, the ACCESS English teacher, brought up the subject of competency-based course credits. He suggested that there might be a need for a conversation that focuses on student performance rather than a “nebulous percentage-based system of students earning course credits”. As I explained in chapter five, GHS’s standard operating procedures for course progress was based on the percent of course requirements a student had completed. The amount of time it took for students to earn a course credit varied. First, different students completed their work at different rates. Second, students would often enter a class with a percentage for prior work. For example, if a student entered a class with 50 percent, they would only be required to do an additional 50 percent to earn a course credit. DP also suggested that the change to a performance-based system should be school-wide, not just ACCESS.

A discussion of criteria for enrolling students in the JDP led to general agreement that the JDP was for student who are seventeen and a half or older, and severely credit deficient, having earned only about five or six high school credits. The principal stated that: “We should not be providing JDP as an option for students who do not meet these criteria.” This directly contradicted the goal of GHS staff stating that, “Based on the growing success of the JDP, GHS staff hope that the JDP becomes the model program for all GHS students” (CMC Grant Proposal, 1999), and challenged the existing institutional practices that over the past few years had been moving GHS in the direction of becoming an all JDP school.

The meeting was important for a number of reasons. First, it was the first time that GHS leaders, GHS counselors and ACCESS teachers had come together to discuss the ACCESS Program. Second, it was of particular importance since this, and future

meetings, would provide a venue for a formal working relationship between the ACCESS site team and the counseling department, a key factor in the growth and success of ACCESS. Third, it went beyond the ACCESS program to include a conversation about raising the academic bar for all students at GHS and changing existing practices school-wide.

ACCESS Site Team Meetings: The Beginning of a Process of Self-Organization

During the 2009-2010 school year the weekly ACCESS site team meetings began on September 22, 2009 and went through May 2010. The principal, ACCESS teachers and GHS outreach coordinator attended these meetings on a regular basis. The head counselor usually represented the counseling staff at those meetings. There were a number of outcomes from the meetings.

Procedures for Entering and Exiting ACCESS

A set of procedures for entering and exiting ACCESS classes was created. It was agreed that the ACCESS teachers would provide the counselors with a list of students recommended for ACCESS and the specific classes they were recommending for each student. If a GHS counselor wished to recommend students for ACCESS, they would make that recommendation to the appropriate ACCESS teacher. For example, if a counselor had a student that they were recommending for ACCESS English, then they would make their recommendation to the ACCESS English teacher.

The ACCESS site team decided that an ACCESS application form should be required for all potential ACCESS candidates. In addition, an ACCESS commitment

form (Figure 8.1) signed by the student and a parent or guardian would be required for all students enrolling in ACCESS classes. The success of ACCESS math had been in part due to my expectations that students make a commitment and keep that commitment. By creating a commitment form to be signed by both students and parent, the parent was also making a commitment, to support their child. Based on input from members of the ACCESS site team, forms were created by the ACCESS teachers and submitted for approval to the ACCESS site-team.

<p>Academic Commitment Creates Empowered Successful Students <i>ACCESS</i> Commitment Form</p>	
<p>As an ACCESS students I, _____ will be responsible for:</p>	
<ol style="list-style-type: none"> 1. Maintaining an average attendance of 90% or better (One absence per two weeks) 2. Each ACCESS course will meet a required six times per week. The sixth period from 3:00 pm to 4:15 pm on the days designated for each ACCESS course. 3. Missing no more than two sixth periods per class cycle. 4. Completing all required in-class work and homework for each course on time. 5. Coming to class with all necessary materials and being prepared to learn. 6. Respecting the rights of others to learn without disruption. 	
<p>Failure to meet these requirements could result in:</p>	
<ol style="list-style-type: none"> 1. Referral to your counselor 2. A phone call to your parents/guardian 3. A conference with your parents/guardian 4. Removal from ACCESS classes. 	
_____	_____
Student Signature	Date

Student E-mail	
<p><u>ACCESS</u> Parent/Guardian Notification</p> <p>The ACCESS staff would like to ensure that your ACCESS student is staying on track toward success. Please read the student expectations above and sign below to confirm that you understand and support these expectations.</p>	
_____	_____
Parent/Guardian (Print Name)	Date
_____	_____
Parent/Guardian Signature	E-mail

Figure 8.1: ACCESS Commitment Form

GHS Course Offerings.

ACCESS began offering a second, semester-long math course in 2008 that was articulated with St. Diaz City College's (SDCC) associate-level, five-unit Intermediate Algebra course. Prior to the addition of the second ACCESS math course, the highest level of math offered at GHS was Unified Math 1 & 2. BG, the head counselor, pointed out that the Unified Math courses did not meet math requirements in the A-G courses required for admission to the University of California and the California State University systems. The requirements are called A-G because there are seven general subject areas labeled "A" through "G". He said that Intermediate Algebra 1 & 2 should be added to GHS's list of course offerings and students who successfully completed the second math course should earn intermediate algebra credits. The ACCESS site team agreed and intermediate algebra was officially added to GHS's course offerings for the 2009-2010 school year. Based on GHS course records, which date back to 1930, this was the first time GHS offered intermediate algebra.

Academic Electives.

One concern with students pursuing the 44-credit diploma rather than the 24-credit, option 2 diploma was that the 44-credit diploma required 15 elective courses while the option 2 diploma required only two electives courses. GHS counselors said that for students who came to GHS with few elective credits, earning the 44-credit diploma was problematic. GHS simply did not offer enough elective courses for students to earn 15 elective credits. While the head counselor pointed out that those students who

successfully complete CMC earned five elective credits, ACCESS teachers felt there was a need to add academic electives to GHS's course offerings.

As a result, the ACCESS site team came up with the following courses to help GHS students meet the elective requirements for a 44-credit diploma:

- A “study skills” course would be offered as an elective. ACCESS students, who attended the required after-school “sixth period”, would earn a study skills credit when they had attended 30 hours of sixth period classes. A set of criteria was established for determining letter grades for the study skills course. ACCESS students could earn a maximum of two elective credits per year in study skills.
- GHS would offer SDUSD approved courses in Science Research Techniques as academic electives. While a GHS student would be enrolled in an existing science class, the teacher for that class would design a syllabus specifically for that student based on district guidelines for the Science Research Techniques course. General guidelines for developing a Science Research techniques syllabus were created by the GHS science department faculty, who were all members of the ACCESS site team.
- In addition to adding courses to GHS's curriculum to meet elective requirements, the ACCESS site team looked at how we could use SDCC to help students meet elective requirements. The ACCESS teachers wanted ACCESS students who met the necessary prerequisites to enroll in degree-track college course in order to earn high school academic elective credit. ACCESS teachers also believed that SDCC courses should be selected to meet “A through G” requirements that were not offered at GHS, such as world languages. The GHS head counselor suggested

that, rather than advising ACCESS students what courses not to enroll in, such as CMC or personal growth, the ACCESS teachers provide the counselors with a list of recommended college courses.

In May of 2010 the ACCESS site team met to discuss the subject of enrolling ACCESS students in specific SDCC courses. The college courses that ACCESS teachers recommended (Table 8.2) include course in mathematics, English, Spanish, history, and science. All of the recommended college courses were transfer-level courses that could fulfill requirements for a baccalaureate degree at a four-year college or university.

Table 8.2: SDCC Courses Recommended For ACCESS

Subject Area	Course Number	Course Title
Mathematics	MATH 104	Trigonometry
	MATH 119	Elementary Statistics
	MATH 141	Pre Calculus
English	ENGL 101	Reading and Composition
World Languages	SPAN 101	First Course In Spanish
	SPAN 102	Second Course In Spanish
	SPAN 201	Third Course In Spanish
History	HIST 100	World History I
	HIST 101	World History II
Science	PHYN 100	Survey of Physical Science
	PHYN 101	Survey of Physical Science Lab

The ACCESS site team agreed that Spanish should be selected to meet the world language requirement since most of our students spoke Spanish as a first language and GHS did not offer any Spanish classes. In science, the ACCESS site team agreed that we should enroll GHS ACCESS students in the physical science courses that I taught at SDCC. The ACCESS site team believed that, for those GHS students that met prerequisites, physical science 100 and 101 better prepared our students for transfer-level college physics and chemistry than the courses offered in physical science at the high school. In fact, GHS did not offer physics.

The ACCESS site team believed that for students who met the required prerequisites, ACCESS should focus on enrolling ACCESS students in transfer-level college math and English courses. The GHS head counselor pointed out that while ACCESS was enrolling a number of students in transfer-level college math courses at SDCC, we were not having the same success in preparing our students in English. Very few GHS students were meeting the necessary prerequisites for enrollment in transfer-level college English courses. DP, an ACCESS English teacher, said that we should increase our focus on literacy since college-level reading and writing skills were essential for success in all college courses.

The principal, counselors, and ACCESS teachers agreed that the main emphasis of ACCESS should be on improving GHS students reading, writing and math skills since these skills were vital to our students' success in rigorous college courses. This common belief was consistent with the mission statement for ACCESS whose goal was to prepare students for post-secondary education through rigorous college-preparatory coursework with a primary focus on improving reading, writing, and math skills.

Changes In School-Wide Patterns of Behavior

As previously stated, the primary mission of ACCESS was to academically prepare GHS ACCESS students for college. Prior to ACCESS, virtually no GHS students were prepared to handle rigorous college coursework. Over a five-year period, ACCESS raised the academic performance of an increasing number of GHS students to college level. In doing so, ACCESS challenged existing patterns of behavior at GHS, in particular the relationship between the counseling department and ACCESS teachers. That relationship evolved from teachers interacting with counselors primarily about issues of student behavior, through a period of conflict and tension, and finally to the establishment of a social network where GHS administration, ACCESS teachers, GHS counselors and the GHS principal were having an ongoing conversation about the academic needs of students enrolled in ACCESS. This also led to changes in ACCESS. However, change was not restricted to ACCESS. There were major changes in school-wide patterns of behavior. Figure 8.2 represents the influence of emergent patterns of behavior not only on ACCESS, but school-wide.

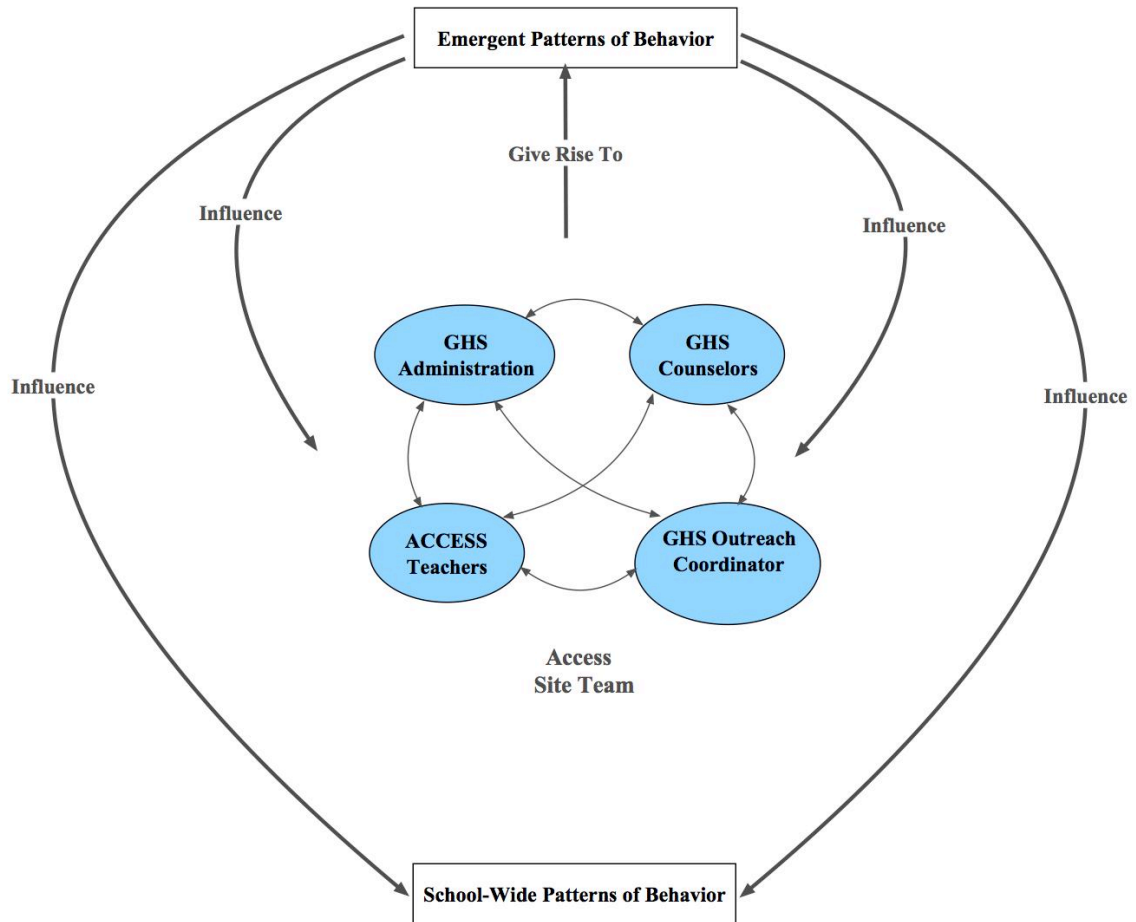


Figure 8.2: 2009-2010 Impact of ACCESS Site Team Social Network

Enrollment in non degree-track college course.

For the 2009-2010 school year there was a dramatic change in the number of college course that GHS students enrolled in at SDCC. Prior to the 2009-2010 school year, large numbers of students were enrolling in non degree-track college courses. This was primarily to meet the JDP requirement of completing one college course. In 2009-2010, the number of GHS students enrolled in non degree-track college courses showed a large decrease (Figure 8.3). While the enrollment in CMC remained constant, the

enrollment in non degree-track JDP college courses for the 2009-2010 school year was 21 students compared to a previous three-year average of 170 students enrolled in non degree-track JDP college course.

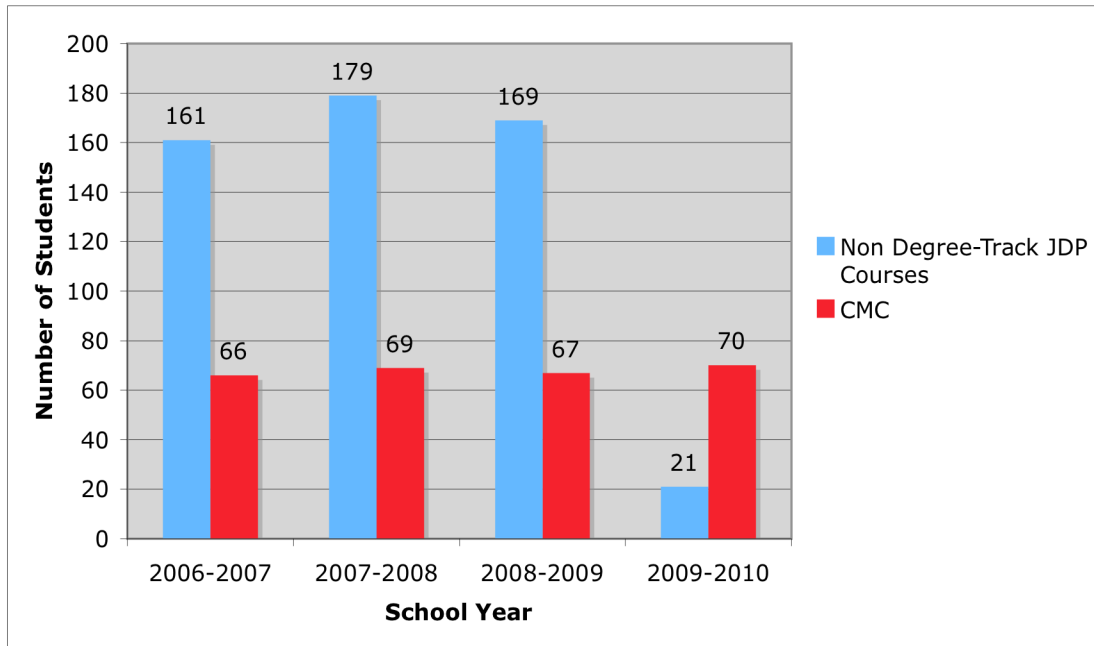


Figure 8.3: GHS Student Enrollment in SDCC Non Degree-Track Course

Diploma options

The drop in enrollment in non degree-track college courses for 2009-2010 was due in part to implementing more stringent high school attendance requirements. For GHS students who had more than three unexcused absences during the nine weeks prior to the enrollment date for college courses, applications were denied. Another change that occurred beginning with the 2009-2010 school year was a major shift in the type of diploma that GHS students were earning (Figure 8.4). While the ratio of GHS students graduating with the option 2 diploma (24 credit diploma) versus the 44 credit diploma

averaged 4:1 for the previous two years, for the 2009-2010 school year the ratio was 1:1. For 2009-2010, more than half of all GHS graduating seniors earned the 44-credit diploma. By 2010-2011, three out of every four GHS graduates had earned the 44-credit diploma.

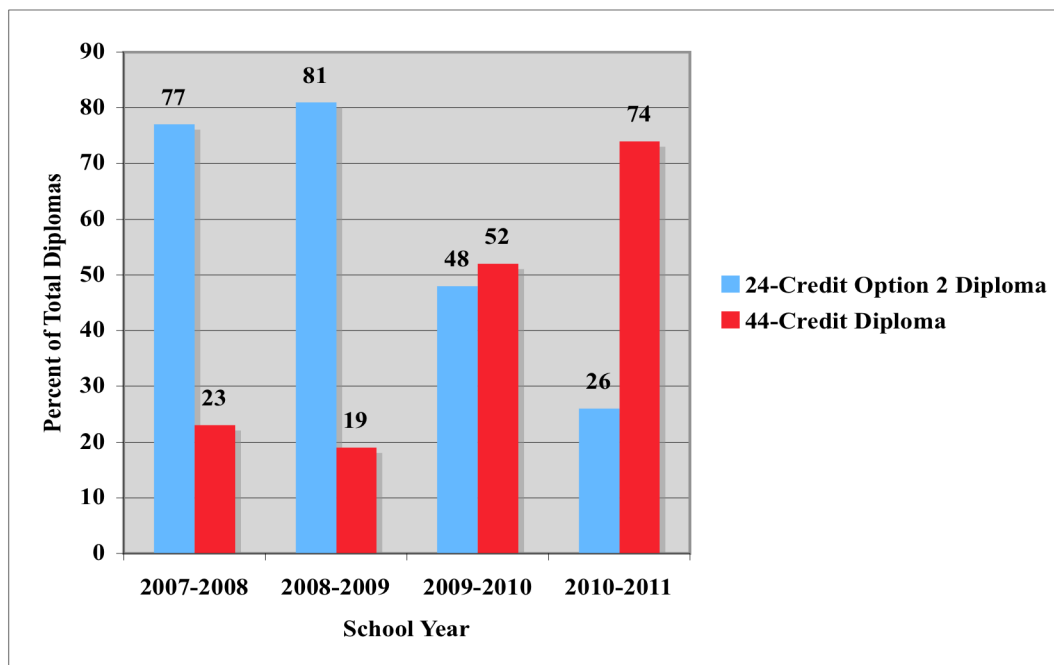


Figure 8.4: Option 2 Diploma Versus 44-credit Diploma for GHS Graduating Seniors

Enrollment in degree-track college courses.

The 2009-2010 drop in enrollment in non degree-track college course did not result in an increase in enrollment in degree-track courses by GHS students (Figure 8.5). In fact, for the 2009-2010 school year, there was as a drop in GHS students enrolling in

degree-track SDCC courses, even though more ACCESS students were meeting prerequisites for enrolling in degree-track courses. There were two reasons for this drop. First, GHS was unable to obtain a memorandum of understanding (MOU) with SDCC that provide GHS students with the opportunity to enroll in courses such as college English or college math courses. The GHS principal and I met with the SDCC Vice-President of Instruction in September of 2009 to discuss the possibility of SDCC and GHS creating a MOU that would allocate a small number of seats for GHS students in key SDCC classes. We were unable to reach such an agreement.

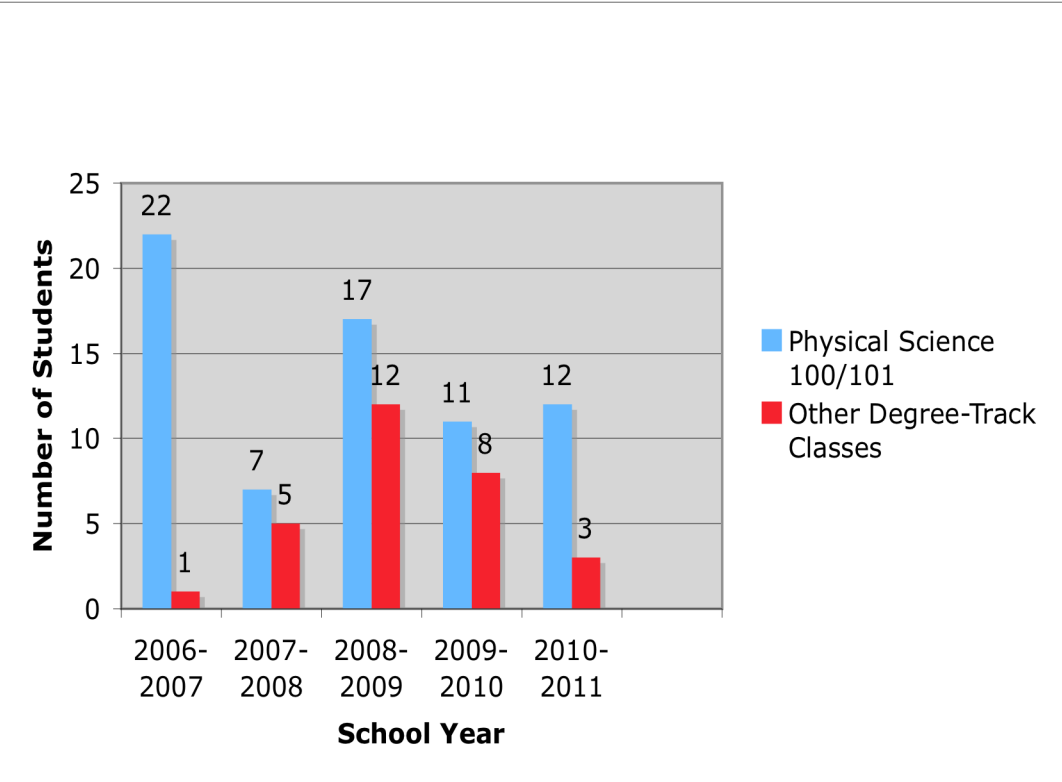


Figure 8.5: GHS Enrollment in SDCC Degree-Track Courses

A second, and contributing factor in GHS's failure to secure a new MOU with SDCC, was the California State budget crisis. Budget cut to community colleges in California resulted in a decrease in the number of class sections offered at SDCC for 2008-2009 (shown in Table 8.3). More reductions in the number of college classes offered at SDCC for 2009-2010 along with an increase in student enrollment, at two weeks prior to the start of the Spring 2010 enrollment for SDCCD colleges was 3.8 percent higher than the same time last year, resulted in an increased demand for classes by regular college students (shown in Table 8.4).

Because of diminished capacity and increased demand, many regular SDCC students were not able to enroll in the classes they needed due to classes filling up early and long waiting lists. As a result, SDCC was unwilling to allocate seats in their classes for GHS students, especially in courses required for transfer to four-year colleges and universities.

Table 8.3: SDCC 2009-2010 Sections Offered and Enrollment Data*

Diminished Capacity: Comparison of Sections Offered for 2008-2009 & 2009-2010

	Summer 08 vs. 09	Fall 08 vs. 09	Spring 08 vs 09
Changes In Number of Sections Offered	-73	-123	-159
Percent Changes of Sections Offered	-12	-8	-10

Table 8.4: Increased Demand: Comparison of Section Fill Rates for 2008-2009 and 2009-2010*

Fill Rates (By Percent)					
Summer		Fall		Spring	
2008	2009	2008	2009	2008	2009
76	90	82	93	81	90

*Data from a report issued by The Office of Institutional Research and Planning, February 2010

The Role Of leadership

According to Morgan (2006), if one views organizations as complex systems, creating a climate for change means creating new contexts. He says that one way to create new contexts is by “mobilizing a powerful coalition of key individuals that can launch and protect a prototype of a new system” (p. 258). ACCESS did create a new context, an innovative college prep program at GHS. Morgan also says that, “While the manager helps create the conditions under which the new context can emerge, they cannot be in control of the change” (p. 259). In an audio-recorded interview I conducted on July 14th, 2009 with JP, the GHS principal, we talked about ACCESS and about her leadership role. JP believed that it often takes a colleague from a group to assume the role of leader and her role is to find individuals to do that.

DW: So how would you characterize our working relationship?

JP: I put you here [a strong connection] because I see you as...especially over the last two...two and a half...whatever...three years or whatever as a...The critical person who has started this mass of pulling some staff members up...or pushing staff members in the direction of developing programs, processes, and procedures to increase the rigor for our students. I see you as having a...a huge impact in the correct way as far as helping to propel and

move our staff. Um...and often times it takes actually a teacher to help lead that because the other teachers are your colleagues. And my role is to try to find people who will help do that. (7/09)

JP went on to explain that you can have a top-down driven approach to leading but you tend you to get a culture of compliance rather than systemic change. She believed that true change comes from the “grassroots” of a school.

DW: Do you think that ties into that school culture you were talking about developing? You know. Getting key people to...you know in positions like that and doing that work to develop the culture?

JP: Um...I think you can have an administration who can be driving top down some edicts, like we will do this or are going to do that and then you remove those administrators and then there is no culture.... um.... and people just did the things they were asked to do. There was just a culture of compliance and when you remove those persons, that culture disappears. It truly becomes "the school" as opposed to what people are asked to do. Um... or mandated to do... or told they had to do. You know sometimes... some things that are required to help to develop...you know... a part of a culture but it really has to come grassroots, because then it is part of peoples' philosophy and desire; or their motivation to do it as opposed to me. (7/09)

When I asked her if “grassroots” change could happen without the support of administration, she said that it would be difficult.

DW: Do you think that can happen without the support of the administration? By that I mean principals in particular?

JP: I, I think it can by some degree; but it would be really difficult and it depends on who that person is. If the person ...ah, is say, laissez-faire, and doesn't take a position on something, quite possibly it could. But say the person is heavy handed and opposing something people want to do. That would be potentially very difficult. (7/09)

While Morgan says that it takes the powerful to launch a prototype, in this case, it was teachers, who tend to be near the bottom of our educational system that launched and developed ACCESS. And it was not the ACCESS teachers who protected the program,

but the principal. JP explained that part of her job was to relieve tensions between people so that worthwhile things can be accomplished:

JP: People are very sensitive; and people don't like, whether it is appropriate, to feel that way or not. Sometimes people feel threatened by other people, especially if it's their peer colleague and I need to relieve that type of a situation because... I don't care if you threatened by me because I'm the administrator; and that is part of job, is to be aware of people are trying to achieve things that worthwhile. To be able to remove that sort of scenario so that they can get the work done that they need to get done. (7/09)

When asked her for an example, I got the following response:

JP: So for example. Let's take the ACCESS group. There have been issues...um with communication issues and sometimes feelings get hurt. All that stuff is actually unimportant with what we are trying to achieve. But the reality of dealing with people...so sometimes, there are times... I need to be the one to figure out how to relieve that tension, if you will, and make it right. So people do not feel threatened by each other...um, and so that is my job. (7/09)

The College Planning Group: The Transition to a Co-Constructing Social Network

While the development of ACCESS and meetings of the ACCESS site team had resulted in changes to ACCESS, JP, the GHS principal, believed that for change to be truly systemic, any changes in patterns of behavior needed to be institutionalized. In addition, JP believed that change needed to go beyond ACCESS. In September 2010 JP and I agreed that in order to institutionalize change not only in ACCESS but school-wide, she would need to take the lead. So the College Planning Group (CPG) was created in October of 2010.

Figure 8.6 is a representation of the social network for the CPG and its intended impact on GHS. While the ACCESS site team continued to be concerned primarily with

policies and procedures for ACCESS, the CPG was created to develop policies and procedures for the whole school, including ACCESS. The objectives of the CPG were:

- To identify and develop GHS's processes and procedures of academic and social/emotional development and support for college prep and college coursework.
- To add to GHS's master calendar the "who, what, when and where" of the identified processes, procedures and events relate to GHS's college prep and college coursework.
- To develop an assembled college-going set of procedures for the GHS staff.

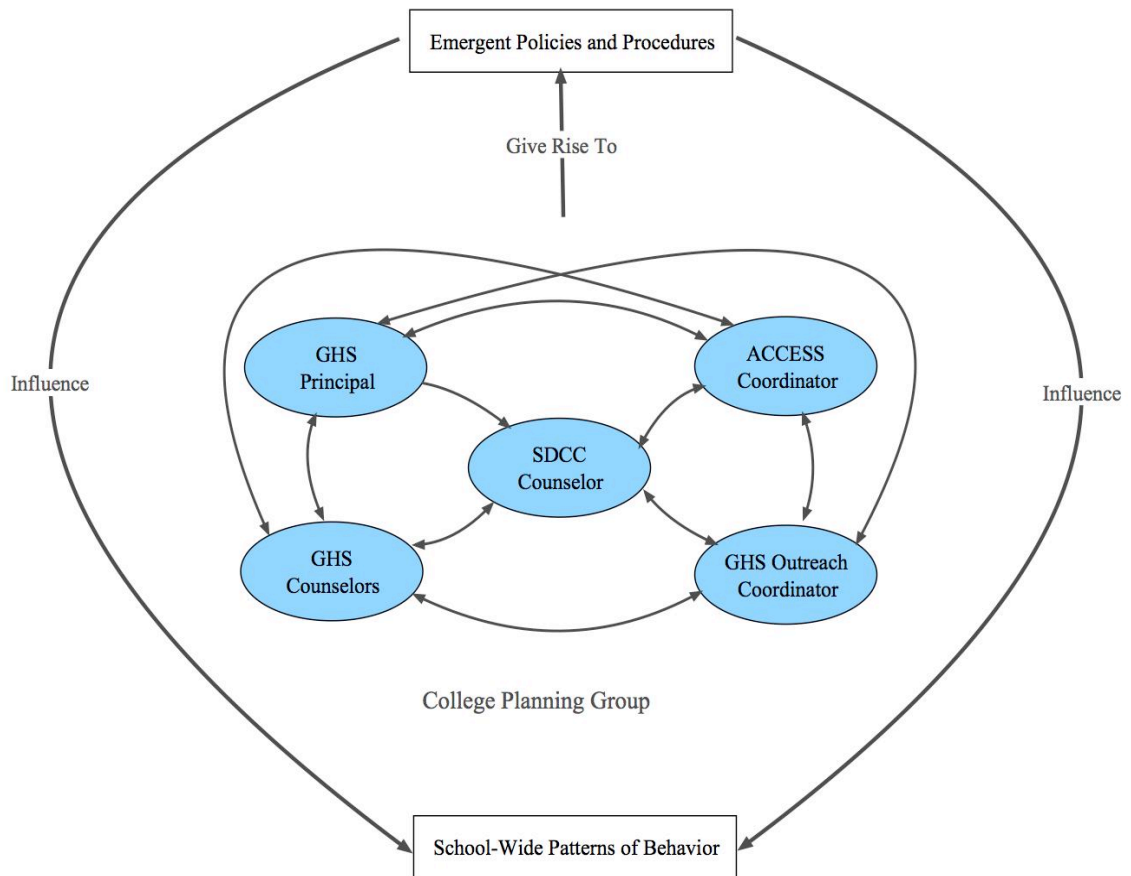


Figure 8.6: College Planning Group Social Network

For the CPG, the GHS principal adopted a distributed leadership approach. I viewed the distributed leadership approach the CPG took as how change occurs in CAS. Hargreaves (2007) considers distributed leadership central to “system reconfiguration”. From the perspective of the complexity sciences, what Hargreaves referred to as “system reconfiguration”, would be self-organization. Since self-organization occurs through local interaction, a distributed leadership approach would facilitate that self-organization by creating an environment where local interactions would result in emerging change. In the CPG, change emerged locally through the interactions of GPG members.

Every member of the CPG had some area of responsibility. While the yearly school calendar was created by all members of the CPG group, for other areas of need, one or two group members volunteered to take responsibility for developing a proposal. The proposals were presented at CPG meetings where all members of the CPG could discuss the proposals and in some cases, make recommendations for changes. For example, the SDCC counselor was responsible for creating a College Educational Plan for GHS seniors. The educational plan was an unofficial outline of the courses students needed to complete their major. Students use it as a guide to see how many credits and required courses they have completed at all colleges, and how many more credits and required courses they need.

The CPG met bi-weekly from October 2010 through March 2011. During that time period, the following goals were accomplished:

- A calendar for the school year was created providing timelines/deadlines for all college-related matters (Appendix A). For example, time-lines for students taking college assessment test and enrolling students in college classes at SDCC for the Fall, Spring and Summer semesters were added to the calendar.
- The standard operating procedures for enrolling GHS students in SDCC courses were revised (Appendix A).
- A list of recommended SDCC courses for GHS students was approved by the CPG. The list of recommended courses included those courses recommended for ACCESS (Table 8.2).
- A progress report was created for GHS students taking courses at SDCC. The progress report was a modified version of the standard Extended Opportunity and

Services (EOPS) progress report used by SDCC. GHS students would be required to provide a copy of the progress report to their college teachers for evaluation during the fourth, eighth and twelfth week of each semester-long course. Students would be required to return their completed evaluation forms to the GHS outreach coordinator.

- The GHS four-year Ed Plan was revised to reflect district mandated A-G requirements. For example, the revised Ed Plan included courses such as intermediate algebra.
- The SDCC counselor who had been assigned to GHS developed a post high school ED Plan for GHS seniors.
- Guidelines for GHS students taking college assessment tests were developed.

As of March 2011, the CGP had not yet addressed the following identified areas of need:

- Create guidelines for identifying students for enrollment in college classes.
- Develop connections with key SDCC teachers.
- Create guidelines for career exploration.

Impact Beyond GHS

Since 1996, when the JDP program was first introduced, it had been the practice of high school counselors throughout the St. Diaz Unified School District (SDUSD) to inform many of their students who were transferring to GHS that they were recommending them for the 24-credit, option 2 diploma program. The option 2 diploma was designed for older students (seventeen and a half to eighteen years old) who were

severely credit deficient. However, in many cases, the students sent to GHS did not meet the requirements for option 2.

Given the changes that had taken place at GHS, this practice became problematic. As evidenced by the type of diploma students earned for the 2009-2010 school year compared with the type of diploma students had earned in previous years (Figure 8.5), GHS was moving toward a 44-credit school. For the 2010-2011 school year many of the students sent to GHS who were expecting to pursue the option 2 diploma were being told by their GHS counselor that they would need to pursue the 44-credit diploma. This resulted in negative reactions by many of those students who were resistant and surprised that they would have to pursue the regular 44-credit diploma.

Because guidance counselors from other SDUSD high schools were recommending the 24-credit option 2 diploma to students who did not meet the criteria for that diploma, at the request of the GHS principal, an email was sent to all SDUSD counselors by the GHS district counselor on January 10th, 2011 informing them that GHS had shifted its academic expectations (Figure 8.7). Students referred to GHS were expected to pursue a 44-credit diploma. The changes that had occurred at GHS, due in large part to the impact of ACCESS, were beginning to have an impact on other schools in the district. The impact had moved beyond GHS.

We need your help... Many of you are properly informing your students of the benefits of an Option 2 (Joint) diploma and we thank you for your assistance. ***However, please be aware of a shift of expectations... students referred to GHS are expected to pursue the regular 44-credit diploma and meet the same Board requirements of a-g coursework as all other district students.***

We still offer the Option 2 but here's the concern... We have many students who do not qualify for the Option 2 and yet they have been encouraged to attend GHS in order to pursue this diploma. Once the student has enrolled at GHS, they are then resistant and surprised that they must pursue the regular 44-credit diploma.

We understand that you may use the Option 2 as a way to provide hope to your students who are credit deficient. We would expect that you would continue to inform your students of options; however, **please ensure that your students understand they must meet the following criteria to pursue the Option 2:**

1. 17 years old
2. ALREADY passed both CAHSEE tests

Recommended by Gonzago site counselor and parent after considering:

1. Extreme credit deficiency
 2. Ability to successfully pass college class
 3. Military requirements for students pursuing this career
 4. Best interest of student.
-

Figure 8.7: E-Mail Sent to All SDUSD Counselors By GHS's District Counselor

CHAPTER NINE

SUMMARY OF FINDINGS

The evolution of an innovative college prep program, Academic Commitment Creates Empowered Successful Students (ACCESS) for low-performing students had a major influence on the changes that occurred at Gonzago High School (GHS) from February of 2007 through March of 2011 as evidenced in an email that I received from SP, the GHS English learner support teacher in October of 2010.

Over the last 5 years I have watched the ACCESS program take shape and develop at Gonzago High School. As it has grown each year and demonstrated successful results, the prevailing attitude of the staff and students has changed dramatically -most notable that graduating high school is no longer an end unto itself, but the stepping stone students will use to transition to the next stage of their lives. High school classes are now commonly seen as preparation for college. Students talk about college and value academic success. The entire culture of the school has shifted. (10/10)

Research Questions

In my research, I sought to address two questions. If an innovative program, with the primary goal of academically prepare low-performing students for rigorous college courses, is implemented at an alternative high school

Research Question 1: What structures and patterns of behavior around academic preparation for college emerge as the program evolves?

Research Question 2: In what ways do these emerging structures and patterns of behavior impact the organizational structure of the school's learning community?

To address my research questions I documented the stable state that existed at GHS prior to a college prep program, the evolution of ACCESS during the period from February 2007 to February 2011 and an account of the impact that ACCESS had on GHS.

Initial Stable State

GHS moved to a new facility located on the campus of St. Diaz City College (SDCC) in September of 1998. Other than an increase in the percentage of Hispanic students and a decrease in the percentage of African American students, GHS's overall student profile remained stable over the 13 years that the school had been located on the campus of SDCC. Students, referred to GHS through St. Diaz Unified School District (SDUSD) district counselors, were typically 16-17 years old, seriously credit deficient often having 10 or fewer credits – and deemed unable to catch up to their graduating class. These students had not succeeded in the regular or intervention programs provided them at their resident schools. Virtually all students who enrolled at GHS were referred because they were at risk of dropping out of school. Fifteen percent of these students were pregnant and/or parenting.

From September of 1998, through the 2005-2006 school year, there was an existing state of dynamic equilibrium at GHS with regard to academic performance that manifested itself in low academic expectations of students by the GHS staff, and low-levels of academic performance by GHS students. While individual student performance levels varied, there was an upper level of academic performance beyond which students

did not go. Virtually no GHS graduates had the skills necessary for success in rigorous college coursework.

As early as the 2000-2001 school year, GHS's espoused goals were to increase student retention rates, increase graduation rates, provide GHS students with a college experience and increase the number of GHS graduates who went on to enroll in college courses. Through the cooperation of SDUSD and the St. Diaz Community College District (SDCCD), GHS developed three programs with SDCC, the Joint Diploma Program (JDP), City Middle College (CMC) and the Tech Prep Development Program (TPDP) to help achieve these goals.

The JDP, a partnership between the St. Diaz Community College District Continuing Education Centers (SDCE) and SDUSD's Adult Education Office of Extended Learning Opportunities, was designed specifically to offer older students (ages 17-19) who were severely credit deficient, an alternative diploma. Students at alternative schools such as GHS could earn an option 2 high school diploma through the JDP. The option 2 diploma required high school students to earn 24-credits rather than the 44-credits required for high school graduation in the SDUSD and more generally, across the state of California.

In 1994, SDCC and GHS entered into a partnership that provided GHS students with the option to enroll in specific courses at SDCC in order to fulfill the JDP option 2 requirement of successfully completing one college course. Moving to the campus of SDCC facilitated GHS students' ability to meeting the requirement of the JDP of completing a college course.

City Middle College (CMC), a partnership program between GHS and SDCC was a job skills program developed under the auspices of SDCE and GHS that opened in February of 2000. According to the initial CMC grant proposal (1999):

The overall project goal has been to enhance college and career options for high potential, low achievement students who are older, and more at risk of not completing high school diploma requirements than the usual middle college student.” “It is understood that the 75 students participating in the CMC Bridge Project will be more difficult to serve than the traditional middle college student. (p. 3)

The CMC grant application also stated that the intended target student population were GHS students already enrolled in the JDP and seventeen and a half to nineteen years of age, who were: Severely credit deficient, seriously at risk of dropping out of school, not completing their high school diploma and entering the workplace without the skills required for securing quality employment. These were the same criteria as for the JDP

SDCC was awarded a grant for a Tech Prep Development Program (TPDP) in 2003. The TPDP’s main goal was to improve the outcomes of severely at-risk youth in the St. Diaz community. At the high school level, the primary goals of the TPDP were to improve the academic performance and school retention of students attending GHS. Post-high school goals included increasing college entrance levels and associate degree completion and improved employment prospects for the low-income, at risk students enrolled at GHS.

The TPDP grant stated that the project was “build on the joint Diploma Program and the academically focused Middle College Program to develop and implement an integrated educational program that will lead to an associate degree and employment in a targeted field” (TPDP Grant Application, 2003 p. 14). The TPDP grant also stated that

the proposed Tech-Prep program would offer a formally articulated program designed to prepare young people for careers in the fields of, information technology, and mathematical computer, electronic technology (Mecomtronics) and small business management.

While the TPDP program was short-lived, by 2006, both the JDP and CMC were instrumental in helping GHS meet its goals. There was a decrease in the number of students dropping out of GHS, a higher percentage of GHS students were earning a high school diploma, more than half of all GHS students were enrolling in at least one college course, and many GHS graduates were enrolling in classes at SDCC post high school.

Although there had been a steady increase in the number of GHS students earning a high school diploma, that increase coincided with an increase in the percentage of 24-credit, option 2 diplomas awarded GHS graduates. By the 2006-2007 school year, seventy-six percent of all diplomas earned by GHS graduates were option 2. GHS was well on its way to achieving its espoused goal of “becoming an all joint diploma school” (CMC Grant, p. 2). However, many of those students did not meet the age requirements for an option 2 diploma. Many GHS students, some as young as 16, were being counseled to pursue the option 2 diploma.

To fulfill the JDP requirement to successfully complete a college course, virtually all GHS students were enrolling in non-degree track courses at SDCC instead of degree-track courses. Degree-track courses are transfer-level academic courses that are necessary to earn a baccalaureate degree in an academic discipline at a four-year college or university. Despite the fact that most GHS students took at least one college course, no GHS graduates had earned a Certificate of Achievement, Certificate of Completion or an

Associate Degree that leads to a vocational career, much less transferred to a four-year college or university.

For the first eight and one-half years that GHS was on the campus of SDCC, academic preparation for college was neither one of GHS's goals nor one of its accomplishments. So while each of the individual goals were laudable, the way in which the cluster of goals was accomplished left GHS graduates without the ability to really continue their education in higher education.

The Evolution of ACCESS

Research Question 1: What structures and patterns of behavior around academic preparation for college emerge as the program evolved?

Prior to the formation of ACCESS, GHS graduates did not have the necessary academic skills for rigorous college coursework. While many GHS graduates went on to enroll in courses at SDCC, few took college courses leading to either an associate degree or a baccalaureate degree. GHS graduates who went on to SDCC did not transfer to four-year colleges and universities. Of those GHS graduates who took college assessment tests, virtually all placed into basic skills English and math courses.

GHS's college prep program actually began as an attempt to develop an AVID Program. A nation-wide college prep program, AVID is an Acronym for Advancement Via Individual Determination. During the 2005-2006 school year, an AVID program was initiated at GHS. While an AVID coordinator was chosen and an AVID elective class was added to GHS's schedule of classes, GHS students did not meet AVID grade point

average criteria and GHS did not offer any college prep courses. GHS AVID students who took college assessment test in math and English in May of 2006 did no better than GHS students from previous years.

In the Fall of the 2006 – 2007 school year, as a result of meetings that I had with the AVID coordinator and the GHS principal, it was decided that the college prep program needed to offer college prep classes. ACCESS began in February 2007 with one section of college prep math and one section of college prep English. Students who enrolled in ACCESS classes were also required to attend weekly, after-school study groups. Despite the support of GHS's principal, ACCESS experienced resistance from the beginning.

According to SP, the GHS English language learner support teacher:

When the ACCESS program began, it was greeted with open skepticism and hostility from much of the staff. The common attitude was that "these kids" were generally incapable academically, were not going to college, did not come from families that would support them going to college, and were unwilling to expend the extra time and energy to improve academically. (10/10)

In spite of the reaction of many of GHS's staff, from February 2007 through March of 2011 ACCESS grew, as evidenced by increased student enrollment in ACCESS classes, increased faculty participation, and increased numbers of ACCESS classes. By February 2011, ACCESS offered nine college prep courses taught by seven GHS teachers. Enrollment in ACCESS classes had increased from eight students in February of 2007 to 71 students in February of 2011. Furthermore, during that same time period, ACCESS made increased progress in meeting its primary goal of academically preparing ACCESS students for rigorous college coursework, as evidenced by ACCESS students

performance on college assessment tests in math and English and the academic successes of ACCESS students enrolled in degree-track courses at SDCC.

It would be difficult to assess how well ACCESS science classes were preparing students for college since there were no college assessment test for science. The world history course was new, first offered in February 2011. In my research, I looked at college prep data for English and math. ACCESS Math was more successful in achieving the primary goal of ACCESS, to raise students' academic performance to a level necessary for success in rigorous college coursework, than ACCESS English.

I believe that there were a number of factors that contributed to the success of ACCESS math.

- The ACCESS elementary algebra and intermediate algebra math courses were articulated with SDCC elementary algebra and intermediate algebra math courses.
- By the 2007-2008 school year the majority of GHS ACCESS students were enrolled in ACCESS math for the entire year. The majority of returning students who completed the first year of ACCESS math continued in ACCESS math during the following school year. For those returning students, we could provide them with two years of college prep math.
- I viewed the relationship between academic expectations and student academic performance as a matter of reciprocal causality.
- The addition of a ACCESS second math teacher for the 2008-2009 school year allowed us to expand to meet the need for more advanced math courses based on ACCESS students' rising levels of academic performance.

- The first “C” in ACCESS stands for commitment. I believed that when students enrolled in an ACCESS class they were making a commitment. In fact, by the 2009-2010 school year, ACCESS student were required to sign a commitment form. I took that commitment seriously and I expected my students to do the same.

The Impact of ACCESS on Gonzago High School (GHS)

Research Question 2: In what ways did these emerging structures and patterns of behavior impact the organizational structure of the school’s learning community?

In his book, *Strategic management and Organizational Dynamics: The Challenge of Complexity* (2007), Stacey states that:

“Since it is not possible to experiment with living systems in real-life situations, complexity scientists use computers to simulate the behavior of complex adaptive systems.” (p. 196).

However, Stacey goes on to acknowledge that some scientists argue that computer simulations show nothing about real-life, only about computer programs.

I did not address the value of computer simulations. In my research, my experimental design was to treat ACCESS as a nested complex adaptive system with a larger complex adaptive system, GHS. I used complexity theory, which includes such key concepts as equilibrium states, emergence, feedback loops and self-organization, as a strategy to create conditions for social change and then as a theoretical lens to interpret my data. Unlike Stacey, I believed that complexity theory could be applied in real-life situations.

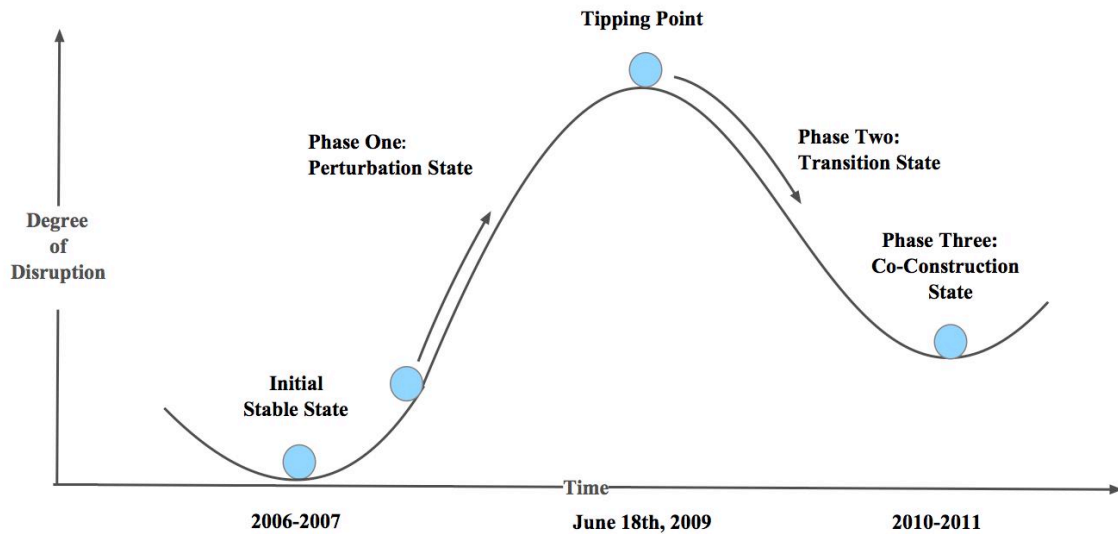


Figure 9.1: The Evolution Of GHS's Organizational Structure

Figure 9.1 represent the time period from February 2007, when ACCESS was initiated, through March of 2011. During that time period, ACCESS went through three phases: A perturbation phase, a transition phase and a co-construction phase.

Phase One: A State of Perturbation

During this phase, from February of 2007, when ACCESS was first started, through June of 2009, increased levels of academic performance by ACCESS student, the creation of an ACCESS site team, the creation of a competing social network by the ACCESS coordinator for enrolling ACCESS students in degree-track classes at SDCC and the growing number of students enrolling in ACCESS classes pushed GHS further and further away from the initial stable state. With the exception of the creation of an ACCESS site team, it was my intention to push GHS away from the stable state that it

was in prior to the creation of ACCESS. I called this strategy to promote change “purposeful perturbations”.

The first purposeful perturbation was to raise the academic performance of a group of students to a level necessary for rigorous college coursework. While raising students’ levels of academic performance was desirable itself, I wanted to challenge the existing school-wide assumption that GHS students could not become academically prepared for college. When a small group of students showed a major improvement on math and English college assessment tests in May of 2007, the immediate result was to take the argument that “GHS students could not prepare for rigorous college coursework” off the table.

The creation of an ACCESS site team created an unintended perturbation. The goal of the ACCESS site team was to provide ACCESS students with support for college preparation. As part of that goal, ACCESS teachers began to advise ACCESS students on what college courses they should enroll in. ACCESS teachers were also encouraging ACCESS students to pursue a 44-credit diploma. However, the ACCESS site team was unable to get any members of the GHS counseling department to participate in ACCESS site team meetings. Since the counselors were advising ACCESS students to enroll in JDP college courses, CMC and, in many cases, pursue the 24-credit, option 2 diploma, ACCESS students often received conflicting advice from ACCESS teachers and GHS counselors.

The second purposeful perturbation was the creation of a social network between ACCESS and key SDCC academic departments. Prior to the creation of this network, there was no pathway for GHS students to enroll in degree-track courses at SDCC. With

the existence of a new social network GHS students were able to enroll in degree-track courses such as Spanish and college level math and English classes at SDCC. GHS counselors, who were not part of this social network, continued to advise ACCESS students to enroll in non degree-track JDP courses and CMC. This created a situation of competing social networks with ACCESS students opting to enroll in degree-track courses in most cases.

The third purposeful perturbation was to increase the number of ACCESS teachers, increase the number of ACCESS classes and increase the number of students enrolled in ACCESS. In February of 2007, ACCESS had two teachers and eight students. By the summer of 2009, the ACCESS site team, which consisted of six teachers. Sixty-two students enrolled in ACCESS classes for the Fall of 2009 representing 20 percent of all students enrolled in the GHS day program. At that point, ACCESS had gotten too big for the rest of GHS to ignore.

During the perturbation phase, the emergent changes in patterns of student behavior around academic performance and the development of a new social network for enrolling ACCESS students in degree-track courses at SDCC were accompanied by increasing tensions, primarily between ACCESS teachers and GHS counselors.

In June of 2009 tensions reached a critical level and a tipping point was reached at a June 18th during a meeting that I had with the GHS counseling staff. The meeting began with the counselors telling me that they were considering filing a grievance with the school district against the ACCESS teachers. By the end of that meeting the counselors and I had come to an agreement that the counselors and ACCESS teachers needed to begin working together. The GHS principal met with us an hour later and we decided that

school leaders, counselors and ACCESS teachers would meet weekly beginning in September of 2009. The purpose of those meetings would be to work together for the continuing development of ACCESS. This agreement emerged through a process of self-organization, through local interactions in the absence of any blueprint for change.

Phase Two: The Transition State

From September 2009 through May 2010, the ACCESS site team, which included GHS administrative leaders, GHS counselors, the GHS outreach coordinator, and ACCESS teachers met on a weekly basis. There were a number of changes to ACCESS as a result of those weekly meetings. And, the tensions between ACCESS teachers and GHS counselors began to ease. During those meetings, there was also talk of the need for school-wide change in a number of areas, not just ACCESS.

Two areas where ACCESS wanted change were in the kind of college courses ACCESS students were enrolling in at SDCC, and the kind of diploma that ACCESS students were earning. ACCESS was successful in changing the practices of enrolling ACCESS students in non degree-track courses at SDCC and having ACCESS students choose the 24-credit option 2 diploma. However, these changes went beyond ACCESS and became school-wide. During the 2009-2010 school year there were was a dramatic drop in the number of GHS students enrolling in non degree-track JDP courses at SDCC (Figure 8.3) and a major increase in the percentage of GHS students earning the 44-credit diploma (Figure 8.4). In that sense, this period of time represented a transition phase where the ACCESS site team meetings acted as a catalyst for school-wide change, and a forerunner to the College Planning Group (CPG)

Phase Three: The Co-Construction State

Phase three represents a period of time where the College Planning group (CPG) began to institutionalize college prep and college enrollment procedures for the entire school, including ACCESS. Unlike the initial stable state that GHS was in prior to ACCESS, the co-construction state was not an equilibrium state, but a dynamic period of co-constructed change.

The GHS principal chaired these meetings and adopted a distributed leadership approach to the process of institutionalizing college-going procedures. Members of the CPG constructed a school calendar that provided timelines for all college-going matters. CPG group members generated a list of college-going areas of need that included such topics as:

- Identifying appropriate SDCC courses for GHS students to enroll in
- Student selection procedures for selecting GHS students for enrollment in SDCC courses
- Procedures for GHS students taking college assessment tests

Individual members of the CPG then volunteered to put together proposed procedures for specific areas of need to present to the CPG for discussion.

The Role of The School Principal In The Reform Process

To summarize the role of the GHS principal in the reform that occurred at GHS from February 2007 through March of 2011, I begin with the stable state of existence that existed at GHS prior to ACCESS.

Initial Stable State:

ACCESS would not have begun without the initial support of GHS's principal. From September of 1998 through May of 2002, a succession of three different GHS principals would not support a college prep program at GHS. While the JDP had been in existence prior to GHS moving onto the campus of SCDD, CMC was created in 2000, in GHS's third year on the campus of SDCC. Despite my efforts to be part of the development team that designed CMC, I was not allowed to be part of that team. The reason the GHS principal gave me for not including me in the design of CMC was, as he stated: CMC is not going to be an academic program, GHS students are not going to be academic scholars."

The Perturbation Phase

While JP became principal of GHS in 2003, she did not address the idea of developing a college prep program until 2005. At that time she approved the development of an Advancement Via Individual Determination Program (AVID). Following the first year of AVID, I met with JP at the beginning of the 2006-2007 school year. During that meeting I pointed out that GHS students did not meet the criteria for AVID and suggested that GHS develop a college prep program that better addressed the needs of the GHS student population. To do so, I requested that GHS begin offering two college prep classes, one in math and one in English that articulated with courses at SDCC. She agreed to my request.

In viewing organizations as complex adaptive systems, Morgan (2006) says that one way to create conditions for change is by leaders "mobilizing a powerful coalition of

key individuals that can launch and protect a prototype of a new system”(p 258). While JP did protect ACCESS during the perturbation phase, it was teachers, who tend to be near the bottom of our educational system hierarchy that launched and developed ACCESS.

From the beginning, the principal adopted a hands-off approach, letting the teachers involved in ACCESS develop the program. When ACCESS teachers met with resistance from other staff members, primarily the counseling department and the vice-principal, the principal’s main role was to act as a buffer from criticism directed at ACCESS and the teachers involved with ACCESS, and to clear away attempts to block the development of ACCESS. So while within GHS change was being initiated bottom-up, the GHS principal protected ACCESS from the top, and provided the program with the opportunity to grow.

The Transition Phase

During the transition phase, the role of the principal changed. As I described in chapter eight, following the tipping point meeting of June 2009, the principal met with me and the GHS counseling staff where we agreed to meet weekly beginning in September of the 2009-2010 school year to talk about ACCESS. This represented the first time that the principal, the counselors, and an ACCESS teacher had met to discuss ACCESS.

Beginning in September of 2009, JP began to voice her views at ACCESS site team meetings and general staff meetings on what she believed to be the GHS staff’s academic responsibilities to the students. At those meetings she began to steer the

conversation away from just getting GHS students to graduate, and more toward trying to get each student to make as much academic and emotional progress as possible in the time that they were at GHS.

The Co-Construction Phase

In September of 2010, I had a meeting with JP to discuss efforts to make ACCESS systemic. She felt that, while the success of ACCESS was due in large part to the fact that it had been developed by GHS teachers, in order to institutionalize the changes that were occurring at GHS, it was necessary for her to take the lead. However, she did not dictate what should happen. Instead she formed the CPG where, to paraphrase her words, “collectively, as group, we worked together to achieve a common goal.

The Importance (or not) of Being Physically Located on The SDCC Campus

In September of 1998, GHS moved onto the campus of SDCC. While the majority of the staff members I interviewed at GHS felt that being located on a college campus was positive, few felt they had any connection to SDCC as evidenced by their social network drawings and their responses during audio-recorded interviews. Even GHS’s principal felt that her connection to SDCC was weak.

As of March 2011, GHS was in its thirteenth year on the campus of SDCC. During that time, there were three partnerships formed between GHS and SDCC, the JDP in 1994, CMC in 2000, and the TPDP in 2003. These programs were developed based on the goals of GHS leadership and staff to increase student retention and increase graduation rates, provide GHS students with a college experience, and increase the

number of GHS graduates enrolling in college classes post-high school. In fact, based on data for GHS student enrollment in SDCC courses and the number of GHS graduates earning a 24-credit, option 2 diploma, the location of GHS on the campus of SDCC facilitated those goals. Yet none of these programs focused on academically preparing GHS students for college.

During the period from February of 2007 through March of 2011, the academic expectation of GHS leadership and staff changed. GHS course offerings expanded and became more academically rigorous, all but the oldest and most seriously credit-deficient students were encouraged to pursue a 44-credit diploma and a set of more stringent criteria for enrollment in college courses was developed. GHS's primary mission had become moving students as far along academically as possible while they were at the high school. During the same period, ACCESS had been successful in academically preparing increasing numbers of students for rigorous college coursework as evidenced by placement levels on math and English college assessment tests from 2007 through 2010. GHS had changed. However, the relationship between GHS and SDCC did not change.

By the 2008-2009 school year, some GHS students were placing into college level math and English on college assessment tests. Since GHS course offerings in math and English could not meet the needs of these students, efforts were made to enroll these students in college-level math and English classes at SDCC. In addition, efforts were made to enroll ACCESS students in other classes at SDCC such as Spanish since GHS did not offer any world language classes to meet the A-G requirements for enrolling in the University of California and California State Universities.

While I was able to get some GHS students enrolled in degree-track courses at SDCC by approaching individual SDCC instructors, GHS was unable to obtain a Memorandum of Understanding (MOU) with SDCC that would guarantee the enrollment of even a small number of GHS students in selected degree-track courses at the college despite repeated efforts on the part of the GHS principal to do so. SDCC was willing to let GHS students enroll in non-degree track courses such as personal growth since these courses were not required for transfer to four-year colleges and universities, SDCC offered large numbers of some of these classes, and, in some cases, enrollment of GHS students in these courses was funded by grants. This was not the case for degree-track courses at SDCC.

Circumstances that make it difficult to enroll high school students in degree-track college course had existed for some time. Statewide, high school students seeking to cross-enroll in community college classes have been assigned a low-priority for a number of years. And, there is no doubt that the current California State budget crisis, which has had a major impact on California community colleges, has made it more difficult for high school students to enroll in degree-track community college courses. Regardless of the reasons, in all but a few cases, enrolling GHS students in degree-track course at SDCC was no longer an option.

Although GHS is physically located on the SDCC campus, beginning for the 2008-2009 school year, it was decided to have GHS students take their college assessment tests in math and English at Granville College, located fifteen miles from SDCC. The reasons were that:

- Most incoming college students who took math and English assessment tests at SDCC tested into basic skills level courses.
- SDCC required a three-year wait before students could re-take assessment test. Granville College required only a one-year wait.
- Unlike Granville College, beginning in 2009, the highest-level math assessment test offered at SDCC was elementary algebra. Students who successfully tested out of elementary algebra needed to go to the math department to take a higher-level assessment test.

In an audio-recorded interview with JP, GHS's principal, she said that she applauded the SDUSD's decision to put an alternative high school for low-performing students on a college campus. However, she said that SDCC would probably not have been her first choice. Whether or not conditions would have been different had GHS moved onto another college campus, the changes that occurred at GHS from 2007 through 2011 had no real impact on the relationship between GHS and SDCC.

Being on the campus of SDCC did have some impact on GHS. While moving onto the campus of SDCC may not have been the reason for GHS's goal of becoming an all JDP school, the partnerships between GHS and SDCC supported that goal. Given the physical proximity of GHS to SDCC, all GHS students had to do was walk across the street to get to their college classes, made it easier for GHS students to take non-degree track courses such as CMC and personal growth.

That physical proximity to SDCC also made it easier to create a social network for enrolling ACCESS students in degree-track college courses, a strategy that did have an impact on GHS. However, I constructed that social network by connecting with

individual SDCC instructors, which could have been done with a high school not co-located with a community college. GHS was unable to establish any formal agreement with SDCC that would allow GHS students to enroll in degree-track classes at SDCC. As a result of the California state budget crisis, by the 2010-2011 school year, enrolling GHS students in degree-track courses at SDCC was no longer an option.

Complexity Theory as a Strategy for School Reform

As I explained in chapter three, my research methodology was that of a design experiment. The design of my experiment was to use key features of complexity theory as a strategy for school reform. I implemented this experiment in a real-life situation, a small alternative high school for low-performing students, treating the school as a complex adaptive system. The experiment was designed to generate data that would provide me with evidence to support warranted conclusions about the feasibility of using complexity theory as a framework for school reform.

In the sense that change began with changes in the students' academic performance and bubbled up, my design experiment turned the traditional top-down, approach to school reform upside down. Since I used features of complexity theory to design a strategy for change, my experiment did involve planning. However, patterns of behavior that emerged in unpredictable ways required me to modify my strategy in opportunistic ways. In that sense, the design process was iterative; modifications were made based on what emerged.

According to complexity theory, for change to occur in complex adaptive systems (CAS) one must address a number of key features of CAS: emergence, self-organization, feedback loops, bifurcation points, and system equilibrium. In CAS, change emerges through a process of self-organization. This self-organization, or self-reorganization occurs at what Capra (1997) calls bifurcation points. What happens at these bifurcation points, or tipping points, is emergent and cannot be planned or predicted. When applying this to organizations, made up of individuals, what happens will emerge through the interplay of the intentions of those individuals and no one can be in control of this interplay (Stacey, 2007). According to complexity theory, for a system at equilibrium to reach a tipping point, the system must be in a state far from equilibrium. If a system is at equilibrium, then it must be pushed away from that equilibrium state.

Prior to ACCESS, GHS was in a state of equilibrium, or stable state, that did not academically prepare its students for college but which instead, put its students on a fast track to a high school diploma. An important design feature of my experiment was to create purposeful perturbations that would disrupt this stable state and push GHS to a state far from equilibrium. My strategy was to create ACCESS to accomplish that.

First I used ACCESS to challenge the low academic expectations of GHS staff by raising the level of academic performance of GHS students enrolled in ACCESS. When that first perturbation did not result in changing existing patterns of behavior at GHS, I responded by designing a second perturbation, the creation of a new social network for enrolling ACCESS students in degree-track classes at SDCC.

In complexity theory, change emerges through the interplay of the intentions of individuals, who often have different intentions. This occurs by a process of self-

organization through local interactions, or feedback loops. Furthermore, change occurs when a system is in a state far from equilibrium. However, this does not address what happens as a system is being pushed away from its equilibrium state. During the perturbation phase of my experiment the main pattern of emergent behavior was escalating tensions, primarily between ACCESS teachers and GHS counselors. These tensions were the result of competing intentions between ACCESS teachers and GHS counselors. The creation of an ACCESS site team resulted in an unintended perturbation when the ACCESS site team failed to get any counselors to join the site team. Without any counselors on the site team, there was no effective way for ACCESS teachers and counselors to resolve their differences.

The purposeful perturbations of raising students' levels of academic performance and creating a competing social network for enrolling ACCESS students in degree-track course at SDCC, the unintended tensions between ACCESS teachers and GHS counselors resulting from creation of an ACCESS site team, and the growth of ACCESS all contributed to tipping point during an unplanned meeting between me and the GHS counselors. The outcome of that meeting was not planned, it was emergent. What started out as a threat by GHS counselors to file a grievance with the district against ACCESS teachers, evolved into a discussion of how counselors and ACCESS teachers could work together.

The tipping point meeting was only the beginning of a self-organization process that played out over the next two school years. During that time the self-organization process evolved from addressing change within ACCESS, what I call the transition phase, to a co-construction phase where the emphasis was on school-wide change. The

social change that occurred at GHS that began bottom-up, by teachers evolved into a distributed leadership approach that was guided by the GHS principal.

Morgan (2006) argues that the fundamental role of managers is to create new contexts that can challenge the established state of an organization, what he calls the “dominant attractor” pattern. He says that one way to change context is to create and develop a prototype of a new system that can break the hold of the dominant attractor, and asks the question: “How is the transition from one attractor pattern to another achieved” (p. 258)? At GHS ACCESS was used to create a new attractor pattern to break the hold of the existing dominant attractor (Figure 9.2).

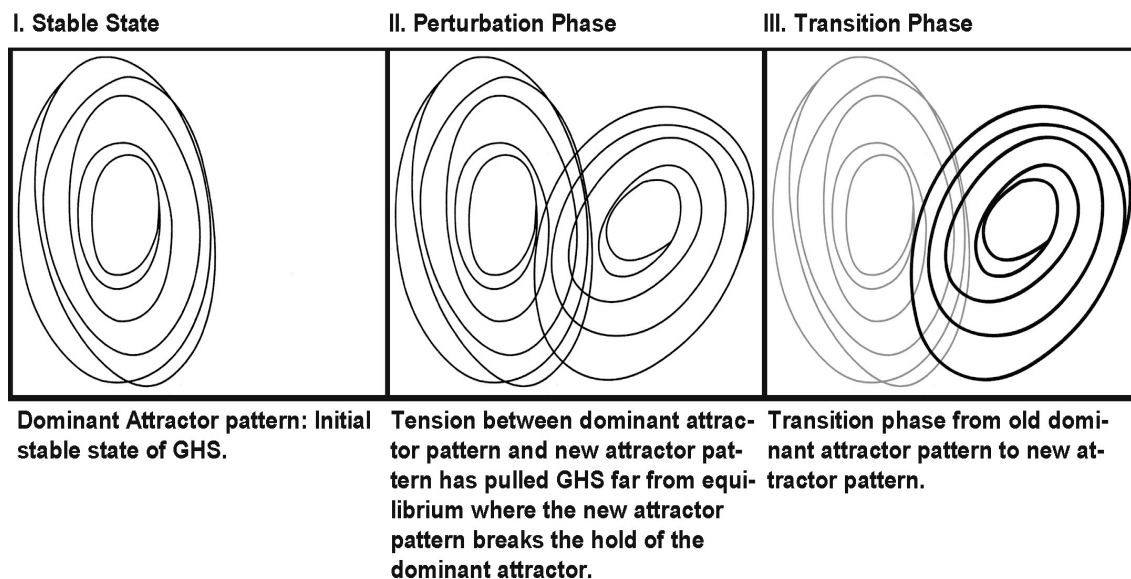


Figure 9.2: Gonzago High School’s Shift From Its Dominant Attractor to a New Attractor Pattern

I. The Stable State

The dominant attractor pattern put GHS students on a fast track to a diploma without preparing them for post high school education, in particular college. The parameters were:

- Students' academic performance below levels necessary for rigorous college coursework
- GHS staff beliefs about what GHS students are academically capable of did not include preparation for college.
- Institutionalized, standard operating procedures and existing social networks within GHS and between GHS and SDCC result in GHS students enrolling in non-degree-track classes at SDCC and most GHS graduates earning a 24-credit, option 2 diploma.

II. The Perturbation Phase

ACCESS created a new context in the form of a new attractor pattern with the mission of preparing GHS students for college. The parameters of the new attractor were:

- ACCESS students' academic performance is raised to a level necessary for success in rigorous college coursework. This provides disconfirming evidence that challenges the academic expectations of GHS staff.
- ACCESS students pursue a 44-credit diploma and enroll in degree-track college courses at SDCC.
- A new social network within GHS, the ACCESS site team, for supporting ACCESS students' preparation for college/

- A new social network between the GHS's ACCESS site team and SDCC for enrolling ACCESS students in degree-track classes at SDCC.

The new attractor pattern introduced perturbations at GHS. This resulted in GHS being caught between two attractors, creating tensions and pulling GHS away from equilibrium until a tipping point was reached where the new attractor broke the hold of the dominant attractor.

III. *The Transition Phase*

During the transition phase, the new attractor pattern gradually became the dominant attractor pattern and while the old attractor pattern still existed, its influence was weakening. For example, students were still enrolling in CMC. However, enrollment in CMC was more for earning the fifteen elective credits require for a 44-credit high school diploma rather than fulfilling a requirement for a 24-credit, option 2 diploma.

My contribution to the literature on school reform is to describe and explain how I used a CAS framework to develop a strategy for transformational change in one alternative high school for low-performing students and to describe the outcomes of that reform effort. That GHS has changed is voiced in an email that I received from MR, who taught history and English to pregnant teen girls in GHS's Expectant Teen Center.

I have had the unique experience of understanding the academic culture growth of Gonzago High in the last few years. I was teaching on campus from 2007-2008, then left for a year, and return in 2009-2010; when I returned the school had changed. Gonzago High changed for the better, the students wanted to learn and excel in school, and part of the credit is due the ACCESS program.

Within the year I was gone, the ACCESS program really took off, students feel good about themselves and that they can accomplish more than what

others have thought about them in the past. As a result, people began to believe the students are capable of more if given the support and opportunity of programs such as ACCESS. The ACCESS students became school leaders and influenced their classmates to also take school seriously. The ACCESS program has added academic rigor to Gonzago that was not as pronounced in prior years.

The ACCESS program has also helped bridge high school content knowledge to college level content as demonstrated which students passing the college level entry Math examination. Many people have given up on the students at Gonzago or believe that these students could not become accomplished in the academic endeavors. The ACCESS program is helping these students prove these misconceptions wrong and prove that even if they come from a not so perfect past with support and encouragement they can accomplish anything they put their minds to.

(5/10)

Implications of Research Findings: A Different Approach to School Reform

GHS is one of only two continuation high schools in the St. Diaz Unified School District (SDUSD). While few grade nine through eleven GHS students have taken the California Standardized Test (CST) for Algebra I, the majority of GHS who took the test before the educational reform described here ACCESS scored “below basic”, with many scoring “far below basic”. During and after this educational reform, increasing numbers of GHS graduates who took college assessment tests from 2007 through 2009 placed into transfer level math. ACCESS achieved some success in preparing low-performing students for rigorous college coursework, primarily in math. These results documented in this research study, have implications for low-performing students at high schools more generally.

There are students like those at GHS throughout the SDUSD. In fact, there are high school students like those at GHS throughout the United States. In the SDUSD there are 22 traditional high schools with an enrollment of over 30,000 students. The 2009

Standardized Testing Annual report (STAR) showed that of the 4724 SDUSD high school students who took the 2009 CST in Algebra I, 7173 (46%) students scored “below basic”. Of those 4724 students, 1249 (26%) scored “far below basic”.

Some of those low performing SDUSD high school students transfer to GHS, but most remain at their home school. In general low-performing high school students are tracked into low-ability classes designated for those students deemed non-college bound (Oakes & Guiton, 1995) where there is little opportunity to prepare for college. College prep programs tend to be for high performing students. Even Advancement Via Individual Determination (AVID), a college prep program initially designed for low performing students has evolved into a college prep program for students “in the middle”, and so is not for low-performing students. Furthermore, college prep programs tend to be designed for academic preparation for four-year colleges and universities.

Creating an Innovative College Prep Program for Low-Performing Students

While not all high school graduates will be prepared for college, students who have a history of little success in school should not be put on a fast track to a high school diploma that does not lead to further education. All students should be provided with the opportunity to prepare for college. All students should be provided with the opportunity to take high school classes that prepare them for college and provide them with the necessary support for success in those courses. Based on the success of ACCESS at GHS, I make the following recommendations for developing a college prep program for low-performing high school students:

- The College prep program should not be limited to preparing students for four-year colleges and universities. While ACCESS did not exclude preparing GHS students for four-year colleges and universities, at the time of this report, virtually all GHS graduates who enroll in college have enrolled in community colleges, primarily SDCC.
- Criteria for participation in the college prep program should not be based on grade point average (GPA). At GHS, students can join ACCESS regardless of their GPA.
- Participation in the college prep program should be based on commitment. To join ACCESS, students, and their parents, are required to sign a letter of commitment that includes attendance and behavior criteria. This commitment is considered a binding agreement.
- College prep course should be articulated with entry-level college courses. ACCESS courses are articulated with St. Diaz Community College (SDCC) courses.
- While college prep courses are offered in all academic disciplines, the emphasis should be on reading, writing, and math.
- Students entering the college prep program should be required to take pre-tests in English and math. Placement in college prep English and math classes should be based on students' pre-test results, not which English and math courses they have successfully completed. For example, ACCESS offers math classes in elementary algebra, intermediate algebra, and pre-calculus. ACCESS students who did not test out of elementary algebra were required to enroll in an elementary algebra

ACCESS class, even though many of those students had already earned high school credit in elementary algebra.

- Students enrolled in college prep classes should be provided with mandatory supplemental instruction. ACCESS students were required to attend one after-school study group per week for each ACCESS class that they were enrolled in.
- When possible, the college prep program should form a partnership agreement with a local college or university. ACCESS formed a partnership with the University of California St. Diaz's (UCSD) Education Studies Program (EDS). Under the agreement, UCSD provided ACCESS classes with tutors who were UCSD students enrolled in EDS classes.
- While committed teachers are necessary for the success of a college prep program, the support of school leadership, school guidance counselors and school support staff are also necessary.

Physical Location of the High School

GHS is somewhat unique in that it represents an example of an alternative high school for low-performing students physically located on a college campus. However, this did not result in any formal academic partnerships between GHS and the co-located community college, SDCC. In the thirteen years that GHS was located on the campus of SDCC three joint programs were created: The Joint Diploma Program (JDP), City Middle College (CMC) and the Tech Prep Development Program (TPDP). All three of these were non-academic, low-level vocational programs.

SDCC was not directly involved in the creation of ACCESS, or the evolution of ACCESS. The creation of a social network between ACCESS and SDCC, which provided the opportunity for a small number of ACCESS students to enroll in degree-track classes at the college, was the result of efforts made by ACCESS. No formal partnership between GHS and SDCC was ever created for enrolling GHS students in degree-track classes at SDCC. Furthermore, as a result of California's budget crisis, by the Spring of 2011, enrolling GHS students in degree-track SDCC classes was no longer an option.

By 2008, ACCESS students were taking their college assessment tests at a community college located 15 miles east of GHS. By April of 2011, ACCESS was exploring options for enrolling ACCESS students in degree-track classes at other community colleges in the St. Diaz areas. So physical proximity to a college or university is not necessary for developing a college prep program for low-performing student. GHS being physically located on the campus of SDCC, while convenient, was not necessary for the development of ACCESS.

Implications of the reform model

Complexity Theory As a Strategy For School Reform

The focus and purpose of this research study was to promote educational change through a design experiment. Treating an innovative college prep program, Academic Commitment Creates Empowered Successful Students (ACCESS) as a nested Complex Adaptive System within a larger complex adaptive system, Gonzago High School (GHS),

I used features of complexity theory as a framework to design a strategy for school reform. The model for school reform that evolved, which showed documented success, has implications for how schools can achieve transformational change.

Purposeful Perturbations: A strategy for pushing a school far from equilibrium

One feature of complex adaptive systems (CAS) is that for transformational change to occur, CAS need to be in a state far from equilibrium. Yet schools tend to exist in a state of equilibrium where stable patterns of behavior in the form of institutionalized standard operating procedures that reflect the belief systems of school staff members result in stable outcomes for their students. Prior to ACCESS, GHS was in such a stable state of equilibrium, one that resulted in GHS students being put on a fast track to a high school diploma that did not lead to further education.

Drawing on Prigogine's experiments with liquids at thermodynamic equilibrium (1984), I used a strategy that I called "purposeful perturbations", what Prigogine called a "phase of instability", to push GHS away from its equilibrium state. I used ACCESS to create those perturbations, first by raising the academic performance of students in ACCESS to a level necessary for rigorous college coursework and second, by creating a new social network for enrolling ACCESS students in degree-track college courses. The result was that a critical point, what is referred to in complexity theory as a bifurcation point, was reached where a textbook example of self-organization occurred when GHS counselors and ACCESS teacher agreed to work together for ACCESS.

For schools to undergo the kind of transformational change that occurred at GHS they need to be in a state far from equilibrium. For most schools, this means pushing them away from their equilibrium state. Purposeful perturbations can be an effective

strategy for accomplishing that goal. However, based on my research, I make some recommendations about the nature of those perturbations.

Each perturbation must have a purpose other than just creating instability. The perturbations introduced at GHS had a dual purpose. The espoused mission of ACCESS was to prepare students for post-secondary education, primarily college. Raising the level of students' academic performance and creating a social network with SDCC for enrolling ACCESS students in degree-track college courses were consistent with that mission. A second purpose was to create conditions for school-wide change.

If you push people, people will push back. Perturbations designed to push a school away from equilibrium will encounter resistance. Perturbations must be designed with the purpose of breaking down that resistance. The perturbations that pushed GHS away from equilibrium created increasing tensions, primarily between ACCESS teachers and GHS counselors. However, increased levels of academic performance by ACCESS students and the success of ACCESS students in degree-track college courses provided disconfirming evidence that challenged the academic expectations of GHS counselors and, over time, broke down their resistance.

Change Begins in the Classroom

According to complexity theory, patterns of behavior that emerge in localized parts of a CAS can bubble up, resulting in changes in patterns of behavior throughout the system. In my design experiment, the patterns of behavior that emerged as ACCESS

evolved resulted in school-wide changes. The results of my design experiment have implications for school reform efforts in general.

For school reform to be more effective, change needs to begin in the classroom. Many school reform efforts are top-down, hierarchical affairs, with students at the bottom of the hierarchy, being passive receptors of the reform. The reform model in this study started with the teachers, but the initial purposeful perturbation focused on engaging students to improve their academic performance on college assessment exams, during which they became agents for their own change. In this sense students became agents of change rather than passive recipients.

The Role of Emergence

While change may begin in the classroom, the change process does not proceed in a linear cause-and-effect way. Complexity theory says that change in CAS emerges through the local interactions of individuals, and therefore cannot be predicted. In organizations such as schools, individuals interact with each other. What emerges does so through the interplay of the intentions of individuals and how those interactions play out cannot be predicted. The implication is that no individual, or group of individuals, can control what happens. Furthermore, the interplay of intentions are in the form of feedback loops. These feedback loops provides agents of change with opportunities to modify their strategy in response to the feedback they receive. For example, when GHS counselors continued to recommend non-degree-track college courses for ACCESS students who

had tested into transfer-level college courses on college assessment tests, I determined that the existing social network between GHS and SDCC was not adequate for enrolling GHS students in degree-track college courses. My response was to create a new social network with SDCC.

The implications of complexity theory are that, in CAS, there is no blueprint for change and no master controller as change agent. The implications of my design experiment are that the role of change agent in school reform efforts is like that of canoeists navigating rapids in an uncharted river. In order to keep moving in the direction of the reform goals, agents of change must have the skills to respond in an opportunistic way to the unpredictable.

Implications for the Research-Practitioner

The mission of the educational researcher is to make sense of the way schools work and the way they don't. The object of a particular foray into research, as a piece of scholarship, is not to fix a problem of educational practice but to understand more fully the nature of this problem. (Labaree, 2003, p. 17)

From Labaree's point of view, researchers in education investigate important issues by doing research but it is up to practitioners to put their research findings into practice. In contrast, the design experiment approach to doing research stresses the value of building theory and improving practice at the same time (Brown, Greeno, Resnick, Mehan, & Lambert, 1999). One way to do this is by researchers and practitioners working together to develop and test theories in real-life situations. Another way is for research-practitioners to conduct design experiments where the research practitioner acts

as the researcher, developing theories, and the practitioner, testing those theories in real-life situations.

In my research I constructed a design experiment to develop and test a theory of school reform in a real-life context, one alternative school for low-performing students. I acted as researcher, by developing theory, and practitioner, by testing that theory. For me, that is how I view my role as a research practitioner. The implications for research practitioners is that their research can go beyond describing what works and what doesn't work and then, passing their findings and recommendations on to practitioners. They are practitioners themselves. The job description of the research-practitioner should include fixing problems in education. Ultimately, the goal of educational research is educational change.

The goal of this research study was to develop, implement, and evaluate a school reform design experiment that changed GHS. Like other school reform efforts, the goal was to achieve transformational change. While few educational reform efforts accomplish that goal, the reform efforts described here did result in an example of transformational change.

Recommendations for Future Research

This study documented the success of a college prep program at an alternative school for low-performing students, the strategy used to create conditions for change at the school, and the impact that the program had on the school. The development of ACCESS and the school reform efforts at GHS did not end with this study. ACCESS is

continuing to grow and evolve and GHS is still changing. Furthermore, there are students like those at GHS throughout California, and the nation in general, who could benefit from the kind of college prep program and the approach to school reform described in this study. Therefore, I make the following recommendations for further research:

- One group of stakeholders that was not a part of the ACCESS social network were the parents of ACCESS students. Further research should look at how to get more parent involvement in college prep programs for low-performing students, the impact of parent involvement on student outcomes, and the impact of parent involvement school-wide.
- In this study, I did not address how ACCESS students did in college after they graduated from high school. Further research should focus on the success of low-performing high school who have participated in a college prep program once they graduate and enroll in college, and the kinds of continuing support they need while they are attending college.

The strategy for school reform in this study used the complexity sciences as a theoretical framework to create a context for transformational change. Since this study was conducted at a single school site, it is not possible to predict how well this approach would work in other schools. However, given the documented success of this approach at GHS, future research should look at adapting the reform model to create effective contexts for educational change in other schools.

APPENDIX A

COLLEGE PLANNING GROUP DOCUMENTS

College Prep Procedures Timeline

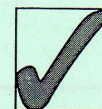
<u>Activity</u>	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
ACCESS Open House		●						●			
Attendance verification for college eligibility				●	●					●	●
Books purchased	●		●			●		●			●
Books returned	●					●					●
Career inventory (in GENESIS)			●			●		●			●
City College classes begin	●		●			●		●			●
City College classes end	●				●					●	
City College registration	●	●				●					●
CMC applications				●						●	
CMC internships/job shadows					●					●	
CMC start times/end times		●			●	●				●	
College class exit surveys						●				●	
College class workshops				●					●		
College student recognition		●			●			●		●	●
College tours					●					●	
Enrollment paperwork pre-screening		●			●		●			●	●
FAFSA applications						●	●	●			
Financial Aid Workshops				●		●					
Placement tests					●					●	
Progress reports (College)		●	●	●			●	●	●		
Staff identifies students for college courses				●	●					●	●
Syllabus/Calendar support	●		●			●		●			●
Tutors (City College)		●					●				
Tutors (UCSD)			●			●			●		
Withdrawal deadline			●					●			●

Standard Operating Procedures for College Enrollment

*City***Steps for
College Enrollment**

Detailed information for each step on back.

Check off each step as you complete it.



STEP 1 APPLY FOR ADMISSION

STEP 2 COMPLETE ONLINE COLLEGE ORIENTATION

STEP 3 COMPLETE "SCAVENGER HUNT"

**STEP 4 COMPLETE SUPPLEMENTAL APPLICATION
"Blue Form"**

College course consideration is dependent upon current attendance!

STEP 1 APPLY FOR ADMISSION

(This will take about 20 minutes)

- Apply** for admission **online** at <http://www.sdccd.edu>
Click "Apply Online"

Note: If you have previously taken an ROP or college course, see Mrs. T before applying. (example, Culinary Arts or Child Development)

If you have any questions or problems with your online application, SAVE IT, and see either Mrs. T in Room 112 or Oswaldo in Room 111

- Confirm** that all your information is complete
- PRINT** the first page of your application and give to Mrs. T in Room 112
- PRESS** the **SUBMIT** button

STEP 2 COMPLETE ONLINE COLLEGE ORIENTATION

(This will take about 45 minutes)

- Complete** online College Orientation at www.sdccity.edu
- Click on FUTURE STUDENTS
Click on MAPS & CAMPUS
Click on VIEW ALL
Click ONLINE ORIENTATION
- Print** out "confirmation page" at end of on-line college orientation, **write** your name on it and **give** it to Mrs. T in Room 112

STEP 3 COMPLETE "SCAVENGER HUNT" (Attached)

(This will take about 30 minutes)

- This can be completed either individually or in a group
- Write your name on collected papers and give to Mrs. T in Room 112

STEP 4 OBTAIN & COMPLETE SUPPLEMENTAL APPLICATION

"Blue Form" (Available from your counselor or Mrs. T in room 112)

(This will take about 15 minutes)

- Student complete all areas highlighted in yellow
- Parents complete all areas highlighted in pink
- Give completed papers to Mrs. T in Room 112

APPENDIX B

INTERVIEW PROTOCOLS

16.8 Teacher Interview Protocol

Personal

1. I would like to start by asking you to tell me about how you became a teacher.
2. Tell me about how you came to teach at Gonzago.

Teacher-student relations

3. I want you to think about one of your students. Would you tell me about this student from an academic perspective?

Follow-up questions

What are your academic expectations for _____?

What are your career expectations for _____?

Would you consider _____ a typical Gonzago student and if not, why?

4. You chose an ACCESS/non ACCESS student. Now think of a student you teach who is/is not in the ACCESS Program. Again, from an academic perspective, could you tell me about this student?

Follow-up questions.

a) What are your academic expectations for _____?

b) What are your career expectations for _____?

c) Would you consider _____ a typical Gonzago student and if not, why?

Social Networks

5. Gonzago is made up of a number of groups, departments, and key people that I have attempted to identify. Looking at the squares, are there any groups or key people who you think should to be added? Removed?

6. I would like you to position the groups on the white board based on the closeness of your interactions with each group. Where you believe there is a connection between you and a particular group, draw an arrow. Draw no arrows where you see no connection, dotted arrows for weak connections, and solid arrows for strong connections. Arrows can point in one direction or both directions depending on how you view your interactions with a particular group or individual.

a) You see no connection between you and _____. Why is that?

b) You represented the connection between you and _____ as weak.
Tell me about you relationship with _____

c) You represented the connection between you and _____ as strong.
Tell me about you relationship with _____

College Connection

10. One thing about Gonzago is that is located on City College campus. What do you think about that?

11. There are a number of academic paths available to Gonzago students. Imagine you are describing the following programs to a new teacher.

The City Middle College Bridge Program

The Joint Diploma Program

The ACCESS Program.

Closing Questions

12. Have you taught at other schools and if so, what kinds of schools were they?

13. How does teaching at Gonzago compare to work you've done at these other schools?

14. What are Gonzago's strengths? Weaknesses?

15. Is there anything that you had been asked?

16.9 Student Interview Protocol

Personal

1. I would like to start by asking you to tell me about how long you have been a student at Gonzago.
2. Tell me about how you came to Gonzago.

Teacher-student relations

3. I want you to think about one of the teachers you have, or have had at Gonzago. Would you tell me about this teacher from an academic perspective?

Follow-up questions

- a) What academic expectations did you have for their class?
 - b) Did this teacher's class meet your academic expectations?
 - c) What do you think the teachers academic expectations were for you?
 - d) Did this teacher academically prepare you for college?
 - e) Would you consider _____ a typical Gonzago teacher and if so/if not, why?
4. You chose a teacher who has/has not helped you meet your academic needs. Now think of a teacher who has/has not helped you meet your academic needs. Again, from an academic perspective, could you tell me about this teacher?

Follow-up questions.

- a) What academic expectations did you have for their class?
- b) Did this teacher's class meet your academic expectations?
- c) What do you think the teachers academic expectations were for you?
- d) Did this teacher academically prepare you for college?
- e) Would you consider _____ a typical Gonzago teacher and if not, why?

Social Networks

5. Gonzago is made up of a number of groups, departments, and key people that I have attempted to identify. Looking at the squares, are there any groups or key people who you think should to be added? Removed?

6. I would like you to position the groups on the white board based on the closeness of your interactions with each group. Where you believe there is a connection between you and a particular group, draw an arrow. Draw no arrows where you see no connection, dotted arrows for weak connections, and solid arrows for strong connections. Arrows can point in one direction or both directions depending on how you view your interactions with a particular group or individual.

- d) You see no connection between you and _____. Why is that?
- e) You represented the connection between you and _____ as weak. Tell me about you relationship with _____
- f) You represented the connection between you and _____ as strong. Tell me about you relationship with _____

College Connection

7. One thing about Gonzago is that is located on City College campus. What do you think about that?
8. Have you taken, or are you currently taking any courses at City College?
9. What are your reasons for taking college courses?
10. There are a number of academic paths available to Gonzago students. Imagine you are describing the following programs to another student.
The City Middle College Bridge Program
The Joint Diploma Program
The ACCESS Program.

Closing Questions

11. Have you attended other high schools and if so, what kinds of schools were they?
12. How does being a student at Gonzago compare being a student at these other schools?
13. What are Gonzago's strengths? Weaknesses?
14. Is there anything that you had been asked?

16.10 Counselor Interview Protocol

Personal

1. I would like to start by asking you to tell me about how you became a counselor.
2. Tell me about how you came to be a counselor at Gonzago.

Counselor-student relations

3. I want you to think about one of your students. Would you tell me about this student from an academic perspective?

Follow-up questions

What are your academic expectations for _____?

What are your career expectations for _____?

Would you consider _____ a typical Gonzago student and if not, why?

4. You chose an ACCESS/non ACCESS student. Now think of a student you council who is/is not in the ACCESS Program. Again, from an academic perspective, could you tell me about this student?

Follow-up questions.

d) What are your academic expectations for _____?

e) What are your career expectations for _____?

f) Would you consider _____ a typical Gonzago student and if not, why?

Social Networks

5. Gonzago is made up of a number of groups, departments, and key people that I have attempted to identify. Looking at the squares, are there any groups or key people who you think should to be added? Removed?

6. I would like you to position the groups on the white board based on the closeness of your interactions with each group. Where you believe there is a connection between you and a particular group, draw an arrow. Draw no arrows where you see no connection, dotted arrows for weak connections, and solid arrows for strong connections. Arrows can point in one direction or both directions depending on how you view your interactions with a particular group or individual.

g) You see no connection between you and _____. Why is that?

h) You represented the connection between you and _____ as weak.
Tell me about you relationship with _____

i) You represented the connection between you and _____ as strong.
Tell me about you relationship with _____

College Connection

10. One thing about Gonzago is that is located on City College campus. What do you think about that?
11. There are a number of academic paths available to Gonzago students. Imagine you are describing the following programs to a new teacher.
The City Middle College Bridge Program
The Joint Diploma Program

The ACCESS Program.

Closing Questions

12. Have been a counselor at other schools and if so, what kinds of schools were they?
13. How does counseling at Gonzago compare to work you've done at these other schools?
14. What are Gonzago's strengths? Weaknesses?
15. Is there anything that you had been asked?

16.11 Principal Interview Protocol

Personal

1. How long have you worked in education? Has all of that time been in this school district?
2. How long have you been principal of Gonzago?
3. What other positions have you held with the school district?
4. Do you like being principal at Gonzago?
5. In your view, what are the strengths and weaknesses of Gonzago?

College Preparation/Expectations

6. What are your expectations for Gonzago students?
7. What are your expectations for Gonzago graduates?
8. What are your expectations for Gonzago teachers? Gonzago counselors?
9. Do you believe that the Gonzago provides the academic rigor necessary for success in college?
10. How can we best help students make connections between learning in high school and success in college?
11. Do you agree or disagree with the following statements? Most Gonzago students take at least one college class and many Gonzago graduates enroll in college courses. Yet few, if any, earn a college degree, including from City College.
12. If you agree with the preceding statement, could you talk about:
 - a. What evidence there to support your answer?
 - b. The reasons why you think this is?
13. Gonzago is in its eleventh year on the campus of City College. In what ways do you believe that we make effective use of our physical location? Are there things that we could be doing differently? Better?
14. What impact do you think our location has on the Gonzago teaching staff? Gonzago counselors? Gonzago students?

Educational Reform

15. You were a principal during the implementation of the “Blue Print for Success.” What do you think worked and what did not work, and why?
16. The Blue Print was a top-down reform. What do you see are the positives and negatives of this approach to reform?
17. Would you view the ACCESS Program as a bottom-up reform? If so, what are the advantages and disadvantages of this approach?
18. What are the district’s current reform efforts and in what ways does the ACCESS Program support these efforts?
19. Are there ways in which the ACCESS program does not support the district’s current reform efforts?
20. To what extent do you think that the ACCESS program is successfully preparing Gonzago students for college?

21. Do you think that the ACCESS Program has had an impact on the school? If so, how?
22. What kinds of things is the ACCESS Program doing well? What things could be done better?

Networks/Connections

23. Do you feel that staff members have a voice in the decision-making process at Gonzago? Would you explain your answer?
24. Do you feel that students have a voice in the decision-making process at Gonzago? Would you explain your answer?
25. In what ways do you think teachers within departments have opportunities to collaborate with each other?
26. In what ways do you think teachers from different departments have opportunities to collaborate with each other?
27. Do you have any opportunities to collaborate with City College faculty and if so, how?
28. In what ways can Gonzago staff increase their opportunities for collaboration with City College?
29. Is there anything that you would like to add to our conversation?

REFERENCES

- ACT. (2010). *Mind the gaps. How college readiness narrows achievement gaps in college success*. Iowa City, IA: Author.
- Adelman, C. (2004). *Principal indicators of student academic histories in postsecondary education, 1972-2000*. ACT. (2010). *Mind the .* Washington, DC: U.S. Department of Education.
- Adelman, C. (1999). Answers in the tool box: Academic intensity, attendance patterns, and bachelor's degree attainment. Washington, DC: U.S. Department of Education.
- Adelman, C. (2006). The toolbox revisited: Paths to degree completion from high school through college. Washington, DC: U.S. Department of Education.
- Allen, P. M. (2001). A complex systems approach to learning in adaptive networks. *International Journal of Innovation management*, 5(2), 150-180.
- Anderson, P. (1999). Complexity theory and organization science. *Organization Science*, 10(3), 216-232.
- Argyris, C., & Schön, D. (1978), *Organizational learning: A theory of action perspective*. Reading, MA: Addison Wesley.
- AVID. (2011). Retrieved from www.avidonline.org.
- Beer, S. (1979). *The heart of the enterprise*. Chichester: Wiley.
- Brown, A., Greeno, J. G., Resnick, L. B., Mehan, H., & Lampert, M. (1999). Recommendations regarding research priorities: An advisory report to the National Educational Research Policy and Priorities Board. New York, NY: National Academy of Education.
- Brown, G. S. 1990. *The genesis of the system thinking program at the Orange Grove Middle School, Tucson, Arizona*. Personal report. 6301 N. Calle de Adelita, Tucson, AZ 85718: March 1. 8 pp.
- Brown, S., & Eisenhardt, K. (1998). *Competing on the edge*. Boston, MA: Harvard Business School Press.
- California Department of Education. California Education Code, 48400-48438

- California Department of Education. School Accountability Report Card (2006-2007).
- California Department of Education. School Accountability Report Card (2005-2006).
- Capra, F. (1997). *The web of life*. New York, NY: Anchor Books.
- Carey, K. (2004). *A matter of degrees: Improving graduation rates in four-year colleges and universities*. Washington, DC: The Education Trust.
- Carley, K. (1995). Computational and mathematical organization theory: Perspective and directions. *Computational and Mathematical Organization Theory*, 1(1), 39-56.
- Cilliers, P. (2001). Boundaries, hierarchies, and networks in complex systems. *International Journal of Innovation Management*, 5(2), 135-147.
- City Middle College Grant (CMC), 1999.
- Cobb, P., Confrey, J., diSessa, A., Lehrer, R., & Schauble, L. (2003). Design experiments in educational research. *Educational Researcher*, 32(1), 9-13.
- Collins, A. (1999). The changing infrastructure of educational research. In E. Lagemann & L. Schulman (Eds.), *Issues in educational research: Problems and possibilities* (pp. 289-298). New York, NY: Jossey-Bass.
- Cuban, L. (1990). Reforming again, again, and again. *Educational Researcher*, 19(1), 3-13.
- Daly, A. J. (2010). Mapping the terrain: Social network theory and educational change. In A. J. Daly (Ed.), *Social network theory and educational change* (pp. 1-16). Cambridge MA: Harvard Education Press.
- Datnow, A. (2008). The co-construction of educational reform: The intersection of federal, state, and local contexts. In M. Shinn & H. Yoshikawa (Eds.), *Towards positive youth development: Transforming school and community programs* (pp. 271-290). New York: Oxford University Press.
- Datnow, A., Hubbard, L., & Mehan, H. (1998) *Educational reform implementation: A co-constructed process: Technical report*. Santa Cruz, CA: Center for Research on Education, Diversity, and Excellence.
- Edmondson, A., & Moingeon, B. (1999) Learning, trust and organizational change. In M. Easterby-Smith, L. Araujo, & J. Burgoyne (Eds.), *Organizational learning and the learning organization* (pp. 157-175). London: Sage.

- Elmore, R., & Burney, D. (1999). Investing in teacher learning: Staff development and instructional improvement. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as a learning profession* (pp. 263-291). San Francisco: Jossey-Bass.
- Fonseca, J. (2001). *Complexity and innovation in organizations*. London: Routledge.
- Forrester, J. (1958). Industrial dynamics: A major breakthrough for decision making. *Harvard Business Review*, 36(4), 37-66.
- Forrester, J. (1961). *Industrial dynamics*, Cambridge, MA: MIT Press.
- Fountas, I. C., & Pinnel, G. S. (1995). *Guided reading. Good teaching for all children*. Portsmouth, NH: Heinemann.
- Fountas, I. C., & Pinnel, G. S. (2001). *Guiding readers and writers (grades 3-6): Teaching comprehension, genre, and content literacy*. Portsmouth, NH: Heinemann.
- Fullan, M. (2007). *The new meaning of educational change*, (4th Ed.) New York, NY: Teachers College Press.
- Fullan, M. (1999). *Change force: The sequel*. Philadelphia, PA: Falmer Press, Taylor & Francis Inc
- Fullan, M. (1993). *Change force: Probing the depths of educational reform*. New York, NY: Routledge Taylor & Francis Group.
- Gell-Mann, M. (1994). *The quark and the jaguar; Adventures in the simple and the complex*. New York, NY: W. H. Freeman.
- Gleick, J. (1988). *Chaos: The making of a new science*, London: William Heinemann.
- Goodwin, B. (1994). *How the leopard changed its spots*, London: Weidenfeld & Nicolson.
- Gronn, P. (2000). Distributed properties: A new architecture for leadership. *Educational Management and Administration*, 28(3), 317-338.
- Hall, P. M., & McGinty, P. J. (1997). Policy as the transformation of intentions: Producing programs from statutes. *The Sociological Quarterly*, 38, 439-461.
- Hargreaves, D. (2007). *System re-design-1: The road to transformation*. London: SSAT
- Harris, A., & Spillane, J. (2008). Distributed leadership through the looking glass. *Management in Education*, 22(1), 31-34.

- Hart, A. W. (1995). Reconceiving school leadership: Emergent views. *Elementary School Journal*, 96(1), 9-28.
- Harvey, P. (2002). *Minorities in higher education*. Washington, DC: American Council on Education.
- Holland, J. (1998). *Emergence from chaos to order*. New York, NY: Oxford University Press.
- House, E. R. (1978). Evaluation as scientific management in U.S. school reform. *Comparative Educational Review*, 22(3), 388-401.
- Hubbard, L., Mehan, H., & Stein, M.K. (2006). *Reform as learning: School reform, organizational culture, and community politics in St. Diaz*. New York, NY: Routledge Taylor & Francis Group.
- Hurtado, S., Inkelas, K. K., Briggs, C., & Rhee, B-S. (1997). Differences in college access and choices among racial/ethnic groups: Identifying continuing barriers. *Research in Higher Education*, 38(1), 43-75.
- InqScribe (2010). Version 2.1 [Computer Software]. Chicago, IL: Inquirium, LLC.
- Jones, M., Yonezawa, S., Ballesteros, E., & Mehan, H. (2002). Shaping pathways to higher education. *Educational Researcher*, 31(2), 3-11.
- Kant, I. (1951). *Critique of judgment*. Translated by J.H. Barnes, New York, NY: Hafner Publishing. (Original publication date 1892).
- Kauffman, S. (1995). *At home in the universe*, New York, NY: Oxford University Press.
- Labaree, D. F. (2003). The peculiar problems of preparing educational researchers. *Educational Researcher*, 32(4), 13-22.
- Lambert, L. (2002). Beyond leadership: A framework for shared leadership. *Educational Leadership*, 59(8), 37-40.
- Lambert, L. (2003). Leadership redefined: An evocation context for teacher leadership. *School Leadership & Management*, 23(4), 421-430.
- Langton, C.G. (1996). Artificial life. In M. A. Boden (Ed.), *The philosophy of Artificial Life*. Oxford: Oxford University Press.
- Levin, B. (2000). Putting students at the center of educational reform. *Journal of Educational Change*, 1, 155-172.

- Lorenz, E. N. (1963). Deterministic nonperiodic flow. *Journal of Atmospheric Science*, 20(2), 130–141.
- Magee, M. (1998). Bersin unveils school reorganization: Top New York educator to be head of new learning institute. *The San Diego Union Tribune*, p. A1.
- March, J. G., & Olsen, J. P. (1976). *Ambiguity and choice in organizations*. Bergen: Universitetsforlaget.
- Marion, R. (1999). *The edge of organization: Chaos and complexity theories of formal social systems*, Thousand Oaks, CA: Sage.
- Maroulis, S., & Wilensky, U. (2009). The conspiracy of organizational inertia: A complex systems perspective of school reform.
- Mason, M. (2009). Making educational development and change sustainable: Insights from complexity theory. *International Journal of Educational Development*, 29, 117-124.
- McClure, B. A. (1998). *Putting a new spin on groups: The science of chaos*. Mahway, NJ: Lawrence Erlbaum Associates.
- Mehan, H. (2008). Engaging the sociological imagination: My journey into design research and public sociology. *Anthropology & Education Quarterly*, 39(1), 77-91.
- Mehan, H. (2007). Inter-organizational collaboration: A strategy to improve diversity and college access for underrepresented minority students. *Actio: An International Journal of Human Activity Theory*, 1, 63-91.
- Mertens, D. (2005). *Research and evaluation in education and psychology: Integrating diversity with quantitative, qualitative, and mixed methods, 2nd Edition*. Thousand Oaks, CA: SAGE Publications.
- Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structures as myth and ceremony. *American Journal of Sociology*, 83, 340-363.
- Mischen, P., & Jackson, S. (2008). Connecting the dots: Applying complexity theory, knowledge management and social network analysis to policy implementation. *Public Administration Quarterly*, 32(3), 314-338.
- Mitchell, M. (2009). *Complexity: A guided tour*. New Your, NY: Oxford University Press.

- Morgan, G. (2006). *Images of organization*. Thousand Oakes, CA: Sage Publications, Inc.
- Morrison, K. (2002). *School leadership and complexity theory*. New York, NY: Routledge Falmer.
- Murphy, J., & Datnow, A. (Eds.). (2003). *Leadership lessons from comprehensive school reforms*. Thousand Oaks, CA: Corwin Press.
- New Zealand Ministry of Education. (1996). *Reading for life: The learner as a reader*. Wellington, New Zealand: Learning Media Limited.
- Nicolis, G., & Prigogine, I. (1989). *Exploring complexity: An introduction*. New York, NY: W.H. Freeman.
- No Child Left Behind Act of 2001. Section 1111(b)(2)(C)(vi).
- O'Day, J. A. (2002). Complexity, accountability, and school improvement. *Harvard Educational Review*, 72(3), 239-329.
- Oakes, J., & Guiton, G. (1995). Matchmaking: The dynamics of high school tracking decisions. *American Educational Research Journal*, 32(1), 3-33.
- Parsad, B., & Lewis, L. (2003). *Remedial education at degree granting postsecondary institutions in Fall 2000* (NCES 2004-010). Washington, DC: National Center for Education Statistics.
- Prigogine, I., & Stengers, I. (1984). *Order out of chaos: Man's new dialogue with nature*. New York, NY: Bantam Books.
- Radford, M. (2007). *Action research and the challenge of complexity*. *Cambridge Journal of Education*, 37(2), 263-278.
- Rosenthal, R. & Jacobson, L. (1968). *Pygmalion in the classroom*. New York: Holt, Rinehart & Winston.
- Schoenfeld, A. H. (2006). Design experiments. In J. L. Green, G. Camilli, P.B. Elmore (Eds.), *Handbook of complementary methods in educational research* (pp 193-205) Mahwah, NJ: Lawrence Erlbaum Associates.
- Scott, R. W. (1992). *Organizations: Rational, nature and open systems*. Englewood Cliffs, NJ: Prentice-Hall.
- Senge, P. M. (1990). *The fifth discipline: The art and practice of the learning organization*, New York: Doubleday.

- Senge, P. (1994). *The fifth discipline fieldbook: Strategies and tool for building a learning organization*. New York: Doubleday.
- Simon, H. A. (1996). *The science of the artificial, 3rd ed.* Cambridge, MA: MIT Press.
- Spillane, J. P., Halverson, R., & Diamond, J. B. (2001). Investigating school leadership practice: A distributed perspective. *Educational Researcher, 30*(3), 23-28.
- Stacey, R. D. (1995). The science of complexity: An alternative perspective for strategic change process. *Strategic Management Journal, 16*, 477-495.
- Stacey, R. D. (2001). *Complex responsive processes: Learning and knowledge*. London, UK: Routledge.
- Stacey, R. (2007). *Strategic management and organizational dynamics: The challenge of complexity* (5th Ed.). Harlow, England: Pearson Education Ltd.
- Stewart, I. (1989). *Does God play dice? The mathematics of chaos*. Oxford: Blackwell.
- Strauss, A., & Corbin, J. (1997). *Grounded theory in practice*. Thousand Oaks, CA: Sage.
- Stringfield, S., & Datnow, A. (2000). Working together for reliable school reform. *The Journal of Education for Students Placed At Risk*, Mahwah, NJ: Lawrence Erlbaum Associates.
- Sui, W. (2008). Complexity theory and school reform. *NASSP Bulletin, 92*(2), 154-164.
- Taylor, F. (1911). *Scientific management*, New York: Harper Brothers.
- Tech Prep Development Program. Grant Proposal, 2003
- Tobin, J. (1989). Visual anthropology and multivocal ethnography: A dialogical approach to Japanese preschool class size. *Dialectical Anthropology, 13*, 173-187.
- U.S. Department of Education. (1997). *Math equals opportunity*. White paper prepared for the U.S. Secretary of Education, Richard W. Riley.
- Visual Understanding Environment (VUE) (2010). Version 3.0 beta3b11. Developed by Tufts Academy Technology
- Wallace, M. (2002). Modeling distributed leadership and management effectiveness: Primary school senior management teams in England and Wales. *School Effectiveness and School Improvement, 13*(2), 163-186.

Weber, M. (1947). *The theory of social and economic organizations*. London: Oxford University Press.

Weick, K. (1979). *The social psychology of organizing*. New York: McGraw Hill.

West, C. & Anderson, T. (1976). The question of preponderant causation in teacher expectancy research. *Review of Educational Research*, 46, 185-213.

Western Association of Schools and Colleges. (2006). Self study report.

Wheatley, M. J. (1999). *Leadership and the new science*. San Francisco, CA: Berrett & Koehler.

Wiener, N. (1948). *Cybernetics: Or control and communication in the animal and the machine*. Cambridge, MA: MIT Press.