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**Student Learning Outcomes:
A Critical Issue in the
Implementation of the Learning College Paradigm**

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**Student Learning Outcomes:
A Critical Issue in the
Implementation of the Learning College Paradigm**

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Dissertation

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Dedication

*In loving memory of my father,
Joseph Herget Switzer
And in honor of my mother,
Marjorie Switzer*

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This was not a solitary effort but rather a family effort. It is with great love and affection that I thank my husband and children for their unwavering support and patience. I also owe a dept of gratitude to my siblings and their families for their amazing contributions and counsel. Finally, I must thank my family of community college colleagues and university professors. Thank you one and all for your faith in my abilities.

**Student Learning Outcomes:
A Critical Issue in the
Implementation of the Learning College Paradigm**

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Pressures for accountability are causing a paradigm shift in community colleges. The new learning paradigm depends upon assessment measures to verify institutional effectiveness and substantive change in learners. Development and assessment of measurable student learning outcomes is posing the largest threat to the effective implementation of the learning paradigm because faculty members lack the skills to development outcomes and assessment. The purpose of this study was to determine how Central Arizona College developed student learning outcomes across the curriculum as the foundation for effective assessment at the course and program levels. A conceptual mindmap was created of the leadership team responsible for facilitating outcomes development, and another mindmap was created for the faculty members responsible for writing and implementing the outcomes. Comparisons of these two composite mindmaps reveal characteristics of the dynamic leadership that motivates and empowers faculty and staff to make the learning college journey.

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Chapter I: Introduction to the Study

INTRODUCTION

The mission of America's community colleges is under revision in response to changing demographics, workforce needs, and demands for accountability. Once considered "teaching institutions", community colleges are shifting to a new paradigm in which they are "learning institutions." This shift ultimately changes how they judge the quality of their product and what measures they employ to evaluate their success (Boggs, 1993).

During the past twenty years, educators in the United States have been repeatedly faced with an inescapable truth: education reform has not produced necessary improvements in student success. These reforms began after publication of *A Nation at Risk* (NCEE, 1983), and were revisited ten years later by publication of *The American Imperative: Higher Expectations for Higher Education* (Wingspread Group, 1993). Both of these reports detailed the failures of our educational system to address the needs of all students, and both called for meaningful reform at every level of educational policy-making and implementation. *The American Imperative* (1993) specifically called for education reform that would move beyond trying to fix the old educational model and construct a new paradigm with learning as its core value.

CATALYSTS FOR A NEW PARADIGM.

As these effectiveness issues emerged, new perspectives on the nature of knowledge were developing. Epistemological questions arose that challenged the very roles of teachers and students. The existing instructional paradigm assumes knowledge

to be delivered by teachers to students. The new learning paradigm assumes knowledge to be actively constructed by students with teachers as facilitators (Barr & Tagg, 1995; Cross, 1998; Senge, 1994). In the learning paradigm, the criteria for measuring success oppose those used to measure success in the instructional paradigm, requiring educators to rethink how they assess the quality of their programs and services (Barr & Tagg, 1995).

Senge's (2000) research indicates that the learning paradigm is more effective in meeting desired learning outcomes. Active engagement of students in their own learning process creates deeper learning (Cross, 1998), and student engagement is directly related to academic goal attainment (CCSSE, 2003). Multiple intelligence theory suggests that intelligence is not static or measurable by typical standardized testing. Instead, multiple learning options "provide students with guidance and the opportunity of learning academic material in different ways. The intent is that by learning material in a way that makes sense for the student, understanding is achieved" (Diaz-Lefebvre, 2003, p. 4).

Rapid technological advancements are changing the nature of learning, the skills that need to be learned, and the ways we document learning. Instructional technology makes it possible to provide educational experiences free from the constraints of place and time, and it shifts learning control from the teacher to the student (O'Banion, 1997a).

Dramatic technological changes in the workplace require employees to have post-secondary education that includes computer literacy, critical thinking skills, and quality improvement skills (McCabe, 2000). Computer technology affords institutions the ability to manage large amounts of data in ways not previously possible, and accountability data are now expected in business, industry, and education (Senge, 1990).

THE ROLE OF COMMUNITY COLLEGES.

Higher education is no longer an elitist privilege but a necessity for training our nation's workforce to compete in a global economy. Community college enrollments are increasing due to their low cost, convenient locations, and open access. Approximately 44 percent of U.S. undergraduates are currently enrolled in community colleges, and over eighty percent of those enrolled are balancing school with work (AACC, 2003).

Unlike four-year institutions, community colleges perform multiple educational functions: developmental education to enable students to achieve college-level competency in reading, writing, and math; preparation for transfer to baccalaureate degree programs; technical workforce training; economic development programs; and general education opportunities for lifelong learning. In addition, they assist students in the development of their personal academic and career goals. Community colleges are “caught between a rock and a hard place—trying to provide access and opportunity to all who can profit, while maintaining academic standards in the face of increased student under-preparedness” (Roueche & Roueche, 1993, p. 1).

Senge (1990) describes “creative tension” as a gap between reality and vision which serves as a source of creative energy. In community colleges, open access creates a gap between the reality of under-prepared students and the vision of academic excellence. The learning paradigm offers a systems approach to maintaining creative energy and continuously improving the quality of student learning.

STATEMENT OF THE PROBLEM

Outside forces in the form of legislators, employers, and other constituents are demanding more accountability from higher education. They want proof that tax dollars are being spent to effectively educate the workforce of tomorrow, and they want proof that graduates will be armed with the appropriate skills to succeed in the workplace. They want assurances that learning is occurring (Roueche, Boswell, & Roueche, 1997).

Unfortunately, community colleges do not have a strong history of critical self assessment. In fact, academia has generally relied on the position that problems are related to poor public relations rather than poor performance (Roueche, Boswell, & Roueche, 1997). Anecdotal evidence and weak numerical data are no longer sufficient to answer public outcries for documented achievement of community college missions. Institutional effectiveness measures must be developed that adequately measure student learning, the primary mission of learning institutions. “Just counting the number of students in and out will not be enough” (Boggs, 1993, p. 3).

Twelve Vanguard Learning Colleges were identified in January 2000 to participate in the Learning College Project sponsored by the League for Innovation in the Community College. These participants identified “defining, assessing and documenting student learning outcomes” as the most challenging and most essential task in the implementation of the learning paradigm (McClenney, 2003b). This critical issue erects a roadblock to creating the culture of evidence necessary for a systems approach to continuous quality improvement through data-driven decision making.

SPECIFIC PROBLEM AREA

Implementation of the learning paradigm is attractive because it improves student engagement and offers opportunities for responsiveness to the changing needs of constituents and employees (O'Banion, 1997b; Senge, 1990). However, responsiveness must be preceded by assessment at the institutional, department, program, and classroom levels. Assessment of learning outcomes provides the feedback necessary to complete the learning cycle and adjust educational missions, links between mission and institutional effectiveness, and relationships between effectiveness measures and the learning college journey. Community colleges are struggling to effectively assess student learning because they are not able to establish measurable learning outcomes at the course level for all areas of the curriculum.

SIGNIFICANCE OF THE PROBLEM

In *A Learning College for the 21st Century*, O'Banion (1997a) described six principles necessary for the successful implementation of the learning paradigm in community colleges. The sixth, documentation of improved and expanded student learning, is the most significant because it measures the level of attainment of the other five principles. This documentation leads to development of a credible culture of evidence for use in powerful, data-driven decision making (McClenney, 2003b). Continuous quality improvement and continued development of the learning paradigm require this culture of evidence to drive decisions and ensure fulfillment of the college mission. This paradigm is a systemic model that allows institutions to look beyond complex issues and identify specific areas for analysis and response. Barr and Tagg

(1995) state, “In the learning paradigm, the key structure that provides the leverage to change the rest is a system for requiring the specification of learning outcomes and their assessment through processes external to instruction”.

The instruction paradigm is inadequate to meet the educational demands of today’s world. It does not engage students in deep learning, and it is not responsive to the changing needs of the modern workforce. Assessment of student acquisition of skills and knowledge must be achieved in order to provide the data necessary to evaluate the success of our educational missions in community colleges. We must know that our students are learning and that their learning is in alignment with the desired course outcomes. Continuous assessment allows institutions to improve the quality of the learning they facilitate.

DEFINITION OF TERMS

Topical Definitions

1. Accountability: The act of being responsible to various publics external to the college for implementation of its mission (Roueche et al., 1997).
2. Achievement Gaps: A disparity between expected and actual learning.
3. Assessment: An evaluation of the degree to which educational performance standards are achieved at the individual, course, program or institutional level. Used in the formation of future goals and objectives (Roueche, Boswell & Roueche, 1997).
4. At-risk Students: Those who are in jeopardy of unsuccessful educational performance and withdrawal from the college, typically due to academic under-preparedness (Roueche & Roueche, 1999).

5. Benchmarking: A tool for quality improvement where norms are established on educational practice and performance (CCSSE, 2003; McClenney, 2003c).
6. Best Practices: Educational practices and performances which are valued as exemplary.
7. Competencies: Knowledge, skills, or abilities identified as desirable outcomes of the learning process.
8. Critical Thinking: Thought processes that require higher level cognitive skills such as analysis,
9. Culture of Evidence: A body of data collected and analyzed for the purpose of continuous quality improvement.
10. Cybernetic Theory: Scientific theory focusing on the ability of systems to engage in self-regulating behavior through information exchange and feedback loops (Morgan, 1998).
11. Formative Assessment: Methods used to measure early learning progress for the purpose of adjusting the learning experience to individual needs and learning styles (Baldrige, 2003).
12. Institutional Effectiveness: An internal strategy for planning and evaluating that generates data by which the college can determine if it is matching its performance to its purpose (Roueche, Boswell & Roueche, 1997).
13. Learning Outcome: A clearly defined result of the learning process that demonstrates a level of competence and is useful for assessment of student learning (O'Banion 1997a).

14. Learning Paradigm: An approach to education in which learning is placed first in every policy, program, and practice (O'Banion, 1997b).
15. Learning Organization: One that is continually expanding its ability to create its own future through adaptive and generative learning (Senge, 1990).
16. Literacy: Competence or knowledge in specific subject areas that promote citizenship and democracy.
17. Open-door Policy: The community college admissions policy that enables student access to any instruction from which they can benefit. Choices are limited by the students' academic skills already acquired and the prerequisite courses or performance levels they have mastered (Roueche & Roueche, 1999).
18. Persistence: The retention of students in educational programs for prolonged periods whereby students are more likely to achieve educational goals.
19. Student Engagement: Interaction of students with college faculty and staff, with other college students, and with the course material being learned (CCSSE, 2003).
20. Summative Assessment: Methods used to measure learning progress against external standards and norms regarding knowledge, skills, or abilities identified as desirable outcomes of the learning process (Baldrige, 2003).
21. Under-prepared: Individuals entering college with knowledge or skill deficiencies that prevent college-level performance.

Methodological Definitions

1. Affinity: A category of meaning generated by a focus group during the clarification process.
2. Affinity Relationship Table (ART): An organized method by which the researcher records the relationship between every possible affinity pairing.
3. Axial Coding: An inductive and deductive process that seeks to name, reorganize, clarify, and refine the affinities generated during the silent nominal process.
4. Axial Code Table: Documentation of the final axial codes or axial quotations in tabular format.
5. Axial Interview: An interview consisting of open-ended questions about the phenomenon designed to elicit detailed description of affinity relationships from the respondents.
6. Clarification of Meaning: The facilitator leads the focus group through an orderly process of clarifying their silent nominal responses and arriving at a common understanding of individual responses.
7. Cluttered System Influence Diagram: A graphic representation of affinity relationships that indicates the relationship between every possible affinity pairing.
8. Feedback Loop: A system of at least three affinities that all influence each other either directly or indirectly. The distinction between drivers and outcomes is less obvious within a feedback loop.
9. Focus Group: A specific constituency composed of individuals with a shared experience (phenomenon) that is the subject of qualitative research. Group interviews

are designed to identify components of the phenomenon and determine relationships between the components.

10. Guided Imagery: A story told by the facilitator to the focus group that portrays the issue under study and encourages participants to mentally relive their experiences relating to the issue.
11. Interactive Qualitative Analysis (IQA): A qualitative research methodology that identifies relationships and captures the lived reality of the respondents.
12. Interrelationship Diagram (IRD): A tabular method of recording all affinity relationships for the purpose of identifying drivers and outcomes.
13. Interview Protocol: An interview structure specifically designed to authenticate focus group affinities and explore each affinity more thoroughly for deeper understanding.
14. Issue Statement: An open-ended statement designed to elicit varied responses from individuals in a focus group.
15. Nominal Group Technique: A process by which the facilitator leads the focus group through a silent brainstorming session to generate data on their experiences with the issue under study.
16. Mind Map: A System Influence Diagram that presents a visual representation of the relationships between affinities.
17. Pareto Protocol: An arithmetic procedure for determining the direction of an affinity relationship using the Pareto Principle 80% rule.
18. Primary Driver: An affinity that is the source of influence in a system.
19. Primary Outcome: An affinity that is the result of influence in a system.
20. Problem Statement: An observation or concern worthy of exploration.

21. Recursion: A feedback loop requiring a minimum of three elements. All elements of the loop influence each other.
22. Rationalization: The removal of redundant relationships in a cluttered System Influence Diagram.
23. Secondary Driver: An affinity that is influenced by the primary driver but has influence on other affinities.
24. Secondary Outcome: An affinity that is influence by primary and secondary drivers but has influence on the primary outcome.
25. System Influence Diagram (SID): A graphic representation of individual or group affinity relationships based upon the Tentative SID Assignments. Functions as a model for use in problem analysis.
26. Tentative SID Assignments: A table that ranks the affinities in descending order from primary driver to primary outcome based upon the Interrelationship Diagram.
27. Theoretical Coding: The deductive process of determining the causal relationship between every possible affinity pairing.
28. Theoretical Interview: Highly structured individual interviews designed to identify relationships between affinities.
29. Topological Zone: An area of a System Influence Diagram in which the affinities share similar characteristics of influence.
30. Timbre: The characteristics of the range of an affinity.
31. Topology: The pattern of links among the affinities in a System Influence Diagram.
32. Uncluttered System Influence Diagram: A graphic representation of affinity relationships in which redundant links have been removed.

33. Warm-up Exercise: A brief exercise designed to introduce the issue under study and make the focus group comfortable.
34. Zooming: A form of affinity analysis in which a feedback loop is named and the name substituted for its individual components in the System Influence Diagram (Northcutt & McCoy, 2004).

PURPOSE OF THE STUDY

The purpose of this study was to determine how a community college successfully defined student learning outcomes and began building a culture of evidence that supports the learning paradigm. A conceptual mind map was created to represent the perceptions of the leadership team responsible for development of learning outcomes. This system influence diagram provides insight into the values, vision, and leadership necessary to implement the most challenging milestone in the learning paradigm. Faculty interpretations of leadership perceptions were used to create another conceptual mind map offering a comparison between leadership and faculty perceptions of the development of learning outcomes.

RESEARCH QUESTIONS

Creating a credible culture of evidence is a “milestone” on the learning college journey that identifies the level of attainment of all other learning college objectives and provides data for continuous quality assessment (McClenney, 2003a). Creating this culture of evidence requires measurable student learning outcomes that authenticate substantive change in learners (O’Banion, 1997a). Nationwide, the progress is slow in

defining and assessing student learning outcomes because it requires a complete shift in how educators look at the student-teacher relationship.

This study sought to learn from an institution that is well into its learning college journey and understand the leadership dynamics that led to the successful implementation of measurable learning outcomes. The following research questions were addressed:

1. What factors influence the development of student learning outcomes, and how are these factors related?
2. What are the faculty members' perceptions of the factors identified by the leadership team, and what relationships do faculty members perceive?
3. How do the perceptions of the leadership team and faculty compare, and what are the implications for other leaders involved in learning outcomes development?

ASSUMPTIONS

In conducting this research, several assumptions were made regarding the community college and its leadership team. It was assumed that the college has made a long-term commitment to the learning paradigm and has invested time and resources in this commitment. It was assumed that the documentation provided regarding development of student learning outcomes was complete. It was also assumed that the focus group and faculty participants were honest in their disclosure of their perceptions regarding the formation of measurable student learning outcomes.

LIMITATIONS

The qualitative research methodology selected for this study reconciles quantitative rigor with qualitative design; however, there were limitations to this study. Selection of the community college for study was based upon the numerous awards Central Arizona College has received for outstanding achievement in faculty development, student learning outcomes development, and assessment practices. These awards are detailed in Chapter 3. The sample consisted of two groups. The focus group was the leadership team responsible for creating policies and procedures designed to encourage the development of student learning outcomes and their assessment. The second group was composed of faculty members who have been required to implement the policies and procedures; however, because the college president required that this project be faculty driven, many faculty members interviewed had served on various leadership teams related to outcomes development. Other members of the organization supported the development of the learning paradigm but were presumably not in key decision-making roles. Finally, group axial and theoretical coding may have downplayed the significance of focus group members holding unique views. Individual interviews were examined thoroughly, and coding procedures carefully considered these views.

CONCLUSION

Identification of measurable learning outcomes precedes outcomes assessment and creation of a credible culture of evidence. Community college faculty members often have little training in curriculum development and assessment techniques, and this creates

a roadblock on the learning college journey. If the learning paradigm is to be truly realized, leadership teams must motivate faculty to work collaboratively to design effective classroom assessment techniques based upon measurable learning outcomes.

Many community colleges are just beginning the learning college journey and find the learning outcomes challenge daunting. Some institutions have become “pseudo-learning colleges” where many principles of the learning paradigm are in place but the culture of evidence is not present to authenticate the success of the college mission. Traditional educational practices are not meeting our rapidly changing educational needs, and like business and industry, education must adopt a paradigm that is responsive to these changes. Insights into the factors that influence leadership teams to effectively implement learning outcomes assessment may provide a roadmap for other colleges on the learning college journey.

This research explored these factors and the relationships between them to create a model for use by other institutions confronted with similar challenges. The following chapter contains a comprehensive literature review addressing the challenges of access and excellence, demographic challenges, the role of community colleges in education reform, the learning paradigm, The Learning College Project, learning outcomes, and assessment. Chapter Three is a description of the study site, Central Arizona College, and it is followed by Chapter Four, a description of Interactive Qualitative Analysis and its application to this research.

Chapter II: Review of the Literature

INTRODUCTION

The missions of America's community colleges are under revision in response to changing demographics and workforce needs. Once considered "teaching institutions," community colleges are slowly shifting to a new paradigm in which they are "learning institutions." This shift ultimately changes how they judge the quality of their product and what measures they employ to evaluate their success (Boggs, 1993).

In *Facing Up to Radical Changes in Universities and Colleges*, Thompson (Armstrong, Thompson, & Brown, 1997) describes higher education's shift in thinking from education as completion of a course or program to education as a lifelong process. She states, "It is a revolution because of the speed at which changes are being made, and because it demands a culture change, to one of flexible, lifelong learning available to everyone." The need for education is more important than ever before, and this has caused leaders to pause and reflect on what educational institutions should value most. Gleazer (2000) offers his insights on the role of community colleges by emphasizing people as their core: people who are learning, connecting, finding opportunities, and living better lives as a result of their community college experience.

In recent years, outside forces in the form of legislators, employers, and other constituents are demanding more accountability from higher education. They want proof that tax dollars are being spent to effectively educate the workforce of tomorrow, and they want proof that graduates will be armed with the appropriate skills to succeed in the

workplace. They want assurances that learning is occurring (Roueche, Boswell, & Roueche, 1997).

Anecdotal evidence and weak numerical data are no longer sufficient to answer public outcries for documented achievement of community college missions.

Institutional effectiveness measures must be developed that adequately measure student learning, the primary mission of learning institutions. “Just counting the number of students in and out will not be enough” (Boggs, 1993, p. 3).

This study examines the changes currently facing community colleges and the challenges of fulfilling educational missions today. In addition, it describes impacts of the learning paradigm on educational missions, links between mission and institutional effectiveness, and relationships between effectiveness measures and the learning college journey.

THE CHALLENGES OF ACCESS AND EXCELLENCE

As open-door institutions, community colleges serve a high proportion of non-traditional students who are either first-time college students or returning to retrain for alternative employment. These non-traditional students are considered at-risk for a variety of reasons including weak academic history, poverty, mandatory employment, lack of family support, families that require support, and failure expectations due to a lack of academic success in the past (Roueche & Roueche, 1993). Their most viable route to higher education is the community college, which must provide basic literacy to close achievement gaps in addition to providing college-level skills.

Racial inequalities in literacy are a continuing problem in American education, and due to the nature of employment opportunities, economic access is now dependent upon high literacy (Berliner, 2002). Recent studies show that 55 percent of minority students in higher education enroll in community and technical colleges (Andrews & Fonseca, 1998). Total community college enrollment is approximately 30 percent minority students, and this figure will undoubtedly increase since minorities are predicted to compose 47 percent of the U.S. population by 2050 (Szelenyi, 2001). However, access to higher education is not enough. Studies of Hispanic and African American students indicate pronounced gaps in student achievement at all levels of education (Babco, 2002a; Babco, 2002b). America's best hope for addressing this problem resides in public education, which is still the most democratic and accessible to all races and ethnicities of any institution in the country (Noguera & Akom, 2000).

Community colleges are positioned to offer a seamless transition from high school to college provided they can effectively meet the needs of their incoming students. Yet success strategies at some high schools result in lower academic standards that ensure high graduation rates but leave students unprepared for college. A recent study by the Department of Education concludes that the most important factor in the completion of a baccalaureate degree is the intensity and quality of the student's previous high school curriculum (Adelman, 1999). If community colleges are to effectively educate incoming high school graduates, achievement gaps must be identified and closed.

The need to fill these gaps is not well understood by society because many do not recognize the depth and breadth of change that has occurred in our workforce. A strong work ethic is no longer enough to guarantee a job and a living wage. Today, workers

need post-secondary training for jobs that require technical skills and critical thinking, and there is a definite connection between our national economy and the skills of our workforce (Roueche & Roueche, 1999).

The changes facing educational institutions today are substantial, broad in scope, and often not readily identified. The rate of change today is faster than ever before and involves economics, demographics, politics, and society (Drucker, 1999). Employers are now seeking skilled as opposed to unskilled employees, and these workers require advanced reading, mathematics, and computer abilities (McCabe, 2000). The Information Age is bringing pressure to bear on educational institutions to produce students capable of critical thinking, application of knowledge, and problem solving (CESE, 2001). Technological advancements are occurring at a rate beyond our comprehension just a few years ago, and the speed of change in knowledge necessitates the development of a society invested in lifelong learning.

DEMOGRAPHIC CHALLENGES

In addition to changes in technology, changes in family structure and community demographics are impacting educational systems in ways not experienced by any other type of institution (Senge, 2000). More children are being born to unmarried women with limited earning power and are living in single parent households. This results in a higher number of children living in poverty who begin their education already behind other students. Regardless of family structure, children are spending less time with parents, resulting in pressure on schools to provide more learning support (McCabe, 2000; Senge, 2000).

Growing minority populations are disproportionately poor, resulting in educational under-preparation. By the year 2050, non-Hispanic whites will make up only 52.8 percent of the U.S. population while Hispanics, African Americans, and Asians will make up 24.5 percent, 13.6 percent, and 8.2 percent respectively. The achievement gap between whites and minorities continues at all educational levels, and there is a decline in the number of high school students graduating with a regular diploma (McCabe, 2000). Thus, it is not surprising that increasing numbers of minority students are entering colleges academically under-prepared. In addition, they are often first generation learners with little family or economic support (Roueche & Roueche, 1993).

In addition to ethnicity, the age structure of the U.S. is changing, and this will have significant effects on education. By the year 2030, 20 percent of the U.S. population will be over age 65, and the proportion of workforce to elderly will be half what it is today. McCabe (2000, p. 11) states, “As much of the U.S. population ages and the workforce shrinks, it will be up to the education system to ensure that all Americans in their prime work years are prepared for employment.”

EDUCATION REFORM

Since community colleges are positioned as open-door institutions, they serve a high proportion of non-traditional students who need to enter the workforce with appropriate skills and training. Not only do students need technical skills to meet current employment demands, they need to develop technology-related social values such as ethics and knowledge of rights and responsibilities (Anderson & Bikson, 2002).

Community college enrollments are at an unprecedented high, and the soaring cost of higher education will force even more students to begin their post-secondary education at two-year institutions. Given the demographic changes affecting community college enrollments, pressure to maintain both access and excellence are creating new leadership challenges. According to Unger and West (1998, p.11), community colleges are the optimum laboratory for “democratic experimentalism” where they try out new pedagogical methods that will result in an economy “relying on a more informed citizenry rather than on a more enlightened technocratic elite.” However, new pedagogical methods alone are insufficient to meet the rapidly changing educational needs of diverse community college populations. Student support services, organizational structure, and decision-making processes must reflect a sincere organizational commitment to student success in the face of rapid change.

The needs of the local community are also served by community colleges through collaboration with community leaders. They play a vital role by serving as local laboratories for building effective communities, shared visioning, partnerships, leadership, experiential student learning, and democracy (Heelan, Redwine, & Black, 2000). Community colleges are a logical place to begin a learning revolution because they are inherently focused on the teacher-student relationship, the local community, and direct application of educational experiences. According to Cross (O’Banion, 1997a, p. 5) in her foreword to *A Learning College for the 21st Century*:

Although community colleges have not always received appropriate recognition for their leadership in rising to meet the constantly changing educational needs of the nation, their energy and innovative spirit seem

undaunted. This “can do” spirit is fortunate because in many instances change arrives on the doorsteps of the community colleges without fanfare, and they are expected to rise to the challenge.

A NEW LEARNING PARADIGM EMERGES

During the past twenty years, educators in the U.S. have been repeatedly faced with an inescapable truth: education reform has not produced necessary improvements in student success. These reforms began after publication of *A Nation at Risk* (NCEE, 1983), and were revisited ten years later by publication of *The American Imperative: Higher Expectations for Higher Education* (Wingspread Group, 1993). Both of these reports detail the failures of our educational system to address the needs of all students, and both call for meaningful reform at every level of educational policy making and implementation. The concept of learning-centered education emerged in the early 1990s as a means of developing responsive educational organizations able to meet changing student needs. *The American Imperative* (1993) called for education reform that would move beyond trying to fix the old educational model and construct a new paradigm with learning as its core value.

The learning paradigm is not unique to education. The concept of learning organizations emerged in business where electronic information exchange transformed the business community and produced a new challenge of dealing with continuous change. Cybernetic theory was applied to design complex systems capable of learning. “The core insight emerging from early cybernetic theory was that the ability of a system

to engage in self-regulating behavior depends on processes of information exchange involving negative feedback” (Morgan, 1998, p. 77).

Later research on learning organizations differentiated between those capable of learning and those capable of learning to learn. Systems that learn can “detect and correct deviations from predetermined norms” whereas systems that learn to learn “question the appropriateness of what they are doing” (Morgan 1998, p. 78). In a world of rapid change, organizations that learn to learn can anticipate change and be ready for it.

Senge (1994) described responsiveness as the key to survival in both business and education, requiring an organizational commitment to continuous learning. In *The Fifth Discipline: The Art and Practice of the Learning Organization*, Senge (1990) deconstructed the learning organization into five interrelated disciplines: personal mastery, mental models, shared vision, team learning and systems thinking.

Barr and Tagg (1995) described the “Learning Paradigm” as a viable replacement for the “Instruction Paradigm” because the mission is student learning rather than instruction. In addition, they emphasize the need to redesign the criteria for measuring quality by focusing on student learning outcomes as opposed to comparisons of college enrollments and graduation rates.

In his work *A Learning College for the 21st Century*, O’Banion (1996) detailed the six necessary principles of a learning college:

1. The learning college creates substantive change in individual learners.
2. The learning college engages learners as full partners in the learning process, assuming primary responsibility for their own choices.

3. The learning college creates and offers as many options for learning as possible.
4. The learning college assists learners to form and participate in collaborative learning activities.
5. The learning college defines the roles of learning facilitators by the needs of the learners.
6. The learning college and its learning facilitators succeed only when improved and expanded learning is documented for its learners.

Placing learning “first in every policy, program and practice” is a difficult undertaking and requires an institution-wide commitment to all six learning college principles (O’Banion 1997a, p. 1). While all of these principles are important to the development of a learning college, principle six presents a significant challenge because it documents the success of the other learning initiatives. Community colleges historically do not employ adequate institutional effectiveness measures to evaluate their success, but instead rely heavily on anecdotal evidence. Public pressure to demonstrate student learning is increasing as budget shortfalls raise questions about how tax dollars are spent. Increasing enrollments coupled with decreasing state funds places some community colleges in the difficult position of trying to do more with less. Every community college is being forced to evaluate its programs and services to determine what is most cost effective and student effective.

If community colleges are to function as crucibles for educational reform, it is incumbent upon these institutions to accurately document the success of their students,

faculty, staff, programs and services. Institutional effectiveness must be measured and appropriate adjustments made when necessary to ensure that students are prepared to meet the employment challenges of the future.

Building a credible culture of evidence is a “milestone” on the journey to becoming a learning college (McClenney, 2003a). It is significant because it identifies the level of attainment of all other learning college objectives and provides an assessment of where the college is in its journey. However, inadequate or inappropriate institutional effectiveness measures become roadblocks on the learning college journey by failing to provide college leaders with a true picture of how successfully they are implementing the learning first paradigm.

THE LEARNING COLLEGE PROJECT

In January 2000, the League of Innovation in the Community College initiated The Learning College Project. The project, based on the work of the League’s former president, Terry O’Banion, was a three-year commitment to facilitate the development of the learning college paradigm in 12 Vanguard Colleges. These 12 colleges, selected from a field of applications from 94 colleges in the U.S. and Canada include the following institutions: Cascadia Community College, The Community College of Baltimore County, Community College of Denver, Humber College, Kirkwood Community College, Lane Community College, Madison Area Technical College, Moraine Valley Community College, Palomar College, Richland College, Sinclair Community College, and Valencia Community College. This collaborative effort focused on implementation strategies in five fundamental areas: organizational culture, staff recruitment and

development, learning outcomes, information technology, and under-prepared students (Wilson, 2002a).

The first step in documentation of student learning was the development of learning outcomes or expected results from the learning process. These outcomes must be measurable for successful implementation to occur. The 12 Vanguard Colleges reported that this area presented the most significant challenges due to the need to rewrite existing assessment tools or create new ones where none existed (Wilson, 2002b). Complicating this challenge was the lack of experience developing learning outcomes for general education courses and curriculum skills such as writing, critical thinking, and problem solving. “Few of the colleges are satisfied with their processes to assess the acquisition of skills and knowledge identified in the outcome statements, and none of the colleges have created satisfactory models to document and transcript the learning outcomes” (McClenney, 2003b).

While a few colleges have made advancements, in general, McClenney (2003b) characterized the evolution of defining and assessing student learning outcomes as “random acts of progress.” Successful initiatives by the Community College of Baltimore County created learning outcomes for specific courses with the intention of expanding to eventually include all general education courses. This was not encouraging news for other institutions hoping to learn a quick recipe for success from the Vanguard Colleges (CCBC, 2002).

A related challenge was that of developing a culture of evidence to verify student learning as the central focus of a learning college. The foundation of this culture of evidence was the development of learning outcomes, which poses a daunting and

unfinished task. However, raw data availability itself is insufficient to create a true culture of evidence. The data must be transformed into knowledge that can be used to drive continuous improvement at all levels of the institution. The Vanguard Learning College leadership recognized that data-driven decision making is more powerful and leads to learning-first decisions (McClenney, 2003b).

The Learning College Project is frequently described using the metaphor of a journey because it is a long-term commitment with no actual destination. As learning institutions, the Vanguard Colleges committed to organizational feedback and continuous improvement, yet they will never “arrive” as learning colleges. Several milestones were identified as the journey unfolded, and these included the ability to self-critique, collective responsibility for student learning, benchmarking best practices, building a culture of evidence, and defining and assessing student learning outcomes (McClenney, 2003a).

THE CHANGING FACE OF ASSESSMENT

The role of assessment in community colleges has changed dramatically in the last 50 years. Primarily considered the means by which an instructor evaluated student performance in a course, Bloom’s taxonomy became a popular tool for developing classroom assessments based upon knowledge, comprehension, application, synthesis, and evaluation (Maynard, 2003). During the post-World War II expansion of community colleges, the value of higher education was assumed, and both universities and community colleges enjoyed relative autonomy (Huba & Freed, 2000).

This autonomy began to erode in the 1970s when financial support for higher education no longer kept pace with costs. High inflation, declining private donations, and competing public interests created budget shortfalls that called for more fiscal accountability. Coupled with this changing financial picture was higher diversity among students attending college and concerns regarding their ability to perform at the college level (Huba & Freed, 2000).

Assessment expanded and became widely accepted in the 1970s as a means to determine college preparedness for entering students. In open access community colleges, it was recognized that early identification of at-risk students was critical to their success. Calls for reform and accountability in the 1980s influenced many states to develop exit tests as prerequisites to earning an associate's degree. These exit tests began to be used as measures of institutional effectiveness by comparisons between graduation rates at various colleges (Roueche & Roueche, 1993). Retention and transfer rates were readily available and employed to measure institutional effectiveness by comparisons between colleges. These comparisons do not measure the actual learning students achieved.

The continuous quality improvement movement that swept U.S. business and industry in the 1980s had significant influence on higher education assessment in the 1990s. Pressure on higher education institutions to become more accountable to their constituents paralleled that of industry, resulting in development of quality improvement strategies to recruit students, improve services and enhance learning (Huba & Freed, 2000). However, student learning is a difficult product to measure, and assessment has become a ubiquitous term used in reference to admissions tests, course evaluations,

standardized exams and psychometric evaluations (Heywood, 2000). Appropriately assessing student learning for the purpose of data-driven quality improvement has become the most formidable task facing higher education today.

Data-driven quality improvement is only as good as the data collected. Traditional assessment techniques are proving ineffective in both measuring student learning and motivating improved student performance because they are merely auditing tools used after teaching and learning are over (Wiggins, 1998). Multiple choice exams provide a snapshot audit based upon a teacher-friendly format of assessment that says little about what a student can do with their knowledge. Authentic assessment practices should evaluate a student's ability to implement knowledge by innovative means in a variety of increasingly complex situations. In a learning institution, student performance appraisals must focus on assessment as a tool for improving both teaching and learning through continuous feedback (Wiggins, 1998). As higher education institutions are held more accountable for their effectiveness in creating substantive change in individual learners, the use of educative assessment techniques is becoming increasingly important.

In a 2001 study of institutional effectiveness, *In Pursuit of Excellence: The Community College of Denver* (Roueche, Ely, & Roueche, 2001), it was noted that community colleges often do not collect sufficient data to demonstrate their effectiveness in educating students. Students may be assessed and tracked within the community college; however, once they have transferred or entered the workforce, tracking often becomes difficult and ceases.

Another study conducted by The League of Innovation in the Community College concluded that colleges tended to rely on traditional indicators of effectiveness such as

degree completion rates, growth, diversity, and student transfer rates rather than on indicators of learning such as literacy and citizenship skills. “Colleges, for the most part, do not appear to understand the link between institutional mission and effectiveness” (Johnson, 1997, p. 45).

The initiation of institutional assessment by accreditation agencies has sparked a whole new emphasis on data collection. This assessment trend continues to be fueled by escalating higher education costs and legislative pressures for accountability. It also marks a new stage in the accountability movement, the merger of assessment and accreditation (Lubinescu, et al., 2001). Unfortunately, political pressure of this nature frequently results in assessment measures that are quickly developed and administered sporadically. In *The Search for the Learning Centered College*, Flynn (2003, p. 5) states, “Assessment should not be linked to the negative implications of externally mandated accountability; it should be an internal quest for continuous quality improvement of the learning process conducted by all college employees.”

Fortunately, the learning paradigm is infiltrating the accreditation process to some degree. The Southern Association of Colleges and Schools has been a leader in institutional evaluation based upon outcomes (Owen, 1988). Accreditation standards currently focus on both student and institutional outcomes assessment (Rugg, 2003).

These standards include:

Core Requirements:

1. Institution-wide research and program review for continuous improvement and mission accountability;
2. Ongoing planning and evaluation;

3. Formulation and assessment of outcomes for educational programs and support services and use of these assessments in quality improvement.

Comprehensive Standards:

1. Academic programs are approved by faculty and administration and programs are evaluated and have established learning outcomes;
2. Competencies are identified for the general education core and student attainment of competencies is assessed (GSU, 2003).

As a result of an assessment forum sponsored by the American Association for Higher Education, experts agreed upon 9 principles of good practice for assessing student learning (AAHE, 1996). These principles provide a foundation for institutions in any stage of outcomes development and assessment, and they include:

1. The assessment of student learning begins with educational values;
2. Assessment is most effective when it reflects an understanding of learning as multidimensional, integrated, and revealed in performance over time;
3. Assessment works best when the programs it seeks to improve have clear, explicitly stated purposes;
4. Assessment requires attention to outcomes but also and equally to the experiences that lead to those outcomes;
5. Assessment works best when it is ongoing not episodic;
6. Assessment fosters wider improvement when representatives from across the educational community are involved;

7. Assessment makes a difference when it begins with issues of use and illuminates questions that people really care about;
8. Assessment is most likely to lead to improvement when it is part of a larger set of conditions that promote change;
9. Through assessment, educators meet responsibilities to students and to the public.

The American Productivity and Quality Center (APQC) works with educational institutions to develop quality management practices including formulation and assessment of learning outcomes. In a 1998 study, participants identified four reasons to assess learning outcomes:

1. To help improve instruction;
2. To know how effective you are;
3. To be accountable to stakeholders;
4. To help attract future customers or clients.

The executive summary clearly indicates that the responsibility for employee training programs is shared by industry and higher education, and the language of the report emphasizes customer service and institutional accountability for learning. Partners in the study include Ball State University, Emporia State University, Fidelity Retail Investor Services, Sinclair Community College, Tennessee Valley Authority University, and University of Phoenix. The study emphasizes the need for pre-instruction and post-instruction assessment to determine what learning occurred during the course. It also concludes that decentralized assessment assures that the results will remain close to

instruction and curriculum development where they will be applied to continuously improve programs (Brown, Keeton, & McMorrow, 1998). Diaz-Lefebvre (2003, p. 2) reaches a similar conclusion and states, “Institutional efforts at assessment and improvement of student learning at the educational program level ultimately depend on research, assessment, and improved learning at the classroom level.”

The Baldrige National Quality Program was developed to build partnerships between business, education, and government for improving national competitiveness. The education criteria promote learning-centered education and value concepts such as vision, social responsibility, systems thinking, agility, and innovation. All of these values are reflected in the learning college paradigm. The Baldrige Program also emphasizes formative and summative assessment to determine the level of learning achieved in classrooms and programs. It also focuses on self-assessment by students and their families to track their individual progress and assess needs. The criteria for education include leadership, strategic planning, students/stakeholders/market, measurement/analysis/knowledge management, faculty/staff, process management and organizational performance results (BNQP, 2003).

The strengths of this comprehensive assessment are that it provides a system view, and it is diagnostic. However, it is expensive, time consuming, and the results are centralized. Expense and time make this tool difficult to use in continuous assessment, and the centralization of results may impede their use at the instructional level where they are most needed.

The Academic Quality Improvement Project (AQIP) began in 1999 with funding from the Pew Charitable Trust. AQIP helps higher education institutions create a culture

of continuous quality improvement by providing an alternative method of re-accreditation through the Higher Learning Commission of the North Central Association of Colleges and Schools. Nine qualities common in systemic approaches to quality improvement provide the foundation for all AQIP criteria, activities, processes, and services. These principles are focus, involvement, leadership, learning, people, collaboration, agility, foresight, information, and integrity. The strength of AQIP is that systems thinking differentiates this accreditation process from traditional approaches and provides a foundation for both quality assurance and institutional improvement from within the college (AQIP, 2002). AQIP is cost effective and aligns well with the learning college paradigm.

Additional assessment tools are available that measure student engagement in the learning process, which research clearly indicates leads to retention and successful learning (Chickering & Gamson, 1987; Pascarella & Terenzini, 1991). The Community College Survey of Student Engagement is designed to assist two-year institutions by assessing the educational practices and student behaviors associated with desired learning outcomes. The survey results are used as a tool for benchmarking educational practices, diagnosing areas in need of development, and documentation for continuous quality improvement (CCSSE, 2003).

The CCSSE instrument is extremely useful in that it provides valuable data on instructional and non-instructional forms of student engagement that lead to retention. Its drawbacks are that it is expensive, and it is not administered on a continuous basis. In addition, the results are centralized and may not be distributed beyond upper

administration. Employees on the front line, who need the feedback from this survey most, may not be kept in the feedback loop.

CONCLUSION

During the past 50 years community college education has undergone rapid and significant changes as a result of developing technology and changing demographics. Changes in workforce needs create continually changing educational missions. The ability to collect and manage data impacts all institutional levels and creates new data management potential and problems. Community colleges are challenged to collect appropriate data and transform that data into useful knowledge that will affect decision-making. Petrides (2002, p. 2) states:

Given the pressing need for information that can improve decision making, the extremely high cost of new technology, and the extent to which its implementation requires significant organizational transformation, it is not surprising that (1) community colleges have found vastly different ways to collect and process the information they need, and (2) many community colleges do not have campus wide systems that provide administrative and faculty leaders with timely access to basic information that would enable them to make fully informed decisions.

In implementing the learning college paradigm, data collection is not enough to create a culture of evidence. Institutions must be able to demonstrate, through knowledge gained from data, the impact of their programs and services on student learning. More accurately stated, institutions should be able to demonstrate how attainment of their

educational missions. This requires effective data collection, dissemination, interpretation, and analyses within the institution. It also requires a systemic approach that considers complexity, interrelationships, and change (Senge, 2000).

The learning college paradigm is being adopted across the country as educational institutions are called to be accountable for student success. Accreditation procedures, the Community College Survey of Student Engagement, and the League of Innovation Learning College Project are some of the influences cited in driving these commitments to transformation (Atkins & Wolfe, 2003). However, the journey to becoming a learning college requires confronting the assessment of student learning outcomes, a milestone that has proven to be the most challenging in the journey thus far (McClenney, 2003a). Not one of the Vanguard Learning Colleges is comfortable with the progress they are making in achieving the sixth and most important learning college principle, documentation of improved and expanded learning (McClenney, 2003b).

The assessment movement has been engaged in developing new approaches to measuring student learning for over twenty years. The forces driving this movement are both extrinsic and intrinsic. Accreditation procedures, financial constraints, and even tenure act as extrinsic influences, while the desire to improve student learning is the strongest intrinsic motivator (Angelo, 1999). With all this motivation to assess, why is it so difficult to develop assessment tools?

The answer lies in the complexity of our current educational systems and struggles with our mental models regarding teaching and learning. Cross (1998) describes how our views on the construction of knowledge in education are changing from an acquisition model to a construction model. In *Doing Assessment as if Learning*

Mattered Most, Angelo (1999) outlines three steps for transforming assessment in learning-centered institutions. He recommends focusing more on learning and less on the assessment method or the rewards of assessment such as funding, accreditation, or tenure. He also suggests the collaborative formation of learning goals by groups composed of both students and faculty and suggests that we rethink our concept of assessment as a sporadic technical process. The Learning College Project further concluded that continuous assessment was crucial to building a culture of evidence because it maintains a continuous feedback loop for continuous quality improvement (McClenney, 2003b; Senge, 2000).

Transforming the assessment process is a necessary milestone in the learning college journey, but it is perhaps the most difficult to attain. Before meaningful assessments of student learning can take place, the faculty, staff and administration of community colleges must first develop into a learning community willing to reach the milestone of transformative assessment. Angelo (1999) suggests that Senge's principle of personal mastery must first be applied to this collective group so that they can develop and share trust, visions, language and finally, research-based guidelines. The learning college journey is long and without end, and the necessary milestone of transformative assessment may prove to be a roadblock for some community colleges. Roadblocks can be moved or circumvented with extra effort, and the rewards of increased student learning and the creation of a culture of evidence are worthwhile.

This chapter described the importance of the learning college paradigm in community colleges and the difficulties of implementation. The next chapter provides a brief history of the study site, Central Arizona College, and the learning college journey

at this institution. The chapter includes a description of the leadership motivating this journey and their focus on student learning outcomes assessment.

Chapter III: Central Arizona College

INTRODUCTION

Central Arizona College (CAC) is a public community college serving Pinal County, Arizona with three campuses and two educational centers. It serves a highly diverse student population with a total headcount of 4,963 and a full time student equivalent of 2,630 for Fall 2004 (Calaway, personal communication, September 3, 2004). CAC currently offers 50 university transfer programs and over 90 degrees and certificates in vocational programs. In addition, CAC offers dual credit courses in Pinal County high schools and upper-level courses through agreements with Arizona's universities.

Currently, the CAC service area is experiencing explosive population growth. This predominantly rural area is expected to have over one million residents by the year 2025. New households are mostly wealthier, dual-income families that are more mobile and more likely to attend college part-time. Twenty-five percent of the households speak a language other than English as their primary language, and Hispanics and American Indians constitute 30 percent and eight percent of the county population respectively. Hispanics are the most rapidly growing segment of the Pinal County population, and 38 percent of the population is currently over age 60, compared with the state average of 30 percent (CAC, 2004a).

There are currently 323 faculty members in the CAC district, 96 full-time and 227 part-time faculty. Over 55 percent of full-time faculty members are age 50 or older and are likely to be retiring in the next ten years (Bell and Landers, 2003). Recruitment and

retention of qualified faculty reflective of student ethnicity pose a challenge in the future hiring practices of the college.

Visionary leadership at Central Arizona College recognized the need for a responsive learning organization able to meet the changing demands of stakeholders in a rapidly growing community. CAC embarked upon the learning college journey almost 15 years ago, and it has succeeded in overcoming some of the greatest challenges along this journey, most notably, the development of a student learning outcomes across the curriculum. Its emphasis on the learning paradigm is clearly evident in its strategic goals. Advancement of the learning college culture is being addressed by, "...strengthening core programs, facilities, services, processes, values, interpersonal relationships, and staff development." The creation of learner-centered environments is occurring through the utilization of, "...learner-centered, outcomes-based, quality oriented approaches to programs and service delivery." (CAC, 2004b)

A BRIEF HISTORY OF THE COLLEGE AND OUTCOMES ASSESSMENT

Central Arizona College (CAC) was founded during the height of U.S. community college expansion. In 1961 the Arizona legislature passed a bill authorizing the formation of county community college districts. The Pinal County Community College District was formed in 1967 and acquired 80 acres for the construction of its first campus. During construction of this campus, the newly formed district began offering courses to 100 inmates at the Arizona State Prison located in Florence. The Signal Peak Campus, consisting of nine buildings including a dormitory, opened to approximately 1,000 students in the fall of 1969 (CAC, 1998).

The college expanded rapidly with the construction of a second dormitory at Signal Peak and a Career Center on the Gila River Indian Reservation in 1970. Over three hundred Pima and Maricopa Indians initially registered for classes, and the college continued to operate this center until 1992 when it was turned over to the Indian Community. Founding President Don P. Pence described the college mission by stating, “Paramount in the philosophy of the ‘Open Door’ community college is the obligation to provide for the educational needs of all people in the county above high school age, regardless of their educational level” (CAC, 1998).

Within its first two years of operation, CAC had a fully operational student government, its first cohort of nursing graduates, a nationally ranked forensic team, and a nationally recognized track team. Central Arizona College had hit the ground running, both literally and figuratively. The college received full accreditation from the North Central Association of Colleges and Schools in 1973, and land was purchased for construction of the Aravaipa Campus.

Dr. Pence’s tenure as president ended in 1976 and his final statement to the CAC Governing Board was a warning to resist state control of curriculum, a philosophy indicative of the times. Colleges and universities were typically autonomous and assessment was associated with individuals and courses rather than programs and institutions (Heywood, 2000). Pence stated, “You can only serve all of the people if you are a local board. Curriculum basically comes from the people. Being a community college means serving the people” (CAC, 1998).

In response to rapid population growth east of Phoenix the governing board leased a shopping center in Apache Junction, establishing the Superstition Mountain Campus in

1985. Further growth created service needs to the south, and the Casa Grande Adult Education Center opened in 1998, providing a computer lab, classrooms, and space for the Small Business Development Center (CAC, 1998).

Creating Supportive Leadership

The continuous quality improvement strategies that dominated the business world in the 1980's were incorporated into the college philosophy under the leadership of John J. Klein, Jr. who became vice president in 1988 and president in 1990. Prior to his career in educational administration, Dr. Klein was involved in business and marketing, and his application of Total Quality Management (TQM) principles in the community college was well-received by the governing board. In 1989 CAC received a Title III grant focusing on total quality education, which involved the governing board and administrators in a review of neighboring Maricopa County Community College District and its TQM strategies (Klein, personal communication, September 3, 2004).

It was Dr. Klein who first embraced the learning college paradigm and began laying the groundwork for transformational assessment practices at Central Arizona College. He began linking academic achievement to strategic planning and to all stakeholders in the strategic planning process. He established a continuous quality improvement climate by focusing on assessment, research, and problem solving. A curriculum handbook was written as well as competencies for technical programs across the district (CAC, 1998).

As a result of the Title III grant and study of learning college principles, the governing board experienced a paradigm shift that resulted in a new vision for CAC. The

board set new expectations for the college, changing to a learning-focused mission statement. Meetings were held monthly at the college campuses to begin expressing the learning college language, and the board and college administration began supporting the learning mission in both their words and actions. The implementation of interactive television connected the district-wide CAC curriculum as never before, and this technology drove the need for continuity in learning outcomes and assessment (Klein, 2004).

In 1995 the CAC Governing Board received the inaugural David Pierce Quality Organizational Leadership Award by the National Initiative for Leadership and Institutional Effectiveness and North Carolina State University. That same year the North Central Association recognized the college for its implementation of their Standards to Assess Student Academic Achievement. In 1996 the college was honored with five David Pierce Workforce Development Awards (CAC, 1998).

Student Learning Outcomes Assessment

In 1991 the Student Learning Outcomes Assessment Program was created, and faculty members were appointed to the first Student Learning Outcomes Assessment Committee (SLOAC). Dr. Klein encouraged faculty driven outcomes because he felt that faculty members were the “managers of learning” at CAC, and as managers they needed to see the role of learning in the “bigger picture” (Klein, personal communication, September 3, 2004). The committee’s charge was to, “develop a process for defining student learning...identifying and assessing learning outcomes for the improvement of teaching and learning...as a component of documenting the institution’s effectiveness in

achieving its mission” (CAC, 2004c). The approach to this formidable task began with broad institutional concerns and moved toward improved student retention. Changing the institutional paradigm to a more learning-centered approach included the development of a Student Opinion Survey administered annually.

After considerable communication with faculty as well as training in the development of student learning outcomes, the committee stated, “Exploration of appropriate assessment measures led the committee members to conclude that general learning outcomes must be expressed specifically as behaviorally stated outcomes before finalizing the assessment methods” (CAC, 2004c).

The outcomes planning process focused on establishing learning outcomes for the degree programs across the district. This effort involved the entire faculty and resulted in a list of general education outcomes in addition to the outcomes for specific courses. The committee took a “divide and conquer” approach with half of the members developing outcomes for the Associate of Arts and the Associate of General Studies degrees while the other half of the committee tackled the general education outcomes and the Associate of Arts and Sciences degree. In concert with this significant movement to develop outcomes, Central Arizona College adopted an academic probation and suspension policy to provide early intervention and promote student retention (CAC, 2004c).

By 1994 the Student Learning Outcomes Assessment Committee had completed goal statements for each of the Associate Degree outcomes. Assessment Criteria Procedures were created using a variety of measurement tools, and both goal statements and Assessment Criteria Procedures were further refined by implementing results from a student survey administered jointly with the Director of Institutional Research and

Grants. Other data gathering methods were implemented to assess the state of student learning at Central Arizona College. These surveys included the Community College Experiences Questionnaire, College Outcomes Survey, Alumni Outcomes Survey, and Employer Survey.

The North Central Association of Colleges and Schools conducted an accreditation visit in 1995. It concluded that Central Arizona College had made significant progress in the demonstration of continuous improvement processes for instruction and support of student learning. The comprehensive scope of the outcomes assessment program was a decided strength; however, more direct assessment was needed in the classroom (CAC, 2004c).

Four Levels of Assessment

The following year these findings were addressed in the Learning Outcomes Assessment Report which described four levels of improved learning assessment within the college and how these assessments were being implemented. Within Class Assessment involved techniques described by Cross and Angelo (1993), Total Quality Management methods and original methods developed at Central Arizona College. Both Classroom Assessment (Cross & Angelo, 1993) and classroom testing were revised to address the specific learning outcomes of each course and used to provide immediate feedback for assessing teaching and learning.

Course Level Assessment involved the development of student portfolios in some areas. Pre- and post-assessment of knowledge and skills, standardized tests and common

final exams at the department level were other strategies implemented to assess student learning and preparedness for subsequent courses in a sequence.

Program Level Assessment included evaluation of student competence in sequence courses and final courses in a program. Capstone courses were introduced to facilitate integration of knowledge from many areas of study and promote self evaluation of learning abilities. Post-graduate assessments at the program level included licensing exams, degree or certificate completion, employer assessments, and student performance in upper-division university courses.

The fourth level of assessment at Central Arizona College was the Across Curriculum/General Education Level Assessment. Techniques employed at this level included pre- and post-assessment of the general education outcomes, including cultural diversity competencies. Nationally-normed tests such as the Collegiate Assessment of Academic Proficiency (CAAP) were used to assess college-wide achievement, and Student Opinion Surveys were used across the disciplines to rate achievement of the stated learning outcomes (CAC, 2004c).

The CLASS Office

Linda Heiland was hired in 1998 to serve as a curriculum expert “orchestrating knowledge, passion for teaching, and curriculum into a coherent whole” (Klein, personal communication, September 3, 2004). In 1999, Dr. Klein provided additional support to the CAC learning focus when he dedicated resources to form the Curriculum, Learning, Assessment, and Support Services Office (CLASS Office) and appointed Linda Heiland director. Among her responsibilities were leadership of curriculum development and

revision, academic assessment programs, generation of student learning outcomes, and faculty professional development regarding curriculum academic quality standards. The establishment of this office clearly indicated that President Klein was willing to commit budgetary resources to curriculum development and the advancement of Central Arizona College as a learning college in the twenty-first century. Funding of the CLASS Office allowed Linda Heiland to work effectively with the Student Learning Outcomes Assessment Committee to revise and streamline the curriculum development and revision processes and create a communication network for dissemination of curriculum information. In addition, she worked closely with the administration to investigate technology solutions for curriculum development problems.

In 1999, Terry Calaway became the Vice President of Educational Programs and Services. Dr. Calaway brought with him extensive knowledge of student learning outcomes and an ability to take CAC to the next level (Klein, personal communication, September 3, 2004). As vice president he chaired the Student Learning Outcomes Assessment Committee and worked to empower faculty and administrators in the development of learning outcomes. As a committed supporter of the learning college paradigm, Dr. Calaway understood the value of continuous learning assessment at all four levels within the institution, and he sought solutions to the roadblock created by the cumbersome paper-based methods of outcome development and revision.

AQIP Membership

As a direct result of the emphasis on the learning paradigm, Central Arizona College petitioned to join the Academic Quality Improvement Program (AQIP) in 2000

and was accepted in the first group of participating colleges. This accreditation program is administered by the Higher Learning Commission of the North Central Association of Colleges and Schools. The AQIP mission (AQIP, 2002) states:

The AQIP Project attempts to infuse the principles and benefits of continuous improvement into the culture of colleges and universities by providing an alternative process through which an already-accredited institution can maintain its accreditation. With AQIP an institution has the opportunity to demonstrate it meets the Higher Learning Commission's accreditation standards and expectations through sequences of events that naturally align with those ongoing activities that characterize organizations striving to improve their performance.

AQIP membership required the governing board, the administrative team, and select faculty to undergo special training. In addition, AQIP required a reallocation of district resources to those initiatives most critical to the learning college. Through open communication regarding resource allocation, CAC began a continuous quality improvement process designed to revitalize the district (Klein, personal communication, September 3, 2004).

Central Arizona College focused on the nine AQIP criteria based upon principles identified in high performance organizations. These nine criteria were: Helping Students Learn, Valuing People, Measuring Effectiveness, Accomplishing Other Distinctive Objectives, Leading and Communicating, Planning Continuous Improvement,

Understanding Students' and Other Stakeholders' Needs, Supporting Institutional Operations, and Building Collaborative Relationships (AQIP, 2002).

While the development of a collaborative learning outcomes assessment model involved components of all nine criteria, it was most closely associated with the criteria Helping Students Learn. This included examinations of processes and systems related to mission-driven student learning and development, academic programs and courses, program and course delivery, teaching and learning effectiveness, student assessment, measures, analysis of results, and improvement efforts (CAC, 2004e). All of these objectives related directly to the goals of the CLASS Office and the development of student learning outcomes.

ACRES Technology

The roadblock created by cumbersome paper-based methods was addressed when Central Arizona College agreed to become a beta test site for the Academic Curriculum Review and Evaluation System (ACRES). This technology was developed to provide “an electronic means for creating, routing, evaluating, and approving new courses, course modifications, and course deletions within individual institutions throughout the state” (CAC, 2003-2004). ACRES was developed through funding by the Arizona Transfer Articulation Support Services (ATASS) in direct response to recommendations from a state-wide task force consisting of community college and university representatives. By pursuing early implementation, Central Arizona College placed itself at the forefront of electronic curriculum development in the state.

In 2002, the CLASS Office adopted ACRES and began creating the electronic forms and routing chains tailored to the curriculum development process at Central Arizona College. Linda Day was hired as a curriculum analyst in the CLASS Office and was instrumental in the implementation of ACRES. District-wide training sessions and manuals were implemented to facilitate user training. Users included all faculty, staff, and administrators involved in curriculum development throughout the district. In October 2002, all course-level curricula was transferred into ACRES, and within six months all users were trained, the Certificate and Degree sections were activated, the Expanded Modalities section was activated, and customized forms were in use for specific applications. Implementation was assessed through user surveys conducted after training, and after six weeks and six months of use. All feedback was channeled to the statewide task force, and system modifications were generated when necessary (CAC, 2003-2004).

Among the many advantages of implementing ACRES was that it provided CAC with a full-scale, queryable database for initiating and tracking all curriculum activity at not charge to the institution. It also provided archiving and backup capabilities as well as customizable formats for forms and routing to fit specific institutional needs. Perhaps the most important advantage was that ACRES promoted communication within the institution regarding curriculum additions and amendments (CAC, 2003-2004).

The current CAC accreditation process using AQIP criteria evaluates institutional effectiveness based upon eight performance areas, six of which are directly linked to assessment of student outcomes. These six performance areas are Comprehensive Accessible Quality Programs of Study and Services, Student Retention and Success,

Student Satisfaction, Post-education Success, Dynamic Organizational Development and Participation, and Economic Development. The link between student outcomes assessment and institutional effectiveness is described eloquently in this CLASS Office statement (CAC, 2004c):

In summary, determination of institutional effectiveness is directly related to the successful assessment of student outcomes. As an educational institution, we can only consider ourselves successful in our goals and mission, if our students are meeting or exceeding the outcomes and standards that have been set for each educational program. Taking whatever steps are necessary to insure that students leave CAC better educated, better trained and better prepared for life; we are guaranteeing not only their success but the success of the institution as well.

Outcomes assessment and institutional effectiveness are inextricably tied, and measurements of one cannot be separated from the other.

Recognized Leadership in Curriculum Development

The success of the CAC learning outcomes initiative brought recognition to the institution and to the CLASS Office executive director. Linda Heiland has been invited to present at 22 national and international assessment conferences, and she has presented 21 training seminars on curriculum development and assessment. In addition, she has published 11 articles in professional journals and newsletters. In 2000, the institution was awarded the Best Education Practice Certificate of Achievement by the Arizona

Commission for Postsecondary Education, and CAC received the Certificate of Appreciation for Significant Contribution to Faculty Roles and Rewards by the American Association of Higher Education. CAC was also awarded the Certificate of Recognition by the Association for Supervision and Curriculum Development Professional Development Institute in 2001. AssessNet named CAC a Best Practices Institution for its development of student learning outcomes, and the CLASS Office web site was named one of the top 10 best sites for information regarding development of student learning outcomes and assessment practices.

CONCLUSION

The vision of Central Arizona College as a learning institution is shared by its most recent presidents, John Klein and Terry Calaway. At the very heart of the learning college paradigm is the ability of the college curriculum to adapt to the changing needs of the workforce, and the “rural to suburban” transition of Pinal County has created rapid change since the mid 1980s. The pace of change is projected to accelerate in the next two decades, placing even more emphasis on change strategies at CAC.

The shared vision of a continuous quality improvement model for curriculum development provided a starting point for Central Arizona College on its learning college journey. The pursuit of technology solutions to curriculum development issues facilitated development of student learning outcomes, and membership in the AQIP accreditation program helped to place student outcomes assessment within the institutional effectiveness landscape, linking outcomes to assessment, institutional learning, and strategic planning.

Articulation between Arizona community colleges and state universities is legislatively mandated, and there is no state board for community college governance. Curriculum development at CAC is designed to be articulation friendly because faculty members are encouraged to participate in discipline-specific articulation task forces, keeping the lines of communication open between CAC and the universities (Calaway, personal communication, May 24, 2004).

This chapter has outlined the history of the college and implementation of an outcomes assessment project as part of the learning college paradigm. Central Arizona College is forging ahead on the learning college journey and making progress when other institutions have encountered detours and roadblocks. For this reason, it was selected as the study site for this research. Chapter Four explains the research methodology employed at Central Arizona College. It is followed by Chapter Five, which describes leadership and faculty perceptions of the factors involved in the successful development of learning outcomes and the relationships between these factors.

Chapter IV: Methodology

INTRODUCTION

Effective assessment of student learning requires an understanding of what learning is and a culturally embedded process of assessment based upon clearly defined learning outcomes. Angelo (1999) describes four pillars of transformative assessment: building shared trust, motivation, language and guidelines. Yet, as community colleges are struggling to adopt the learning paradigm, “paralysis” is threatening to prevent them from providing quality education in the face of declining resources (Twigg & Doucette, 1992). Naturalistic inquiry was implemented in this study to generate theory regarding the process of developing measurable student learning outcomes in a community college. In this chapter, the specific methodology, Interactive Qualitative Analysis, is described along with data collection and analysis.

QUALITATIVE METHODOLOGY

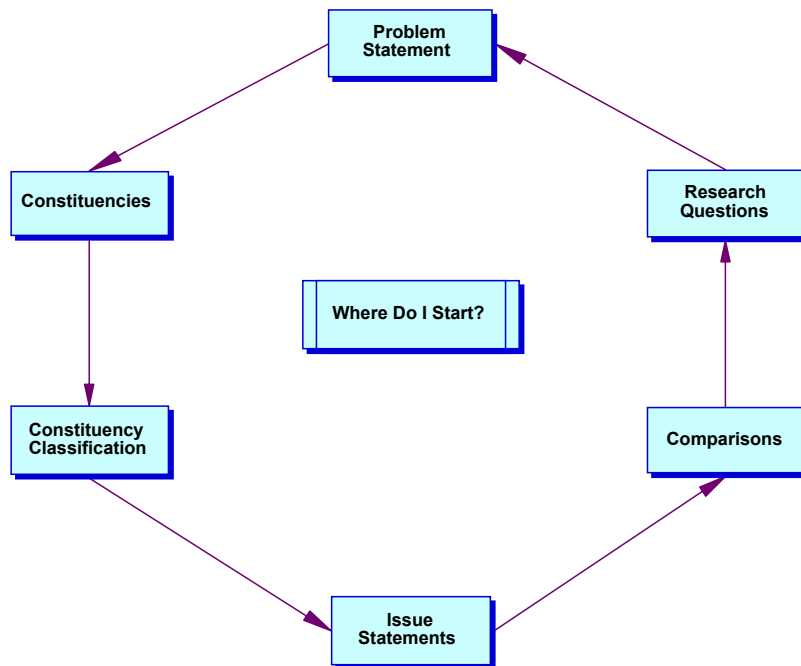
Interactive Qualitative Analysis (IQA) was developed at The University of Texas at Austin by Northcutt and associates. This qualitative method of data gathering and analysis seeks to provide a rigorous research methodology that relies upon a systems approach to identify elements, relationships and interactions. Emphasis is placed on the participants’ identification of the components of the system and how they relate to each other. The major strength of IQA is that it “seeks to capture the lived reality of people, actively involving participants in the mapping of their stories” (McCoy 2003, Ch. 3, p.1). In addition, this method of inquiry simultaneously identifies the nature of a problem and

its possible solutions, while building group consensus and strategies to address the problem (McCoy, 2003, Ch. 3).

IQA research was conducted in four distinct phases: research design, focus group, interviews, and report. Research design involved articulation of a problem of interest, identification of constituencies affected by the problem, and formulation of research questions implied by the problem statement. IQA focus groups identified the factors (affinities) of a system that represent their experience with the development of student learning outcomes, and they identified relationships among each of the affinities. Using a set of protocols developed from IQA systems theory, a system was drawn that represents a “mindmap” of the group’s reality. Group affinities were then used to develop interview protocols. These personal interviews with focus group members allowed further exploration of the affinities and their relationships. A comprehensive system diagram was developed from the interviews to illustrate the stated problem in greater depth. In the report phase, the researcher described the affinities and their relationships, made comparisons among systems and individuals, and made inferences based on the affinities and their systemic relationships (McCoy, 2003, Ch. 3). Following is a summary of each of the major stages in the research flow.

This IQA process began with the research design loop shown in Illustration 3.01. The goal of the process was to achieve alignment between the problem statement and the research questions.

Illustration 3.01: IQA Research Design Loop



The problem statement began as a simple observation. Next, anyone who had an impact on the problem or was affected by it was identified as a constituency. This list represented everyone a researcher would interview if there were no limitations of time, money or other resources. Since it was not realistic to interview every constituency identified, they were classified based upon their distance from the problem and their power over the problem.

Issue statements were formulated for each constituency, posing a question designed to elicit their perceptions of the problem. The issue statement, “Tell me about your experience with the development of student learning outcomes?” was by design, open-ended and did not lead the respondents. Through data collection and comparison, any IQA study answered the following questions:

1. What are the components of the problem of developing student learning outcomes?
2. How do the components relate to each other in a perceptual system?

The final step in the research design loop was comparison of research questions to the problem statement. It was the goal of IQA research design to have alignment between these two components. To determine alignment, the following questions were addressed:

1. What problem do the research questions address?
2. Is this the problem originally outlined in the problem statement?

Effective study of the development of student learning outcomes required focusing on an institution successful in this process. Selection of such an institution was based upon the expert recommendation of John E. Roueche, and Central Arizona College became the subject of the research.

The two constituencies most closely associated with the development of student learning outcomes were the Learning Outcomes Review Committee and the faculty. While development of outcomes was a faculty driven process at CAC, the Learning Outcomes Review Committee was selected as the focus group because of its leadership role in establishing the process used by faculty to create the outcomes.

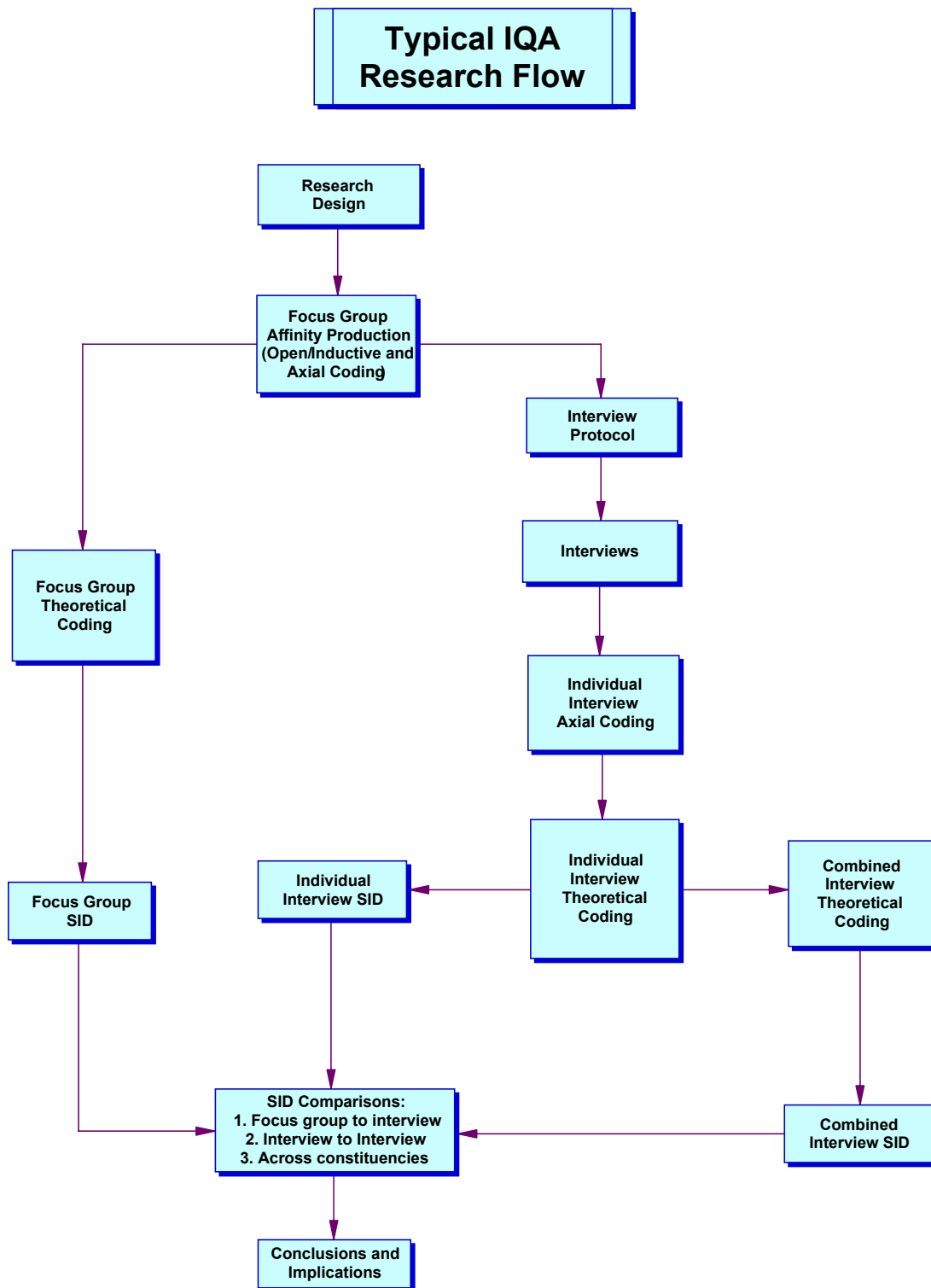
FOCUS GROUP AFFINITY PRODUCTION

The next stage in the IQA study was facilitation of the focus group. In this stage subjects brainstormed and identified affinities that became the basis for affinity relationship tables, interrelationship diagrams, and system influence diagrams. IQA

individual interviews were then implemented to describe these affinities and add depth to the meaning of these affinities.

The following illustration (3.02) outlines the flow of events in a typical IQA research study.

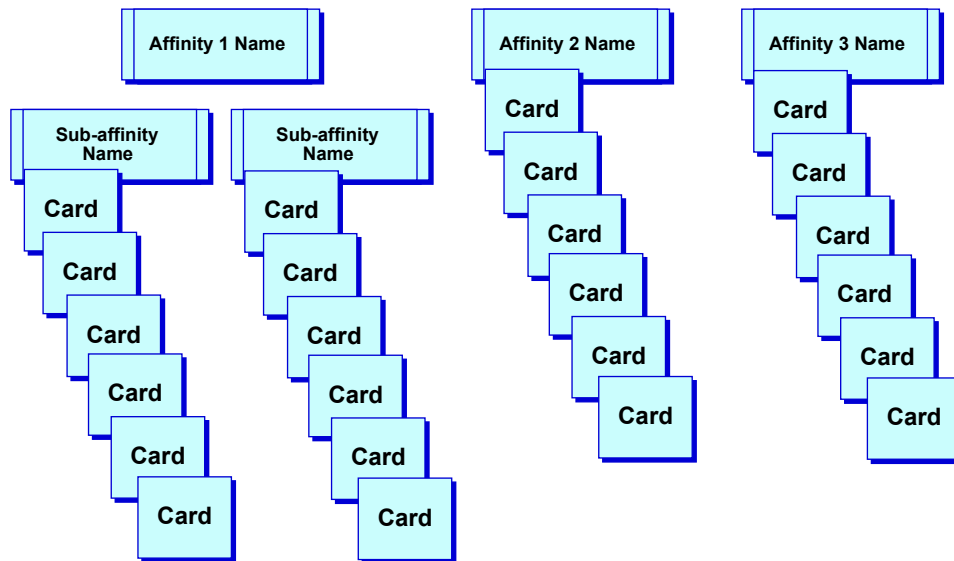
Illustration 3.02: IQA Research Flow Diagram



On April 30, 2004, the focus group was led through an orientation, warm-up and issue statement prior to the silent nominal process. In this silent brainstorming exercise, participants were asked to record their thoughts in reaction to the following issue statement: “Tell me about your experiences with the development of a student learning outcomes assessment project at this college.” Their thoughts were recorded in single words, phrases or diagrams and placed on 5 X 8 inch adhesive note pads. Silence during this brainstorming exercise removed peer influence in recording thoughts.

In the next phase of data collection, the focus group taped its recorded thoughts on the wall, and the facilitator led group discussion on the meanings of these words and phrases. This promoted clarification and shared meaning among focus group members. Next, the focus group was asked to inductively categorize their recorded thoughts and label each category as an affinity. The silent inductive coding was followed by axial coding in which affinities were clarified and refined further. Participants were encouraged to move their recorded thoughts into appropriate categories and create subcategories when appropriate; however, the goal was to create the smallest number of affinities with the greatest amount of detailed information. Affinity descriptions were created based upon the thoughts recorded on the cards and the transcript of the group discussion. The following illustration (3.03) is an example of how recorded thoughts were organized into affinity descriptions.

Illustration 3.03: Sample Axial Coding of Group Affinities



FOCUS GROUP THEORETICAL CODING

Theoretical coding involved the identification of relationships among affinities. All possible affinity pairs were analyzed using an Affinity Relationship Table (ART). Each focus group member was asked to determine the nature of the relationship between all possible pairs of affinities. The Rules for Hypothesizing are summarized as follows: For any two affinities A and B; either $A \rightarrow B$ (A influences B); $A \leftarrow B$ (B influences A); or $A \diamond B$ (No relationship). If, for example, a focus group member determined that affinity B influenced affinity A, a left arrow was placed between the pair. Theoretical coding was documented in a table similar to Table 3.01.

Table 3.01: Simple Affinity Relationship Table

SIMPLE AFFINITY RELATIONSHIP TABLE		
AFFINITY PAIR RELATIONSHIP		
1	←	2
1	←	3
1	◇	4
1	←	5
1	←	6
2	→	3
2	←	4
2	→	5
2	◇	6
3	◇	4
3	←	5
3	◇	6
4	◇	5
4	←	6
5	←	6

All of the relationship data contained in the ART provided the foundation for the Interrelationship Diagram (IRD). The focus group investigated links between their affinities through the process of theoretical coding. ART data were used to generate statements of cause and effect, promoting realistic conceptualization of the relationships being analyzed. As with the ART, there were only three choices allowed. For any two affinities A and B, either: $A \rightarrow B$ (A influences B); $A \leftarrow B$ (B influences A); or $A \diamond B$ (No relationship).

Theoretical coding of the affinities resulted in an Interrelationship Diagram (IRD), a matrix that represented all the perceived relationships among the affinities.

Creating an Interrelationship Diagram (IRD) was the first step in a process called rationalizing the system. The IRD arrows indicate which affinity in a pair was a perceived cause or an effect, or if there was no relationship between the affinities in the pair. The IRD was created by transferring the confirmed relationship arrows in the ART into the IRD table. An arrow pointing from A to B ($A \rightarrow B$) indicates that A was the cause or influencing affinity and that B was the effect or influenced affinity.

Table 3.02: Sample Blank IRD for a Six-affinity System

Tabular IRD									
	1	2	3	4	5	6	OUT	IN	Δ
1									
2									
3									
4									
5									
6									

By convention, arrows may point only left or up, and each relationship was recorded twice in the IRD. For example, if a relationship existed between affinity 1 and affinity 2, it might be noted as $1 \leftarrow 2$ and read as 2 influences 1. Two arrows were placed in the IRD to represent the relationship, and in both cases pointed away from 2 and toward 1. All ART relationships were recorded in the table in this manner, once with an up arrow and once with a left arrow.

Table 3.03: Sample IRD with ART Relationships Entered

Tabular IRD									
	1	2	3	4	5	6	OUT	IN	Δ
1		←	←	↑	←	←			
2	↑		↑	←	↑				
3	↑	←			←				
4	←	↑				←			
5	↑	←	↑			←			
6	↑			↑	↑				

The arrows were then counted to find the value of delta and the rules for calculating delta are: count the number of up arrows (\uparrow) or Outs; count the number of left arrows (\leftarrow) or Ins; and subtract the number of Ins from the Outs to determine the (Δ) deltas. Values for Outs, Ins and (Δ) deltas were entered in the IRD as shown in Table 3.04. This table was then sorted in descending order of (Δ) deltas to determine the relative position of each affinity in the overall system to be illustrated later (Table 3.05).

Table 3.04: Sample IRD with Calculations

Tabular IRD									
	1	2	3	4	5	6	OUT	IN	Δ
1		←	←	↑	←	←	1	4	-3
2	↑		↑	←	↑		3	1	3
3	↑	←			←		1	2	-1
4	←	↑				←	1	2	-2
5	↑	←	↑			←	2	2	0
6	↑			↑	↑		3	0	3

Table 3.05: Sample IRD Sorted in Descending Order of Delta

Tabular IRD – Sorted in Descending Order of Δ									
	1	2	3	4	5	6	OUT	IN	Δ
6	↑			↑	↑		3	0	3
2	↑		↑	←	↑		3	1	2
5	↑	←	↑			←	2	2	0
3	↑	←			←		1	2	-1
4	←	↑				←	1	2	-1
1		←	←	↑	←	←	1	4	-3

Primary drivers were affinities with a high positive delta value (resulting from many Outs but no Ins), a significant cause that affected many other affinities, but were not affected by others. Any affinity with no Ins was always a primary driver.

Secondary drivers had both cause-and-effect relationships in the system, and there were more Outs than Ins. Circulators or pivots were affinities that had equal numbers of Ins and Outs, indicating a position in the middle of the system.

Secondary outcomes had both cause and effect relationships in the system, but

there were more Ins than Outs. Primary outcomes were affinities marked by a high negative delta value (resulting from many Ins but no Outs), a significant affect that was caused by many of the affinities, but did not affect others. Any affinity with no outs was always a primary outcome.

Once the IRD was complete and the drivers and outcomes determined, a Systems Influence Diagram (SID) was constructed to illustrate the relationships between affinities. The Tentative SID Assignments shown in Table 3.06 represents the initial placement of affinities for the SID.

Table 3.06: Tentative SID Assignments

Tentative SID Assignments	
6	Primary Driver
2	Secondary Driver
5	Circulator / Pivot
3	Secondary Outcome
4	Secondary Outcome
1	Primary Outcome

In this example, affinity #6 was considered a primary driver because it affected many other affinities but was not affected by them. Affinity #1 was considered a primary outcome because it was affected by many other affinities but did not affect them. Affinity #5 was considered a circulator or pivot because it affected and was affected by equal numbers of affinities and therefore was in the center of the system.

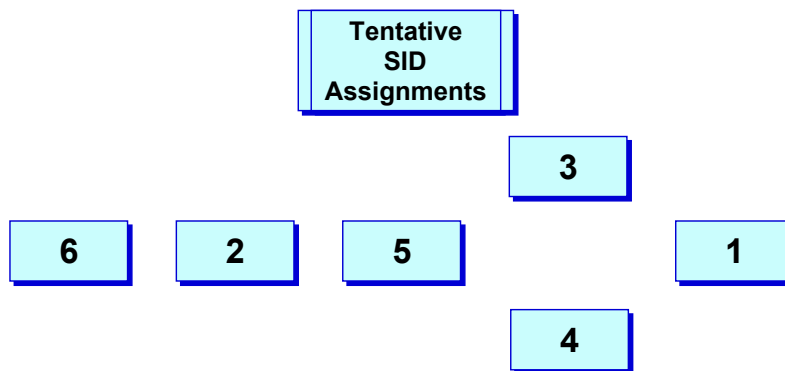
FOCUS GROUP SYSTEMS INFLUENCE DIAGRAM

Both axial and theoretical coding allowed organization and clarification of the focus group’s affinities to create a conceptual map or mindmap of the relationships

between the affinities. This visual representation of systemic relationships provided a powerful tool for analysis of dynamic relationships as perceived by both groups and individuals.

The tentative SID assignments that resulted from theoretical coding were used to determine the relative positions of the affinities in the conceptual map. By convention, the positions of the affinities in the SID began with primary driver (6) at the far left and the rest were positioned horizontally from left to right according to the descending affinity sequence indicated in the Tentative SID Assignments (Table 3.06). Circulator or pivots were located at the center of the SID, and primary outcomes were located at the far right of the SID. These affinity positions are shown in Illustration 3.04.

Illustration 3.04: Placement of Affinities Using Tentative SID Assignments



Using the IRD, directional arrows linked the affinity boxes to indicate the relationships recorded in the IRD. A SID with all links drawn is known as the Cluttered SID (Illustration 3.05). This SID is difficult to interpret, and may be rearranged for ease of reading. Spreading the SID into a circle and arranging the arrows so that they have a

common output or input point makes the SID relationships easier to identify. This is particularly important in larger systems with more affinities. A completed Cluttered SID is shown in Illustration 3.06.

Illustration 3.05: Sample Cluttered SID

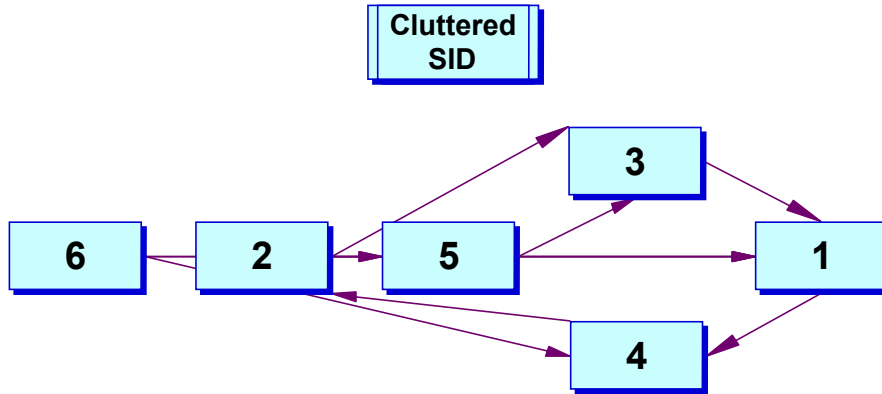
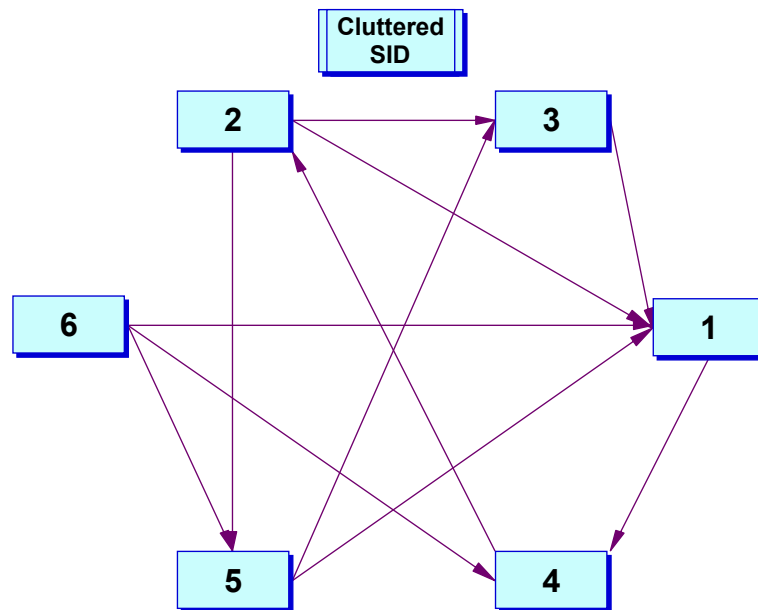
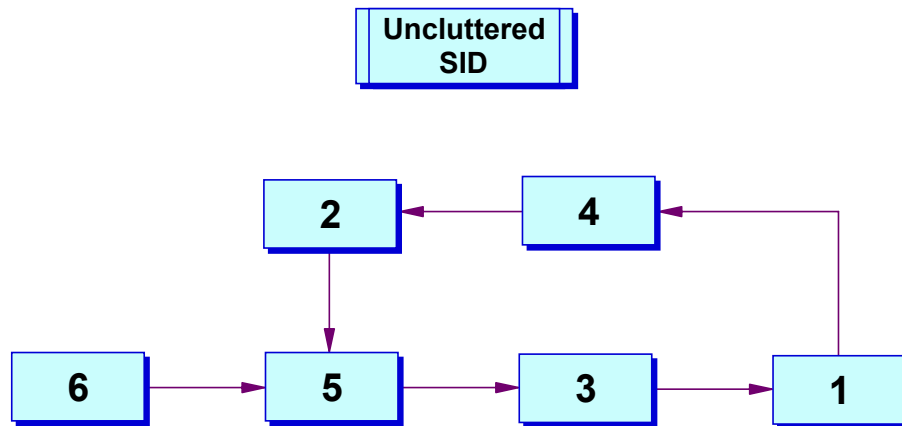


Illustration 3.06: Sample Rearranged Cluttered SID



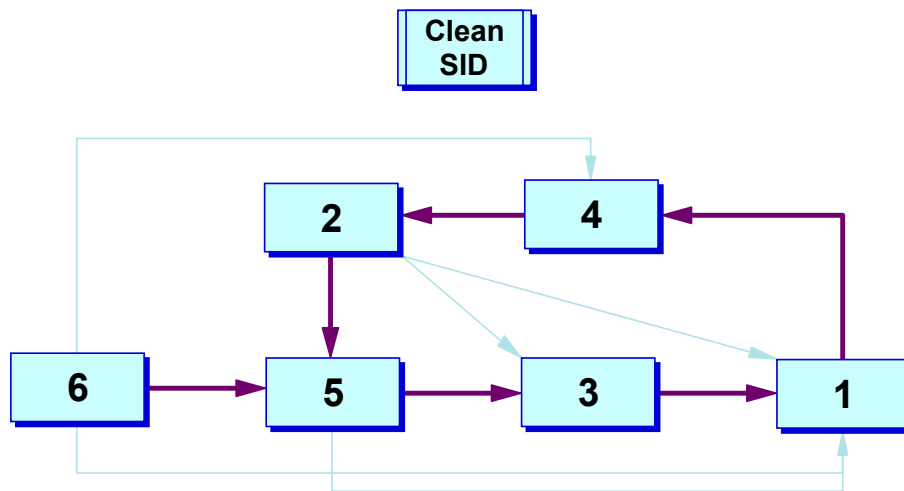
In the research study, the Cluttered SID was still too complex to be of real value; therefore, redundant links were removed to simplify the system without altering the relative relationships of the affinities. Link removal began by comparing the relationship between the affinity with the highest positive delta and the one with the highest negative delta. If there was any path between these two affinities other than the direct link, that indirect link can be removed. Next, the relationship between the affinity with the highest positive delta and the one with the next highest negative delta is examined. If there was any path between the two affinities other than the direct link, that indirect link was removed. This process continued until all relationships were analyzed. The resulting Uncluttered SID (Illustration 3.07) is an example of the simplest possible conceptual map indicating all the relationships contained in the IRD.

Illustration 3.07: Sample Uncluttered SID



An optional format for the conceptual map is the Clean SID (Illustration 3.08), which shows the Uncluttered SID links in bold, with the redundant links from the Cluttered SID in a lighter color. While the Uncluttered SID is typically considered the most powerful interpretive tool, re-insertion of the redundant links captures the richer mindmap of the participant(s).

Illustration 3.08: Sample Clean SID



INTERVIEW PROTOCOL

The second phase of data gathering in IQA was the individual interviews. The affinities produced by the focus group were used to create an interview protocol, or series of questions, which confirmed the affinities and results in rich descriptions of the relationships among the affinities. IQA interviews served to:

- Add richness and depth to the meaning of affinities by obtaining more detailed personal perspectives from the focus group members.
- Allow for individual mindmaps, which could be compared to the composite mindmap and used to facilitate interpretation.

Two sets of individual interviews were conducted. Each of the nine Learning Outcomes Review Committee members who attended the focus group interview was also interviewed individually. Using the same interview protocol, individual interviews were also conducted with twenty faculty members. These interviews occurred April 30

through May 5, 2004, and August 30 through September 3, 2004.

The interview protocol consisted of two parts, the open-end axial interview, which provided rich, personalized descriptions of affinities, and the structured theoretical interview, which identified relationships between these affinities. Each axial interview was conducted using the same questions, all of which were derived from the affinities identified by the focus group. In essence, the researcher was asking each participant what every affinity meant to them. The questions were designed to elicit verbal elaboration regarding the affinities and sub-affinities described by the focus group. Follow-up questions were used for clarification or elaboration of thoughts that did not seem clear to the interviewer. All interviews were conducted in a quiet setting free from interruptions, and an audio recording was made which was later converted to a written transcript. At no time were interviewees names mentioned on the audiotapes. Participants were each given a numerical identification so that their thoughts were recorded anonymously. This encouraged participants to share their thoughts more freely.

Like the focus group data, interview data underwent both axial coding and theoretical coding. For each respondent, an Interview Axial Code Table (Interview ACT) (Table 3.07) was constructed that contained interview quotations relevant to each affinity, known as axial coding, along with notations by the researcher. Quotations were identified by their transcript line numbers for ease of referral to the original transcript document if necessary.

Table 3.07: Sample Individual Interview Axial Code Table

Sample Individual Interview Axial Code Table			
Affinity	Transcript Line	Axial Quotation	Researcher Notes
1.			
2.			
3.			
4.			
5.			

In the second phase of the individual interviews, the researcher formally questioned each participant about the relationships between each affinity pair. This process is known as theoretical coding, and the relationships were recorded in an Individual Interview Affinity Relationship Table (Interview ART) (Table 3.08) for each respondent. An audio recording was also made of these interviews and transcribed. Like the focus group data, respondents chose between three possible relationships.

Table 3.08: Sample Individual Interview Affinity Relationship Table

1. 2. 3. 4. 5. 6.	Affinity Name	Possible Relationships A → B A ← B A ◇ B (No relationship)

RESPONDENT # SAMPLE INTERVIEW AFFINITY RELATIONSHIP TABLE		
AFFINITY PAIR RELATIONSHIP		
1	←	2
1	←	3
1	◇	4
1	←	5
1	←	6
2	→	3
2	←	4
2	→	5
2	◇	6
3	◇	4
3	←	5
3	◇	6
4	◇	5
4	←	6
5	←	6

For each respondent, an Interview Theoretical Code Table (Interview TCT) (Table 3.09) was completed. Again the transcript was used as the source for quotations that illustrated affinity relationships. These quotations and their transcript line numbers were entered in the table along with the affinity relationship described by the respondent and researcher notes.

Table 3.09: Sample Interview Theoretical Code Table

Sample Individual Interview Theoretical Code Table			
Affinity Pair Relationship	Line Number	Theoretical Quotation	Researcher Notes
1 ← 2			
1 ← 3			
1 ← 4			

Once theoretical coding was complete for each interview, Individual Interview Interrelationship Diagrams (Individual IRD) (Tables 3.10 & 3.11) were completed in preparation for constructing Individual Systems Influence Diagrams (Individual SID). The process for entering data in each interview IRD was identical to the process for the focus group IRD.

Table 3.10: Sample IRD with Arrows

Respondent # Sample Tabular Individual IRD with ART Relationships									
	1	2	3	4	5	6	OUT	IN	Δ
1		←	←	↑	←	←			
2	↑		↑	←	↑				
3	↑	←			←				
4	←	↑				←			
5	↑	←	↑			←			
6	↑			↑	↑				

The arrows were then counted to find the value of delta and the rules for calculating delta were: count the number of up arrows (\uparrow) or Outs; count the number of left arrows (\leftarrow) or Ins; and subtract the number of Ins from the Outs to determine the (Δ) deltas. Once the values for Outs, Ins and (Δ) deltas were entered in the IRD, it appeared like Table 3.11. This table was then sorted in descending order of (Δ) deltas to determine the relative position of each affinity in the overall system to be illustrated (Table 3.12).

Table 3.11: Sample IRD with Calculations

Respondent #									
Sample Tabular Individual IRD with Calculations									
	1	2	3	4	5	6	OUT	IN	Δ
1		←	←	↑	←	←	1	4	-3
2	↑		↑	←	↑		3	1	3
3	↑	←			←		1	2	-1
4	←	↑				←	1	2	-2
5	↑	←	↑			←	2	2	0
6	↑			↑	↑		3	0	3

Table 3.12: Sample IRD Sorted

Respondent #									
Sample Tabular Individual IRD Sorted in Descending Order of Δ									
	1	2	3	4	5	6	OUT	IN	Δ
6	↑			↑	↑		3	0	3
2	↑		↑	←	↑		3	1	2
5	↑	←	↑			←	2	2	0
3	↑	←			←		1	2	-1
4	←	↑				←	1	2	-1
1		←	←	↑	←	←	1	4	-3

Table 3.13: Sample Tentative Individual SID Assignments

Respondent # Sample Tentative Individual SID Assignments	
6	Primary Driver
2	Secondary Driver
5	Circulator / Pivot
3	Secondary Outcome
4	Secondary Outcome
1	Primary Outcome

Primary drivers, secondary drivers, circulators or pivots, secondary outcomes, and primary outcomes (Table 3.13) were determined as previously described.

Once the IRD was complete and the drivers and outcomes determined, an Individual Systems Influence Diagram (SID) was constructed to illustrate the relationships between affinities as described by each respondent. Comparisons between the focus group SID and the individual SIDs provided valuable information regarding the relationships between affinities and group dynamics during the focus group interview. Careful attention to the quotations in the Individual ARTs and TCTs provided insights into the causes of variability within groups.

COMBINED INTERVIEW CODING

After all individual interviews were coded and individual SIDs created, the next step in the IQA process was to combine all the interview data from the Individual Interview Axial Code Tables into a single Combined Interview Axial Code Table (Composite ACT) (Table 3.14) for each affinity.

Table 3.14: Sample Combined Interview Axial Code Table

Affinity # Sample Combined Interview Axial Code Table			
Affinity	Transcript Line	Axial Quotation	Researcher Notes
1.			
2.			
3.			
4.			
5.			
6.			

Likewise, all interview data from the Individual Theoretical Code Affinity Relationship Tables was combined into a single Combined Interview Theoretical Code Affinity Relationship Table (Composite TCT) (Table 3.15). Since it was possible for respondents to disagree and define relationships differently, this table listed both directions for relationships.

Table 3.15: Sample Combined Interview Theoretical Code Table

Sample Combined Interview Theoretical Code Table			
Affinity Relationship	Transcript & Line #	Theoretical Quotation	Researcher Notes
1 → 2			
1 ← 2			
1 → 3			
1 ← 3			

Before a combined interview SID could be created for either the focus group or the faculty, the theoretical coding process had to include an analysis of the number of respondents that agreed on the affinity relationships and the number that disagreed. This information was recorded in a Combined Interview Theoretical Code Frequency Table (Table 3.16) analogous to an Affinity Relationship Table (ART) used for focus groups. Each of the Individual Interview Theoretical Code Tables was examined to determine the direction of each affinity pair.

Table 3.16: Sample Theoretical Code Frequency Table

Sample Combined Interview Theoretical Code Frequency Table			
Affinity Pair Relationship	Frequency	Affinity Pair Relationship	Frequency
1 → 2	3	2 → 6	3
1 ← 2	0	2 ← 6	0
1 → 3	1	3 → 4	1
1 ← 3	0	3 ← 4	0
1 → 4	0	3 → 5	0
1 ← 4	18	3 ← 5	18
1 → 5	1	3 → 6	1
1 ← 5	1	3 ← 6	1
1 → 6	2	4 → 5	2
1 ← 6	1	4 ← 5	1
2 → 3	3	4 → 6	3
2 ← 3	17	4 ← 6	17
2 → 4	2	5 → 6	2
2 ← 4	15	5 ← 6	15
2 → 5	13		
2 ← 5	3		
		Total Frequency	185

Once the frequencies were determined for each affinity pair, they were sorted in descending order of frequency, and cumulative frequencies were expressed as a percentage of the total number of relationships and as a percentage of the total number of nominations. Power was then computed by determining the difference between these two percentages.

The Pareto Principle states that a minority of the relationships in any system will account for a majority of the variation within the system. Since respondents may not

agree on affinity relationships, IQA uses the Pareto Rule to create a statistical group composite (McCoy, Ch. 3, 2003). The Pareto Cumulative Frequency Chart (Table 3.17) indicates a total of 185 votes for a possible 30 relationships. Power analysis graphs (Illustrations 3.09 & 3.10) allow the researcher to determine the frequency number that will become the cut point for determining which relationships should be accepted as indicative of the group. The frequency graph illustrates the variance accounted for by each succeeding relationship. The power graph contains the power analysis for the system.

Table 3.17: Pareto Cumulative Frequency Chart

Affinities in Descending Order of Frequency With Pareto and Power Analysis					
Affinity Pair Relationship	Frequency Sorted (Descending)	Cumulative Frequency	Cumulative Percent (Relation)	Cumulative Percent (Frequency)	Power
1. 2 → 3	20	20	3.3	10.8	7.5
2. 1 ← 2	18	38	6.7	20.5	13.9
3. 3 ← 5	18	56	10.0	30.3	20.3
4. 4 ← 6	17	73	13.3	39.5	26.1
5. 2 ← 4	16	89	16.7	48.1	31.4
6. 1 ← 3	15	104	20.0	56.2	36.2
7. 5 ← 6	15	119	23.3	64.3	41.0
8. 2 → 5	13	132	26.7	71.4	44.7
9. 1 ← 6	12	144	30.0	77.8	47.8
10. 1 ← 5	11	155	33.3	83.8	50.5
11. 1 → 3	3	158	36.7	85.4	48.7
12. 1 → 4	3	161	40.0	87.0	47.0
13. 2 → 4	3	164	43.3	88.6	45.3
14. 2 → 6	3	167	46.7	90.3	43.6

15. 4 → 6	3	170	50.0	91.9	41.9
16. 2 ← 5	3	173	53.3	93.5	40.2
17. 5 → 6	2	175	56.7	94.6	37.9
18. 4 → 5	2	177	60.0	95.7	35.7
19. 1 → 2	1	178	63.3	96.2	32.9
20. 1 ← 4	1	179	66.7	96.8	30.1
21. 1 → 5	1	180	70.0	97.3	27.3
22. 3 → 4	1	181	73.3	97.8	24.5
23. 3 → 6	1	182	76.7	98.4	21.7
24. 3 ← 6	1	183	80.0	98.9	18.9
25. 4 ← 5	1	184	83.3	99.5	16.1
26. 1 → 6	1	185	86.7	100.0	13.3
27. 2 ← 3	0	185	90.0	100.0	10.0
28. 2 ← 6	0	185	93.3	100.0	6.7
29. 3 ← 4	0	185	96.7	100.0	3.3
30. 3 → 5	0	185	100.0	100.0	0.0
Total Frequency	185				

Illustration 3.09: Frequency Chart

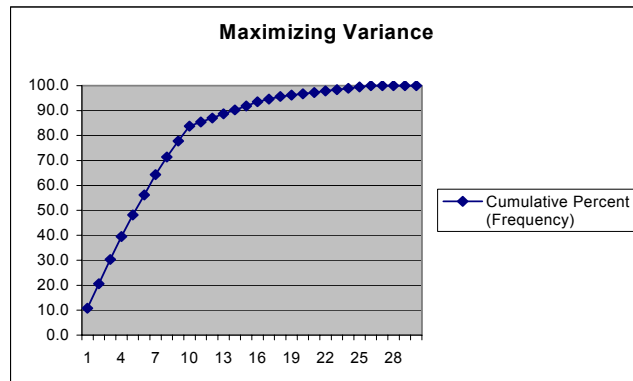
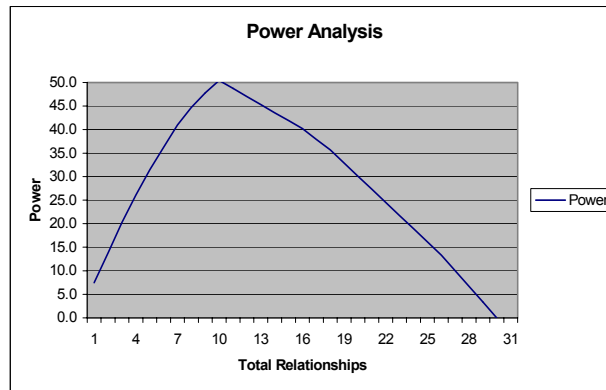


Illustration 3.10: Power Chart



The next step in theoretical coding was to identify apparent conflicts among affinity pair relationships. Before a Composite IRD could be constructed, these conflicts were resolved since the table only allowed for one possible relationship between two affinities. Apparent conflicts were flagged, allowing the researcher to identify exactly which affinity pairs appeared ambiguous (Table 3.18). The most frequently occurring affinity relationship pair was chosen for the IRD; however, additional observations were necessary to resolve ties (McCoy, 2003). Once all ambiguous relationships were resolved, the researcher constructed a Composite Affinity Relationship Table (Table 3.19) in the same manner as the Focus Group ART. The Composite ART was used to construct a Composite IRD (Table 3.20) in the same manner as the Focus Group IRD.

Table 3.18: Sample Mischievous Topologies: Relationship Conflict Summary

Sample Mischievous Topologies: Relationship Conflict Summary		
Affinity Pair Relationship	Frequency	Use
2 ← 8	10	Use
2 → 8	7	
3 ← 10	9	
3 → 10	13	Use
4 ← 6	9	
4 → 6	14	Use
4 ← 10	8	Use
4 → 10	7	
6 ← 10	17	Use
6 → 10	7	
8 ← 9	7	
8 → 9	13	Use

Table 3.19: Composite Affinity Relationship Table

SAMPLE COMPOSITE AFFINITY RELATIONSHIP TABLE		
AFFINITY PAIR RELATIONSHIP		
1	←	2
1	←	3
1	◇	4
1	←	5
1	←	6
2	→	3
2	←	4
2	→	5
2	◇	6
3	◇	4
3	←	5
3	◇	6
4	◇	5
4	←	6
5	←	6

Table 3.20: Sample Composite Interrelationship Diagram with Calculations

Sample Composite Tabular IRD									
	1	2	3	4	5	6	OUT	IN	Δ
1		←	←	↑	←	←	1	4	-3
2	↑		↑	←	↑		3	1	3
3	↑	←			←		1	2	-1
4	←	↑				←	1	2	-2
5	↑	←	↑			←	2	2	0
6	↑			↑	↑		3	0	3

The Composite IRD was manipulated in the same way as the Focus Group IRD to obtain delta values sorted in descending order (Table 3.21). These delta values allowed identification of tentative SID assignments (Table 3.22).

Table 3.21: Sample Composite Interrelationship Diagram Sorted

Sample Composite Tabular IRD Sorted in Descending Order of Δ									
	1	2	3	4	5	6	OUT	IN	Δ
6	↑			↑	↑		3	0	3
2	↑		↑	←	↑		3	1	2
5	↑	←	↑			←	2	2	0
3	↑	←			←		1	2	-1
4	←	↑				←	1	2	-1
1		←	←	↑	←	←	1	4	-3

Table 3.22: Sample Composite Tentative SID Assignments

Sample Tentative Composite SID Assignments	
6	Primary Driver
2	Secondary Driver
5	Circulator / Pivot
3	Secondary Outcome
4	Secondary Outcome
1	Primary Outcome

COMBINED INTERVIEW SID AND SID COMPARISONS

These SID assignments (Table 3.22) were used to construct a Combined Interview SID for both the focus group and the faculty, allowing SID comparisons. The following SID comparisons were made in an attempt to interpret the systems being studied:

- The focus group SID was compared to focus group individual interview SIDs (group compared to individuals).
- The composite focus group SID was compared to the composite faculty SID.

The SIDs, or mindmaps, were generated not only to make comparisons between the different SIDs, but also to study cause-and-effect relationships and predict outcomes based upon these representations of both group and individual realities. Through comparisons of these realities, IQA methodology allowed the researcher to ask: “What is..?” and “What if ...?” (Northcutt & McCoy, 2004).

The researcher conducted a final interview with the Focus Group to gain insight into the relationships between the Focus Group and Faculty Composite SIDs. As individuals who worked closely on the Learning Outcomes Project, their interpretations of the realities expressed in the Systems Influence Diagrams were rich and meaningful.

CONCLUSION

This chapter explained the methodology used for this study of the challenges of creating student learning outcomes, a critical step in the implementation of the learning college paradigm. The chapter began with an overview of IQA and the research design loop. The specific methodology, Interactive Qualitative Analysis, was described beginning with focus group affinity production. Research flow followed three routes that

culminated in the comparison of systems influence diagrams between the Learning Outcomes Review Committee and its individual members and a second comparison between the composite of the Learning Outcomes Review Committee and the composite of the Faculty.

Through this qualitative research methodology, a phenomenological grounded theory on development of student learning outcomes was constructed. The following chapter details these findings and includes descriptions of the factors/affinities that influence this critical step in the implementation of the learning college paradigm.

Chapter V: Results

INTRODUCTION

Actualization of the learning college paradigm requires the creation of a credible culture of evidence, providing measurable data for continuous quality improvement. The Vanguard Learning Colleges identified the task of defining, assessing, and documenting student learning outcomes as the greatest barrier to the implementation of the learning paradigm (McClenney, 2003b). Without data to support the achievement of learning outcomes, there can be no authentication of substantive change in learners (O'Banion, 1997a).

When faced with the task of improving assessment at Central Arizona College, the Student Learning Outcomes Assessment Committee concluded that appropriate assessment measures could not be implemented until measurable learning outcomes were defined for each course and program (CAC, 2004c). The Student Learning Outcomes Assessment Committee was the driving force behind the initial curriculum revision process; however, outcomes are now on a three-year review cycle and the Learning Outcomes Review Committee (LORC) currently leads the project. Many committee members have a long history with the CAC outcomes project and best represent the leadership driving this initiative. This committee membership includes faculty, staff, and administrators from throughout the college district. Faculty members participate in the development and revision of outcomes by initiating the process at the course level via submissions in the ACRES system. The committee members review outcomes submitted by faculty, accepting the submissions or returning them to faculty for revision.

Chapter IV described IQA data collection and analysis methods. The two

constituencies most affected by the learning outcomes project are the faculty and the leadership team comprised of Learning Outcomes Review Committee members. This methodology was implemented to identify factors perceived by the outcomes committee to be most relevant in the establishment of student learning outcomes throughout the curricula and how those factors relate. In addition, IQA methodology was used to analyze faculty perceptions of the factors identified by the committee and faculty perceptions of how those factors relate. The following questions were addressed:

1. What factors influence the leadership team during development of student learning outcomes, and how are these factors related?
2. What are the faculty members' perceptions of the factors identified by the leadership team, and what relationships do faculty members perceive?
3. How do the perceptions of the leadership team and faculty compare, and what are the implications for other leaders involved in learning outcomes development?

The purpose of this study was to determine how Central Arizona College successfully defined student learning outcomes and began building a culture of evidence to support the learning paradigm. These results offer insights for leadership and faculty members as they seek to overcome assessment barriers by defining, assessing, and documenting student learning outcomes. This chapter begins with an axial coding summary of the factors described by the outcomes committee as most important in developing student learning outcomes. It is followed by a theoretical coding summary of the relationships between these factors and a conceptual mind map visually depicting the system and any subsystems. Faculty interpretations of the committee's factors are

presented in an axial coding summary, followed by a theoretical coding summary of the relationships between these factors as faculty perceives them. A conceptual mind map visually describes the system and any subsystems from the faculty perspective.

LEARNING OUTCOMES REVIEW COMMITTEE

A focus group composed of nine members of the Central Arizona College Student Learning Outcomes Review Committee (LORC) met in the board room of the Signal Peak Campus on Friday, April 30, 2004. The participants were asked to describe their perceptions of the process of developing student learning outcomes at CAC and to record these on 3 X 5 adhesive notes. In response to this issue statement, 72 thoughts were recorded and subsequently clarified. During inductive coding, the focus group categorized their responses and identified ten affinities or factors affecting the development of student learning outcomes. Theoretical coding involved the identification of relationships among all possible affinity pairs, and these were recorded in an Affinity Relationship Table.

Affinities produced by the focus group were used to create an interview protocol used during both the committee and faculty individual interviews. These interviews added personal richness and depth to the affinity descriptions and provided more detailed information regarding affinity relationships. The researcher conducted individual interviews with outcomes committee members during the weeks of April 30 to May 5, 2004, and August 30 to September 3, 2004, at the following CAC campuses: Signal Peak, Superstition Mountain, Florence, and Aravaipa. A final focus group interview was conducted on October 25, 2004, at the Signal Peak Campus, and attendees analyzed and

interpreted the Composite SIDs.

All interviews were recorded and, upon completion, were transcribed and analyzed. Axial Code Tables and Theoretical Code Tables were constructed using text from the focus group and individual interviews. The following Axial Coding Summary summarizes the LORC affinity descriptions.

Axial Coding Summary

The LORC focus group identified ten affinities that were significant in the development of student learning outcomes at Central Arizona College. These affinities were: Supportive Leadership, Evolution of the CLASS Office, Process Systems, Related Initiatives, Teaching and Learning, General Education Links, Incentives, Technology as a Tool, Faculty Responsibility, and Growing Pains. The following descriptions of these affinities are a composite of the individual committee members' descriptions.

Supportive Leadership

The administration considers students in all decisions and works within the state to develop outcomes that will assure students of smoother transfers to colleges and universities. Coordination of outcomes development and articulation is not possible without the financial support of the CLASS Office, and this office cannot support the development of outcomes without the administration setting consequences if courses are not updated. With a clear vision of curriculum quality and vital support at the dean level, the administration is changing the climate at CAC.

Our leadership sees the big picture. Administration *values communication* at all levels of higher education when making decisions. “The development of learning

outcomes is very student driven, and we look at all decisions based on how they are going to affect students. We are encouraged to be a very strong, very vocal presence at the state meetings, and that has made a big difference for us because it allows us to network with other community colleges and universities to see how our courses articulate and to see the content of their courses.”

The buck starts here. *Financial resources* are available to support the learning outcomes project. “I think the fact that the college leadership saw fit to establish the CLASS Office and to identify a point person to lead this whole effort is indicative of the leadership here. Our president is an advocate at the state level for resources to support the development of ACRES.”

Learning outcomes are a top priority. The President’s Office sets *consequences* if outcomes are not established through the course update process. “Learning outcomes are a priority within the institution, and the President’s Office set the tone by creating consequences if courses were not updated. It was a huge step when the deadlines were set for outcomes submission or else classes would not go in the next catalogue. That was the key.”

Our leaders are agents of change. The *vision* of continuous quality improvement requires changes in the institution. “They have been flexible and very supportive of what we need and want to do, and that has really brought forth the change in the climate. They want our courses to be good, solid college courses.”

Our deans provide vital support. The support of the deans *keeps the revision of outcomes moving*. “Deans have all been very responsive in moving things through the system and have not allowed anything to become a bottleneck in the approval process.”

Evolution of the CLASS Office

Governing board policy regarding curriculum development supports reallocation of resources, funding a centralized office to orchestrate revision and streamlining of the curriculum process. This support from top leadership makes it possible to set consequences that encourage faculty participation and forces faculty to recognize the role of the CLASS Office in the institution. Successful process improvement creates new challenges in terms of the volume of curriculum revisions being made.

Financial backing and curriculum leadership are the foundation of the CLASS Office. Administration *reallocated resources to this curriculum priority.* “A lot of institutions do not have a full-time person who is involved in all phases of curriculum development, and they have no budget. The budget allocation and the structure of this office have been the key thing to making this work.”

We need a centralized office for curriculum questions. The CLASS Office is a *physical location with curriculum experts ready to help.* “I think it is really important for the college to have a central place to go for questions related to curriculum. They are the ones to decode things and translate the university requirements.”

Our process is a product of the CLASS Office leadership. Through curriculum committees, this office *guides the development of the curriculum process.* “They were really involved in a lot of the technology issues and the logistics of putting the whole process together. Now it has gotten pretty streamlined through the CLASS Office, and I think that we have all become more sophisticated throughout the process.”

Our results depend upon an effective process. Setting *consequences* for faculty missing deadlines sends a clear message. “It is a priority of the governing board because

we do have governing board policy that revolves around this, and faculty knows that when we send memos and mandates out from this office, it is going to be supported at a higher level. Without the ability to set consequences for inaction we would not have gotten anything done.”

Making it easier has made more work. The new quality challenge facing the CLASS Office is the *volume of curriculum changes being submitted*. “We have seen more changes with ACRES than before because developing curriculum and learning outcomes on paper was a very slow, tedious process. If we cannot keep our curriculum moving fast enough to keep up with the changes being made, then we need to make a change. We want our students to be top of the line.”

It is woven into the college fabric. *The CLASS Office and curriculum development are now institutionalized.* “When the CLASS Office started it was not recognized by the institution as a valid resource and a step in curriculum development. It has now become a legitimate office providing support to faculty on a much broader basis.”

Process Systems

Creation of student learning outcomes across the entire curriculum requires development of a collaborative, inclusive, and organized system that includes development, evaluation, and revision processes. Charter members of the committee describe how the ‘hourglass method’ approaches outcomes from the classroom and institutional levels and eventually meets at the program level. The process systems developed at CAC provide a set of clear outcomes that articulate with state universities, a

documentation process, a basis for institutional communication, and a continuous quality improvement process for curriculum revision.

We need an organized approach. *Clear goals and responsibilities* were established early. “We were not anywhere close to being where we could start assessing the students learning outcomes because we did not have outcomes established. We had to take a huge step backwards and revamp our curriculum. In order to do that we had to look at what the process was going to be, how we were going to do it, and set some time frame. Curriculum development is now built into the regular institutional business of the day. We make it very clear on our CLASS website what the process is to get something approved, and the committees are very clear now.”

We started at both ends and worked toward the middle. An “*hourglass model*” was implemented to give direction to outcomes development. “The way we approached this was that it was not a top down model and not a bottom up model, but it was more of an hourglass where we actually met in the middle. We began developing the outcomes at the course level and our general education outcomes at the institutional level, and we worked toward the middle, toward the program. We made sure that everything fit together along the way.”

We really talk to each other. The process improves *institutional communication*. “For the first time faculty members from throughout the district came together and discussed not necessarily how a course was to be taught, but what the content of the course should be and at what proficiency level it should be taught. It has also helped our division come together and work better as a team. I do not see much falling between the cracks.”

We review and revise everything. Even the process systems undergo *continuous quality improvement*. “Once that initial revision was done it was determined that we really needed to come up with a systematic process for having faculty review and possibly revise their course outcomes and their program outcomes on a regular, ongoing basis. That was the time that we implemented the three year review cycle and we also adopted ACRES. This system is very quality oriented, and it is much less cumbersome than a lot of the other institutions in the state. The CLASS Office recognizes that the process will need to be continually refined, and we are trying to use our accreditation process to help us continually improve.”

I focus on my course outcomes now. The process produces *clear learning outcomes* at the course level. “The process did produce clarity of outcomes because it forced people to really look at what was included in those outcomes on a regular and ongoing basis. Each semester I reflect to make sure that I am meeting my outcomes and making sure that what we are giving the students is really beneficial to them.”

Related Initiatives

The Student Learning Outcomes Project is associated with several related initiatives at CAC. Visioning, strategic planning, AQIP accreditation criteria, and advancement of the learning college paradigm are all linked to development and revision of learning outcomes. The project began with a very clear vision of how outcomes could be used to achieve both short-term and long-term goals by systematically addressing related small initiatives. Communication challenges emerged as new employees became involved in the outcomes project. The AQIP accreditation process helps connect multiple

initiatives into a cohesive whole and aligns with learning college principles. When learning outcomes are developed correctly, the vision of a learning college becomes more of a reality.

We had a roadmap. From the very beginning of the outcomes project, there was a *clear vision* of the ultimate goal and *strategic planning* needed to attain that goal. “I think that one of the things that helped us to get to where we are was that we actually sat down and mapped out how individual little components fit together to make this big picture, where we want to go as an institution ultimately and what are the long term issues. I think it has been built into our process from the beginning. These are silos or pockets of things we are doing but ultimately they all fit together so we go into it with that big picture format or view.”

We all need to see the big picture. Individuals new to the process require *clear communication* of both short-term and long-term goals. “Our biggest downfall is communication because we have all these little pockets. We do not do a good job of really disseminating information; however, I think that AQIP is going to help with that.”

Learning outcomes are not a separate initiative. AQIP and learning outcomes are *inextricably linked to the learning college paradigm*. “I know that AQIP is really enmeshed with the whole learning outcomes process, and a lot of our learning outcomes are associated with particular AQIP issues. Outcomes revision has the potential to really support the learning college if it is done correctly. As buy-in to both AQIP and the learning college improve, they mesh together better.”

Teaching and Learning

Student learning outcomes provide all faculty members with a well-defined beginning and ending for their courses and facilitates the development of course outlines. By providing clear course goals, faculty instruction is more focused and students are encouraged to participate in outcomes assessment and revision.

We do not always speak the same outcomes language. Faculty and the outcomes committee went through their own *unique teaching and learning process* during outcomes development. “The outcomes were a reflection of how we taught, not what we taught, the process that we went through. It reflected what we wanted the students to get out of it, not the specific information. The outcomes committee had some real issues with that because they thought outcomes should be more content based.”

What should students be able to do at the end of my course? Clear outcomes and standards provide *guidance to both teacher and learner*. “As an instructor, the goal for me is student learning. It helps me to be a better teacher if I know what it is that I want my students to be able to do at the end of my class and how I am going to know that they have accomplished that. I am sure that in some instances people ended up completely re-thinking their course once they really started thinking about what the outcomes should be. I think our outlines are becoming clearer with regard to the learning outcomes and standards than they ever have before.”

Students have a voice. We empower *students as learners and decision makers*. “It has really empowered the students to be much more proactive and responsible for their learning and for what is going on in the classroom. Our students are strongly encouraged to participate in this process, and they come to our annual curriculum retreat.

There have been a lot of changes based on what students would like to see and how they need to learn, and that is not only about what happens in the classroom; it crosscuts into the college services.”

Part-time faculty is important here. Adjunct faculty members need all the *resources and guidance* we can give them. “Adjunct faculty knows they can go to our CLASS website and get the outcomes information. We put them in touch with their colleagues across the district so that all of our adjuncts have someplace from which to start. Now they have an understanding that all of those outcomes need to be met throughout their teaching, and they have to show evidence that they are doing that. It has helped really with consistency throughout our courses.”

Teachers must also be learners. We need to stay on the *leading edge of instruction*. “We do not just make these courses and then not look at them forever. We have to continually look at them, and it keeps us on the leading edge. I do research, and I take classes every year just to keep myself current, which I think is all helpful to students.”

General Education Links

A gap exists between current learning outcomes and general education outcomes developed in the early stages of the outcomes project. While there was a mechanism piloted in the past, there is currently no schedule for assessing general education outcomes or linking them directly to outcomes developed at the course or program level. Faculty members have very mixed experiences and comfort levels with the general

education outcomes, but there is an overall understanding that addressing this gap is a top priority.

We know they need to link. *New initiatives* are aimed at helping faculty understand the links between general education outcomes and course/program outcomes. “I never looked at the general education outcomes the first time I wrote the outcomes for a course. I think a lot of teachers do not even know that we have them. That is something that needs to definitely be strengthened. Review and revision of general education outcomes should be on a three year review schedule just like we do our course outcomes and our program outcomes. We are in the process of looking at how we want to do that.”

Student input is considered valuable. *Communication* with students reveals how little they understand general education outcomes. “We surveyed several hundred of our students and found that some of the outcomes were hard for the students to interpret. They did not understand them, and it was not conclusive as to whether or not they felt they were getting the information. I think we have a lot more work to do.”

Bring back portfolio assessments. General education outcomes can be assessed effectively using *electronic multi-media portfolios*. “We came up with the development of the general education portfolio, which was in an electronic multi-media format. We developed a course that we put into place, and our students developed projects based on our general education outcomes. At that point in time, the administration was not very supportive of this project, and it evolved into something else. We would like to see it revised back to its original incarnation as an assessment tool and used it that way.”

Incentives

Incentives to participate in the development of student learning outcomes are varied and include both intrinsic and extrinsic motivators. Some committee members are inspired by the need to improve the college curriculum and review processes. Others find it rewarding to engage in the group dynamics that move the project forward, or they find the classroom experience to be their primary motivator. Some individuals are not intrinsically motivated to engage in the outcomes project and respond to extrinsic incentives.

There was a need. Curriculum analysis identified limitations and *goals were set to make improvements*. “There was great incentive to do a lot of revision because we knew what we wanted and what needed to be changed to reach those goals. There was a lot of variability from one end of the spectrum to the other as far as how the courses were taught.”

Student feedback is a reward. *Students show their appreciation* when they can use what they learn. “Now that we have seen it come together and actually been able to utilize this in the classroom, it has been very positive. Toward the end of the semester when they start applying some of their knowledge, I hear from them. That is my base incentive because I see it pays off for those students.”

I want to be a good teacher. *Personal satisfaction for a teaching job well done* is a motivating force. “If you clearly define what it is you want them to be able to do at the end of your course and how you will know that they have accomplished it, then it makes you a better teacher. I like sitting down and reading the learning outcomes when I am re-doing my classes because it helps me organize and have another take on the

subject. It also puts confidence in my course by providing evidence of what the students are learning. It validates what I am doing and ends up being a more quality product.”

We are all in this together. *Collegiality* has its rewards for committee members active in the outcomes project. “We have a group here who is enthusiastic and open to new approaches, and we are willing to do the work and invest in the discussions with colleagues and counterparts. The mini-retreats are very helpful in providing a common language and goal, and there is a pay off for colleagues when they work toward those outcomes with their students. Their lives are much more organized and have a better focus. I think I have gained respect from my colleagues due to my experience with learning outcomes.”

Buy in is not 100%. *Extrinsic incentives* are necessary to compel some to participate. “I do not find that there are any incentives for developing or revising outcomes other than the fact that if you do not do it, your courses will not be offered. That is a major incentive, if you call it an incentive. At this point I do not see the institution explicitly offering a lot of incentives for people to take the next step and assess. Other incentives include compensation, and I think that is an issue we need to address if someone is doing something over the summer.”

Technology is a wonderful thing. *ACRES saves time and frustration.* “From a technical perspective there are incentives to participate. There is a lot of frustration because of the time constraints, and ACRES has really helped because it is easy, fun and user friendly. Once you could see that something had gone through curriculum and it was getting easier to do as time went on, there was a lot of intrinsic reward.”

Technology as a Tool

Technology facilitates communication, timely curriculum revision, reflection, and learning. Although the ACRES technology requires training, it is easy to use, and good technical support is available.

It is a communication tool. Technology *improves communication* across the college district. “The ACRES technology has helped us tremendously because it has improved the communication process between campuses. The CLASS Office website is really an excellent resource for anybody that wants to know anything about our curriculum, and it provides everything I need to know about articulation if I am helping a student.”

It is a time-saving tool. Technology makes the *revision process easy and efficient*. “The technology has allowed us to make this huge project happen in a timely manner. We put a lot of data into the system in a relatively short span of time, and users seem to see the utility of the technology very quickly.”

It is a tool that requires training. Implementation of ACRES technology was rapid and *required training and support*. “ACRES was a ‘lights off, lights on’ implementation, and some people just really hate it because it is new technology. However, ACRES is simple and not difficult to use because the CLASS Office provides good training.”

It is a learning tool. *ACRES makes us look at things differently*. “It is really good because we learn things that we might not have really brought to the forefront of our decision making.”

Faculty Responsibility

Success of the learning outcomes project depends heavily upon faculty participation. As content experts, faculty members are required to generate and update outcomes for their courses and address articulation issues. Some see the value of learning outcomes and are highly involved while others are more resistant to participation. Regardless of their level of buy-in, all faculty members are impacted by the accountability factors generated by the curriculum revision process.

This project is designed to be faculty driven. *Faculty generates learning outcomes for their courses and serves on committees that review outcomes.* “Faculty has to be involved in this because they are teaching the classes, they are in the trenches; they have the knowledge and expertise. The faculty has taken responsibility as initiators in the system, creating their own actions in the system and then tracking their curriculum actions through the process.”

Some faculty members are on top of the game. There is a core group that *sees the value of outcomes* and participates in many aspects of the process. “We have some faculty members that know what is current and what their courses should be like, and they are constantly improving their courses to meet the current demand. They are on top of the game, and we can rely on them to keep their courses good.”

Other faculty members resist being put in the game. Resistance may stem from *communication gaps, lack of understanding, time constraints, and fear of change.* “A lot of instructors see the development of the learning outcomes and standards as just another paper shuffle, another hoop to jump through, and another waste of time that has been mandated from on high. With those people it is a real battle. Some do not

understand why they have to go through this and resist anything that implies accountability or change. I do not think that the value of learning outcomes has been articulated that well, and a lot of instructors hate the process and shove that responsibility onto other faculty members.”

We have an accountability factor. Faculty is responsible for creating and updating outcomes on a regular basis to ensure *courses are current and articulating*. “Curriculum development is considered to be part of the job. It is easy to get sucked into doing something for so long that we forget that the needs of our students change. We must recognize that and be accountable. If the outcomes and the standards are there, and we are not achieving them, then the articulation of our class is no longer any good. They also provide consistency for our students because the standard should be the same for all faculty.”

Growing Pains

Changes in the curriculum process and the scope of the project created stress, frustration, and confusion. Participants were forced to learn a new language and conform to new processes and deadlines with limited personnel. Some aspects of the curriculum process are still generating stress, frustration, and confusion.

We have grown through this painful experience. Change is a *learning experience*. “When you go back and look at where we started and where we are now, it has been a long, involved, painful process. Being forced to look at it a little differently is not pleasant. It was a huge growing experience for me, not without some mistakes and

steps back and steps forward. However, I think I came out better for it and so did the department.”

We had to learn the outcomes language. It was necessary to *define standards versus outcomes*. “There were growing pains trying to establish a common language and expectations, and I was in a great learning curve as to how to write a standard and an outcome. There has been a lot of confusion on terminology and process.”

Time is very precious. The *large scope of the project* put stress on individuals to meet deadlines. “We had so much to do revising the course outlines, and getting into the whole new system. Meeting the deadlines was very draining. It was bad because we were running, running, running, but in retrospect it was a good professional growth experience for me. The majority of the people think it is a positive thing, but it is frustrating to see so much more that we want to do.”

We need more people doing this. Continuous quality improvement of the curriculum requires more *trained personnel*. “Some of the pain was from managing the course work because we had so few program chairs to rework the curriculum. We undertook a huge project with limited resources, and it has taken two people to really spearhead that effort...and it takes a lot of effort. Because of the time and the personnel restraints it is going to take longer to get to the point where want to be.”

Who really needs a Needs Assessment? Some *processes are still being questioned*. “People seem to have growing pains regarding the upfront needs assessment. We have to ask for approval of learning outcomes from centers where there are no instructors that teach in the field that we teach. The dean of the center is supposed to

approve everything from plumbing to psychology. I find the process to be very unwieldy, and it seems more like busy work.”

Focus Group Systems Influence Diagram

During focus group theoretical coding, an Affinity Relationship Table was constructed using the affinity relationships described for each possible affinity pair. Majority ruled in determining the direction of each relationship, and these were used to create a series of Focus Group Tabular IRD data tables that determine the relative positions of the affinities in a Focus Group SID. After comparison of the Focus Group SID with individual SIDs for each LORC member, it was concluded that the Focus Group SID was not a reliable indicator of the committee members’ perceptions of the factors influencing learning outcomes development. Some individuals did not openly voice their opinions in the group, and use of the focus group data for comparison with the faculty data would produce inaccurate results. It was determined that the composite LORC data was a more accurate portrayal of committee members’ insights.

Composite Theoretical Coding Summary

The next step in the IQA process was to combine all individual theoretical interview data into a single Composite Theoretical Code Table which indicated when respondents disagreed or defined relationships differently. Before a LORC Systems Influence Diagram (SID) was created, theoretical coding included an analysis of the number of committee members that agreed and disagreed on the affinity relationships. The frequencies were determined for each affinity pair and reconciled using the Pareto

protocol. Two affinity pairs were identified as conflicts to be reconciled during analysis of the LORC SID. These pairs were Related Initiatives/Teaching and Learning (1/3) and Related Initiatives/Incentives (1/5). The most frequently occurring affinity relationship pair was chosen for the LORC Composite Affinity Relationship Table (ART) and reconciled in the LORC System Influence Diagram (SID). The following theoretical analysis includes a summary of the affinity relationships, specific relationship descriptions, and review of the uncluttered System Influence Diagram.

Affinity Relationship Table

The theoretical coding process resulted in relationships between each affinity pair as identified most frequently by the Learning Outcomes Review Committee, and they are shown in the following LORC Affinity Relationship Table (ART) (Table 5.01).

Table 5.01: Composite LORC Affinity Relationship Table

Affinity Name
1. Related Initiatives
2. Process Systems
3. Teaching and Learning
4. General Education Links
5. Incentives
6. Faculty Responsibility
7. Supportive Leadership
8. Evolution of C.L.A.S.S.
9. Technology as a Tool
10. Growing Pains

Possible Relationships
$A \rightarrow B$
$A \leftarrow B$
$A \diamond B$ (No Relationship)

COMPOSITE LORC ART		
AFFINITY PAIR RELATIONSHIP	AFFINITY PAIR RELATIONSHIP	AFFINITY PAIR RELATIONSHIP
1 → 2	2 → 9	5 → 6
1 ← 3	2 → 10	5 ← 7
1 ◇ 4	3 ◇ 4	5 ← 8
1 → 5	3 → 5	5 → 9
1 → 6	3 → 6	5 → 10
1 ← 7	3 ← 7	6 ← 7
1 ← 8	3 ← 8	6 ← 8
1 → 9	3 → 9	6 ← 9
1 → 10	3 → 10	6 → 10
2 → 3	4 ◇ 5	7 → 8
2 → 4	4 ◇ 6	7 → 9
2 → 5	4 ← 7	7 → 10
2 → 6	4 ← 8	8 → 9
2 ← 7	4 ◇ 9	8 → 10
2 ← 8	4 → 10	9 → 10

Interrelationship Diagram

Data from the Composite LORC Affinity Relationship Table (Table 5.01) was entered into an Interrelationship Diagram (IRD) to begin determining the relative positions of the affinities in the system. The unsorted and sorted Composite LORC IRD tables are shown in Tables 5.02 and 5.03.

Table 5.02: Composite LORC IRD Unsorted

Composite LORC IRD													
	1	2	3	4	5	6	7	8	9	10	OUT	IN	Δ
1		↑	←		↑	↑	←	←	↑	↑	5	3	2
2	←		↑	↑	↑	↑	←	←	↑	↑	6	3	3
3	↑	←			↑	↑	←	←	↑	↑	5	3	2
4		←					←	←		↑	1	3	-2
5	←	←	←			↑	←	←	↑	↑	3	5	-2
6	←	←	←		←		←	←	←	↑	1	7	-6
7	↑	↑	↑	↑	↑	↑		↑	↑	↑	9	0	9
8	↑	↑	↑	↑	↑	↑	←		↑	↑	8	1	7
9	←	←	←		←	↑	←	←		↑	2	6	-4
10	←	←	←	←	←	←	←	←	←		0	9	-9

Count the number of up arrows (↑) or Outs
 Count the number of left arrows (←) or Ins
 Subtract the number of Ins from Outs to determine the deltas (Δ)
 $\Delta = \text{Out} - \text{In}$

Table 5.03: Composite LORC IRD Sorted

Composite LORC IRD Sorted in Descending Order of Δ													
	1	2	3	4	5	6	7	8	9	10	OUT	IN	Δ
7	↑	↑	↑	↑	↑	↑		↑	↑	↑	9	0	9
8	↑	↑	↑	↑	↑	↑	←		↑	↑	8	1	7
2	←		↑	↑	↑	↑	←	←	↑	↑	6	3	3
1		↑	←		↑	↑	←	←	↑	↑	5	3	2
3	↑	←			↑	↑	←	←	↑	↑	5	3	2
4		←					←	←		↑	1	3	-2
5	←	←	←			↑	←	←	↑	↑	3	5	-2
9	←	←	←		←	↑	←	←		↑	2	6	-4
6	←	←	←		←		←	←	←	↑	1	7	-6
10	←	←	←	←	←	←	←	←	←		0	9	-9

The delta values listed in the right column of Table 5.03 were sorted in descending order and used to identify the relative positions of the affinities in the system. Large positive values were primary drivers while large negative values were primary outcomes. Affinity numbers in the left column indicated placement of affinities along the driver/outcome continuum. The relative positions of these affinities are listed in Table 5.04.

Table 5.04: Composite LORC Tentative SID Assignments

Composite LORC Tentative SID Assignments		
7	Supportive Leadership	Primary Driver
8	Evolution of CLASS Office	Secondary Driver
2	Process Systems	Secondary Driver
1	Related Initiatives	Secondary Driver
3	Teaching and Learning	Secondary Driver
4	General Education Links	Secondary Outcome
5	Incentives	Secondary Outcome
9	Technology as a Tool	Secondary Outcome
6	Faculty Responsibility	Secondary Outcome
10	Growing Pains	Primary Outcome

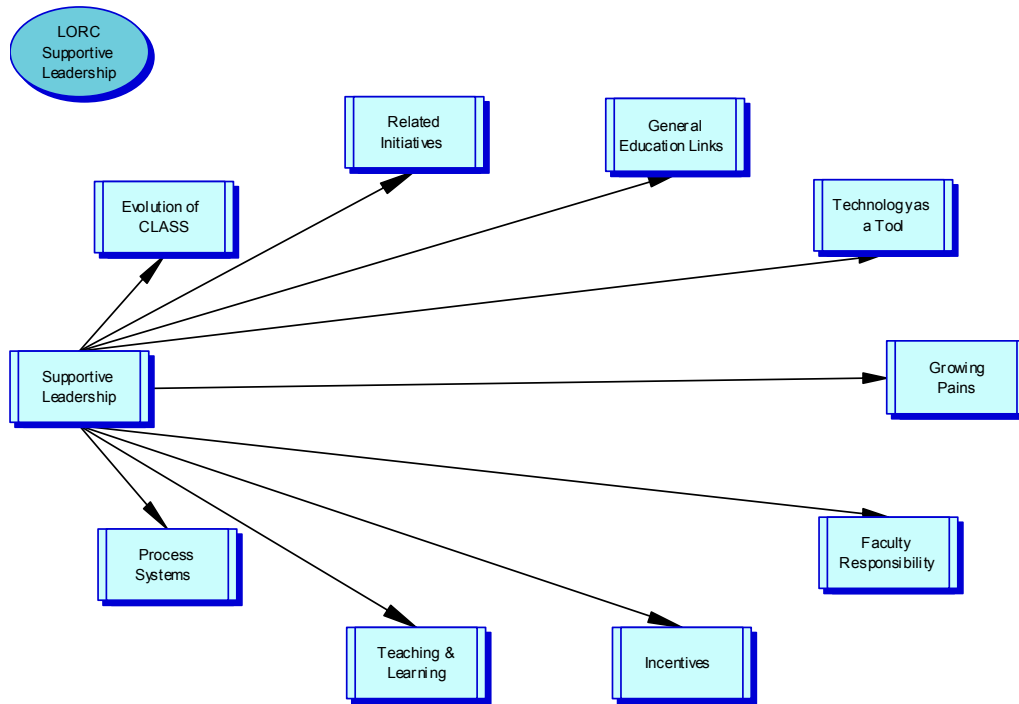
Relationship Descriptions

The following relationship descriptions provide detailed explanations of the affinity pairs in the words of the committee members. The analysis begins with the primary driver, Supportive Leadership, and continues through the continuum to the primary outcome, Growing Pains.

Supportive Leadership Influences...

The outcomes review committee believed that Supportive Leadership had a direct influence on all other factors related to the development of student learning outcomes. Supportive Leadership was the primary driver of the system.

Illustration 5.01: LORC View of Supportive Leadership



Evolution of CLASS. *Leadership supports and provides directions for the activities of the curriculum office. “I do not know that the CLASS Office would have become what it is today without leadership supporting them, funding them, and institutionalizing them. They had a clear picture and hired someone that was really good at curriculum development. They also came up with a plan, and supportive leadership still provides projects and guidance that makes this office change whether we want it to or not.”*

Process Systems. *The curriculum process was created under the direction of leadership and its continued use depends upon leadership. “Supportive leadership is the foundation that put those systems in place, and if we do not have their support, then the*

system will break down because no one is saying you have to do it. This system has been created from the top down. There needs to be and there should be leadership.”

Related Initiatives. *Supportive leadership creates fertile ground from which new initiatives can grow.* “Supportive leadership drives related initiatives because you must have support from the people that are going to give you the money and allow you the freedom in your schedules to make these things happen. Leadership relies on people trained in those areas to come up with the ideas that probably best suit the college. They try not to micromanage.”

Teaching and Learning. *Leadership is guiding instruction toward a new paradigm.* “The support of the leadership encourages the atmosphere of the learning college. It encourages everyone to be responsible for how our students learn, and that goes beyond just the classroom. Certainly the way that we have specified our strategic goals, adopted AQIP, publicly stated that we are a learning college, and defined the learning college philosophy, all have influenced teaching and learning. Without the directive from leadership and having that support I do not think the teaching is going to grow.”

General Education Links. *Leadership is making the general education links a priority.* “We have policy and procedures that are related to our outcomes. They address what the governing board expects our students to be able to do that relate directly to those general education links. Supportive leadership drives the general education links in terms of a vision of what they want our students to learn, how they want them to learn, and how they want them to be prepared when they leave here. Without the leadership to bring forth these links, we would not be hearing about it so much.”

Incentives. *Supportive leadership creates incentives.* “Our leadership has a very clear idea of what he wants and the quality he wants. That creates incentives for us to get there. It was a huge incentive when supportive leadership made the commitment to develop the CLASS Office and provide resources to support the institution as a whole. It feels good to have the leadership behind you.”

Technology as a Tool. *Leadership supported the acquisition of necessary technology.* “We may not have the money to go out and buy the most expensive software systems, but leadership has given the CLASS Office the ability to work with other groups, make contacts, glean what we can, and then come back and get just what we need here to build our own. It takes a supportive climate for a new technology project to survive and to be effective.”

Faculty Responsibility. *Faculty is less likely to assume new responsibilities without the support of leadership.* “The leadership has provided the support and the encouragement for faculty to take on the responsibility for doing what they need to do to make this a better learning environment for our students. Without the support of the leadership our faculty would not have taken the responsibility to the extent that they have. I think the leadership drives faculty to become more responsible by supporting what it is that faculty are doing and by giving them the tools they need to finish the process and do better teaching, which makes it easier for faculty to take on these responsibilities. They are holding faculty accountable.”

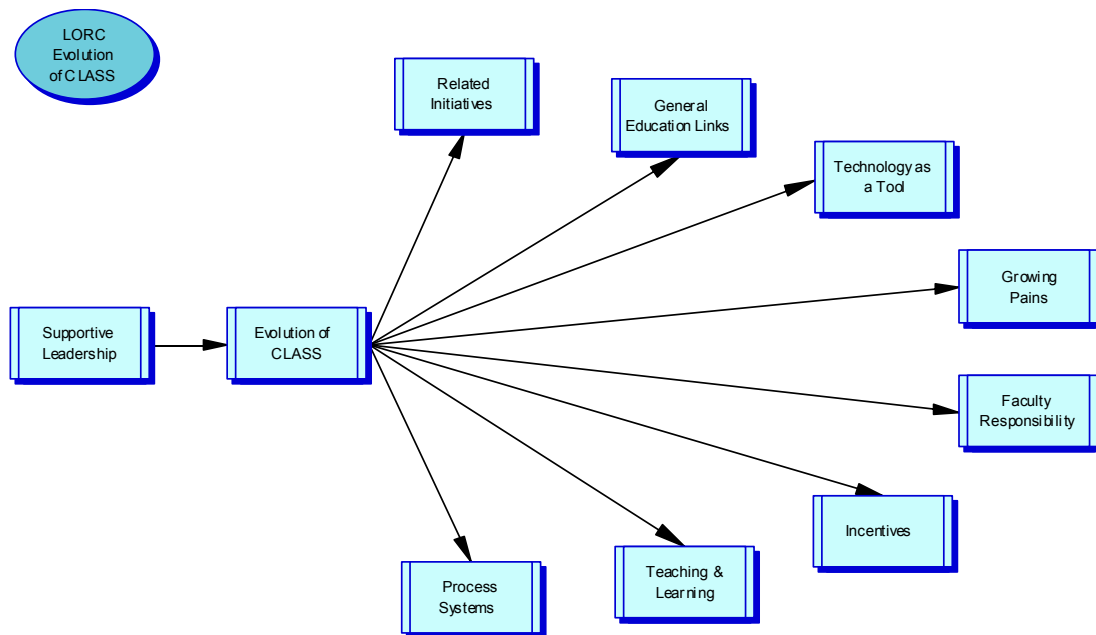
Growing Pains. *Change is painful.* “We started this process under the leadership of one president and then changed to the leadership of another president. They may have the same end view, but how they get there is very different. I think that

anytime that you have that kind of a change you are going to have some growing pains. Things would have happened, but probably not at the same pace. Supportive leadership reduces the number of growing pains because it establishes accountability and responsibility, but at the same time it will lead to growing pains because it leads to more work.”

Evolution of the CLASS Office Influences...

Evolution of CLASS is a secondary driver in the LORC system. This affinity is driven by Supportive Leadership and drives all other affinities in the system.

Illustration 5.02: LORC View of Evolution of the CLASS Office



Process Systems. *The curriculum office makes adjustments to the curriculum process as needed.* “The CLASS Office has structured and driven a lot of the process systems based on the input of the faculty, some of the initiatives, and as the CLASS Office goals have changed. As a central location, they have really been a key to making sure the process works for everybody, and that definitely drives the success of the process systems.”

Related Initiatives. *The curriculum office provides leadership and support for initiatives.* “CLASS is part of the leadership, and refining their system provides support to people that helps move the initiatives along. They make sure that we have the materials we need. They also check to see if other groups are also working on the same initiatives so that we can combine efforts. They see other areas that need to be worked on and come up with the ideas. While the CLASS Office appears to be evolving in response to the initiatives, it provides a catalyst for the Initiatives.”

Teaching and Learning. *By supporting the development of learning outcomes, the curriculum office impacts teaching and learning in the classroom.* “As the CLASS Office has evolved, the information and support coming from it is the driving force in improving teaching and learning. Helping to develop the learning outcomes drives how we teach, and it has made us fully understand what we are teaching and what we want the students to know and do. What we are doing in the classroom has helped determine the communication mechanism between campuses, and through the three-year review instructors are more aware that they should be trying to keep on top of changes in their disciplines.”

General Education Links. *The curriculum office is leading the effort to clarify links between the general education outcomes and the course outcomes.* “Evolution of the CLASS Office drives the general education links because it has never been clear before, and that is a problem that we see and are doing something about. The CLASS Office is encouraging us to take that next step and make sure that our links are current with our mission statement.”

Incentives. *The curriculum office creates incentives by facilitating the curriculum process and creating clear deadlines.* “We are very unique in that we have a CLASS Office with full time personnel dedicated to supporting the development of learning outcomes, standards, and student learning assessment. Most schools do not have that, and for a lot of our people that support is an incentive to do the work. By providing the training, streamlining the process, making it more efficient, the hill is not as steep. If they feel like they are just spinning their wheels and they are not seeing any progress, they are not going to do it. I think CLASS also drives incentives by saying this has to be done by a certain deadline. However, incentives have helped with the evolution of CLASS because we have seen the results, and they have helped validate the purpose of the CLASS Office.”

Technology as a Tool. *The curriculum office sought out appropriate technology to improve the curriculum process.* “We saw early on that paper was not working and technology was the answer. We could not do what we are doing without technology. The CLASS Office influences technology through improvements like ACRES, training, working out the glitches, and developing a website. They also give technical support new functional requirements for ACRES and ask the technology to deal with this.

Technology has allowed CLASS to evolve, expand their services, and refocus some of their services.”

Faculty Responsibility. *As an institutionalized part of the curriculum process, the CLASS Office supports the development of faculty responsibility enthusiasm, commitment, and service.* “The evolution of CLASS is driving faculty responsibility by providing information and support. They are asking the faculty to be responsible, and because they are providing such good service, it is increasing. It is a formal office now that is established and recognized, and it is part of the processes that must be completed. It is not just a door you can walk by anymore. Without the enthusiasm for the project and a personal commitment from the CLASS Office, I do not think that faculty would take on such an encompassing project as this.”

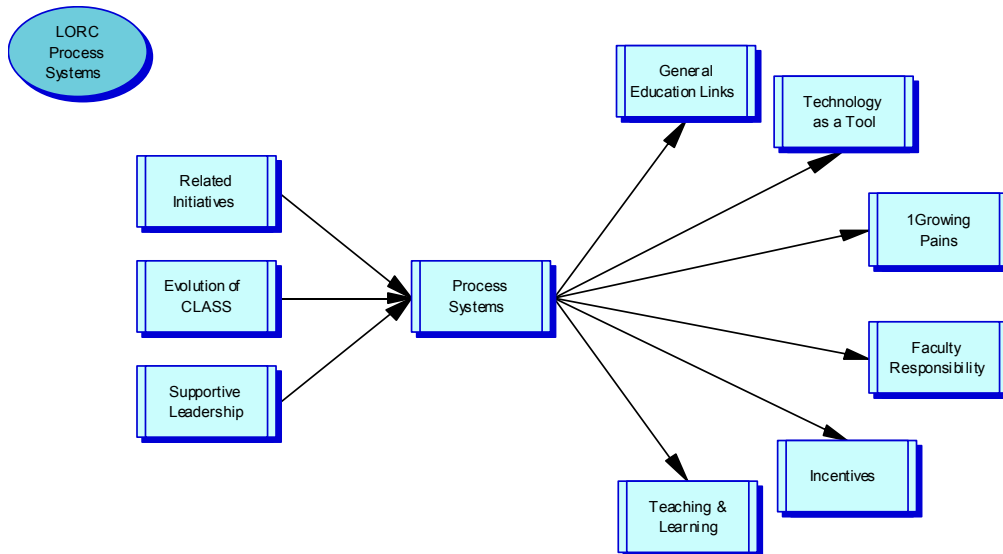
Growing Pains. *The curriculum office is perceived as the creator of growing pains and the alleviator of growing pains.* “Definitely the evolution of CLASS has caused a lot of growing pains for them as well as for the rest of us, trying to figure out exactly what their role is here and making sure that they are not overstepping what other people see as their territory. The CLASS Office does more and pushes more to get the project to expand.

Our growing pains have decreased as the CLASS Office has come to be what it is today. They constantly try to make things better. An example is changing the routing in ACRES to better fit what needs to happen and to keep everybody on the right track. If the CLASS Office continues to develop, grow, and provide clear leadership and support, addressing issues as they arise and coming up with a process to alleviate these issues, then the evolution of the CLASS Office will take care of growing pains.”

Process Systems Influence...

Process Systems is a secondary driver in the system. It is driven by Supportive Leadership, the Evolution of the CLASS Office, and Related Initiatives. The Process Systems affinity drives all other affinities.

Illustration 5.03: LORC View of Process Systems



Teaching and Learning. *The curriculum process forces faculty to regularly evaluate the content of their courses relative to the learning outcomes established for their courses.* “I really think that putting the student learning outcomes and standards down on paper helps instructors to develop their courses in a way that is much more effective and feasible. The system of making us look at our outcomes has improved our teaching and learning because we have had to evaluate how we do things to make sure it

is in the best interest of the students. Now we force them to talk with their colleagues about the content of courses; we force them to look at the content of those courses and the learning outcomes and the standards for those courses on a three-year cycle, and we look at how our students do after they leave CAC.”

General Education Links. *The process helped to identify weaknesses in the links between the course outcomes and the general education outcomes.* “It is because of the process that is in place that we have seen that these links are not strong. The system is now taking us to the next step where we need to look at our general education outcomes and make sure those are in line with everything else we have spent the past several years working on. The process will eventually get to the point where the general education links will be incorporated into it. We may not be there yet, but it is going that way.”

Incentives. *Curriculum specialists were motivated to clean up the curriculum across the district, while those with instructional responsibilities were motivated by the consistency of the framework offered by the new curriculum process.* “Our people thrive on establishing a project. They were to get the curriculum cleaned up, get more courses articulated to the university to help students transfer more courses, and have a document that was clear for students to know what they can expect out of a course.

I just do not think we would have a clear and consistent vision of where we needed to go, and I think it is a lot easier to be motivated when you actually have some sort of reasonable framework that gives direction to what you should be developing and why. As we succeed it pumps you up a little bit, and you keep working to make the system better and better.”

Technology as a Tool. *The needs of the curriculum process originally influenced the selection of technology as a tool to facilitate that process, but once adopted, the ACRES technology usage expanded to address curriculum issues other than student learning outcomes.* “We devised the system and then we found the technology to do it. I see the ACRES program as being a tool of the process.

Now we allow ACRES to do a lot of the work for us, and it pushes that process. Sharing information electronically makes a huge difference in our ability to quickly respond to changes in our curriculum and to maintain our articulation requirements.”

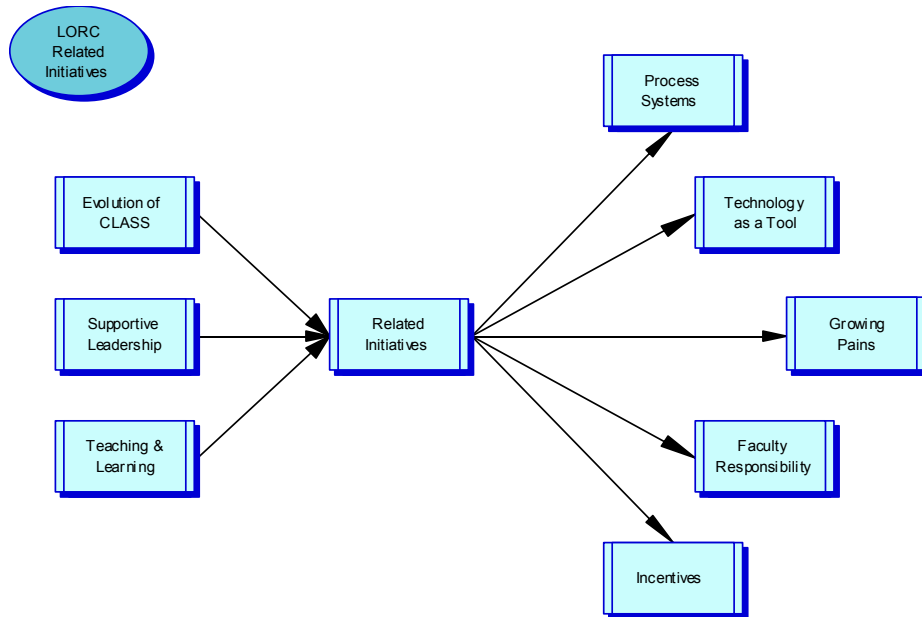
Faculty Responsibility. *The curriculum process holds faculty accountable for the content of their courses.* “Faculty participation is a must if the process is going to work; however, the systems that we have in place tell them when they need to review their courses and force faculty to take more responsibility for content and talk with their colleagues. The consistency of the system is holding the faculty responsible for participation. I do not know if faculty would be quite as involved with learning outcomes and looking at standards without the systems in place to bring clarity to that process.”

Growing Pains. *The new curriculum process created change and difficulty in transition.* “Anytime you change something, whether it is an improvement or not, there is going to be growing pain until every one learns it. Even the best changes are not without difficult transition. The process we use shows us where we need to change or add a step, and that causes growing pains in the CLASS Office.”

Related Initiatives Influence...

Related Initiatives are a secondary driver and are influenced by Supportive Leadership, Evolution of the CLASS Office, and Teaching and Learning. Related Initiatives influence all other affinities except General Education Links with which it has no relationship.

Illustration 5.04: LORC View of Related Initiatives



Process Systems. *The curriculum process is influenced by outcomes-related initiatives, many of which are tied to AQIP accreditation criteria.* “From my perspective the way the system works should always be driven by what we want it to do, and the related initiatives are things we want it to do, the things we want it to support. A lot of the processes that we have established recently have to do with AQIP accreditation criteria and are looking at the systems and recommending enhancements and revisions to

the process. However, I think we have a number of processes that are leading us to realize that we actually have related initiatives to which we should be paying more attention.”

Incentives. *Outcomes-related initiatives create incentives for participation and influenced by incentives for participation.* “It should be that the incentives are driving the initiatives, but right now it is probably the other way around because a lot of people have become involved due to the related initiatives. I really think that AQUIP is driving the institution-wide communication and collaboration. The result of the work that we do is the ‘chocolate’ of our work. We feel good about it being done. It is exciting to see everything falling into place.

However, if you get a group that gets burned out and there are not any incentives, the initiatives die. Keeping them involved and actually seeing that something productive is coming out of the work drives us to create, fulfill, and revisit those initiatives.”

Technology as a Tool. *Technology is a tool.* “Technology that we use as a tool was created to perform the initiatives that we developed. Technology should never drive decision making, and it should not drive our processes. I think of ACRES more as a vehicle to move us to a successful completion of an initiative.”

Faculty Responsibility. *Outcomes-related initiatives are another method of holding faculty accountable for the quality of the curriculum.* “Faculty was told they were going to do this. There were a small minority of faculty doing it already, but the majority had to change behavior. The initiatives are holding the faculty accountable by requiring them to revise the course outlines and the outcome statements; however, faculty

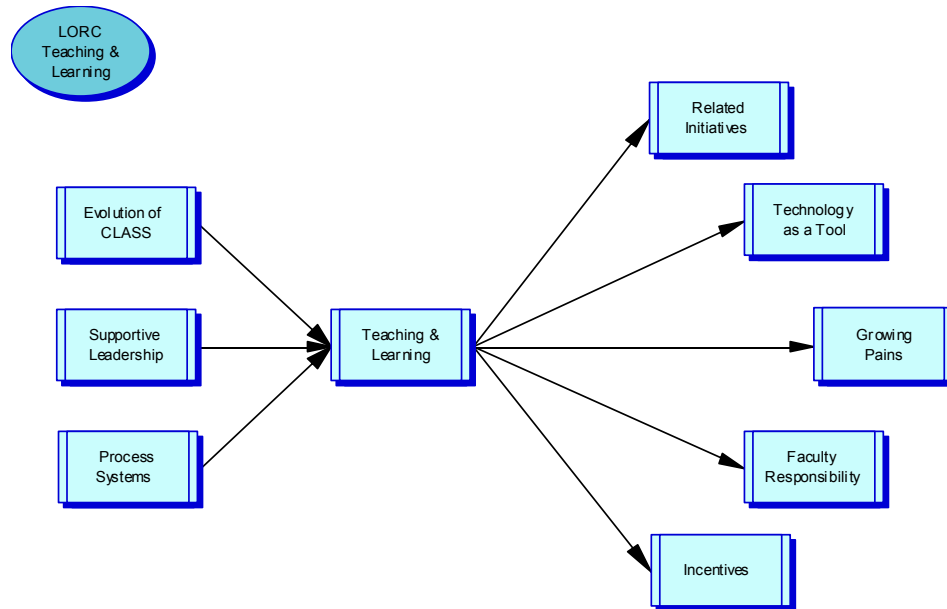
resistance to the development of student learning outcomes is really impacting the implementation of things like AQIP.”

Growing Pains. *Resistance to change from outcomes-related initiatives results in growing pains.* “It is out of new ideas that we see there is a need and then change to fit those needs. Some of the initiatives that we have addressed have in some cases taken on a life of their own, and as a result there are definitely some growing pains. Obviously, whenever there is a change, there is always going to be some resistance to that change.”

Teaching and Learning Influences...

Teaching and Learning is a secondary driver and is influenced by Supportive Leadership, Evolution of the CLASS Office, and Process Systems. It has no relationship to General Education Links but drives all other affinities.

Illustration 5.05: LORC View of Teaching and Learning



Related Initiatives. *The relationship between outcomes-related initiatives and teaching and learning is circular and involves implementation of AQIP continuous improvement criteria.* “We are choosing AQIP to help our teaching and learning, and we are choosing student learning outcomes development. Valuing people is one of the criteria on the top of our list, and it has helped me to be a better teacher.

We have a sincere belief that what is going on in the classroom with our students sets our initiatives. We are in the classroom trying to have our students arrive at these outcomes, and we come up with things that are barriers to their learning, and that creates other avenues that we need to explore.”

Incentives. *Successful student learning is the primary incentive.* “The incentive is student success, and that is why we are here. It makes us continue to do what we are

doing and change what needs to be changed if they are not successful. When we see positive changes in the teaching and learning, then we want to keep doing what we are doing. I think outcomes are part of our job. I am not looking for extrinsic incentives because it is what I should be doing. I really think it is the intrinsic incentives that drive the teaching and learning process.”

Technology as a Tool. *Technology facilitates the update of learning outcomes and course content.* “Teaching and learning drives the technology because changes they need to make in their courses outcomes are much easier to do with technology.”

Faculty Responsibility. *The relationship between faculty responsibility and teaching and learning is a two-way street.* “Teaching and learning drives faculty responsibility because if they are going to be teaching quality classes, they have to take the responsibility to update those outlines, and at the same time they are forcing their students to be more and more responsible for their learning.

If faculty does not take responsibility for developing or updating their courses and getting those learning outcomes and standards in ACRES, then they cannot even teach their course. Over time people learn the value of specifying these learning outcomes, and they assess and use that information as course feedback for improvement purposes. Realizing the benefits of that is probably going to influence faculty responsibility. I do not know if we are there yet.”

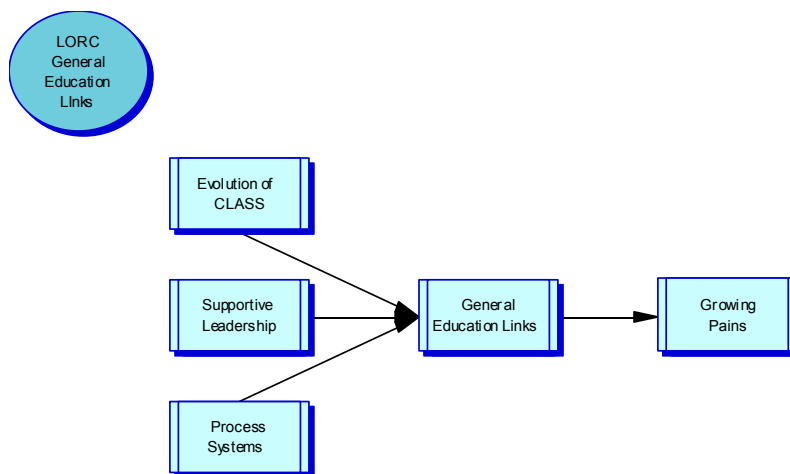
Growing Pains. *Growing Pains are part of a learning cycle.* “The growing pains we were experiencing going through this learning outcomes process did cause us to re-evaluate what we were doing in our classrooms. As we discover more and more issues

in the process of implementing the learning outcomes and standards, we discover more and more growing pains, issues that need to be addressed.”

General Education Links Influence...

General Education Links is a secondary outcome influenced by Supportive Leadership, Evolution of the CLASS Office, and Process Systems. It influences Growing Pains but has no relationship to Related Initiatives, Teaching and Learning, Incentives, Technology as a Tool, or Faculty Responsibility.

Illustration 5.06: LORC View of General Education Links



Growing Pains. *Linking the general education outcomes to the course outcomes is creating pain because it is a new endeavor and little information is currently available.*

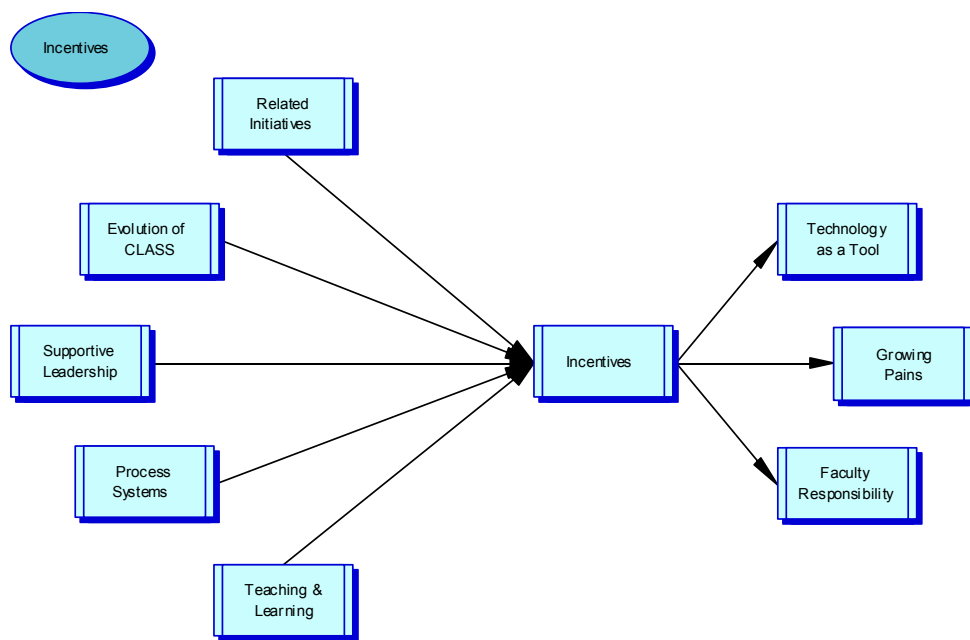
“The general education outcomes and standards have never been a big thing before, and now we are making a big deal of it. Any time you have a new process that has not been in place, there are growing pains involved. There are definitely growing pains about the

general education links because of the lack of information about it at this point, and maybe that is why nothing has been done. There is a lot going on at the college, and it has not been top priority.”

Incentives Influence...

Incentives are a secondary outcome influenced by Supportive Leadership, Evolution of the CLASS Office, Process Systems, Related Initiatives, and Teaching and Learning. Incentives influence Technology as a Tool, Faculty Responsibility, and Growing Pains but have not relationship to General Education Links.

Illustration 5.07: LORC View of Incentives



Technology as a Tool. *Project goals created the incentive to search for a technology solution.* “Incentives probably drove us to get the technology we needed to complete our goals because if we want to pull this together we need to find and use technology. Faculty will use it once they realize the value of the learning outcomes and what the learning outcomes committee does. ACRES has certainly made it easier to go through this whole process, which is an incentive because it is not a mountain of paperwork anymore.”

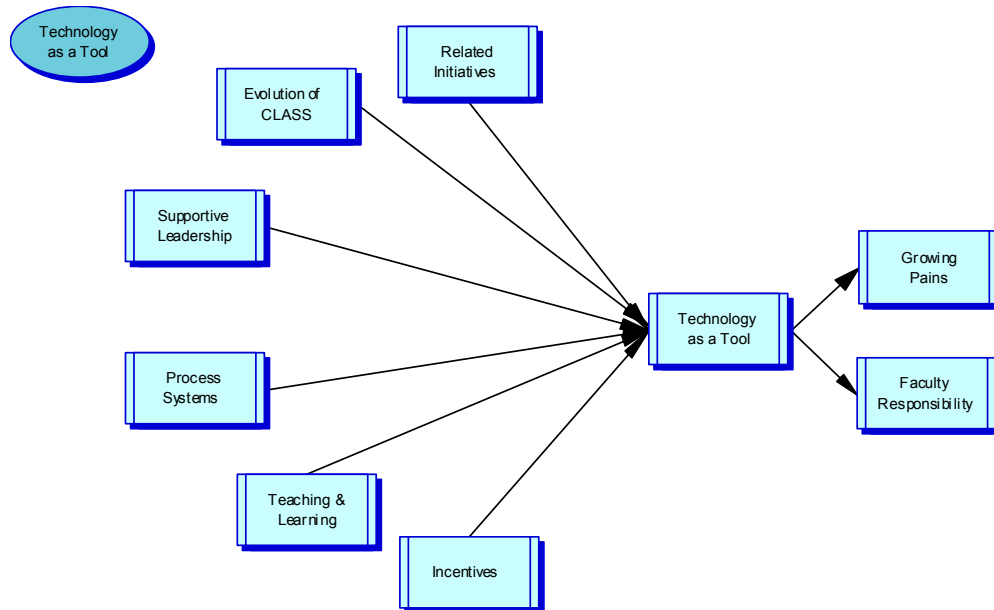
Faculty Responsibility. *The level of responsibility felt by faculty varies widely and results in the need for extrinsic incentives.* “Excitement, enthusiasm and a collaborative spirit draws everybody into the project in a way that makes them want to be a more active participant. We have a few that want money as incentives, but the majority of them do not. That gets into the chocolate, the warm fuzzy feelings thing. I think the incentives are driving faculty responsibility to help them become better at what they are doing, better in their teaching and assessment of students. I think there are non-players who will always be non-players, and for them there is a very basic incentive. Do it or you do not have a class.”

Growing Pains. *Both intrinsic and extrinsic incentives can result in more pain by increasing the workload.* “Incentives drive the growing pains because when there is a need to do something, then that adds more responsibility. You have more work to do. Incentives increase ACRES usage which also causes growing pains.”

Technology as a Tool Influences...

Technology as a Tool is a secondary outcome influenced by Supportive Leadership, Evolution of the CLASS Office, Process Systems, Related Initiatives, Teaching and Learning, and Incentives. It influences Faculty Responsibility and Growing Pains, but it has no relationship to General Education Links.

Illustration 5.08: LORC View of Technology as a Tool



Faculty Responsibility. *Technology plays an integral role in faculty revision of outcomes and tracking of faculty participation.* “Technology is influencing faculty responsibility because of the availability of ACRES and the information that is on the website. ACRES has helped make the faculty responsible because it shows very clearly the last time they made a change when they reviewed their course. It has forced the faculty to take responsibility and be involved in the curriculum process by keeping their

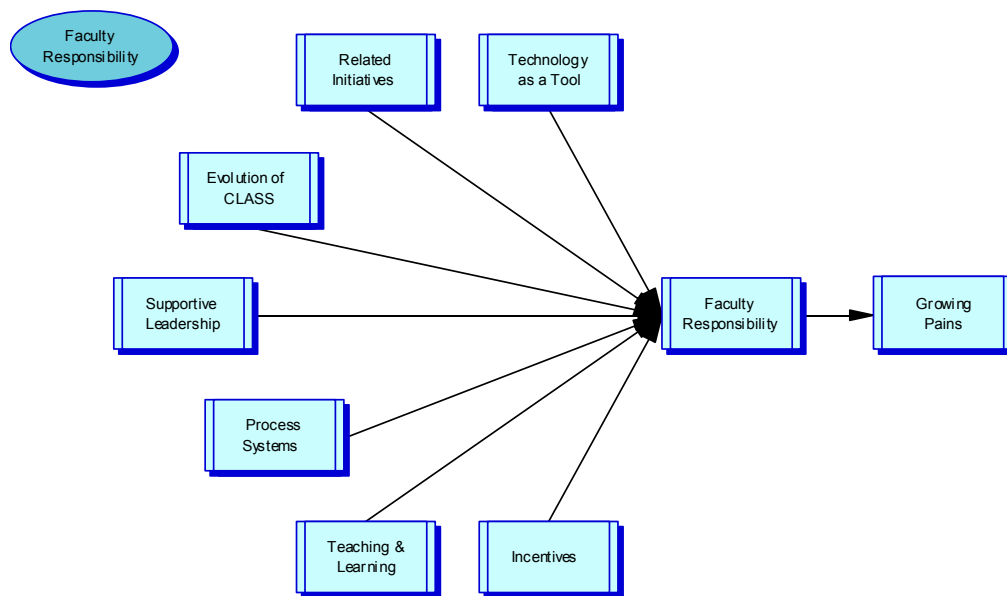
courses current and accurate. If they do not, then we pull them out of the course bank, and they are not allowed to teach them.”

Growing Pains. *Technology usage can initially cause pain but also requires constant evaluation of its applicability and efficiency.* “Once you get technology it just opens the door for more uses, and so it really drives the growing pains. You have to keep looking at the whole thing to see where it is going, and you have to be willing to make revisions and adjustments along the way. If you do not do that, then the system will crash and you become the same old, same old.”

Faculty Responsibility Influences...

Faculty Responsibility is a secondary outcome influencing Growing Pains. It has no relationship to General Education Links and is influenced by all other affinities.

Illustration 5.09: LORC View of Faculty Responsibility

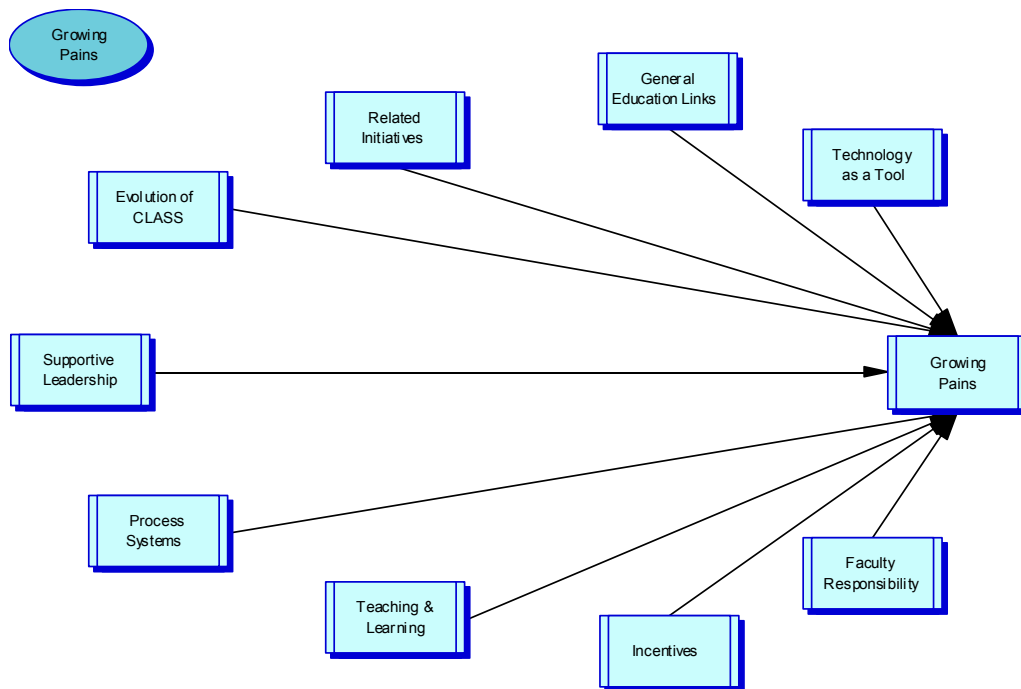


Growing Pains. *Assuming responsibility in the outcomes project is a difficult hurdle for some faculty and strains the system to provide training and support. “For someone who does not even read e-mail, this is a major step. It is getting better, but initially the faculty not being responsible was one of the big speed bumps to get over. As faculty want to participate more that pushes the system to be bigger, and that causes pain.”*

Growing Pains Influences...

Growing Pains is the primary outcome of the system and is influenced by all other affinities. It appears to have no influence on other affinities; however, by investigating mischievous topologies where the relationship of higher frequency was selected, it is evident that the Growing Pains affinity does have influence on Evolution of the CLASS Office, Teaching and Learning, General Education Links, Incentives, Technology as a Tool, and Faculty Responsibility.

Illustration 5.10: LORC View of Growing Pains



Evolution of the CLASS Office. *The CLASS Office is responsive to pain.* “If the CLASS Office continues to develop, grow, and provide clear leadership and support, addressing issues as they arise and coming up with a process to alleviate these issues, then the evolution of the CLASS Office will take care of growing pains.”

Teaching and Learning. *Pain influenced evaluation of classroom activities.* “The growing pains we were experiencing going through this learning outcomes process did cause us to re-evaluate what we were doing in our classrooms.”

General Education Links. *Pain brought a focus on outcome deficiencies.* “We have a different frustration focus, because our current general education outcomes do not really seem to be tied to the rest of the stuff we have going on.”

Incentives. *There is an inverse relationship between incentives and growing pains.* “I think that the more growing pains there are, the fewer incentives, and more incentives are because of fewer growing pains.”

Technology as a Tool. *Pain influenced optimization of technology.* “The growing pains have caused us to re-evaluate what technology we use and how we use it, forcing us to use technology more efficiently.”

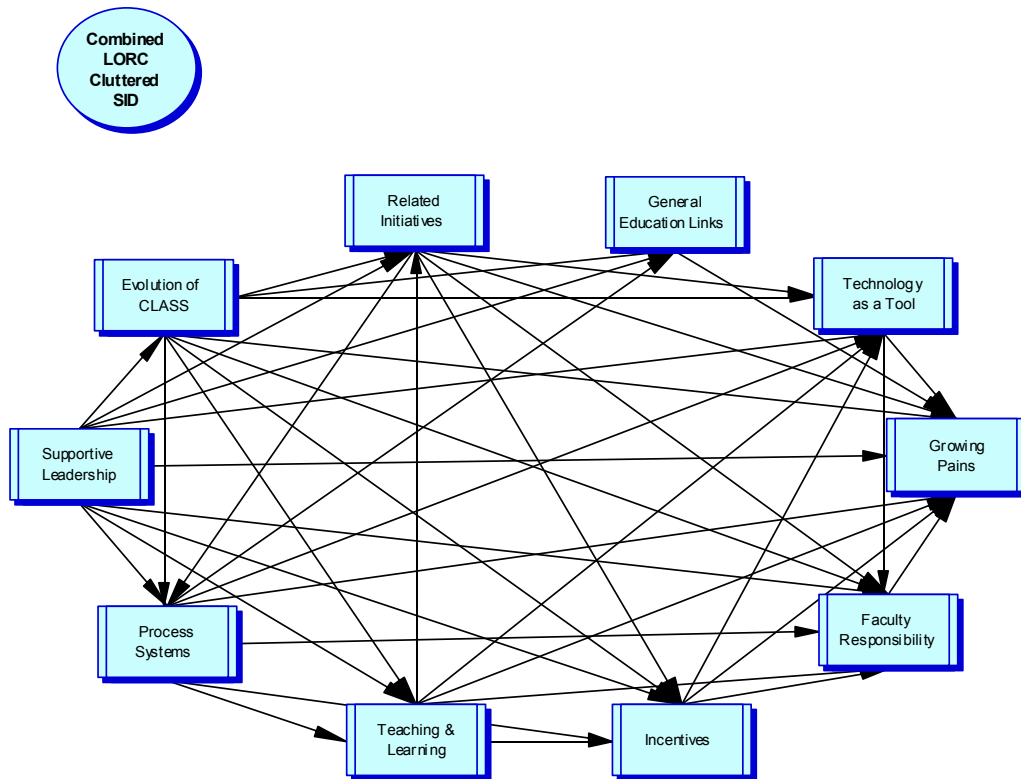
Faculty Responsibility. *Faculty members must do their share to help alleviate the pain.* “Growing pains have caused a shift in the level of responsibility. We are all going to have to pick up the slack, so no slackers allowed.”

System Influence Diagrams

The System Influence Diagram (SID) is a visual representation of the cause and effect relationships between the ten affinities. The following SID analysis is based upon a compilation of the individual realities of the Learning Outcomes Review Committee members who participated in the focus group interview.

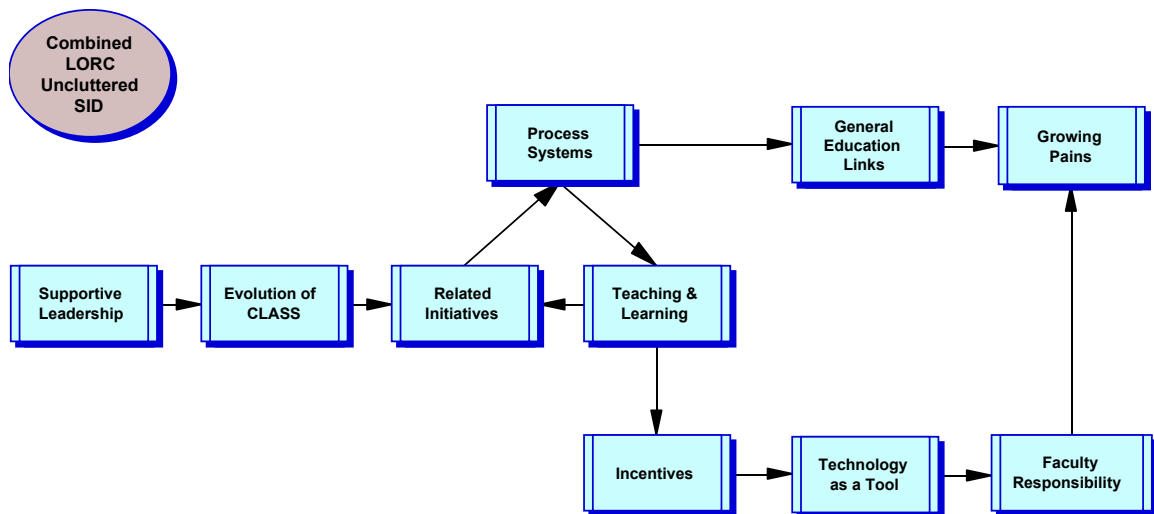
Cluttered SID. All links described in the Combined LORC IRD Sorted (Table 5.03) are represented in the uncluttered SID shown in Figure 5.11.

Illustration 5.11: LORC Cluttered SID



Uncluttered SID. Removal of redundant links produces a simplified system without altering the relative relationships of the affinities. The resulting uncluttered SID is the simplest possible conceptual map indicating all relationships contained in the IRD and is shown in Figure 5.12.

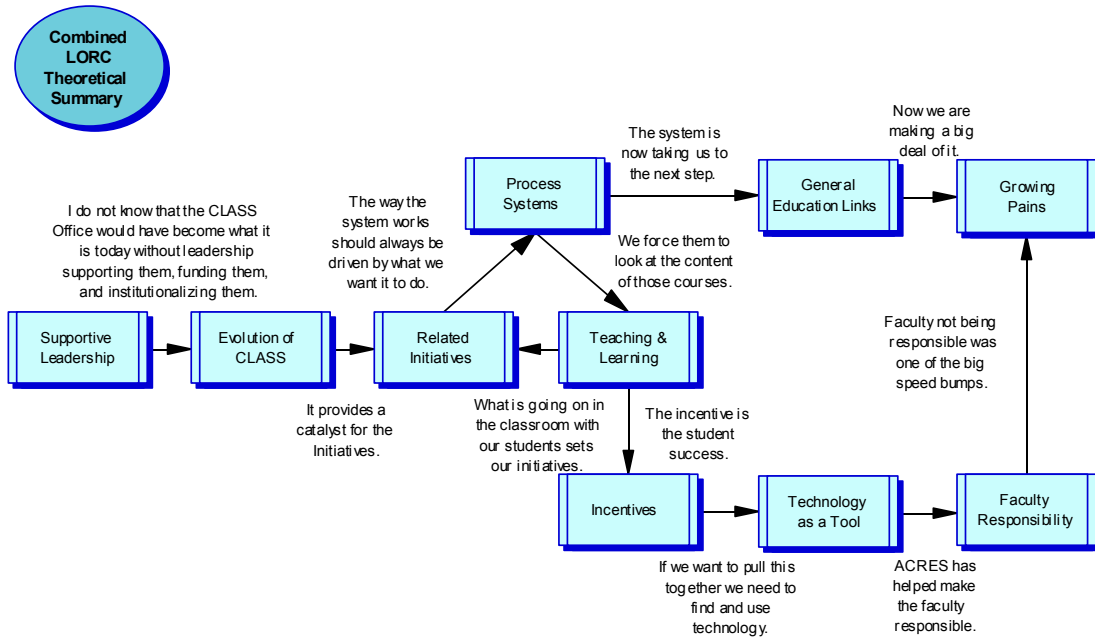
Illustration 5.12: LORC Uncluttered SID



A Tour through the System

The Learning Outcomes Review Committee perception of the learning outcomes project begins with the primary driver, Supportive Leadership, and ends with the primary outcome, Growing Pains. Either positive or negative perceptions of an affinity can influence the experience of the next affinity (Northcutt and McCoy, 2004). A visual tour of the system is shown in Figure 5.13.

Illustration 5.13: LORC Theoretical Summary



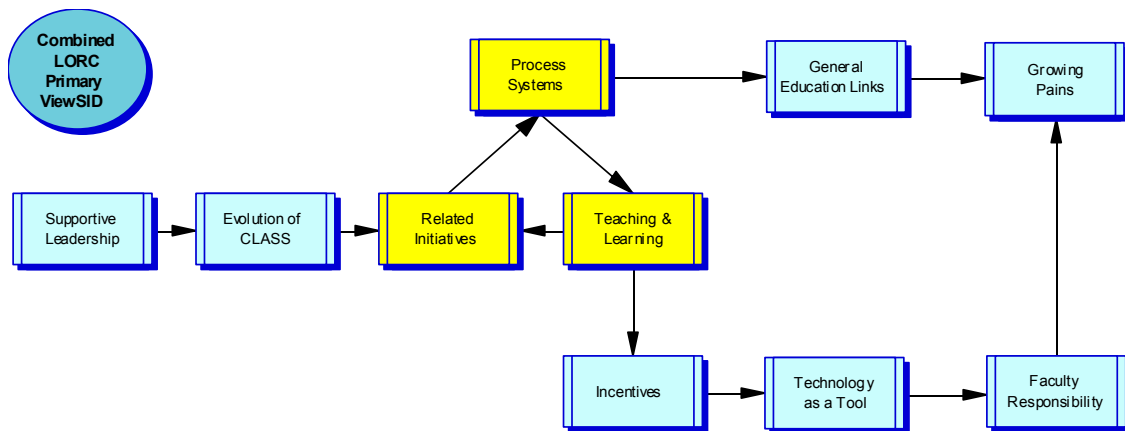
The development of student learning outcomes begins with supportive leadership. Leaders communicated the learning college vision and supported outcomes development by funding and institutionalizing a curriculum development office (CLASS Office). The CLASS Office functions as an extension of leadership and helps to support and move initiatives forward. These initiatives influence the structure of the curriculum process and those associated with AQIP accreditation require continuous evaluation of the process. The primary purpose of the curriculum process system is the evaluation of course outcomes and standards with the purpose of updating course content and improving teaching and learning. What occurs in the classroom with students influences the initiatives that need to be addressed and creates the primary incentive for developing learning outcomes, student success. The drive to improve student learning influences the implementation of technology as a tool to facilitate the development of outcomes in a

timely and inclusive manner where faculty, the content experts, are responsible for determining course outcomes. Faculty resistance initially caused growing pains, and as more faculty bought into the outcomes project, the system now struggles to keep up with the demands of higher participation.

Feedback Loops and Zooming

The Learning Outcomes Review Committee views the development of learning outcomes as a continuous quality improvement process. Careful analysis of affinity relationships reveals mischievous topologies that bring three feedback loops into focus. These feedback loops are illustrated in Figures 5.14 through 5.17.

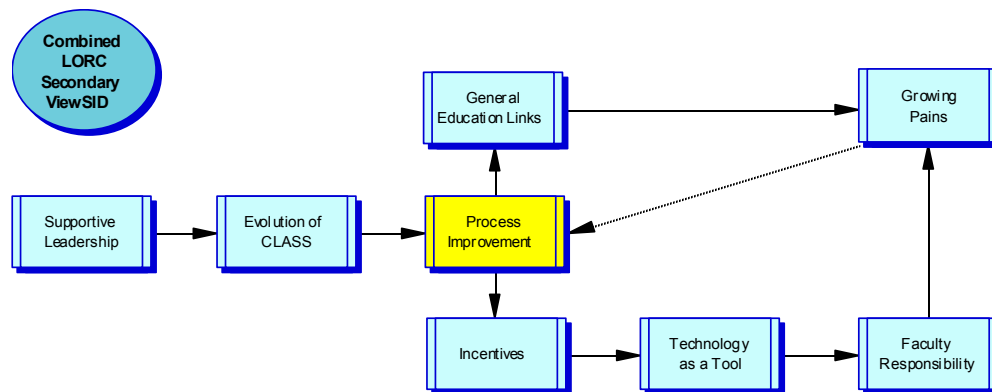
Illustration 5.14: LORC Process Improvement Loop



Frequency analysis of the affinities indicates that the direction of influence was difficult to distinguish for the relationships between Related Initiatives, Process Systems, and Teaching and Learning. The interaction between these three affinities suggests that they represent a more general concept or “superaffinity” (Northcutt and McCoy, 2004,

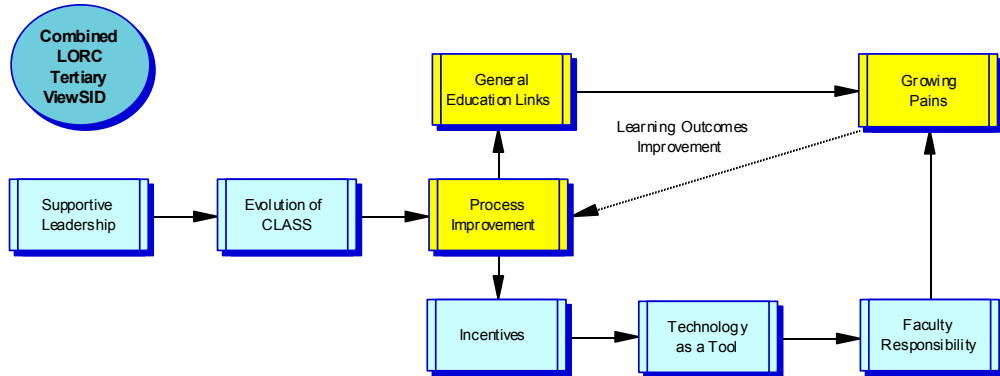
p.335). Review of axial and theoretical codes as well as input from a final exit interview indicates that this feedback loop represents a Process Improvement. Substituting this superaffinity name in the SID “zooms out” to a higher level perspective of the learning outcomes process (Northcutt and McCoy, 2004, p. 335). Inclusion of the mischievous topologies associated with the Growing Pains affinity reveals two additional feedback loops.

Illustration 5.15: LORC Mischievous Topologies Included



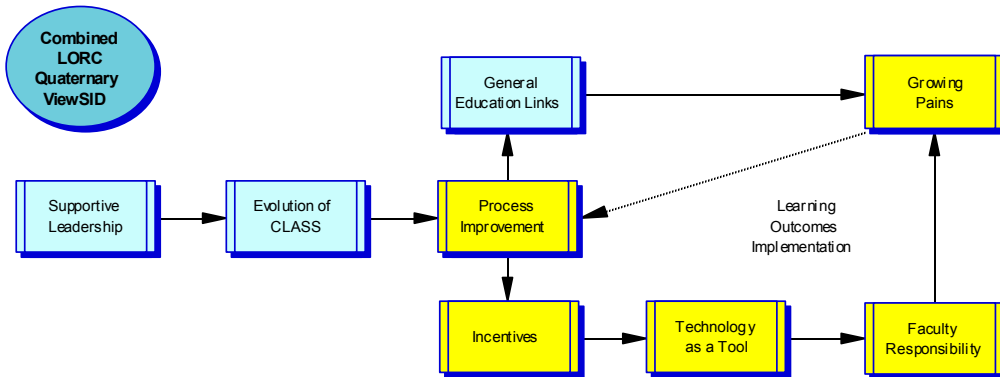
Linking the general education outcomes to the course learning outcomes has posed a recent challenge for the outcomes committee which was apparent in the cyclic relationship between the components of Process Improvement and the General Education Links and Growing Pains. The committee identified this feedback loop as Learning Outcomes Improvement (Figure 5.16).

Illustration 5.16: LORC Learning Outcomes Improvement



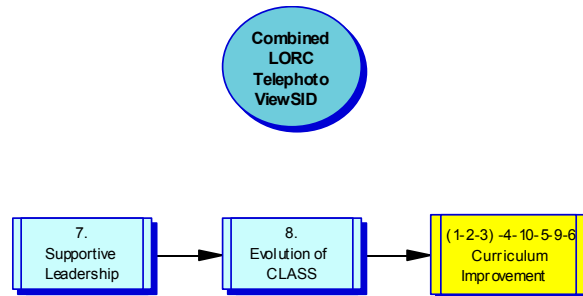
The Process Improvement superaffinity and Growing Pains are also part of another closely related feedback loop involving Incentives, Technology as a Tool, and Faculty Responsibility. The committee designated this as the Learning Outcomes Implementation (Figure 5.17).

Illustration 5.17: LORC Learning Outcomes Implementation



Working in tandem with two shared affinities, both Outcomes Improvement and Outcomes Implementation represent a larger concept identified by the committee as Curriculum Improvement. Substitution of this superaffinity for both Learning Outcomes Improvement and Learning Outcomes Implementation creates a more global perspective of the role of these eight affinities in Curriculum Improvement (Figure 5.18).

Illustration 5.18: LORC Curriculum Improvement



Learning Outcomes Review Committee Summary

When asked what factors influenced the development of student learning outcomes at Central Arizona College, the focus group composed of Learning Outcomes Review Committee members identified ten affinities: Supportive Leadership, Evolution of the CLASS Office, Process Systems, Related Initiatives, Teaching and Learning, General Education Links, Incentives, Technology as a Tool, Faculty Responsibility, and Growing Pains. Analysis of the system using System Influence Diagrams (SID) combined with axial and theoretical quotations from the outcomes committee resulted in the identification of three subsystems. Process Improvement was a subsystem composed of three affinities: Related Initiatives, Process Systems, and Teaching and Learning

(Illustration 5.14). The simplified or zoomed view is shown in Illustration 5.15. The second subsystem includes the first subsystem and two other affinities: General Education Links and Growing Pains (Illustration 5.16). This was identified as Learning Outcomes Improvement, and it overlaps with the third subsystem by sharing common affinities. Learning Outcomes Implementation (Illustration 5.17) represents the cyclic relationship between the three affinities of Process Improvement, Growing Pains from Learning Outcomes Improvement, and the final three affinities: Incentives, Technology as a Tool, and Faculty Responsibility. These two closely related outcomes cycles were identified as a single subsystem named Curriculum Improvement (Illustration 5.18).

FACULTY

Development and implementation of learning outcomes depended heavily upon the participation of faculty. Interviews with faculty members at Central Arizona College provided insight regarding alignment between committee and faculty perceptions of the ten affinities described by the committee as fundamental to the outcomes project.

Twenty-one faculty members were individually interviewed at their respective campuses of Central Arizona College between May 3 and May 6, 2004, and also between August 31 and September 3, 2004. Two faculty members were interviewed in Austin, Texas, at the National Institute for Staff and Organizational Development Conference on May 24 and May 25, 2004. All interviews were recorded and, upon completion, were transcribed and analyzed. Axial Code Tables and Theoretical Code Tables were constructed using text from individual interviews. The following Axial Coding Summary summarizes the faculty interpretations of the LORC affinity descriptions.

Axial Coding Summary

The Learning Outcomes Review Committee focus group identified ten affinities that were significant in the development of student learning outcomes at Central Arizona College, and these affinities are arranged in order of primary driver to primary outcomes as described by the faculty. The following descriptions of these affinities are a composite of the individual faculty members' descriptions.

Supportive Leadership

Visionary leadership sets the course and empowers others to assume leadership roles. Leadership support for the development of a centralized curriculum office brings focus and organization to outcomes development as well as improved communication. While not everyone is convinced of the value of outcomes, they are sure where leadership stands on the issue.

Our leadership provides strong support for the project. *Visionary leadership sets the course.* “Upper level leadership of the college has set a very clear vision and mission, and strategic goals are used as a way to lead throughout the entire organization. Leadership has done a lot from the standpoint of helping us improve our learning outcomes and become more of a learning college. There is long term emotional and financial support, and there is strong modeling.”

Leaders are found at all levels of our college. *Empowerment strategies from top leaders create additional leadership throughout the college.* “The president really wanted the project to be faculty driven, and I think that has been more empowering and not dictatorial in any way. Leadership from the department all the way up to the top of

the college has been supportive, and lots of people took leadership rolls. When we decided to hire a curriculum director, we thought we were hiring a resource person, not a leadership person. However, it changed everything having someone that comes to school everyday with the learning outcomes as their principle job. Without that we would still be scrambling around.”

We depend on good communication. *Leadership supports many forms of communication.* “They have been supportive and communicative, keeping everybody on the same page. The college provided many opportunities for people to learn about outcomes and all the accountability language of milestones, benchmarks, competencies, and standards. At the end of the year, there is retreat that has been very helpful.”

Not all of us connect with the plan. *Some faculty members have difficulty buying in to the overall vision.* “I think a lot of faculty have a disconnect between what administrators are talking about and what we are being asked to do. In our field we did not have to re-invent the wheel, and we did not really need any leadership. We knew that all we had to do was tweak things here and there to fit to the new mold. Either we are going to stay up to date or we are not going to play, and the message from the top has been pretty clear.”

Process Systems

The process systems in place are largely the result of the efforts of the CLASS Office. These processes are designed with a system of checks and balances that has dual implications for faculty. The structure and accountability imposed by the process

systems is becoming more understood and accepted by faculty, but the time lines for the curriculum processes are creating problems.

We have some continuity now. *The curriculum office facilitates development of the process.* “At one point there were all these different committees and someone decided to make a big umbrella and call it the CLASS Office. It was nice to have all of those related areas housed under one big umbrella. They have done a good job at identifying a process and putting in some consistency. We have a nice flow chart that is followed every time new curriculum is being modified, and part of that flowchart includes a timeline which is extremely helpful.”

We do not have a choice. *The process imposes structure and accountability.* “We are told to do it, and so we do it because deadlines are not negotiable. It really made people accountable, and it brought structure and imposed a good process upon us. We cannot afford to be working from old paper files that are a decade old. That is not fair to the students.”

We have to jump through a lot of hoops. *Checks and balances add quality but also create frustration.* “Sometimes the system is redundant or difficult. The development of outcomes is a pretty clear path, but the curriculum development structure at our institution is more like playing billiards than going in a straight line because in order to get it to this pocket you have to bank off certain sides. I have seen that as frustrating. There are a series of checks and balances which I think is good because now when someone submits curriculum it is looked at by different groups, but I think we have too many committees reviewing.”

We are getting used to it over time. *The process is adaptable and is becoming more understood and accepted.* “I think it is an ongoing process that seems to be taken very seriously. The process is evolving, improving, and becoming more understandable as we go, adapting to follow the vision of the leadership. As a result the system is growing in strength, and it is becoming more acceptable and understood across the institution. We have gotten to a place that works and is functional and not overly laborious.”

Faculty needs more communication. *Closing communication gaps must be done with sensitivity.* “I see a gap between what I know, and what the part-time teachers know. It is too bad that they do not have more awareness. We need to have better coaching and training, and we need to have more face-to-face time with faculty. We also need to consider that these are highly intelligent, autonomous individuals that do not function well when being poked. The cattle prod approach does not work.”

We have the wrong thing driving our curriculum time line. *Market place needs should drive the timing of the curriculum process and not the printing schedule for the catalogue.* “This year the faculty members have been extremely upset with the fact that our curriculum process is very laborious. That is disturbing, particularly to areas where they are trying to respond quickly to conditions in the market place. Businesses cannot wait six months while we create competencies and get approvals. We have such a compressed time frame because we try to crowd everything in the fall to get in the catalogue. I think it is the tail wagging the dog when you are having the printing of the catalogue run this process.”

General Education Links

Previous attempts to link course and general education outcomes have failed due to a lack of clearly defined course outcomes. With those outcomes now in place, links are being made and assessment strategies discussed. However, many faculty are not aware that this linkage is a priority.

We have attacked this from several angles. *After previous attempts to link course and general education outcomes, the college now has course outcomes defined and can proceed with this phase of curriculum development.* “We started out taking the big general education outcomes, which our board had put into part of our policy a long time ago, and we moved down to classes. We had a hard time trying to make clear links, and there were some gaps in what our board thought our outcomes were for general education. Then we tried to go upward from the classroom level. I have a current concern for the gap between the outcomes project and general education links because there is no schedule for assessing general education outcomes. The argument here has been that we could not do that until we got all of the outcomes and standards articulated clearly in the course bank; now we can go back and start to do the assessment. That is a plan, but this is slow work.”

We need to make the links and assess them. *Portfolio assessment is a possible way to assess links between these two levels of outcomes.* “There are five general education outcomes that have been described, and my impression is that linking student learning outcomes to those five general education outcomes is a new thing. I think this is a natural evolution. You have these baby outcomes that are going to lead you to bigger ones, such as literacy, critical thinking, and global understanding. The best thing we had

going was our wonderful little electronic portfolio. I still think something like that is a good idea to show that people have achieved all those general education outcomes.”

This is vague to me. *Some faculty members are not aware of the linkage of general education and classroom outcomes.* “That is something on which I need to be a little better trained because I know that there is a link, and that is about all I know. I guess I have not thought about this area or been involved in it that much, and that is why I am a little confused. I view this as something that will be addressed in a lot more detail in the future.”

Incentives

Both intrinsic and extrinsic incentives influence faculty development of learning outcomes. Intrinsic incentives include improved course articulation to universities, improved teaching, and increased collegiality. For others it is extra work with no apparent value other than appeasing administration.

We have an obligation to our students and each other. *Some faculty members recognize the importance of outcomes in the assessment of teaching and learning.* “Part of it goes back to my pedagogical background, and I think there is always that need to continually look at an assessment to see if our teaching is effective. Students are our products, so we have to make sure students have what the universities want. This is part of the job. You are not here just to teach classes. This is your community and whatever it takes, everyone is involved in the community.”

Give it to someone else or give me a special contract. *Developing student learning outcomes is not high on every faculty members’ list of things to do.* “Instead of

top down it should be bottom up. This parental approach is not working. We do not have a choice, and sometimes it feels like coercion. Nothing has changed for faculty other than putting in more work, and so we basically see it as one more thing to do. There are no incentives. You just do it because they say this is your job. If we do not participate, then we do not get the course, and that is the bottom line. I guess the incentive is the paycheck. Maybe there is a relief that those few who are excited and enthusiastic are here, and there is an appreciation that they keep the administration pretty much off our backs, freeing us up for teaching and dealing with students. ”

It makes me feel good. *Outcomes development leads to personal satisfaction for a job well done.* “My incentive would be self-satisfaction, knowing that you have done a good job. The outcomes project has allowed me to learn and meet so many different people throughout the college. I think the most immediate incentive would be at the individual instructional level; outcomes give us a commonality of language to address students in the classes. You do not go to heaven for serving on these committees, but there is that intrinsic incentive just to serve your students better.”

Recognition makes me feel good. *Public and private praise for performance in outcomes development creates intrinsic incentives.* “My boss gives me a lot of recognition, and we have a couple of really nice all day retreats at the end of the semester where we get a little special attention. They take you under their wing and mentor or train you, and then you pass that on to someone else. It lets us grow our own experts. I can tell you that excitement and enthusiasm is celebrated and applauded. It is recognized every time there is a meeting.”

Evolution of the CLASS Office

The curriculum office leads outcomes development by streamlining the system, providing support, and facilitating communication. The broad perspective of this office allows linkages between different aspects of curriculum development and assessment. Originally a support service, the CLASS Office has assumed a leadership role in curriculum development.

They are leading the front line. *The curriculum office wrestles with the daily issues and leads outcomes development.* “It became obvious that we needed a clearing house for curriculum, and they have really done an amazing job of studying state of the art stuff and adapting technology. In my mind the development of the CLASS Office is synonymous with the technology because they are the people that really made this happen. I think their workload has grown and ACRES has helped them manage it, but they could probably use a little more help.

Before, there was paper and more paper being pushed, and you got tired of reading the same things. They have really streamlined the system, not just with the technology but the whole system. I think they have done an excellent job of combining issues like assessment, learning outcomes, curriculum, and program review.

Over time the few who saw CLASS as an adversary have begun to realize that it really is here as an advocate for us. It is not pushing any particular agenda and is just here to make things work. They have shown good leadership and direction in trying to wrestle with those very difficult questions of outcomes and measurement of learning. They have been instrumental in guiding the institution and bringing those discussions to

the forefront. They seem to be a leading force around here, and I think they are the glue that holds this place together right now.”

They give us the support we need. *The curriculum office provides a wide variety of support, including ways for faculty to help improve the system.* “You have to have someone who is doing centralized curriculum development and someplace to go for help, and the CLASS Office is a very good place to look for all sorts of assistance and guidance in this project as well as other aspects of curriculum. There is as much training as you want, and it is not pushed on you. When I call them I get results right away as far as learning how to use the system. The personal attention has made such a difference.

I have worked very closely with them in learning how to improve our process, and they explained how we do links to the strategic goals of the college and how we can use the technology that we have available to continue to improve that process. You need someone to provide training, be a resource, and provide a library so that people can come in and teach themselves. That is what they became, and they were extremely necessary for the follow through element.”

We rely on them to be district curriculum coordinators. *The CLASS Office coordinates curriculum efforts throughout the district through good communication.* “ I think it has been a challenge to coordinate between the three campuses, and they have done an excellent job of trying to keep everybody informed of the changes being made in the curriculum. As they have learned more and gotten better, the information and helpfulness has improved in terms of how you write up things and the terminology that you use. They have done a tremendous job of coordinating and working with people that need help developing outcomes.”

They are overstepping their original purpose. *The curriculum office began as faculty support but has now become more directive.* “Right now I think CLASS is sort of whipping us all into shape, but I do not want to get to a day where we have a community college where all curricula is developed by the CLASS Office. I never want to see that. I think they should be a support tool and not a superlative. They schedule the in-services and the information during the twelve-month schedule, and faculty does not attend some of those things because we are on a nine-month schedule. It is very frustrating. When it first started, the CLASS Office was there to support the faculty in the development of learning outcomes and standards, and what it has evolved into is an office that causes the faculty input, defines the faculty input, and decides whether the faculty input is valuable. That is not an evolution.”

Technology as a Tool

The introduction of technology into the outcomes development process improves communication and accountability. It also makes the process much easier; however, technology does have its glitches that cause some concern.

ACRES technology made it easier for me to develop outcomes. *Moving from paper-based curriculum revision to an electronic format removes a serious road block.* “ACRES is a huge improvement over what we had. My first experience with the learning outcomes project was the tedious, boring, extremely time consuming, paper based version. I dreaded having to do anymore of this and the incorporation of the technology really made it seem like a lot less work. ACRES is not tedious, but a very evolved process that seems to a make it much more expedient for course discussion. It

saves so much time, and we put more into the classes and into the actual curriculum building as opposed to just the assessment part. It really felt like a bad bottleneck of traffic, and it got paralyzed until ACRES opened it up into an information super-highway.”

Technology helps us work together. *Use of technology to improve communication results in better accountability.* “I would say that has been a tool we have used positively to improve learning outcomes. I like having something that we can all use so each campus can communicate with the other. It has been very useful having everything all in one spot. There will be more webbing and interlinking, and if standards, objectives, outcomes, mission statements, and strategic goals can be linked up, it is good for accountability. It does keep everyone on the same page.”

We needed support to deal with the glitches. *Technology implementation requires troubleshooting and support.* “Of course there are some glitches just within the ACRES program itself that they are continuing to work on, and that has to do with the software. For us that might be ‘computer scared’, they would hold our hands and we could easily get there. It was absolutely wonderful.”

Related Initiatives

Both learning outcomes and AQIP accreditation processes are based on the learning paradigm, and this reinforces faculty involvement in learning outcomes. The resulting cultural shift encourages creative thinking about all aspects of curriculum.

AQIP ties in well with the outcomes project. *Application of AQIP criteria reinforces the learning outcomes project.* “Because of AQIP our whole thinking has

become more outcome-oriented in terms of the strategic plan and the notion of a learning college. I think there is a symbiotic relationship between the learning college and learning outcomes. AQIP standards have really helped us to develop our curriculum and our learning outcomes because we did not really have that kind of standard. Once we had AQIP, when I looked at my syllabus I could say I really have met students' needs. When you self assess you ensure quality, and that is what student learning outcomes are about.

The promise was that AQIP was going to make a lot of difference to program review, reducing it to much less effort on a report that came out much more often and providing all kinds of information to help put that program review together. I have not seen anything like that. Other initiatives have been developed as a result of incorporating student outcomes and standards with AQIP criteria, moving us farther ahead than we thought we would have gotten without one or the other.”

Outcomes allow us to rethink a lot of what we are doing. *Development of learning outcomes creates a culture shift that encouraged creative thinking.* “There have been some related initiatives in rethinking courses, programs, and structure within various parts of the institution that were influenced by or partially came to light in tandem with this learning outcomes project. Because of the systems that are in place now, it has been a lot easier to bring someone new in, give them access to ACRES, let them see how the thing works, and start a whole new off-shoot in our division. This probably never would have happened without the kind of support systems that we have now.”

Teaching and Learning

The classroom experience is improved by clearly defined outcomes that provide students and faculty with clarity and consistency. Faculty has a way to assess their own teaching performance and rethink teaching methodologies, and there is less variability between courses. Students are placed in a position of assuming more responsibility for their own learning, although many are not familiar with this level of responsibility. Difficulty in developing outcomes varies with instructional area and is much easier for the vocational areas that are typically outcomes oriented, teaching specific skill sets that are measurable. Some faculty members still have reservations about the utility of learning outcomes and how they should be written.

Course outcomes are a good thing. *Having clearly defined course outcomes makes the academic expectations clear to students and provides consistency between course sections.* “I would say I am very involved in their learning outcomes because that is my way to check on a daily basis and see what they know and what they do not know. I cannot have feel-good outcomes. For the students who are going on to my higher level course, I know what it is going to take to go to the higher level. Outcomes make it very clear what is expected for that course, and we can share those easily now with students so that everybody knows. There is no secret about what is happening. The consistency in our course content has dramatically improved. It makes the learning experience more effective and efficient for students.”

Did I cover that or not? *Outcomes give faculty a way to self assess their teaching performance.* “My experience with this has been one of growing. I am always reviewing my outcomes because learning outcomes have given me pause to think about

how I have or have not addressed things. This gives me a checklist to make sure the students get a class more like what everyone else is teaching. I think that if instructors buy into this project and do it with any degree of commitment, it is positive for the teaching experience and the learning experience.”

Adjunct and new faculty need all the help they can get. *Providing syllabi with clearly defined course outcomes gives new and adjunct faculty strong guidance.* “The adjuncts and new faculty use my syllabus or the syllabus of our full time faculty, and they have to meet those standards. With off campus instructors, we give them a clear map of how to assess the students’ learning, and that takes the responsibility off of them as teachers and puts the responsibility onto the students.”

Students need to take responsibility. *The paradigm shift to learning-centered instruction is a difficult transition for faculty and students.* “This whole idea of a learning college, no longer being the sage on the stage but the guy on the side, is making students more responsible for their own learning. That has been more of a challenge for those of us who have been in education for a long time. We are learning how to change the framework to help people learn to learn. It would be nice if someone clued the students in and they were able to understand that the era of the talking head is over and that they are responsible for their own learning. I know we put everything in the syllabus and we talk about responsibility for learning, but many of these people have been brought up in an environment that was not that way, and it takes a little time for them to come over. I think the more that we are able to share with and include the students in this process the more benefits there are for everyone involved.”

Vocational areas have it much easier. *Some academic areas find writing and teaching to learning outcomes very difficult in comparison to vocational areas.* “Those who are on the vocational side of the house have always had student learning outcomes, and they have always broken them down into subsets. Ours are so job driven that you know what the necessary skills are. The person to whom you report is going to want to know what skills and abilities you bring to help improve that organization; otherwise there is no need to bring you on board. It makes it pretty easy. It was really hard for the academic side of the house to wrap their brain around this concept of having the student demonstrate something when learning takes place because they are very theoretical.”

Some of us still have our concerns. *Faculty buy-in is not complete, and there are still issues to resolve regarding learning outcomes and their assessment.* “You know when you are in the heat of the battle, when you are in the classroom and trying to make a point, you do not care about outcomes or whatever is written there. You just have to make sure they can use this in their life. Do whatever it takes. Faculty has always been in support of providing student learning outcomes within their syllabi, but it had different names because the name and flavor of this concept has changed over the last thirty years.

I did not write my learning outcomes to be read by the students I am teaching. I wrote my learning outcomes to be read by fellow educators, and to re-write them into the language for my students who have yet to be able to clearly define what is meant by the words is a problem. There are a lot of things that I would like to see done that we are not doing in terms of student outcomes. I would like to see more done on portfolio assessment.”

Faculty Responsibility

Faculty members are encouraged to participate actively in the development of outcomes, and curriculum quality issues have pushed faculty buy-in. However, faculty resists a parental approach and wants to feel valued. Early resistance to outcomes development has subsided, but there are still some who are not on board. It is unclear whether they will ever buy in to the student learning outcomes project, but whether they do or not, the project is forging ahead to build collaborative relationships with those who do participate.

We need to feel valued. *Faculty needs to believe that their support is necessary and they have to time to adjust.* “The main thing is having ownership, and in our division everybody is involved. I think faculty have certainly been invited and encouraged to participate in the whole process, and their input is valued, very much valued. I have always experienced a very open, positive sort of participation. We do what it takes. We do have some differences of opinions, but I think the frustrations of having out of control course outlines have helped people make some concessions about the outcomes. It goes back to the right encouragement and nurturing of the faculty to come along instead of pushing faculty. I do not appreciate a parental approach. I would rather see a collegial approach.”

We do not want to do this. *Faculty resistance was strong at the beginning of the project.* “I think at the beginning there was a lot of resistance to ACRES because we all were so busy. When it did not quite work right the first time, faculty got to the point where they just did not want to bother. I think that is about fear and denial. It is fear of change, fear of losing one’s territory, fear of someone else taking their territory. Instead

of looking at expanding markets and expanding opportunities for students, faculty can turn very inward and are very concerned about ‘my job.’ They do more harm to themselves in resisting rather than learning and opening themselves up to new opportunities.

Faculty is slow to adapt to change sometimes, but certainly there has been more acceptance and evidence that faculty has begun to see the benefits of this project. There are now some key players who are driving this, and it is very true that the majority of faculty see this as an administrative exercise that probably is not going to be driving their behavior in the classroom or changing their life in any way.”

Our ranks are divided into “believers” and “non-believers.” *There continues to be some faculty who are not on board with the outcomes project.* “I see two groups of people. One group of faculty accepts the new responsibility, the new process, and the new methods and works to comply with the suggested guidelines. Another group of faculty resists it and calls it no good, doing their best to not comply. The faculty is polarized into people who are willing to get involved, take more responsibility, participate, communicate, and engage and the others who hide in a hole, do their thing, do not want to be observed, do not want to participate, and moan and groan about every little thing.

There was a lot of anxiety over change, and there was some shift in our culture. There were people who embraced it and people who ran away, and so we started to split. We are probably still in that split, but it is probably not as severe as it was at the time. It worked very well with those people that stepped up to the plate, and for those that did

not, I do not know if they will every feel the same. They will just have to accept it at some point.”

We forge ahead. *In spite of faculty polarity, the project moves forward and creates more collaboration.* “The notion of interdisciplinary interaction between people, trying to find a common ground of learning outcomes between disciplines, is an area that this institution supports. In ACRES there has to be a collaborative review, and that has become a flash point. Some people can put up roadblocks, and you have to do a U-turn and go to the deans and do some juggling. The CLASS Office has always been great about setting up meetings, coming to assist, doing some mediation, and talking things through to get to a better place. It was it was a good consensus activity.”

Growing Pains

Some faculty felt very few growing pains, and dove into the project readily. Others found the outcomes project very frustrating. Frustration arose from an inability to see value in the project and also lack of time and manpower to devote to the project. The size and scope of the project required strong leadership, and those who did not have buy in felt they were dragged into it.

Growing pains are not a big deal for me. *Some faculty did not experience serious growing pains during outcomes development.* “I do not feel the growing pains because our division is very good at this, and it is very easy for us to develop student outcomes. We know exactly where they need to go, from one level to the next. It was not as difficult for me as it might have been for some others because my career has been in the vocational areas, and for me learning outcomes were just a natural transition from

learning objectives. I felt like I hit the ground running, but it got easier and better every time. Now I am the curriculum guru.”

I find the whole thing frustrating. *Some feel they have seen this type of activity before and have no assurance that there are real benefits.* “It seems every few years they come up with a new buzz word, and you have to write things a different way. First we had objectives, then competencies, and now outcomes. They take the same information and put it in a new bottle. That was my biggest frustration. The feet dragging came from me as I am really tired of re-inventing the wheel.

In terms of the overall process, it feels no better to me than when we started. It is still extremely unwieldy, and they put in another step where you have to get a needs assessment. The linkages are not good, and there are so many steps in the process that you cannot move forward. I am in a rapidly changing field that needs rapid curriculum changes, and there is no way.”

I do not have enough time for this. *Frustration arose from a lack of time and manpower to devote to the project.* “We have so much work that we really do not have time to figure out what people are trying to make us do. Tell us what you want us to do and we will play the game. We are short a person right now and we try to get by, but that really affects the outcomes. There is a lot of stuff to do and a very few loyal soldiers who came in to help with that work.”

We are hamstrung by another group. *The prison program is frustrated by the expectations of an institution not invested in the learning paradigm.* “The Department of Corrections is making it more difficult to write realistic competencies and outcomes for a lot of what we want to do. They are probably one of the worst for dealing with growing

pains because they do not acknowledge growth and the importance of it. They insist on growth, but they put a lot of stops in place to prevent growth. That tremendously affects the outcomes and the ability to get the people to the competencies, and I find it is a major obstacle in getting the learning outcomes accomplished.”

We struggle with change. *Outcomes development does not come easily, and it depends upon key individuals.* “Growth is painful, and ‘uphill battle’ says it best. People do not like change, and there has to be good reason for change. One of the biggest growing pains of the college overall is to understand the differences at each site and adapt to them as necessary. It was definitely a long road, a long and windy road. If it were not for a few key players, probably those that are still serving on the committee, I do not think we would have any direction.”

We are forced to do this. *Some faculty feel they are dragged into the outcomes project.* “The student learning outcomes project started out collaborative and then moved to, ‘You have to do this.’ That tactic resulted in some hostility from the faculty because if you do not give people enough time to come along with the new process, then it is difficult for them to buy in. If it is not a clear pathway with clear directives then what you are doing is pushing people toward a goal instead of pulling them in, and pushing faculty has never worked. The administration wanted very much to have it come from the faculty. They said if it did not come from the faculty, then it was not going to work. So it was going to come from the faculty, whether it came from the faculty or not.”

Theoretical Coding Summary

The axial coding summary described faculty perceptions of the ten affinities described by the Learning Outcomes Review Committee as fundamental to the development of student learning outcomes. These descriptions were a composite of all twenty-one individual faculty member interviews. A theoretical analysis was also conducted to determine faculty perceptions of the relationships between the ten affinities.

Faculty Composite Affinity Relationship Table

The theoretical coding process resulted in relationships between each affinity pair as identified most frequently by the faculty, and they are shown in the following Composite Affinity Relationship Table (ART) (Table 5.05).

Table 5.05: Composite Faculty Affinity Relationship Table

Affinity Name
1. Related Initiatives
2. Process Systems
3. Teaching and Learning
4. General Education Links
5. Incentives
6. Faculty Responsibility
7. Supportive Leadership
8. Evolution of C.L.A.S.S.
9. Technology as a Tool
10. Growing Pains

Possible Relationships
$A \rightarrow B$
$A \leftarrow B$
$A \nleftrightarrow B$ (No Relationship)

COMPOSITE FACULTY ART		
AFFINITY PAIR RELATIONSHIP	AFFINITY PAIR RELATIONSHIP	AFFINITY PAIR RELATIONSHIP
1 \leftarrow 2	2 \rightarrow 9	5 \rightarrow 6
1 \leftarrow 3	2 \rightarrow 10	5 \leftarrow 7
1 \leftarrow 4	3 \leftarrow 4	5 \leftarrow 8
1 \leftarrow 5	3 \leftarrow 5	5 \leftarrow 9
1 \leftarrow 6	3 \leftarrow 6	5 \rightarrow 10
1 \leftarrow 7	3 \leftarrow 7	6 \leftarrow 7
1 \rightarrow 8	3 \rightarrow 8	6 \leftarrow 8
1 \rightarrow 9	3 \leftarrow 9	6 \leftarrow 9
1 \rightarrow 10	3 \rightarrow 10	6 \rightarrow 10
2 \rightarrow 3	4 \rightarrow 5	7 \rightarrow 8
2 \rightarrow 4	4 \rightarrow 6	7 \rightarrow 9
2 \leftarrow 5	4 \leftarrow 7	7 \rightarrow 10
2 \rightarrow 6	4 \rightarrow 8	8 \rightarrow 9
2 \leftarrow 7	4 \rightarrow 9	8 \rightarrow 10
2 \rightarrow 8	4 \rightarrow 10	9 \rightarrow 10

Interrelationship Diagram

Data from the Affinity Relationship Table (Table 5.05) was entered into an Interrelationship Diagram (IRD) to begin determining the relative positions of the affinities in the faculty system. The unsorted and sorted Composite Faculty IRD tables are shown in Tables 5.06 and 5.07.

Table 5.06: Composite Faculty IRD Unsorted

Composite Faculty IRD													
	1	2	3	4	5	6	7	8	9	10	OUT	IN	Δ
1		←	←	←	←	←	←	↑	↑	↑	3	6	-3
2	↑		↑	↑	←	↑	←	↑	↑	↑	7	2	5
3	↑	←		←	←	←	←	↑	←	↑	3	6	-3
4	↑	←	↑		↑	↑	←	↑	↑	↑	7	2	5
5	↑	↑	↑	←		↑	←	←	←	↑	5	4	1
6	↑	←	↑	←	←		←	←	←	↑	3	6	-3
7	↑	↑	↑	↑	↑	↑		↑	↑	↑	9	0	9
8	←	←	←	←	↑	↑	←		↑	↑	4	5	-1
9	←	←	↑	←	↑	↑	←	←		↑	4	5	-1
10	←	←	←	←	←	←	←	←	←		0	9	-9

Count the number of up arrows (↑) or Outs
 Count the number of left arrows (←) or Ins
 Subtract the number of Ins from Outs to determine the deltas (Δ)
 $\Delta = \text{Out} - \text{In}$

Table 5.07: Composite Faculty IRD Sorted

Composite Faculty IRD Sorted in Descending Order of Δ													
	1	2	3	4	5	6	7	8	9	10	OUT	IN	Δ
7	↑	↑	↑	↑	↑	↑		↑	↑	↑	9	0	9
2	↑		↑	↑	←	↑	←	↑	↑	↑	7	2	5
4	↑	←	↑		↑	↑	←	↑	↑	↑	7	2	5
5	↑	↑	↑	←		↑	←	←	←	↑	5	4	1
8	←	←	←	←	↑	↑	←		↑	↑	4	5	-1
9	←	←	↑	←	↑	↑	←	←		↑	4	5	-1
1		←	←	←	←	←	←	↑	↑	↑	3	6	-3
3	↑	←		←	←	←	←	↑	←	↑	3	6	-3
6	↑	←	↑	←	←		←	←	←	↑	3	6	-3
10	←	←	←	←	←	←	←	←	←		0	9	-9

The delta values listed in the right column of Table 5.07 were sorted in descending order and used to identify the relative positions of the affinities in the faculty system. Large positive values were primary drivers while large negative values were primary outcomes. Affinity numbers in the left column indicated placement of affinities along the driver/outcome continuum. The relative positions of these affinities are listed in Table 5.08.

Table 5.08: Composite Faculty Tentative SID Assignments

Composite Faculty Tentative SID Assignments		
7	Supportive Leadership	Primary Driver
2	Process Systems	Secondary Driver
4	General Education Links	Secondary Driver
5	Incentives	Secondary Driver
8	Evolution of CLASS Office	Secondary Outcome
9	Technology as a Tool	Secondary Outcome
1	Related Initiatives	Secondary Outcome
3	Teaching and Learning	Secondary Outcome
6	Faculty Responsibility	Secondary Outcome
10	Growing Pains	Primary Outcome

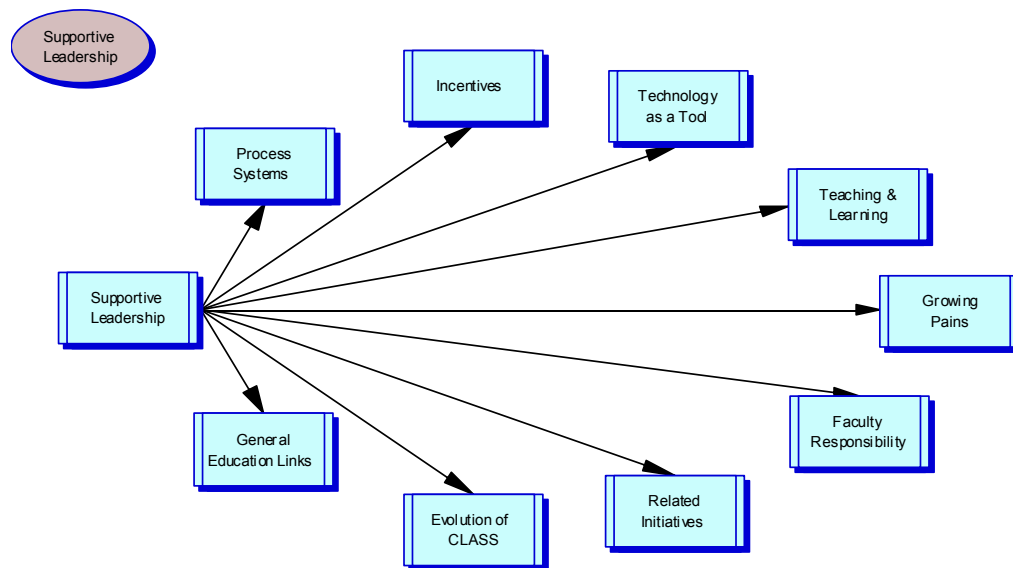
Relationship Descriptions

The following relationship descriptions provide detailed explanations of the affinity pairs in the words of the faculty members. The analysis begins with the primary driver, Supportive Leadership, and continues through the continuum to the primary outcome, Growing Pains.

Supportive Leadership influences...

Supportive Leadership influences all other affinities in the system. Faculty views supportive leadership as the primary driver of the system, affecting all aspects of learning outcomes development.

Illustration 5.19: Faculty View of Supportive Leadership



Process Systems. *Leadership facilitates the development of process systems.* “Supportive leadership without a doubt drives the process systems because the systems are very largely a result of the support or lack of support of leadership. Faculty is centered on the micro level, and you have to have supportive leaders or the process is not going to work at all. We needed a highway. We had a dirt road, and they helped us get pavement.”

General Education Links. *Leadership creates the vision and support of these links.* “It seems that the general education links are a little bit outside of faculty’s realm. Through our leaders we have become more aware of it, but it is not something we focus on. If not for talking about general education links in a division chair meeting, I do not think any of us would really know the responsibility we have. You have to have a vision and support of the general education links for that to go.”

Incentives. *Leadership provides clear direction, values, and encouragement.*
“Leadership is responsible for creating the incentives and made very clear to me that I was going to be involved. If you have good leadership, then they are encouraging the instructors to meet the outcomes. If you know that is where your leadership places their value, then that would be enough incentive to do it.”

Evolution of the CLASS Office. *Top leadership made an important investment by developing the curriculum office.* “The President and the board had to be willing to take the chance with ACRES and be supportive in giving CLASS its role in maintaining curriculum with the assistance of the faculty. If there was not supportive leadership I do not think there would be any evolution. It would stop dead in its tracks.”

Technology as a Tool. *Leadership supports the use of technology to solve curriculum issues.* “The leadership allowed us to get ACRES. There had to be training and funds, and people had to spend time developing things and answering faculty questions when we could not figure it out. They had to be granted time and resources to be available to do that. Without supportive leadership, you are not going to have the encouragement of people to learn how and when to seek out technology.”

Related Initiatives. *Most new initiatives come from leadership.* “The activities and direction provided by leadership will lead directly or indirectly to the related initiatives, and they are not going to succeed unless the leadership is supporting them. That makes faculty sound lazy, but it goes back to change being hard. A lot of faculty members do not do things out of laziness, but they have found stuff that works, and it is hard to start from scratch when they know something works.”

Teaching and Learning. *Leadership supports the learning paradigm.* “If you want to do something new to change and improve teaching and learning, you cannot do that without supportive leadership. They help with technology, scheduling, and professional growth. If we see that things are being funded on the instructional side of the house, we feel that we are being supported in trying to accomplish our mission. They are encouraging academic freedom in the classroom, and they are actively recognizing excellence in teaching. You need to have that kind of leadership to have any paradigm switch.”

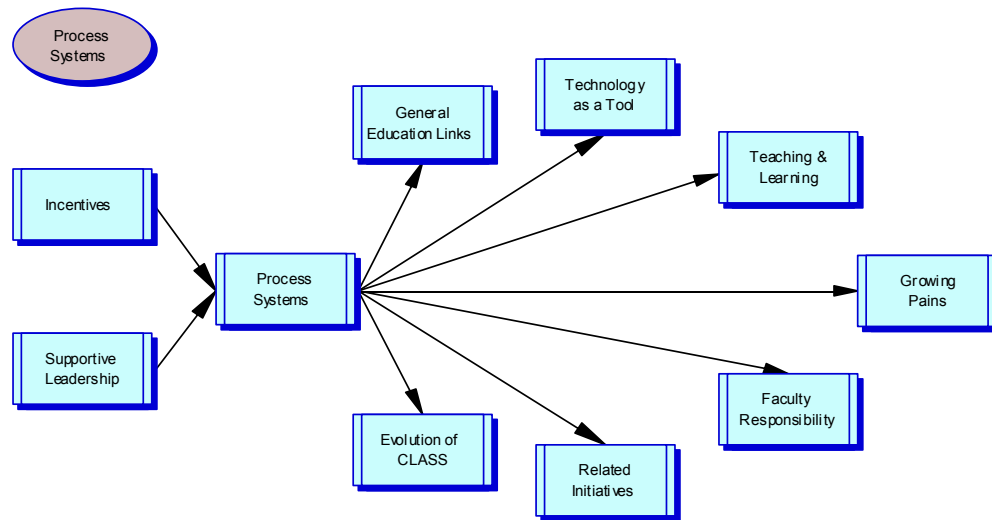
Faculty Responsibility. *Visionary leadership supports and models learning.* “Supportive leadership is driving faculty responsibility for developing and maintaining the currency of the curriculum by providing direction, opportunities, recruiting, mentoring, and empowering people to get involved. Leadership has to be a model, supporting and articulating the learning college. The faculty as well as everybody else has to actualize it, but if it is not described as a vision, then it is not going to happen.”

Growing Pains. *Leadership drives the transition to a learning college.* “Because of leadership we have more things to deal with and work with. Our leaders make us decide how good the transition is going to be. This is the case of no pain no gain. They are instigating the pain, and that is alright.”

Process Systems influence...

Faculty view the Process Systems influencing General Education Links, Evolution of the CLASS Office, Technology as a Tool, Related Initiatives, Teaching and Learning, Faculty Responsibility, and Growing Pains.

Illustration 5.20: Faculty View of Process Systems



General Education Links. *The process moves toward making those links.* “As systems become clearer and more workable we are involved with the general education links. I think the process systems may help us finally get to where we can make those links.”

Evolution of the CLASS Office. *CLASS coordinated the processes and responds to needs.* “CLASS has evolved more as a result of putting new processes such as ACRES in place and establishing systems, but you must have the processes. CLASS has really been instrumental in setting them up.”

Technology as a Tool. *Technology facilitates the processes.* “CLASS sought out the technology to help with the process, and as the process gets more involved we have to keep getting more technology. We keep finding better software to work out our issues. Without that systematic process ACRES is not going to do us all that much good. It was like a traffic jam, and ACRES came in and freed up the traffic jam.”

Related Initiatives. *Streamlining the process makes it possible to address new initiatives.* “We are in a process of revising our student outcomes and that has triggered looking at different ways of helping students in the classroom. There were ideas that people had, but they really did not come to fruition because there was no process in which to make them happen. The process is the main road and the initiatives are side trips that come off the main road.”

Teaching and Learning. *The process can either make or break teaching and learning.* “The philosophy needed to change, and people needed to see the big picture. The process impacted the teaching by creating new methodologies and clearly defining teaching and learning. The process is also the place where things get bogged down. It holds us up and we cannot get things in the catalogue.”

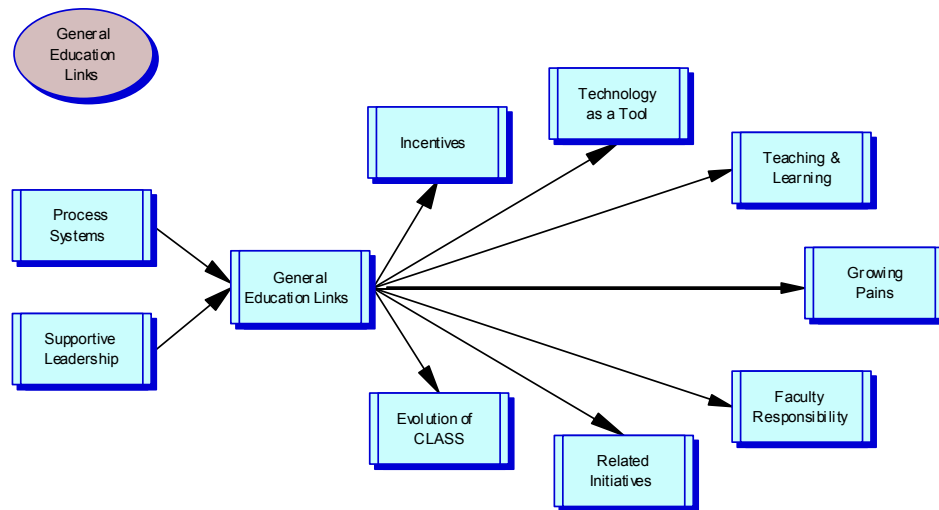
Faculty Responsibility. *The process changes faculty responsibility for outcomes implementation.* “Some faculty would not update anything, and they would never get into the 21st century. The process has to have the characteristics necessary to make faculty responsible. The process system told what we had to do and what would be our responsibility. It seems like there are a few more people coming forward and taking an interest and proposing new courses. It is starting to turn around a bit.”

Growing Pains. *The process creates and alleviates pain.* “We get notices all the time about training and professional development, but sometimes I have to decide between grading homework or training. This training will help me in the long run, but my students need this feedback. Faculty feels a lot of time pressure to get things done. On the other hand, process systems that are in place have helped us get through some of our growing pains.”

General Education Links influence...

Faculty view General Education Links influencing Incentives, Evolution of the CLASS Office, Technology as a Tool, Related Initiatives, Teaching and Learning, Faculty Responsibility, and Growing Pains.

Illustration 5.21: Faculty View of General Education Links



Incentives. *Articulation and personal satisfaction are incentives for making these links.* “It is a huge incentive for us to make sure everything stays right on target, because we do not want our students to have any problems in transfer. If we could get general education links, then there might be some ‘chocolate.’ That might lead to some satisfaction from a job well done.”

Evolution of the CLASS Office. *CLASS is aligning the curriculum.* “General education was there long before we had a CLASS Office. We are trying to tie everything

together and make sure what is in the general education line is what needs to be there. The CLASS Office is responding with changes and new procedures.”

Technology as a Tool. *Technology is necessary to make and track the links.* “I think as the general education links go you have to have more technology to keep up with them. Technology is the tool of choice that they are going to use in Arizona.”

Related Initiatives. *Better linkages create better articulation.* “I think the general education has to do with articulation with the state universities. I would say the universities influence how we articulate, and what we articulate.”

Teaching and Learning. *Articulation requirements affect course content.* “Whatever the universities are doing and however they are changing is really going to drive our general education program, what we teach and our learning outcomes. It is having a definite impact on what we do in our courses as far as the transferability.

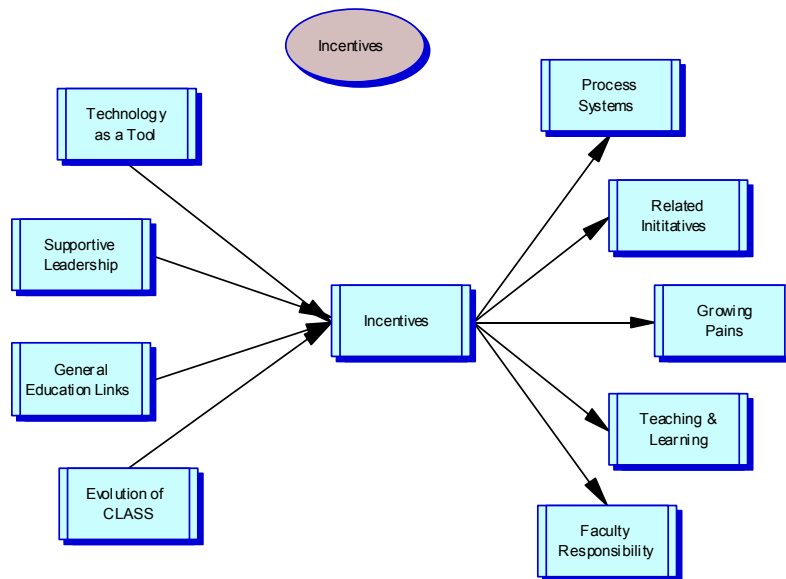
Faculty Responsibility. *Faculty needs to be active in the larger picture.* “Faculty needs to be reminded, or else we forget about the bigger picture. I am worried about teaching commas, and these broader connections between general education and class outcomes are going to drive faculty responsibility. It is interesting that when the faculty does try to say something about the links, they just simply take it out of our hands and make whatever they want anyway.”

Growing Pains. *Creation of linkages results in productive pain.* “There should constantly be growing pains. That creative tension is what you want, or you would all go to sleep.”

Incentives influence...

Faculty view Incentives influencing Process Systems, Related Initiatives, Teaching and Learning, Faculty Responsibility, and Growing Pains.

Illustration 5.22: Faculty View of Incentives



Process Systems. *Good incentives create buy in.* “Being involved in this process helps me to care about developing student learning. I think that if we had more enthusiasm and incentives among the teachers to do things, then they would buy into the process to start off with.”

Related Initiatives. *There is incentive for continuous improvement.* “Incentives drive the related initiatives more because an Incentive, whether it is extrinsic or intrinsic, would be to create the search for and implementation of the related initiative. You have competition, and you want to get more students.”

Teaching and Learning. *There is incentive to improve the classroom experience.* “My incentive for participating is to be a better classroom teacher. As teachers have more incentive and more motivation, they do a much better job defining the learning outcomes. We get paid of course, but there is that intrinsic incentive to make your courses better, and I think good teachers do that anyway, with or without an incentive.”

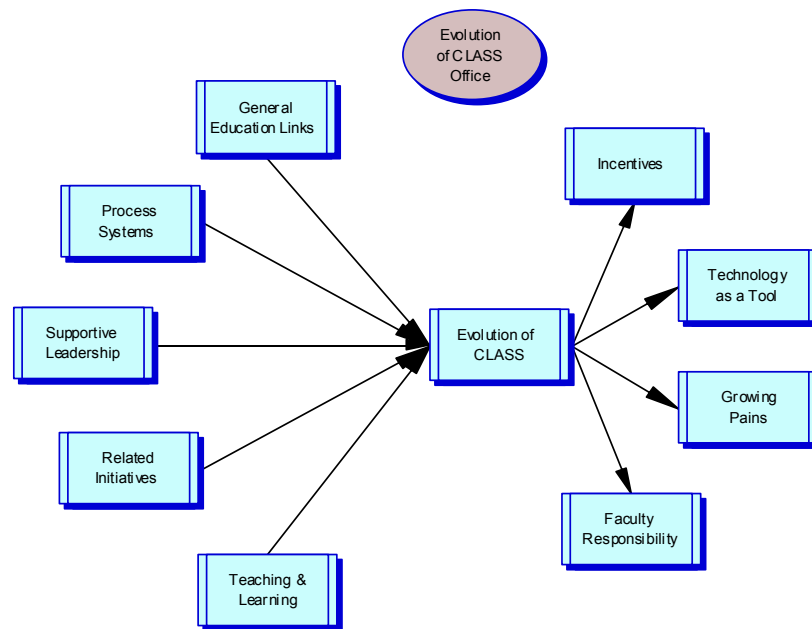
Faculty Responsibility. *There are intrinsic and extrinsic incentives.* “I want my students to be able to get a job. That would be my incentive, and my responsibility is to teach them so that they can get a job. Personal fulfillment is an incentive, and that is what drives me to responsibility. Incentives, extrinsic and intrinsic, positive and negative, will either cause faculty to rise to the occasion because they want the good rewards or because they are afraid of the bad rewards.”

Growing Pains. *Incentives to improve cause personal discomfort.* “Due to the incentives to keep up and keep changing, you are going to experience growing pains. It has stretched me and I have had to turn things down and find time. If Incentives were done in a different way then growing pains would be diminished.”

Evolution of the CLASS Office influences...

Faculty view the Evolution of the CLASS Office influencing Incentives, Technology as a Tool, Faculty Responsibility, and Growing Pains.

Illustration 5.23: Faculty View of Evolution of the CLASS Office



Incentives. *CLASS either creates or denies incentives.* “The CLASS Office is the incentive for me to be involved. I do not feel threatened because I know I can go for help. The evolution of CLASS has brought along ACRES technology and the incentive to make sure that everything is up to date. There is an absence of incentives, and it is a result of the CLASS Office.”

Technology as a Tool. *CLASS finds and implements the curriculum technology.* “They have developed the system, and so I would say they probably do drive the technology. They identified the need, did the research, found samples of programs we could use, investigated, sampled, piloted, implemented, and trained. They did it all, and because of the CLASS Office we have ACRES.”

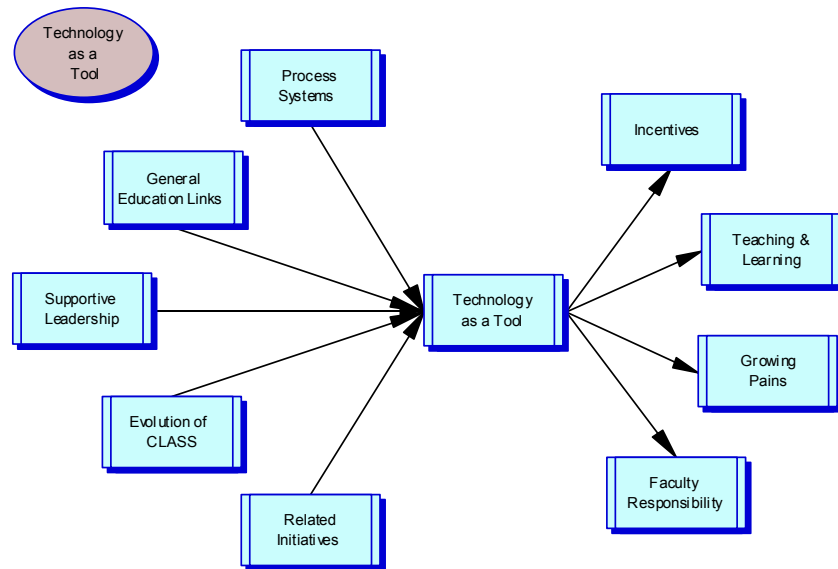
Faculty Responsibility. *CLASS defines responsibilities.* “It is a centralized office that acts as a reminder that this is what we do on that global level, as opposed to what I am going to accomplish in my classroom. It has been clear all along through the CLASS Office that we are responsible for our curricula. The development and use of ACRES came out of CLASS, and it changed the faculty responsibility. The more CLASS changes the more we have to change. They also remove obstacles and barriers and make sure that people play nice.”

Growing Pains. *CLASS creates and alleviates pain.* “As the role of the CLASS Office has changed, it affects faculty and division chairs, and that is causing changes and growing pains. They can also make it a lot easier for us, and they have in many cases.”

Technology as a Tool influences....

Faculty view Technology as a Tool influencing Incentives, Teaching and Learning, Faculty Responsibility, and Growing Pains.

Illustration 5.24: Faculty View of Technology as a Tool



Incentives. *Technology facilitates gratification.* “Technology will drive incentives only in the sense that people get a chance to see that they are accomplishing something on a computer. Therefore the reward to the individual with the outcome is that they are doing better, accomplishing more, and seeing results. It has helped some people play the game who would not have played it before, and so it has provided an Incentive.”

Teaching and Learning. *Outcomes development is influenced by comfort with technology.* “Technology is a tool that supports the learning outcomes. I do not know that I would have put in some of my proposals for course changes if I had not had that tool. Teaching and learning should drive technology, but technology is frustrating teaching and learning.”

Faculty Responsibility. *Technology forces faculty to submit outcomes online and saves faculty time.* “You just cannot escape technology in order for us to do our jobs and do them well. To maintain the curriculum the faculty has to learn the technology in

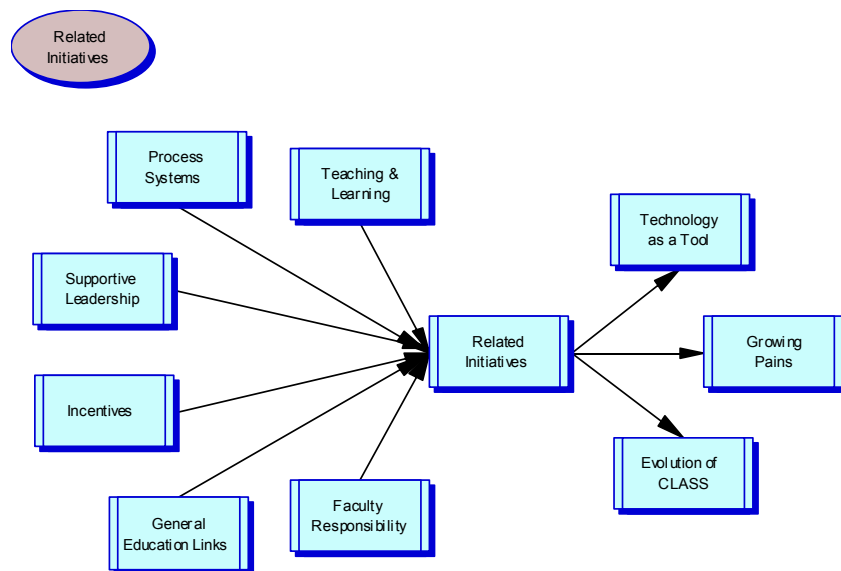
order to achieve their goals. It basically forces you to take on responsibility for the class that you are creating or changing. Technology is putting more responsibility back on the proposer, and it has been a real help to give faculty time.”

Growing Pains. *The level of pain is related to the level of comfort with technology.* “I find ACRES a blessing and pretty easy to use, except for the silly technological glitches, but it has caused some grief for a lot of other individuals who had a hard time adjusting to new technology. It is online, and sometimes it does not work or does weird things.”

Related Initiatives influence...

Faculty view Related Initiatives influencing Technology as a Tool, Evolution of the CLASS Office, and Growing Pains.

Illustration 5.25: Faculty View of Related Initiatives



Technology as a Tool. *Technology can make it easier for us to improve.* “I think it all still comes out of our desire to continually improve. You look for ways to do things better and technology always pops up as hopefully making things easier and quicker.”

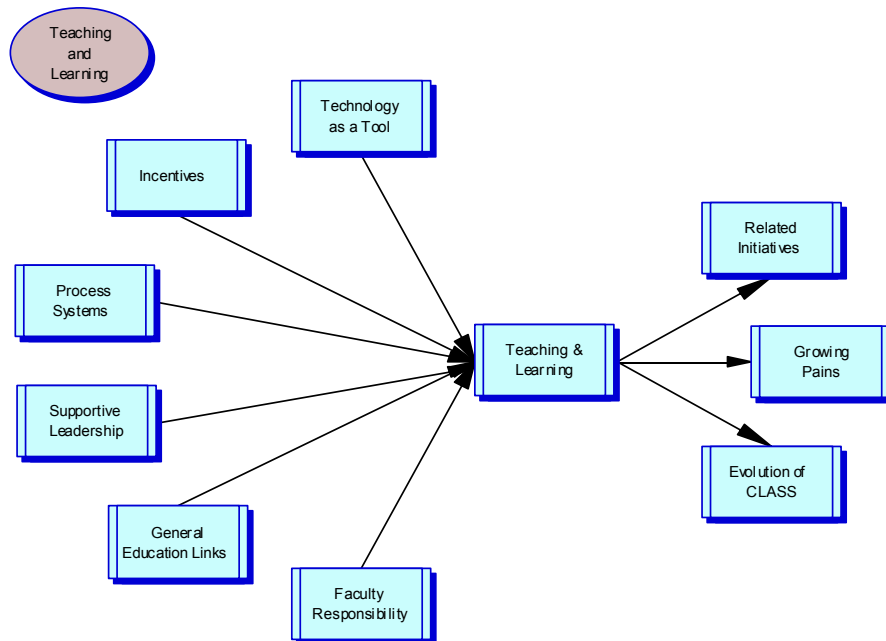
Evolution of the CLASS Office. *The AQIP initiative changes the role of the CLASS Office.* “I think our CLASS Office has changed completely as the needs of the college have changed and AQIP and other things have evolved. I would say that the CLASS Office is a product of AQIP and facilitation of the learning college. As these related initiatives become articulated the CLASS Office is going to develop them.”

Growing Pains. *Initiatives create change that is painful.* “Initiatives drive the pain. Every time there is change you have to adjust and redo your way of thinking. It is frustrating. You can sum it up that change is difficult, exciting but also very difficult. If you try to do too much at once, then you wind of floundering and having a lot of emotion stuff.”

Teaching and Learning influence...

Faculty view Teaching and Learning influencing Evolution of CLASS, Related Initiatives, and Growing Pains.

Illustration 5.26: Faculty View of Teaching and Learning



Evolution of CLASS. *CLASS supports the teaching and learning process.*

“With this whole paradigm switch to active students and active learning came more responsibility and the need for more consistency. We now have a CLASS Office because we care that the students are achieving. The more we teach, the more we start pushing for the CLASS Office to accept what we do. It is there primarily as an ancillary organization to the teaching and learning process, and ideally it reacts to and is shaped by teaching and learning.”

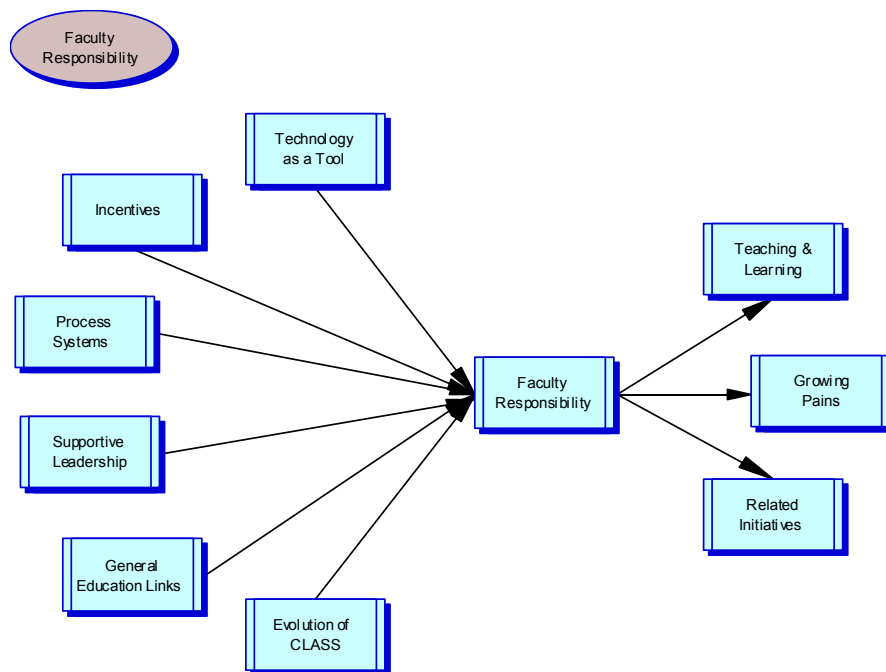
Related Initiatives. *New initiatives are driven by the learning paradigm.* “I think we are to the point that teaching and learning is influencing the initiatives, but I do not think it was like that before. If you look at the learning process, there may be initiatives that are taken to improve the learning process.”

Growing Pains. *Pain results from a drive to keep courses current.* “It is a very interesting time in education because you cannot sit still or relax. Keep moving or fall behind. Frustration is a result of faculty not knowing how to express outcomes. Growing Pains are an expression of CLASS driving Teaching and Learning.”

Faculty Responsibility influences...

In the faculty view of Faculty Responsibility, it influences Related Initiatives, Teaching and Learning, and Growing Pains.

Illustration 5.27: Faculty View of Faculty Responsibility



Related Initiatives. *The initiatives are faculty driven.* “We have a responsibility to the profession and instruction. It is part of the job. I would rather it be faculty responsibility instead of top down.”

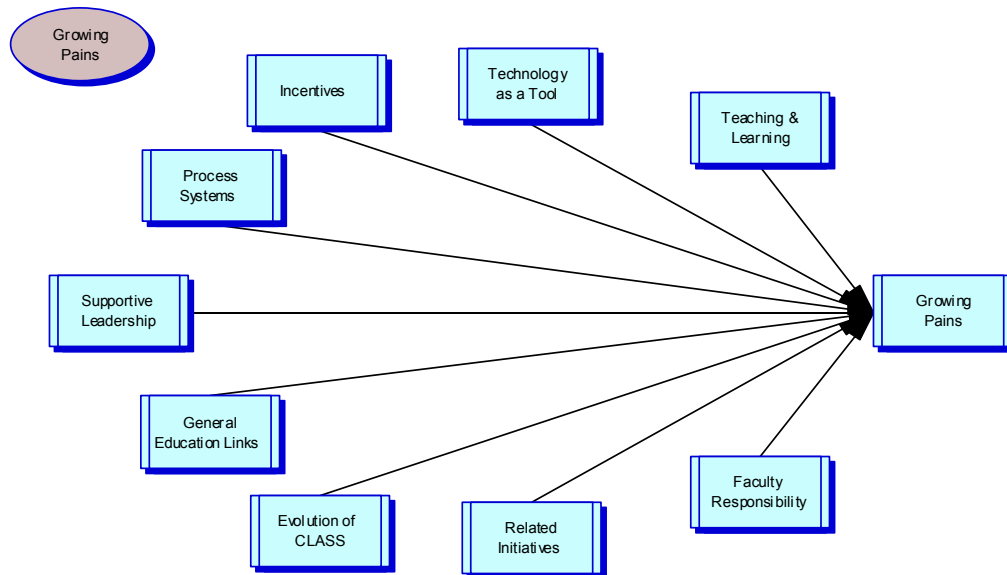
Teaching and Learning. *Faculty is responsible for keeping courses current.* “Taking responsibility creates teaching and learning methodologies that accomplish the desired outcomes. It is my responsibility to revise my student learning outcomes, keeping current and making sure that what they are doing is relevant and that students have ways to succeed.”

Growing Pains. *Increased responsibility creates pain.* “Some of us have had to come out of our level of comfort and do things differently. If you take on more and more responsibility, make more changes, and hold yourself more accountable for what students learn, then you are going to go through some sort of emotional experience. Frustrations over not being able to do what they need to do are a byproduct of faculty responsibility.”

Growing Pains influence...

Faculty view Growing Pains as a primary outcome that is influenced by all other affinities and has no influence on other affinities.

Illustration 5.28: Faculty View of Growing Pains

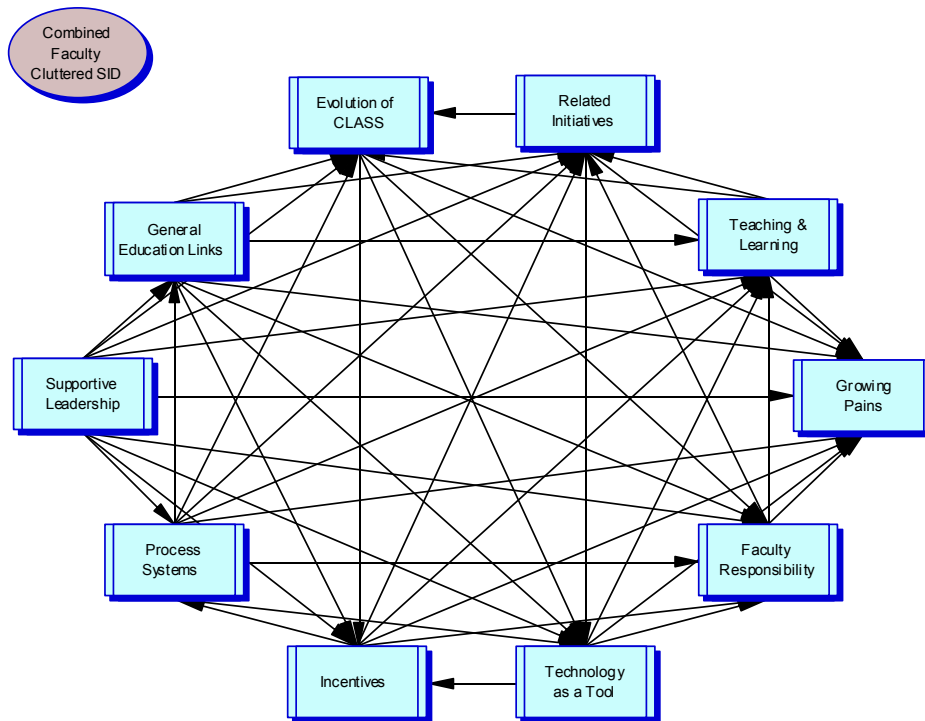


Faculty System Influence Diagram

The System Influence Diagram (SID) is a visual representation of the cause and effect relationships between the ten affinities. The following SID analysis is based upon a compilation of the individual realities of the faculty members who were interviewed individually regarding their perceptions of the affinities described by the Learning Outcomes Review Committee.

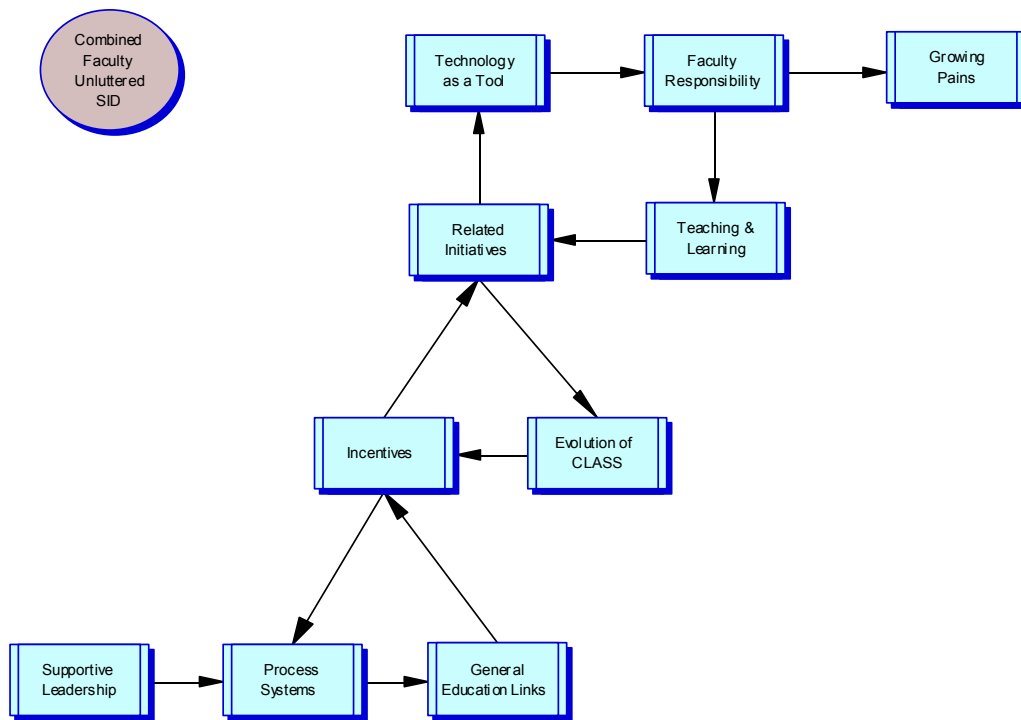
Cluttered SID. All links described in the Combined Faculty IRD Sorted (Table 5.07) are represented in the cluttered SID. The cluttered SID is shown in Illustration 5.29.

Illustration 5.29: Composite Faculty Cluttered SID



Uncluttered SID. Removal of all redundant links resulted in an uncluttered SID illustrating the faculty perceptions of learning outcomes development. This SID is shown in Illustration 5.30.

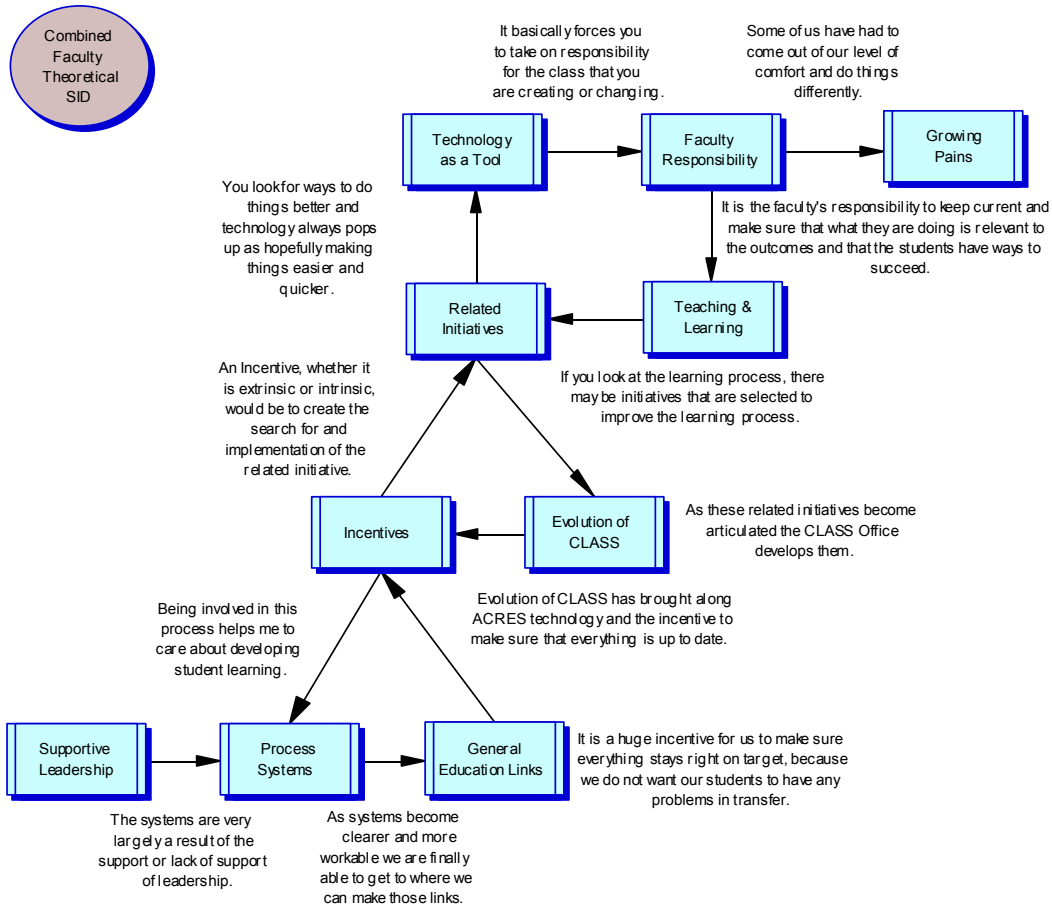
Illustration 5.30: Composite Faculty Uncluttered SID



A Tour of the System

The faculty perception of the learning outcomes project begins with the primary driver, Supportive Leadership, and ends with the primary outcome, Growing Pains. Either positive or negative perceptions of an affinity can influence the experience of the next affinity (Northcutt and McCoy, 2004). A visual tour of the system is shown in Illustration 5.31.

Illustration 5.31: Composite Faculty Theoretical Summary SID



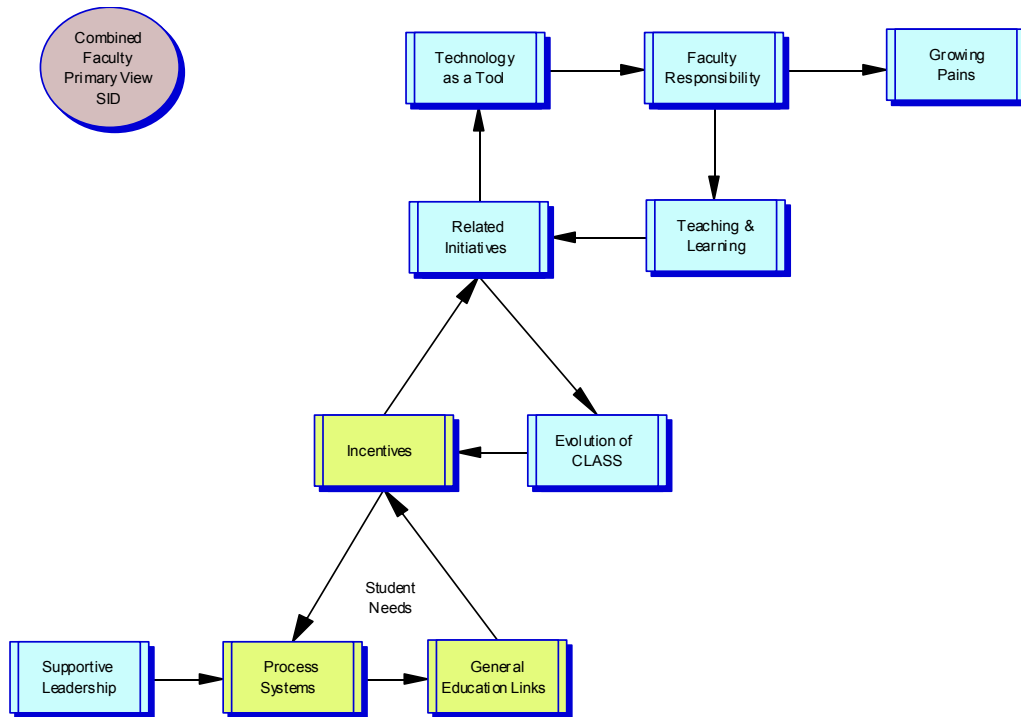
The faculty view of student learning outcomes development begins with the support of the college leadership. The success or failure of process implementation is affected by the support of leadership. Improved processes enables a focus on making connections between classroom and general education outcomes, and making these connections results in improved articulation and the satisfaction of better service to students. This and other incentives create more faculty buy-in and the search for improvement through other initiatives. The CLASS Office helps develop these new

initiatives and the technology to ease the process of keeping curriculum updated. Engagement in new initiatives requires new applications of technology to make it easier, and this technology forces faculty to assume more responsibility for curriculum improvement. The faculty is ultimately responsible for the quality of teaching and learning in the classroom, and classroom interaction determines the types of related initiatives that are targeted by the college. Increased responsibility for curriculum improvement moves faculty out of their comfort zone and creates growing pains.

Feedback Loops and Zooming

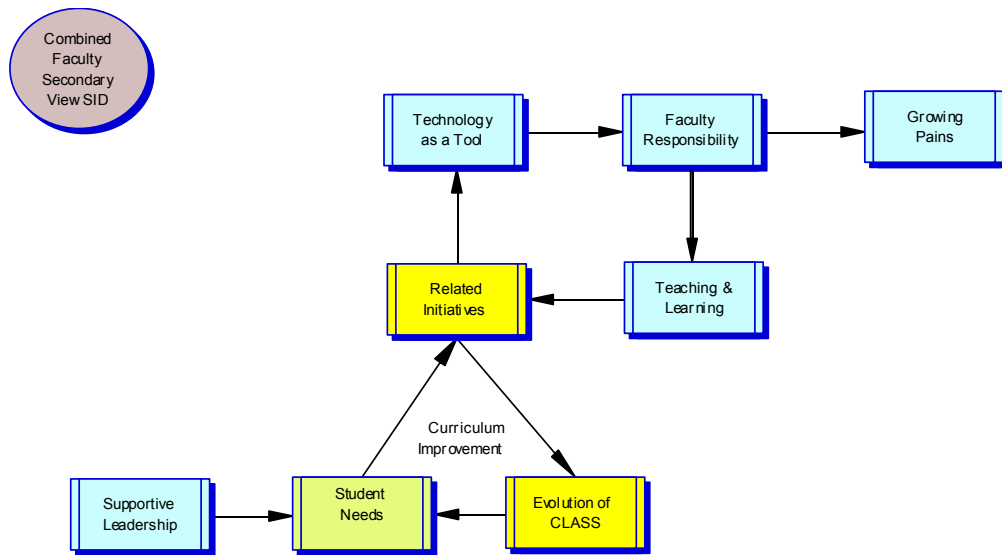
Frequency analysis of the affinities indicates that the direction of influence is difficult to distinguish for the all relationships between Supportive Leadership and Growing Pains. The faculty perspective of learning outcomes development consists of a primary driver, three feedback loops, and a primary outcome. All three feedback loops interact, and the distinction between drivers and outcomes within these loops is unclear (Northcutt and McCoy, 2004, p. 335). These interconnected feedback loops represent a dynamic set of affinities and is consistent with the nearly even distribution of frequencies between many of the affinities pair possibilities. The zoomed view of the faculty perception of learning outcomes development is shown in Illustrations 5.32 through 5.35.

Illustration 5.32: Faculty View of Student Needs



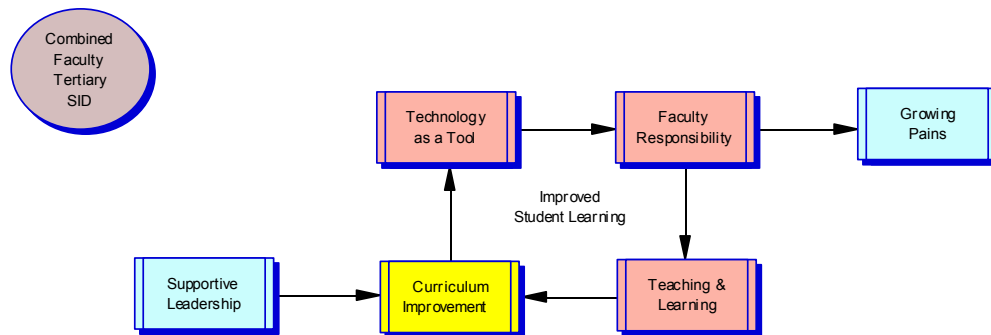
The Process Systems, General Education Links, and Incentives affinities form a cyclic relationship. Review of axial and theoretical codes as well as input from a final exit interview indicates that this feedback loop represents Student Needs. Substituting this superaffinity name in the SID “zooms out” to a higher level perspective (Illustration 5.33) of the learning outcomes process viewed by faculty (Northcutt and McCoy, 2004, p. 335).

Illustration 5.33: Faculty View of Curriculum Improvement



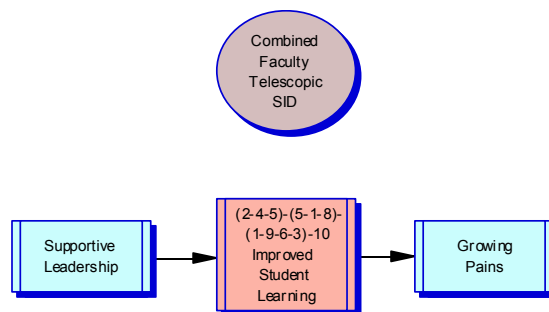
The Student Needs superaffinity, Related Initiatives, and Evolution of the CLASS Office form another cyclic relationship. Review of axial and theoretical codes as well as input from a final exit interview indicates that this feedback loop represents Curriculum Improvement. Substituting this superaffinity name in the SID “zooms out” to an even higher level perspective (Illustration 5.34)

Illustration 5.34: Faculty View of Improved Student Learning



The superaffinity Curriculum Improvement is part of a third cyclic relationship involving Technology as a Tool, Faculty Responsibility, and Teaching and Learning. This feedback loop was identified as Improved Student Learning. Substituting this superaffinity name in the SID “zooms out” to an even higher level perspective (Illustration 5.35).

Illustration 5.35: Faculty View of Improved Student Learning



Faculty Summary

Faculty at Central Arizona College were asked to redefine in their own terms the ten affinities described by the Learning Outcomes Review Committee. Analysis of the system using System Influence Diagrams (SIDS) combined with axial and theoretical quotations from the faculty results in the identification of three interrelated subsystems. Student Needs is a subsystem composed of three affinities: Process Systems, General Education Links, and Incentives (Illustration 5.32). Substitution of this superaffinity into the diagram results in a second subsystem composed of three affinities: Student Needs, Related Initiatives, and Evolution of the CLASS Office. This subsystem is labeled Curriculum Improvement (Illustration 5.33). Substitution of this superaffinity into the diagram created a third subsystem composed of four affinities: Curriculum Improvement, Technology as a Tool, Faculty Responsibility, and Teaching and Learning. This subsystem is labeled Improved Student Learning (Illustration 5.34). Analysis of axial and theoretical quotations indicates a link between the primary driver, Supportive Leadership, and the primary outcome, Growing Pains. Once linked, a final feedback loop is identified as Instructional Effectiveness (Illustration 5.35). The faculty viewed the development of student learning outcomes as a leadership-driven initiative that created improved student learning and growing pains.

CONCLUSIONS

This chapter presented the results of the Learning Outcomes Review Committee (LORC) focus group interview where ten affinities were described by this leadership team as important factors in the develop of student learning outcomes at Central Arizona

College. The focus group interview data was used to generate an interview protocol for individual interviews of both LORC members and faculty members. These individual axial and theoretical interviews allowed the researcher to obtain rich, personal descriptions of each person's perceptions of the learning outcomes project, and composite descriptions were created for LORC members and faculty members. These composite data sets were used to create composite mindmaps of each group, allowing a visual comparison between the perceptions of the leadership team and the faculty with respect to the development of learning outcomes. Interpretation of these mindmaps is the subject of Chapter Six.

Chapter VI: Implications

INTRODUCTION

Traditional educational practices are no longer effective in meeting our rapidly changing educational needs, and community college leaders must adopt a learning paradigm that is responsive and quality oriented. Successful implementation of the learning college paradigm depends upon the documentation of improved and expanded learning. This documentation authenticates the success of the college mission and allows leadership to develop a culture of evidence that supports data-driven decisions for continuous quality improvement. Identification of measurable learning outcomes must precede outcomes assessment; however, community college faculty members have little training in curriculum development and assessment techniques. This creates a serious challenge for institutions pursuing the learning college paradigm.

The purpose of this study was to gain insights into the factors that influence leadership teams that effectively develop learning outcomes across a broad range of curricula. Interview data were collected from the Learning Outcomes Review Committee (LORC), and data analysis identified a system of factors reflective of their perceptions of outcomes development. Faculty member interview data were also collected regarding their perspective of the factors identified by leadership. Conceptual mind maps were created to visually represent the perceptions of both leadership and faculty. These perceptions were explored and compared in order to develop a grounded theory of their respective roles in outcomes implementation.

Interpretation of the research results involves comparing the leadership and faculty systems and drawing conclusions that answer Research Question #3: How do the perceptions of the leadership team and faculty compare, and what are the implications for other leaders involved in learning outcomes development and implementation? This chapter begins with an affinity comparison between leadership and faculty, followed by a comparison of the conceptual mind maps for each group. Structural and theoretical comparisons of the two systems provide a basis for theory regarding implications for leadership engaged in learning outcomes development.

AFFINITY COMPARISON

The Learning Outcomes Review Committee identified ten related affinities that were significant in the development of student learning outcomes at Central Arizona College. These affinities were: Supportive Leadership, Evolution of the CLASS Office, Process Systems, Related Initiatives, Teaching and Learning, General Education Links, Incentives, Technology as a Tool, Faculty Responsibility, and Growing Pains. By asking faculty to describe these same ten affinities and their relationships, data were generated to explore similarities and differences in the perceptions of the leadership team and the faculty. It is important to note the inclusive nature of the outcomes committee which was composed of administrators, teaching administrators, classified staff, and faculty. The faculty group was more homogeneous but had adjunct and teaching administrator representation.

Axial Coding Comparison

The following comparisons are based upon composite committee member descriptions and composite faculty descriptions. Comparisons are made of both description and timbre for each affinity.

Supportive Leadership

The outcomes committee most frequently describes supportive leadership as the president, vice president, and governing board; however, they did indicate that deans provide support for the administrative vision of enhancing curriculum quality. The committee describes the impact of this vision with respect to large themes like quality improvement and support for a change in college climate. The outcomes committee believes that leadership sees a bigger picture and concentrates on communicating with multiple levels in higher education in order to improve course content and articulation with universities. Leadership's financial support of a curriculum office is recognized positively by the committee, and they see value in creating a curriculum office with a point person to lead the outcomes project. The president's office makes outcomes development a top priority by supporting enforcement of consequences if courses are not updated by faculty, and the committee views this as a key to the success of the project.

Faculty members describe this affinity as visionary leadership that sets the course and empowers others throughout the institution to become leaders. They support the development of a centralized curriculum office which brings focus, organization, and improved communication to the outcomes process, but not all faculty members understand the broad scope of the vision. However, they do understand that it is an

administrative priority. Faculty members focus on communication within the college to support faculty efforts in outcomes development.

Evolution of the CLASS Office

Both groups describe the CLASS Office as a centralized curriculum area providing resources and guidance in curriculum development throughout the district. The streamlined curriculum process, technology applications, and improved communication are recognized by both the committee and faculty. Faculty members express concern about the evolutionary direction of the CLASS Office, specifically its dual role of support and leadership. The outcomes committee believes that the success of the curriculum process depends upon the ability of the CLASS Office to set consequences for faculty inaction and receive support from upper administration to enforce these consequences.

Process Systems

The outcomes committee describes the process systems in more global terms and clarifies the rationale and approach for writing outcomes. They also emphasize the importance of district-wide discussions of course content and continuous process improvement. Both groups acknowledge the value of clear course outcomes in student assessment and curriculum improvement; however, faculty members extend the positive attributes of the process to include curriculum consistency and accountability. A timeline with non-negotiable deadlines forces faculty accountability but also creates resentment. In spite of this, faculty sees the processes becoming more understood and accepted. Faculty members point out other shortcomings of the process systems that include

uninformed adjunct faculty, multiple committee reviews, and slow approval timelines for vocational courses. Time is an underlying theme in the faculty perception of process systems.

Related Initiatives

AQIP accreditation criteria reinforce the concepts of self-assessment and learning outcomes, and both faculty and the committee see this linkage. Faculty members also describe other related initiatives such as rethinking courses and programs. The outcomes committee sees visioning, strategic planning, AQIP, and advancement of the learning paradigm as related initiatives. These are of a much broader scope, and the committee regularly discusses how these all fit together. However, faculty members who are not in this communication loop find it difficult to see their relationship.

Teaching and Learning

The committee perspective of teaching and learning is that outcomes provide guidance for both teacher and learner, giving them a clearly defined beginning and ending to their courses. Students are encouraged to be responsible for their own learning and participate in the curriculum development process. Adjunct and new instructors use outcomes as a guide that results in more course consistency. Outcomes also provide faculty with a method of self-assessment that encourages continuous improvement and more “leading edge” instruction. The faculty perspective agrees with these points, but describes the difficulty in getting both students and faculty to shift to learning-centered instruction. Faculty members also point out that course outcomes are not equally created,

and some disciplines present greater challenges than others. Not all faculty members accept the value of learning outcomes and see this project as an old one that is being recycled with new names and no apparent reward.

General Education Links

Both groups agree that the links between general education outcomes and course outcomes are not where they should be, and many faculty members are not considering these when writing their course outcomes. Portfolio assessments are recommended by both groups to assess general education outcomes once these linkages become established. The committee describes current evaluation efforts that use student input to assess the condition of general education outcomes, but faculty describes past efforts, indicating a lack of communication. Both groups believe this is an issue that will be addressed in detail in the near future.

Incentives

All faculty or committee members with instructional responsibilities describe the intrinsic rewards gained from improved student learning. Faculty members describe an obligation to serve students by providing the most effective classroom teaching and assessment possible. Teaching committee members focus on their ability to self-assess the quality of their instruction, and other committee members emphasize the importance of quality and continuity in improving articulation. Both groups consider recognition and collegiality to be rewards that create incentives for participation in the project; however, they both realize that some faculty members require extrinsic motivation in the form of

money or administrative policy. Only the committee members specifically indicate that ACRES technology is a motivating force due to its simplicity and time-saving features.

Technology as a Tool

The committee views technology as a tool that facilitates communication, timely curriculum revision, reflection, and learning, where learning refers to the ability to look at systems in new ways that affect decision making. While technology does require training and support, the committee describes it as easy to use. Faculty members agree that technology improves communication and saves time, and they are especially happy that it replaces a very tedious paper process. Faculty members also recognize the role of technology in linking outcomes, mission statements, and strategic goals for improved accountability, yet they point out that technology still has its glitches that make it frustrating at times.

Faculty Responsibility

Committee and faculty perceptions of faculty responsibility are quite different. The committee views faculty as an integral part of the outcomes development process because they are the content experts in their field and best able to ensure articulation with universities. They see faculty members falling into two major categories, those that value outcomes and actively participate and those who do not value outcomes and resist participation. The committee views faculty resistance as a battle with individuals who oppose anything that implies accountability or change. Some committee members feel

that the value of learning outcomes has not been articulated well, resulting in faculty who hate the process and avoid the responsibility.

Faculty members are divided in their opinions of the learning outcomes project and admit that the “true believers” constitute a small fraction of the total. Some faculty members feel that they have ownership in the curriculum process, and their input is valued. Others feel that a parental approach is pushing them to participate without valuing their input or allowing time to adjust and understand the process. Some faculty members describe fear of change as the reason for their slow adaptation, but they indicate that acceptance is improving with increased understanding. While faculty members describe themselves as polarized over learning outcomes, some note that improved communication is making this project a good consensus-building activity.

Growing Pains

The outcomes committee perceives that changes in the curriculum process and the scope of the project initially created stress, frustration, and confusion because it involved new terminology, processes, expectations, and timelines. It was initially a very steep learning curve that has resulted in a growth experience for individuals, departments, and the institution. A few processes continue to be questioned, and a shortage of trained personnel continues to create stress.

Some faculty members do not experience growing pains because their curriculum areas are already outcomes oriented. Others feel that they are re-inventing the wheel and are very frustrated by the new buzz words. These faculty members see no assurance of real benefits from developing outcomes and complain that the process is still unwieldy

and time consuming. Faculty members with a longer history at the college describe a shift in the nature of the project from one that was initially collaborative to one that is currently authoritarian. While these faculty members express very negative growing pains, they agree that a few devoted individuals within the faculty drive the project forward.

Comparing Systems

The nature of the Learning Outcomes Review Committee and faculty perceptions is explored further by comparing their composite Systems Influence Diagrams (SID). A structural analysis compares the systemic properties of these two groups. This is followed by a theoretical analysis examining the two systems in light of current theories regarding learning organizations. The two systems are illustrated in Illustrations 6.01 and 6.02.

Illustration 6.01: LORC Uncluttered SID with Loops Identified

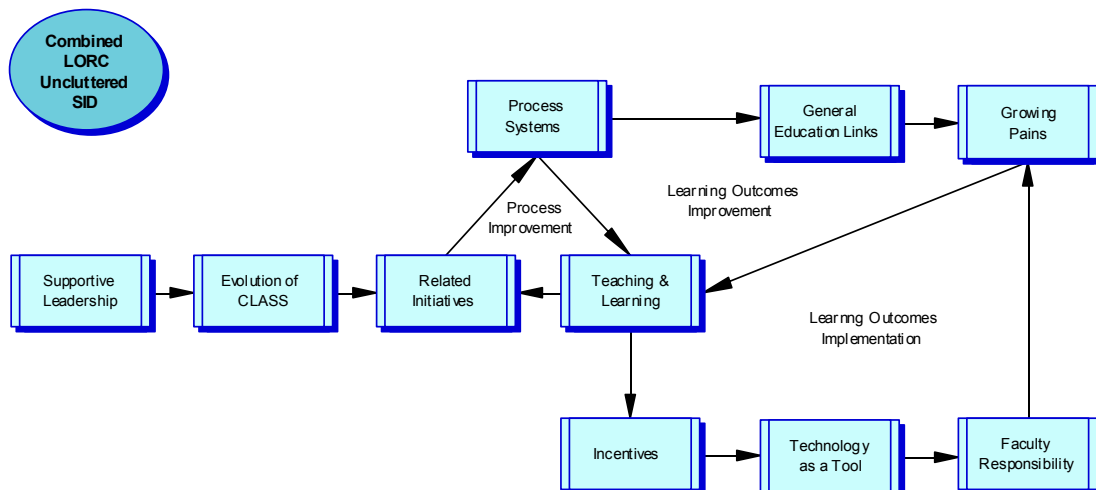
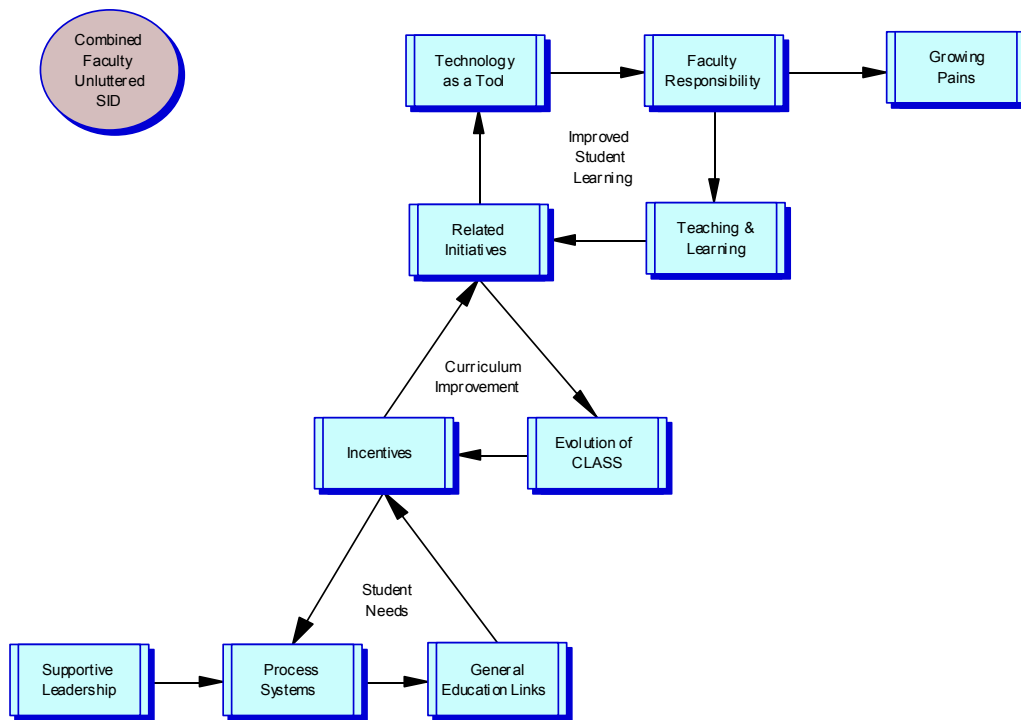


Illustration 6.02: Faculty Uncluttered SID with Loops Identified



Structural Analysis

While the Student Learning Outcomes Project is frequently describe as a faculty-driven initiative, both the outcomes committee and the faculty perceive it as a leadership-driven initiative. Examination of the systems indicates that the first difference is Supportive Leadership drives different affinities. The outcomes committee (Illustration 6.01) sees the CLASS Office as an extension of administration that provides leadership in the development of curriculum and serves as a catalyst for new initiatives. “From my perspective CLASS is part of the leadership.” Faculty sees Supportive Leadership driving Process Systems (Illustration 6.02). Faculty focus is on the micro level, and they expect leadership to focus on the macro levels. “Faculty needs to be reminded, or else we

forget about the bigger picture.” A broad leadership view determines which processes will be supported, and the cyclic relationship between Process Systems, General Education Links, and Incentives represents the Student Needs targeted by the mission and vision of the college.

In the outcomes committee system (Illustration 6.01), Evolution of CLASS drives the Process Improvement superaffinity. The goal of Process Improvement is to continually refine the outcomes-related processes and improve student learning. “A lot of the processes that we have established recently have to do with AQIP accreditation criteria. Most of the initiatives are actually looking at the systems and recommending enhancements and revisions.” The Process Improvement superaffinity represents a clear link between the learning outcomes project and AQIP accreditation criteria regarding learner success.

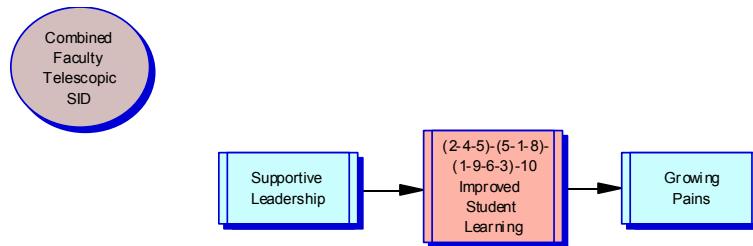
In the faculty system (Illustration 6.02), Evolution of CLASS is part of a superaffinity labeled Curriculum Improvement. Faculty associate positive or negative Incentives directly with their involvement in learning outcomes and particularly with the CLASS Office. “The CLASS Office is the incentive for me to be involved. I do not feel threatened because I know I can go for help. There is an absence of Incentives and it is a result of the CLASS Office.”

The position of Teaching and Learning in the outcomes committee system (Illustration 6.01) characterizes it as a critical factor in the development of learning outcomes. Assessment of teaching and learning in the classroom determines the need for improvements in the process. “When we see positive changes in the teaching and learning, then we want to keep doing what we are doing. If something did not work and

they are not learning it, you have to find a new and different way.” This affinity is part of three feedback loops within the outcomes committee system: Process Improvement, Learning Outcomes Improvement, and Learning Outcomes Implementation. This position reflects a learning-centered philosophy by the committee, and it indicates that if faculty members do not understand the value of learning outcomes in the classroom, then there is no incentive to implement the outcomes.

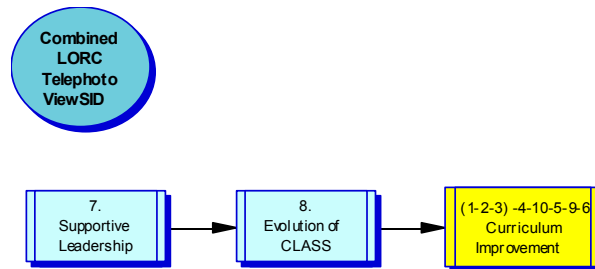
The position of Teaching and Learning in the faculty system (Illustration 6.02) is much different and more closely associated with Faculty Responsibility, reflecting ownership of what happens in the classroom. It is part of a superaffinity labeled Improved Student Learning, which incorporates Student Needs and Curriculum Improvement. “The faculty must have responsibility for the outcomes, and that is going to truly drive effective teaching and learning.” While Teaching and Learning does not appear to be situated at the intersection of multiple subsystems as it is in the committee system, it does interact with every affinity involved in the progression beginning with Process Systems. “The philosophy needed to change, and that is how the process impacted the teaching. Teaching and learning will have a huge impact on the whole process, establishing different processes.” All three feedback loops compress into one affinity, Improved Student Learning (Illustration 6.03).

Illustration 6.03: Faculty View of Improved Student Learning



In both systems, Faculty Responsibility drives Growing Pains. In the outcomes committee system (Illustration 6.01), Faculty Responsibility is part of Learning Outcomes Implementation, and Growing Pains is part of two feedback loops associated with learning outcomes, Learning Outcomes Improvement and Learning Outcomes Implementation. Successful implementation depends upon assessment of learning outcomes by faculty. “Over time as people learn the value of specifying these learning outcomes and using assessment information for course improvement, then realization of the benefits will influence faculty responsibility.” While it appears that the committee perspective of Faculty Responsibility is not closely associated with Process Systems, all three feedback loops interact. “I do not know if faculty would be quite as involved with learning outcomes and looking at standards without the systems in place to bring that clarity to that process.” These three feedback loops collapse into one superaffinity labeled Curriculum Improvement (Illustration 6.04).

Illustration 6.04: LORC View of Curriculum Improvement



Theoretical Analysis

Current theory regarding development and assessment of student learning outcomes allows further analysis of the committee and faculty systems. Data collections for both systems indicate a wide range of views among faculty regarding the value of learning outcomes. Variations in faculty values result in variations in incentives for participation in the development and revision of outcomes. Cross (1997, p. 9) states, “...motivation comes in a variety of forms: high and low, spurts and continuous, intrinsic, extrinsic, and coerced.” This disparity in incentives creates difficulty in the Learning Outcome Implementation cycle described by the outcomes committee (Illustration 6.01) and in the Improved Student Learning cycle described by faculty (Illustration 6.02).

Accountability is an important aspect of Faculty Responsibility, and it is described in both systems. Wiggins (1998) illustrates the need for linkage between teaching and accountability by asserting that there are so many unknowns in the teaching and learning process that only through genuine feedback can teachers assess and improve their teaching. “No teacher can succeed unless he or she is held accountable” (Wiggins, 1998, p. 289).

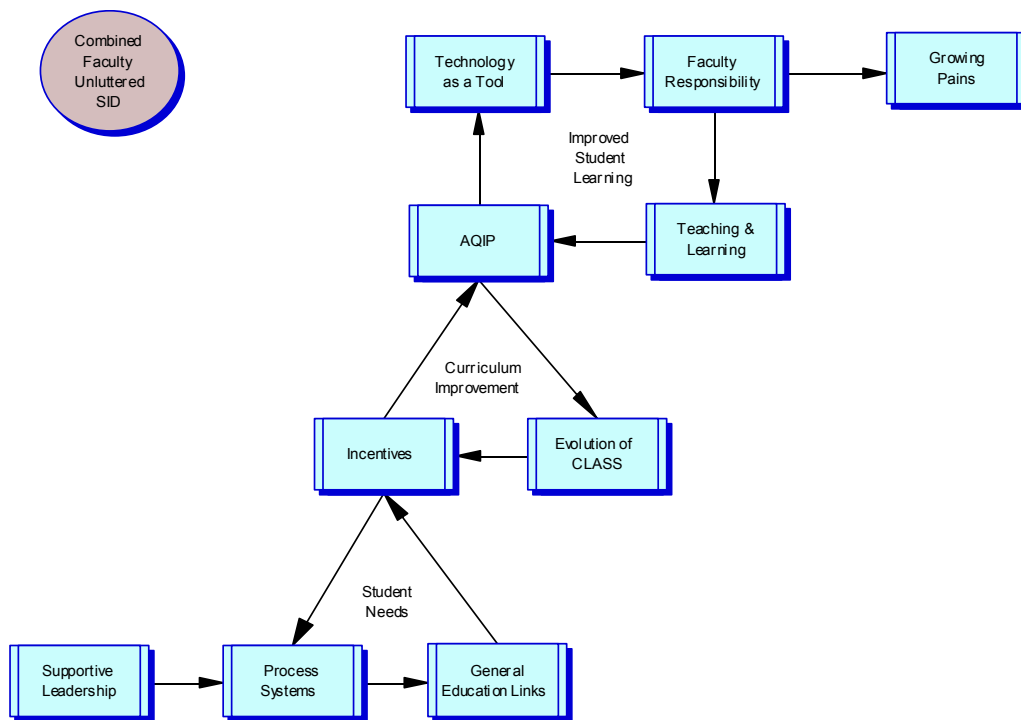
In both systems Faculty Responsibility contains a component that addresses the teachers' obligations to remain current in their field so that course content is relevant and either transferable to universities or applicable in the workplace. This includes shifting to learning-centered methods of instruction to improve student engagement and critical thinking. For Faculty Responsibility to positively influence Improved Student Learning (Illustration 6.02) or Learning Outcomes Implementation (Illustration 6.01), teachers must be willing to seek out faculty development opportunities that will enhance their ability to make their classrooms learning-centered (Huba and Freed, 2000).

Visionary leadership is required for transformation to the learning paradigm because the organization is learning to think in a new way, and leadership must model this thinking (Huba and Freed, 2000). "To lead learning means to model a learner-centered, as opposed to an authority-centered, approach to all problems, inside and outside the classroom" (Senge, 2000, p. 416). The faculty (Illustration 6.03) and outcomes committee perspectives (Illustration 6.04) both indicate that the leadership, particularly the president, models this behavior and is leading change in the institutional culture.

One of the most difficult tasks encountered in the implementation of an outcomes assessment plan is creating learning leaders at the departmental level, and the most significant impediment is the "inertia" created by existing processes (Nichols, 1989, p. 95). The faculty system describes Supportive Leadership at multiple levels within the institution and the process of growing new outcomes project leaders through training and mentoring, indicating that upper-level leadership is successful in creating leaders and overcoming inertia.

Implementation of the learning paradigm requires systems thinking, and the AQIP accreditation process facilitates an institutional shift in this direction. Both the outcomes committee and faculty systems focus on AQIP as the primary Related Initiative. In the faculty system, the AQIP initiative is part of Curriculum Improvement and Improved Student Learning (Illustration 6.05).

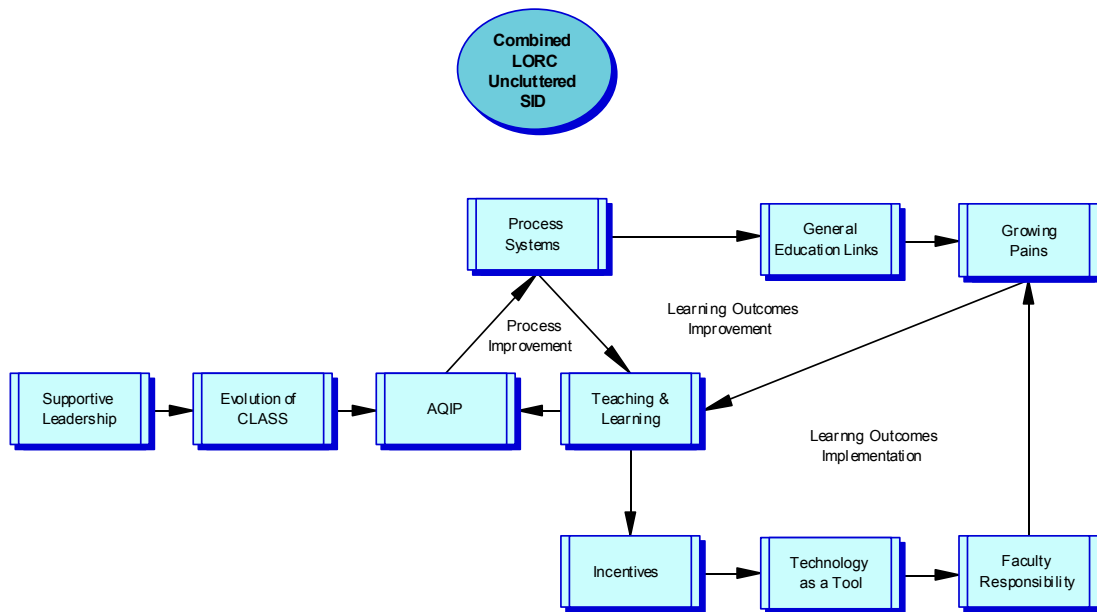
Illustration 6.05: Faculty View of AQIP



In the outcomes committee system (Illustration 6.06), the AQIP initiative is part of the Process Improvement cycle, which is also tied to the Learning Outcomes Improvement and Learning Outcomes Implementation cycles. In both faculty and committee systems, the AQIP accreditation criteria are an integral part of continuous quality improvement processes associated with learning outcomes. This accreditation

process is aligned with the learning paradigm; and all nine AQIP criteria currently documented are enmeshed in the systems identified by both groups.

Illustration 6.06: LORC View of AQIP



FORECASTS AND INTERVENTIONS

Comparisons within and between these two systems indicate that there is fundamental alignment between the committee and faculty perceptions of learning outcomes development and implementation at Central Arizona College. Affinity comparisons indicate that both groups recognize the continuous quality improvement nature of outcomes development, and this is visually apparent in the feedback loops identified in both systems. Using IQA interpretation protocol, these two systems can be used to formulate a more general theory regarding the development of student learning

outcomes in the implementation of the learning paradigm. The following section describes system implications for developing learning outcomes.

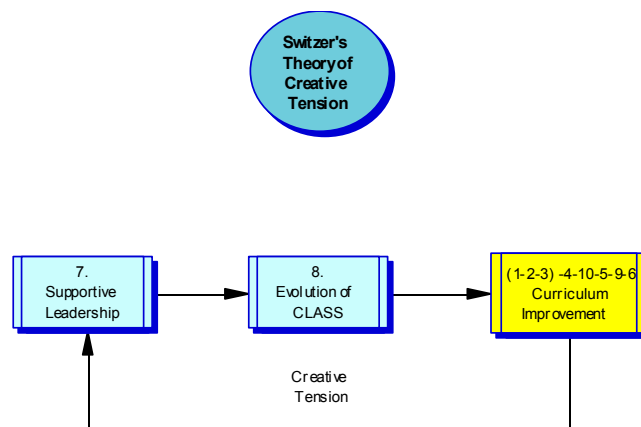
Implications for Supportive Leadership

Open access in community colleges creates a gap between the reality of under-prepared students and the rigorous requirements of vocational licensing and university transfer. The learning paradigm offers a systems approach to closing that gap and continuously improving the quality of student learning. The learning college paradigm requires defining, assessing, and documenting student learning outcomes to provide the data necessary to authenticate substantive change in learners (McClenney, 2003b; O'Banion, 1997a). However, defining measurable learning outcomes is difficult since faculty members have little background in curriculum development and assessment techniques. Leadership is challenged to find ways to motivate faculty to work collaboratively to acquire the skills necessary to create both outcomes and assessments.

In the outcomes committee system, review of axial and theoretical quotations indicate that Supportive Leadership and Evolution of CLASS represent the strongest drivers in the system; however, both affinities are described as being receptive to input and very supportive of all aspects of the learning outcomes process. "Leadership has been very flexible, supportive, and responsive, and that has brought forth a change in the climate." While Supportive Leadership is responsive, it also influences Evolution of the CLASS Office. "Supportive Leadership provides projects and guidance that makes this office change whether we want it to or not."

Identification of this relationship creates a final feedback loop identified as Creative Tension (Illustration 6.07). It represents the continuous quality improvement cycle created by the gap between the desired curriculum goals and the current curriculum reality, and it recognizes that as goals are achieved, leadership establishes new institutional goals (Senge, 2000, p. 168). The outcomes committee and faculty members who are committed to the learning paradigm are intrinsically motivated to create new strategies to continuously improve college curricula and ultimately improve student success. These individuals represent a core leadership group within the college that embraces, models, and communicates the value of the learning paradigm throughout the institution.

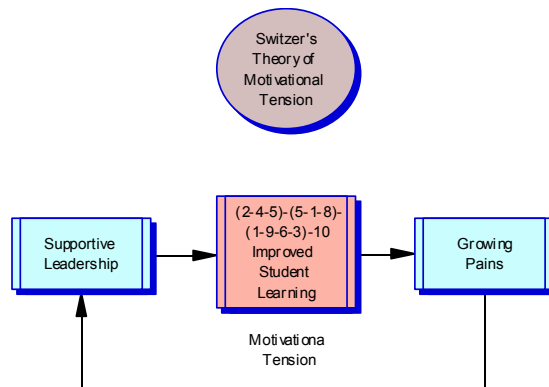
Illustration 6.07: Switzer’s Theory of Creative Tension



In the faculty system, review of axial and theoretical codes as well as input from a final exit interview indicates that Supportive Leadership is influenced by Growing Pains. Faculty members perceive Supportive Leadership responding to Growing Pains and

influencing Improved Student Learning. “Because of the leadership, we do have more growing pains; however, when we are experiencing growing pains the leadership becomes responsive.” The mixed emotions among faculty members regarding the development of learning outcomes drive most of the faculty growing pains, and these pains influence Supportive Leadership. Identification of this relationship results in a feedback loop labeled Motivational Tension (Illustration 6.08).

Illustration 6.08: Switzer’s Theory of Motivational Tension



The gap existing between leadership and faculty understanding of the value of learning outcomes creates pain and tension regarding how to properly motivate faculty to buy-in to the development of outcomes. The documentation of continuous improvement of student learning in the classroom ultimately depends upon the ability of leadership to effectively communicate with faculty members and win them over to the learning paradigm; however, motivational needs are individual to each faculty member, making this cycle a very difficult challenge for leadership.

With faculty ranks divided over the value of learning outcomes assessment, leadership must also prevent continued polarization. Those who participate actively and engage in the creative tension cycle of continuous curriculum improvement are rewarded, and those that do not participate are constantly being recruited. Due to the diversity of individual faculty members and what motivates them, leadership is wary of expending too much energy trying to implement narrow motivational strategies. Instead, a multi-faceted approach focusing on empowerment develops leadership from within the faculty, allowing the learning paradigm to become systemic.

Implications for Faculty

By forcing faculty to be accountable for the development of learning outcomes for their courses, the resulting pain can only be alleviated through some degree of compliance, and this moves the outcomes project forward despite resistance. Mandates alone do not encourage buy-in, and leadership is also offering continuous training and support for those who choose to take advantage of it. “Leadership is driving faculty responsibility by providing direction, opportunities, recruitment, mentoring, and empowerment of people to participate and get involved.” Over time, leadership is gradually converting faculty to the learning paradigm. These “converts” often have greater success than administration at reaching their colleagues and communicating the value of outcomes assessment.

Through the reflection and discussion generated by AQIP accreditation processes, faculty members are becoming closely involved in the decision-making processes necessary to create a learning-centered environment, and these decisions are tied to

directly to outcomes assessment. AQIP requires the college to measure institutional effectiveness, and this includes outcomes assessment in the classroom. Faculty members are empowered as the content experts to be accountable for the creation, revision, and assessment of course and program learning outcomes as part of their job description. Now that outcomes are established across the curriculum, faculty can expect more training and development regarding appropriate assessment strategies.

CONCLUSIONS

The purpose of this study was to explore the factors influencing the successful development of student learning outcomes at Central Arizona College and develop a grounded theory regarding the role of leadership in outcomes development and implementation. Visionary leadership is necessary to lead an institution through this shift to the learning paradigm. By seeing the larger picture, leadership steers a course that integrates other initiatives supportive of the learning paradigm and that empowers others throughout the institution to become leaders.

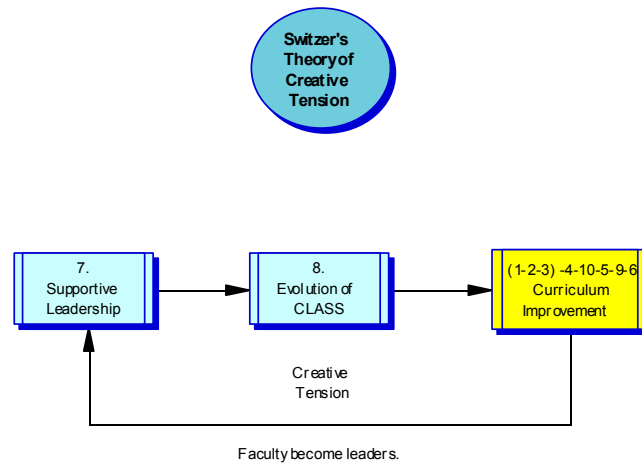
By making learning outcomes assessment a priority, leadership can allocate resources to establish a centralized curriculum office capable of providing the training on outcomes and assessment that faculty typically lack. Course level assessment cannot take place until measurable outcomes are established, and due to the scope of this endeavor, it is a time-consuming and frustrating process requiring full-time support. Once this phase is accomplished, then faculty training can focus on developing appropriate assessment strategies. The curriculum office can also work with leadership to model the principles of learning organizations and communicate learning college language.

Leadership can allocate resources for appropriate technology. The use of technology for curriculum management streamlines both the outcomes development and revision processes, allowing the institution to adapt to changing workforce needs. Technology also facilitates data acquisition for assessment and allows linkage of outcomes, mission statements, and strategic goals for improved accountability and a smoother accreditation process.

Faculty resistance to change poses a significant challenge for leadership and requires a multifaceted approach that empowers faculty to become a part of the new paradigm. At the same time leadership must ensure that the development of learning outcomes continues to move forward despite faculty resistance. Supportive, empowering leadership emphasizes student learning as the mission of the college and employs shared vision and team learning to create alignment in the curriculum development process. By balancing empowerment with a highly structured system of curriculum development, leadership prevents total chaos and slowly brings the organization in alignment with the new paradigm (Senge, 1990, p. 235).

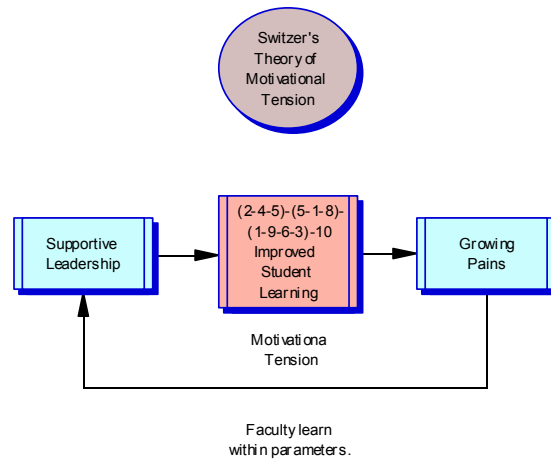
As faculty members become systems thinkers, they recognize the intrinsic rewards of learning outcomes and the creative tension between the current condition of curriculum and its potential condition. They are motivated to become curriculum leaders and create new strategies that result in the continuous quality improvement of the curriculum (Illustration 6.09).

Illustration 6.09: Faculty as Leaders in the Creative Tension Cycle



The gap existing between leadership and resistant faculty creates motivational tension that requires leadership to provide structure aligned with the learning college vision (Illustration 6.10). A curriculum process with clear steps and firm deadlines provides the structure to move outcomes development forward in an organized way. Simultaneous empowerment strategies provide faculty with the necessary building blocks to understand the learning paradigm and begin to practice it within a context that prevent chaos (Roueche, Baker & Rose, 1989, p. 207). The goal of leadership is to move faculty from the position of learning through motivational tension to the position of leading through creative tension.

Illustration 6.10: Faculty as Learners in the Motivational Tension Loop



The Learning Outcomes Project at Central Arizona College is an example of transformation leadership resulting in creation of measurable outcomes across the curriculum. The college is currently engaged in the first curriculum review since outcomes were established. All courses are reviewed on a three-year cycle to verify the validity of outcomes with regard to changing market demands. The CLASS Office is concentrating efforts on linking course outcomes with general education outcomes and developing appropriate assessment tools for faculty use.

The current college president, Terry Calaway, describes this as a faculty-driven project in which faculty members assume leadership roles and work together as a team to improve the curriculum through the development and revision of student learning outcomes. Both the outcomes committee and the faculty perceive the president and governing board as the primary forces behind the project; however, they also recognize that curriculum leaders are emerging throughout the institution. All participants are in

agreement that the president inspires cooperative participation, and the most significant characteristic of his leadership style is that he values people.

This one personal characteristic is a vital component of both transformational leadership and the learning paradigm (Roueche, Baker & Rose, 1989, p. 249; Senge, 1990, p. 214). By valuing people, leaders create a culture in which communication is open and change is possible. Senge's principle of personal mastery can be applied to a collective group of faculty and staff to develop trust, shared vision, commonality of language, and research-based guidelines (Angelo, 1999). Transformation may be slow and even messy at times, but it is completely dependent upon strong communication if it is to proceed. If leadership does not value the people within its institution and the people they serve, implementation of the learning paradigm is not possible.

Appendix A

AFFINITY WRITE-UP CAC Student Learning Outcomes Committee Focus Group Interview April 30, 2004

Related Initiatives

This affinity describes concern over initiatives that were not part of the original Student Learning Outcomes Project but have emerged as a result of the project. The initiatives are linked to the college's ability to link outcomes to AQUIP accreditation criteria and other long-term objectives such as institutional effectiveness and general education outcomes.

- Learning Outcomes/AQIP: How to best integrate?
- Many groups working on learning outcomes: How to coordinate
- AQIP systems portfolio
- AQIP action strategy #3
- Program review
- Assessment committee
- Learning outcomes group
- Long-term issues:
- Faculty professional development re-assessment
- Ties to program review
- Indicators of institutional effectiveness
- General education outcomes

Process Systems

This affinity describes value of the systems developed to provide the institution with a collaborative, inclusive, and organized method of evaluating and revising student learning outcomes across the curriculum. Charter members of the committee described how the "hourglass method" was used to revise all programs by starting with articulation information from the state universities and developing related student learning outcomes at the course level, eventually resulting in revision and update of all program outcomes.

The systems provide the institution with clear outcomes that articulate with state universities, provide necessary documentation, and allow continuous quality improvement with regard to the curriculum.

- Dissemination of results and reporting gaps
- Analysis of curriculum currency and status
- What learning outcomes are in place?
- “In place” means outcomes are specified and standards stated, NOT how we are measuring or even IF we are measuring.
- Structure of the process
- Process:
 - ACRES-state mandate-includes all courses
 - Comprehensive-all courses
 - Inclusive, collaborative-many players
 - Many checks and balances to ensure quality (also leads to being somewhat cumbersome)
 - Organized approach to support for project
 - Gave consistency across all domains
 - Analysis of course outcomes related to university articulation requirements
 - Course modification process has provided district with “opportunity” to “institutionalize” curriculum
 - Involving stakeholders other than faculty in process (administration, classified staff, support staff, students, university reps, etc.)
 - Excellent Quality Control:
 - Initial review and periodic review
 - Some ACRES processes being modified and improved (e.g. needs assessment)
 - Finally! A more coordinated, organized way to track outcomes.
 - See connections between institution and state goals.
 - Insuring that assessment of learning outcomes is NOT a measure of individual faculty success or failure.
 - The process produced clarity of the outcomes.
 - Develop a structured process for review and revision.
 - Develop “hourglass model”

Teaching and Learning

This affinity describes the importance of how student learning outcomes affects the teaching and learning process. SLOs provide faculty with a well-defined beginning and ending for their course and facilitates the development of their course syllabi. By providing clear course goals, faculty instruction improved as did student learning and

student responsibility for their learning. Continuity between sequence courses was also improved.

- The goal to make our students better learners-process & development makes clear the requirements & encourages student responsibility for learning.
- Outcomes provide instructors the ability to develop clear goals in their syllabi.
- What do you want the Student to learn?
- Student outcomes provide those teaching a place to begin and end.
- As new faculty, I felt better able to plan syllabus because I knew what I was aiming for.
- Has helped me & my division colleagues create better continuity between courses in sequence.
- Helped my instruction and improved student learning.
- This “fit” with my model of teaching/learning and made sense.
- Once we are better at measuring Learning Outcomes-how do we use results to improve teaching and learning?

General Education Links

This affinity describes concern for the current gap existing between the Student Learning Outcomes Project and the general education outcomes described by the state of Arizona. There is currently no schedule for assessing general education outcomes or linking them directly to student learning outcomes developed at the course or program level.

- Review and revision of general education outcomes should be on a schedule.
- No support (administrative) of Gen Ed Portfolio Project
- Currently-Assessing Gen Ed outcomes is not a priority to faculty

Incentives

This affinity describes the emotions of the group regarding participation on the Student Learning Outcomes Committee. Members described the incentives as the “chocolate” aspect of their job, a sweet and delicious reward like the chocolates they receive when they attend SLO committee meetings. Their excitement and enthusiasm for the goal

allows them to collaborate effectively and recruit faculty participants. Committee membership is an honor and encourages institution-wide communication and collaboration.

- Collaborative spirit
- Willingness and a desire to make it work at all levels
- Moving toward a set goal
- Willingness to go to participants (faculty) and get support
- Excitement & sense of honor at being asked to participate & provide input
- Participant (all groups) enthusiasm for the project.
- Broad institutional involvement in development of learning outcomes.
- Open-ness to new approaches
- Enthusiasm by team was infectious
- The “chocolate”

Faculty Responsibility

This affinity describes the importance of faculty participation in the development of student learning outcomes at the course level. Faculty resistance to participation causes frustration for those who believe in the value of SLOs, and it poses a recruitment challenge since faculty participation is a “must” if SLOs are to be truly implemented in the classroom.

- Buy in: How many faculty are actually assessing learning outcomes? Why/Why not?
- Lack of faculty buy-in
- Frustrating to me to hear complaints about “why” we have to do this. “Am I going to get a side contract?”
- Faculty MUST be involved with development-they are in the “trenches”

Supportive Leadership

This affinity describes the appreciation for strong, supportive leadership at multiple levels in the institution, particularly the current president and the head of the CLASS office. The vision and direction regarding SLOs was clear from the beginning,

and there was overall administrative support. Strong, dedicated leadership provided guidance with flexibility as well as necessary support and training.

- Pleased to have support and training...during the process
- Thankful for good leadership & direction throughout the process
- Direction from the top was clear and courses were dropped/not offered if updates didn't take place.
- Admin had to buy-in and support the process
- Someone had to have a vision
- Guidance with flexibility

Evolution of C.L.A.S.S.

This affinity describes appreciation for the establishment of the CLASS office and budgetary support for its responsibilities. Strong leadership from this office has provided good support during the institution-wide development of SLOs and their continued revision.

- Excellent support from top level leadership-extreme dedication and leadership from the CLASS office
- Evolution of CLASS office has provided good support
- Establishment of CLASS office to assist in the transition-budget allocated to this office to make it happen

Technology as a Tool

This affinity describes the value of technology in the SLO Project. Technology, particularly the ACRES program, has provided the institution with an easier method of developing, implementing, and revising SLOs in a collaborative manner.

- ACRES process has improved communication between campuses regarding curriculum
- Technology has helped tremendously
- Positive response to technical problems & issues

Growing Pains

This affinity describes the committee members' emotions regarding the SLO Project. The development of institution-wide SLOs has been a very long and time consuming process that has generated a great deal of frustration along the way. The large number of courses, confusing language/terminology, lack of linkage to General Education outcomes, and difficult reviews and revisions has made this project an uphill battle. Fall semester is particularly stressful due to the urgency to finalize outcomes and course schedules for the publication of the catalog for the upcoming academic year.

- Frustration at my beginning due to lack of training
- Long-involved-occasionally painful-process
- Struggle to help others (and self) differentiate between “outcomes” and “standards”
- Felt intimidated when I first joined the Learning Outcomes review committee because I sometimes (often) had to question outcomes submitted by senior faculty.
- Some pieces were unclear.
- This has been a Battle-moving uphill!
- Fall is always filled with a sense of URGENCY to finalize for next year's catalog.
- So many courses-so little time!
- Frustration-not much use of Gen Ed outcomes by district faculty
- Time (a lot) well spent
- Painful...very painful. No pain...no gain!
- Write, review, revise, re-write and on and on and on...
- Confusion on language and terminology

Appendix B

INTERVIEW PROTOCOL: AXIAL INTERVIEW

As a member of the Learning Outcomes Review Committee (or as a faculty member) at Central Arizona College, tell me about your experiences with the development of student learning outcomes.

1. Related Initiatives

Initiatives that were not part of the original Student Learning Outcomes Project but have emerged as a result of the project. This affinity includes linkage of outcomes to AQIP accreditation criteria and other long-term objectives such as institutional effectiveness and general education outcomes.

2. Process Systems

Systems developed to provide an organized method of evaluating and revising student learning outcomes across the curriculum.

3. Teaching and Learning

How student learning outcomes affects the teaching and learning process.

4. General Education Links

Linkage of general education outcomes described by the state of Arizona with CAC student learning outcomes.

5. Incentives

Emotions regarding participation in the development of student learning outcomes.

6. Faculty Responsibility

Faculty participation in the development of student learning outcomes at the course level.

7. Supportive Leadership

Strong, supportive leadership at multiple levels in the institution, particularly the current president and the head of the CLASS office.

8. Evolution of C.L.A.S.S.

Changing role of the curriculum support office as the outcomes project moves forward.

9. Technology as a Tool

Value of technology in developing, implementing, and revising outcomes in a collaborative manner.

10. Growing Pains

Emotions regarding the outcomes project.

INTERVIEW PROTOCOL: THEORETICAL INTERVIEW

The affinities identified and described in the axial interview may have causal relationships. Examine each relationship and determine the direction of influence (if any). Tell me about these relationships.

Affinity Name
1. Related Initiatives
2. Process Systems
3. Teaching and Learning
4. General Education Links
5. Incentives
6. Faculty Responsibility
7. Supportive Leadership
8. Evolution of CLASS Office
9. Technology as a Tool
10. Growing Pains

Possible Relationships
$A \rightarrow B$
$A \leftarrow B$
$A \diamond B$ (No Relationship)

AFFINITY RELATIONSHIP TABLE							
AFFINITY PAIR RELATIONSHIP			AFFINITY PAIR RELATIONSHIP			AFFINITY PAIR RELATIONSHIP	
1	2		2	9		5	6
1	3		2	10		5	7
1	4		3	4		5	8
1	5		3	5		5	9
1	6		3	6		5	10
1	7		3	7		6	7
1	8		3	8		6	8
1	9		3	9		6	9
1	10		3	10		6	10
2	3		4	5		7	8
2	4		4	6		7	9
2	5		4	7		7	10
2	6		4	8		8	9
2	7		4	9		8	10
2	8		4	10		9	10

Appendix C: LORC Theoretical Code Frequency Table

COMBINED LORC INTERVIEW							
Theoretical Code Frequency Table							
Affinity Pair Relationship	Frequency		Affinity Pair Relationship	Frequency		Affinity Pair Relationship	Frequency
1 → 2	6		2 → 9	7		5 → 6	9
1 ← 2	3		2 ← 9	2		5 ← 6	0
1 → 3	4		2 → 10	8		5 → 7	0
1 ← 3	4		2 ← 10	1		5 ← 7	9
1 → 4	3		3 → 4	1		5 → 8	1
1 ← 4	0		3 ← 4	0		5 ← 8	8
1 → 5	5		3 → 5	4		5 → 9	5
1 ← 5	4		3 ← 5	3		5 ← 9	3
1 → 6	4		3 → 6	6		5 → 10	4
1 ← 6	1		3 ← 6	2		5 ← 10	2
1 → 7	0		3 → 7	0		6 → 7	0
1 ← 7	9		3 ← 7	7		6 ← 7	9
1 → 8	1		3 → 8	1		6 → 8	0
1 ← 8	8		3 ← 8	7		6 ← 8	9
1 → 9	6		3 → 9	6		6 → 9	2
1 ← 9	2		3 ← 9	1		6 ← 9	6
1 → 10	8		3 → 10	4		6 → 10	7
1 ← 10	1		3 ← 10	1		6 ← 10	1
2 → 3	6		4 → 5	0		7 → 8	9
2 ← 3	2		4 ← 5	1		7 ← 8	0
2 → 4	6		4 → 6	1		7 → 9	7
2 ← 4	0		4 ← 6	1		7 ← 9	0
2 → 5	6		4 → 7	0		7 → 10	9
2 ← 5	3		4 ← 7	6		7 ← 10	0
2 → 6	8		4 → 8	0		8 → 9	8
2 ← 6	1		4 ← 8	8		8 ← 9	1
2 → 7	0		4 → 9	1		8 → 10	8
2 ← 7	9		4 ← 9	2		8 ← 10	1
2 → 8	1		4 → 10	6		9 → 10	6
2 ← 8	8		4 ← 10	1		9 ← 10	3

Pareto analysis results in a cut point frequency of 4.

Appendix D: Faculty Theoretical Code Frequency Table

COMBINED FACULTY INTERVIEW							
Theoretical Code Frequency Table							
Affinity Pair Relationship	Frequency		Affinity Pair Relationship	Frequency		Affinity Pair Relationship	Frequency
1 → 2	6		2 → 9	13		5 → 6	10
1 ← 2	9		2 ← 9	4		5 ← 6	6
1 → 3	5		2 → 10	12		5 → 7	3
1 ← 3	9		2 ← 10	5		5 ← 7	14
1 → 4	6		3 → 4	3		5 → 8	3
1 ← 4	7		3 ← 4	12		5 ← 8	8
1 → 5	2		3 → 5	3		5 → 9	5
1 ← 5	2		3 ← 5	8		5 ← 9	7
1 → 6	7		3 → 6	8		5 → 10	7
1 ← 6	7		3 ← 6	11		5 ← 10	5
1 → 7	3		3 → 7	4		6 → 7	6
1 ← 7	12		3 ← 7	12		6 ← 7	12
1 → 8	9		3 → 8	10		6 → 8	4
1 ← 8	8		3 ← 8	7		6 ← 8	14
1 → 9	7		3 → 9	7		6 → 9	5
1 ← 9	6		3 ← 9	7		6 ← 9	9
1 → 10	10		3 → 10	7		6 → 10	9
1 ← 10	4		3 ← 10	7		6 ← 10	6
2 → 3	11		4 → 5	6		7 → 8	15
2 ← 3	5		4 ← 5	3		7 ← 8	4
2 → 4	7		4 → 6	11		7 → 9	16
2 ← 4	6		4 ← 6	5		7 ← 9	2
2 → 5	4		4 → 7	8		7 → 10	11
2 ← 5	5		4 ← 7	10		7 ← 10	7
2 → 6	15		4 → 8	10		8 → 9	14
2 ← 6	2		4 ← 8	6		8 ← 9	4
2 → 7	4		4 → 9	8		8 → 10	10
2 ← 7	14		4 ← 9	5		8 ← 10	8
2 → 8	11		4 → 10	11		9 → 10	10
2 ← 8	6		4 ← 10	2		9 ← 10	8

Pareto analysis results in a cut point frequency of 6.

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Vita

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2. Switzer, C. 2003. *Critical Analysis in the Laboratory*. Strategies for Success: Publication for Science Instruction 40: 3-4.
3. Switzer, C. 2002. *The Critical Thinking Biology Final*. Innovation Abstracts XXV (1). National Institute of Staff and Organizational Development.
4. Kemper (Switzer), C. and S. Deabler. 2000. *The Etiquette of Honors*. The National Honors Report, Volume XXI, No. 3: 4-5.

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