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Community Colleges and the Pursuit of Larger Grants: Strategies for Success

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Community Colleges and the Pursuit of Large Grants:
Strategies for Success

A Dissertation Presented

By

STEVEN G. BUDD

Submitted to the Graduate School of the
University of Massachusetts in partial fulfillment
of the requirements for the degree of

DOCTOR OF EDUCATION

May 2011

Education

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Strategies for Success

MAY 2011

A Dissertation Presented

By

STEVEN G. BUDD

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DEDICATION

To my father, Vernon Robert Budd, who taught me the value of persistence and hard work.

ACKNOWLEDGEMENTS

There have been many people who over the years have influenced my career and academic success. I am indebted first to my wife, Dr. Anne Wiley, who taught me how an older, first-generation college student like me could actually go to college. Since then you have supported me emotionally and financially as I continued in school for decades on my way to this doctoral degree. I want to also thank my daughter, Elizabeth, who arrived in the midst of Anne's dissertation. You are a thoughtful and wise young woman and a constant reminder of the value of investing in young people.

I would also like to thank my peers and colleagues who have nudged me along my path to a college presidency. Your constant checking-in and genuine interest had much to do with my sticking to it.

In the end, had it not been for the community college students I have known, I would have never found my calling. I am very proud to acknowledge that I have community college "written all over me."

ABSTRACT

COMMUNITY COLLEGES AND THE PURSUIT OF LARGE GRANTS: STRATEGIES FOR SUCCESS

MAY 2011

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The purpose of this study was to understand those factors that lead some community colleges to be more successful than others in pursuing and obtaining large grants. The impetus for the study derived from the experience of the National Science Foundation (NSF) and its effort to increase grant submission rates and successful awards to community colleges. A key concern of the NSF was why a small sample of some 150 colleges, out of the universe of 1,200 community colleges, are repeatedly successful well beyond the norm in obtaining NSF grants.

The primary research question addressed by the study is “why are some community colleges much more successful in winning large grants and what can be learned from them?”

A case study of two successful colleges was conducted, one on a large urban campus and one on a small and rural campus. The case study methodology included a mix of qualitative techniques incorporating document analysis, focus groups, and individual in-depth interviewing across a broad sample of institutional staff, faculty and administrators. A survey was also employed across a larger sample of community colleges that looked at the perceptions of grants officers on factors pertaining to the

winning large grants for their institutions. Statistical analyses of the survey responses are presented in tabular form.

Two broad categories of findings are presented, the first pertaining to organizational leadership and the second pertaining to formal and informal organizational structures, policies and practices. Organizational leadership at successful colleges is characterized by the endorsement of grant development from the president, the deans and the department chairs. Effective leadership is seen in faculty empowerment and non-intrusiveness by enabling faculty to pursue grant work. Successful leadership is also seen in the promotion of community engagement and internal and external partnership and collaboration. Formal and informal organizational structures, policies and practices are characterized by structured opportunities for interdepartmental dialog and by an administrative grants office that supports faculty from the conceptualization of ideas through the actual submission of grant proposals.

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CHAPTER I

COMMUNITY COLLEGES AND GRANT FUNDING

Statement of the Problem

According to the Council for Resource Development (2006), most new initiatives at community colleges now depend upon external funding beyond the regular budget. Many public community colleges refer to themselves as government supported or government assisted institutions as tax revenues sustain less than half of operating costs (AACC, 2006). A growing dependence upon externally raised funds has led to an expansion in grant development focused on both public and private funding sources as well as an expansion of private fundraising and the acquisition of charitable gifts (CRD, 2006). This study focuses on the entry of community colleges in the grant development arena and specifically the limited success of community colleges in obtaining large federal grants.

Grant submission rates and the rate of successful awards have historically been lower for community colleges than for baccalaureate colleges and universities. This pattern holds true across all major federal granting agencies (NCES, 2005). Further documentation of this trend can be found in a series of federal funding reports that have been published annually by the Council for Resource Development (CRD) beginning in federal fiscal year 1976. The CRD report compares funding across granting agencies by tallying the number of submissions made to each agency, the number of awards made, and the total dollars awarded. While award rates vary among federal agencies and especially among discrete grant programs within those agencies, competitive grant

funding to baccalaureate colleges remains 10 times that of community colleges. In 1976, community colleges were awarded 1% of competitive federal grant dollars (CRD, 1976). In 2006, that figure had risen to 10%, yet despite this tenfold increase, 90% of competitive grant dollars still go to baccalaureate granting colleges and universities. This disparity in funding levels is particularly troubling in light of community college enrollments, which now include better than half of all undergraduates in the U.S. (AACC, 2006). In part, disparities in grant funding are a function of the differences in mission and institutional type. For example, research dollars traditionally flow to baccalaureate colleges and research universities. At the same time the role of community colleges in higher education is leading many funders to create grant programs that address the community college mission while increasing the eligibility of community colleges to participate in existing grant programs (CRD, 2006).

The community college experience with the National Science Foundation is a particularly illustrative example when considering the competitive positioning of community colleges to obtain large federal grants. The NSF, as a federal funding agency, is unique in the depth and breadth of its outreach efforts to improve grant submissions and successful awards to community college faculty. By embracing community colleges within the entire spectrum of undergraduate grant programs, the NSF has, since the mid-1990's provided leadership in the federal funding arena (Watson, 1996). A number of other federal agencies including the: U.S. Department of Labor, the U.S. Department of Commerce, the U.S. Endowment for the Humanities and the U. S. Endowment for the Arts followed suit in the years since to encourage access to grant programs by community colleges The NSF has been especially focused in creating professional development

opportunities for faculty as well as having created grant programs specific to community colleges (CRD 2006). Hence, NSF grant activity with community colleges provides a useful context for understanding the larger universe of expanding federal funding opportunities to two-year colleges and the success of colleges in accessing those opportunities. The following data serve to illustrate the extent of the problem of low grant submission and award rates. In federal fiscal year 2005, seven hundred sixty three applications were received from baccalaureate institutions versus one hundred twelve from community colleges. Of the baccalaureate applicants, two hundred twenty nine awards were made thereby yielding a success rate of just over 30%. Community college awards totaled twelve, yielding a positive award rate of just over 10% (CRD, 2006). A brief analysis of these numbers reveals that in order to improve the attainment of grants by community colleges, the quantity of proposals submitted must increase. In a focus group of NSF program officers conducted in the Spring of 2004, the quality of proposals was also seen as an important impediment to successful awards.

In part, the disparity in funding levels between community colleges and other segments of higher education can be attributed to the NSF's research agenda, which draws more applicants from research universities. While this was true throughout the 1970's and 1980's, funding opportunities through the NSF's Directorate for Undergraduate education have increased from a total of two in 1990 to over twenty-Five in 2008. Despite increasing eligibility of community colleges to compete in more grant programs pertaining to undergraduates, NSF grant programs that focus on undergraduate course and curriculum improvement and laboratory development have continued to see

more applicants and subsequent awards going to baccalaureate granting colleges and universities.

The concerted effort the NSF has made to increase grant awards to community colleges provides further impetus for focusing this study on the NSF as the representative example for federal agencies. This effort has resulted in a combination of new grant programs as well as outreach to faculty in the form of technical support. In 1996, the NSF created the Advanced Technological Education (ATE) program, a grant program designed specifically for community colleges. The creation of the Advanced Technological Education (ATE) program as a set-aside funding source for community colleges was one programmatic response to the goal of increasing the rate of grant applications and subsequent awards. To date, the ATE program has been successful in increasing community college application rates to the NSF. However, award rates have not been sufficient to argue for continuing congressional appropriations to sustain the program. The ultimate goal of the NSF was to increase the success of community college faculty in all grant competitions focused on undergraduate education by first introducing faculty to the world of NSF grants through the ATE competition. Despite the creation of the ATE program, the rate of successful applications by community college faculty in other NSF competitions remains lower than that of their peers at baccalaureate institutions and universities. Given these outcome data, it is clear that community college faculty, while enjoying greater success via ATE, are achieving less overall success in NSF competitions than their baccalaureate and university counterparts, especially in those NSF grant programs in which all segments of higher education compete. While this is not intended to be a comparative study around the relative success in NSF grant

competitions between the various segments of American higher education, the NSF has expressed support of a study that addresses the persistent problem of community college under-performance in competitive NSF grant programs.

In each fiscal year since its inception, the NSF has been unable to spend down its congressional appropriation for the ATE program (E. Teles, June 10, 2004, “personal conversation”). After years of lobbying to put the ATE program in place, Dr. Teles expressed concern at not being able to justify further spending increases toward community colleges, yet she and her colleagues at the NSF remain committed to the belief that interventions to improve math and science education at the community colleges is a fundamental step in improving the overall math and science competency of our nations undergraduates (Watson, 1996).

Upon review of proposal submission and award data compiled by the NSF, two factors emerge that relate to community college underperformance. First, submission rates by community colleges remain well below the number of applications anticipated by the NSF, and second, according to review panel ratings, not enough proposals are of sufficient quality to merit an award. Subsequent to the creation of the ATE program, one outreach strategy to increase community college participation has focused on faculty professional development. Since the year 2000, the NSF has been offering professional development workshops for community college faculty under the assumption that professional development would influence greater productivity and success. As of 2007, the goals of increased submission and award rates have not materialized (Federal Funding Task Force Report, Council for Resource Development, 2006). Overall numbers of grant submissions and the quality of those submissions remain insufficient for the NSF to

continue to justify the ATE program as a community college set-aside. Despite the general lack of success among community colleges in seeking and obtaining large NSF grants, there are some campuses that have been more successful than others. Specifically, of the 1200 community colleges in the United States, the NSF consistently does business with the same 150 colleges who are inordinately successful. Inordinate success is defined by the rate of successful awards as compared to number of submissions as well as the overall submission rate. These colleges routinely receive a minimum of one funded proposal annually in each of two NSF programs, the Advanced Technology Education (ATE) program and the Course and Curriculum and Laboratory Improvement Program (CCLI). Of the approximately 1200 community colleges in the United States, only 280 have received any type of NSF grant award. According to Teles (E. Teles, April 4, 2006 “personal conversation) the NSF continues to make awards to the same 150 or so campuses. A study of these more successful campuses could provide helpful insights to other community colleges looking for greater success in seeking grant funds.

The focus of this study is to understand what makes some community colleges successful, and specifically what it is about them that promotes their success. The definition of success is informed by the experience of the one hundred fifty or so colleges that regularly participate in the ATE program. These colleges achieve an award rate of approximately one proposal funded for every three submitted. This is in stark contrast to most community colleges that rarely, if ever, even apply for these types of grants.

The reasons for the disparity in grant productivity and outcomes among campuses may be understood through a study that seeks to discover those characteristics that promote success at these high achieving campuses. In this sense, what can be learned

from colleges who already perform well in the grants arena? I will look at the successful campuses through a case study approach that will generate knowledge on successful grant seeking in community colleges. Such a study should prove helpful to community college campuses and faculty and administrators who have not yet been successful or who are proceeding with grant development for the first time. Findings from this study could be useful to other campuses as well.

Purpose of the Study

The purpose of this study is to understand what leads some community colleges to be productive and successful (i.e. more grant submissions and awards) in pursuing and obtaining large federal grants. I choose the campus, rather than the organization, as the unit of analysis because some community college organizations are multi-campus systems. I want to study a single campus, as each campus within a multi-campus institution may differ in those factors that promote success.

As described above under the Statement of the Problem, the National Science Foundation has asserted through its own research on the outcomes of its policy initiatives, that community colleges should be a primary focus of improvement in undergraduate science, technology, engineering and math (STEM) education. Upon the release of *Shaping the Future* (1996) the NSF recognized that much of the general education classes taken by undergraduates in the STEM disciplines occur during the Freshman and Sophomore years. The NSF further reasoned that if a full 50% of undergraduates began their education at a community college, significant numbers of future holders of the baccalaureate would have taken their STEM courses at a community college. Further

concern around the quality of community college STEM courses derives from the recognition that many baccalaureate transfer students from community colleges would go on to become scientists, engineers, and teachers (Shaping the Future, 1996).

NSF sponsored professional development for community college faculty, was initiated with the implementation of a project entitled “Increasing the Participation and Success of Community College Faculty in Developing Grant Proposals.” This project was implemented in academic year 2000-2001 and involved a series of workshops designed to a) familiarize faculty with the NSF and its programs, b) provide instruction in the mechanics of proposal preparation, c) provide faculty with an opportunity to talk to their peers who have been successful in winning large NSF grants, and d) provide an incentive, in the form of a stipend, to workshop participants who developed a short, one-page, concept paper of a grant idea. The purpose of the concept paper was to engage the faculty in follow up conversation with NSF program officers thereby increasing the likelihood of a proposal submission. The professional development project was grounded in adult learning theory under the assumption that the solution to promoting grant activity was a function of knowledge attainment and personal motivation. While these two conditions may be true, the outcome of the workshops, which have been delivered four times annually over the past six years, have had little measurable impact on community college faculty submission and award rates. This outcome suggests that there are other factors at work that underlay low faculty submission and award rates. The ultimate purpose of this study is to discover those factors that make some campuses more successful.

Research Questions

Having demonstrated the underperformance of community colleges in obtaining large federal grants, the key question addressed by this study is why a small sample of 150 or so community colleges are extremely successful at obtaining large federal grants well beyond the norm? In effect, what makes these colleges different? The research question therefore becomes: Why are some community colleges successful in obtaining large grants and what can be learned from these successes?

Sub-questions to be considered include what factors pertain to the faculty themselves, i.e their skills, knowledge, and attitudes affect their motivation to pursue grants? A further question concerns what factors in the organizational environment promote or discourage grant seeking? Institutional factors to be explored include: Institutional policies around grant seeking such as internal grant approval processes, direct support for faculty in the form of released time to pursue grants, and the willingness of the institution to commit resources toward a grant project.

Significance of the Study

Understanding the characteristics of a small sample of community colleges that are inordinately successful in obtaining large federal grants is an important step in improving the success rates of community colleges nationally in capturing federal monies. The proposed study recognizes the existence of key differences in the mission of community colleges versus other segments of higher education. The eligibility of colleges to pursue grant opportunities is a function of the degree to which the purpose of the grant competition and the mission of the institution aligns. The ideal would be to achieve a

success rate (in terms of total dollars awarded for undergraduate education) that is commensurate with the proportion of U.S. undergraduates which community colleges enroll. Where there is overlapping mission across institutional types in higher education, community colleges should achieve award rates that at least mirror other institutional types. Within grant competitions where eligibility is inclusive of community colleges, baccalaureate colleges and universities, community colleges ought to achieve success rates commensurate with other segments of higher education. My intent is to enable a broader segment of community colleges access to available grant resources through the recognition of best practices. Funding agencies continue to express concern that if appropriations to their grant programs are not spent, then the appropriations are likely to diminish. Knowing the well documented needs of the colleges, it is important to get community colleges in a positive position for achieving grant awards. The spending down of federal appropriations for grant programs should be accomplished through increased award rates. Grant funded projects that positively impact persistent and well defined problems are important if congress is to see the result of its investment. Officials within the federal agencies themselves as well as advocacy organizations such as the American Association of Community Colleges use much anecdotal data in making the case for funding to members of Congress (AACC, 2006). Hard data derived through the evaluation of grant projects will necessarily increase as more community colleges participate in grant funded projects. The expectation is that demonstrated positive outcomes of grant funding must ultimately underpin the case for greater congressional appropriations.

While this study focuses narrowly on the characteristics of highly successful community colleges, it begs the question of why, given eligibility and mission alignment, the success rates of community colleges in winning large federal grants is lower than that of baccalaureate colleges and universities? This is a contextual question that goes beyond the scope of the present study, yet presents opportunities for further exploration of the problem via a comparative study design.

Assumptions

Assuming equal eligibility across institutional types, several assumptions specific to community colleges are often advanced by community college grant development officers as causative factors for the disparity in award rates. These assumptions fall into two categories, the first category pertains to the beliefs and assumptions of community college faculty and staff, and the second category pertains to the beliefs and assumptions of program officers within the funding agencies. In the first category, one assumption is that community college faculty members persist in the belief that federal agencies such as the National Science Foundation are only interested in funding research and are not interested in classroom teaching (E. Teles, June 10, 2004 “personal conversation). This assumption has some historical truth but has largely changed as demonstrated by data derived from the Council for Resource Development’s Federal Funding Task Force (CRD, 2006). This mistaken belief is seen by college grant development officers as having a chilling effect on faculty interest in pursuing grants. A second assumption on the part of community college faculty is that the case for funding must be made or based upon demonstration of financial need (lack of institutional resources) rather than on the

production of deliverable products. This assumption is a legacy of the historic and ongoing influence of resource dependency as the prime motivation for grant development. Many historic grant programs in which community colleges continue to compete are won on the basis of demonstrated institutional need. Despite the efforts of funding agencies to dispel this narrow assumption it continues to persist (E. Teles, April 4, 2006 “personal conversation”). A third assumption posits that factors within the institutional environment conspire to de-emphasize or fail to promote grant development as a rewarded activity. A fourth assumption is that faculty members simply lack the expertise and experience to produce competitive grant proposals. This fourth assumption has been the basis of faculty professional development models like that conducted by the NSF without measurable impact. The testing of each of these assumptions is implicit in the design of the study.

The second category of assumptions pertains to the funding agencies and particularly the beliefs held by program officers and readers panels about community colleges. A pilot study conducted by me as part of the qualitative research course, EDUC 643, offers anecdotal evidence that this assumption is true. Nevertheless, this scenario is rapidly changing, particularly within the National Science Foundation.

Further assumptions concern the experiences and expectations of senior college administrators with grant development and implementation. In particular, concerns most often expressed by college chief financial officers are the hidden costs to the institution of grant implementation. These concerns are most often related to budget match requirements or the expectation that grant activities must be sustained at their conclusion and therefore lead to additional financial burdens on the institution (CRD, 2008). In my

experience these concerns are very real and must be mitigated by ensuring that the grants to be pursued align with institutional priorities. Some grants, particularly those that fund new program initiatives must be viewed as “seed funds” with the expectation that program costs must ultimately be borne by the institution at the conclusion of the grant period. Mitigating these concerns is largely an educational process. The coolness of some administrators to pursuing large grants is often borne of these fears and is often the result of hearsay rather than direct experience. According to the pilot study, confronting these beliefs and assumptions is necessary in promoting an institutional climate that supports grant seeking.

Definitions

It is important to recognize that the notion of “large” grants is a relative term, depending upon the history of successful grant awards to an individual institution. Also important is the recognition that large grants to community colleges derive from a variety of funding sources including: federal and state agencies, local, regional, and national foundations, and corporate philanthropic programs. For purposes of this study, large grants will be defined as those in excess of \$50,000. I chose this figure as it represents a minimum award amount for many grant programs within federal agencies including the NSF (CRD, 2006). This study will also focus on federal sources as the federal government is by far the largest source of competitive grant funds to community colleges (CRD, 2006).

A community college is defined as a publicly funded institution and/or a unit of municipal, county, or state government. A publicly funded community college may also

be governed by an independent district that is inclusive of multiple towns or counties (AACC, 2008). As described above under the Statement of Purpose, the individual campus will be the unit of analysis. Many community colleges operate multiple campuses, with each campus differing in such factors as program mix, student demographics, and campus culture. Community colleges offer associate degrees and certificates and may vary in their curriculum emphases, some being more comprehensive in program offerings while others offering mostly vocational/technical programs. For the purposes of this study, my sample will be drawn from among comprehensive community colleges as they represent the majority among institutional types. While private junior colleges continue to operate across the country, they are diminishing in number and will not be included in the study.

I have also made reference to the expanding mission of community colleges using the terms mission development and mission evolution. Mission development refers to the ongoing refinement and expansion of existing elements within the community college mission. Mission evolution refers to the ongoing incorporation of new elements into the community college mission. Mission evolution is sometimes referred to anecdotally as mission creep.

One additional term used frequently throughout this dissertation is entrepreneurialism and specifically, college entrepreneurialism. While many definitions of the term can be found, a representative example from the University of Reading (www.reading.ac.uk) suggests that an entrepreneur is one who organizes, manages and assumes the risk of a business venture, where enterprise is employed and leads to the pursuit of opportunities. I would extend this definition to consider the entrepreneur as one

who seeks the next horizon, looking toward the future in an attempt to get a business edge by anticipating some future need. College entrepreneurship is a leadership style that encourages employees to take risks by pursuing new avenues of revenue generation that may or may not succeed. The pursuit of large federal grants is inherently an entrepreneurial activity.

Overview

I will employ case study approaches on each of two campuses. The two-college sample will be selected from among the 150 top performing colleges as identified by a ten-year analysis of NSF award data. One sample college will be drawn from among large and urban institutions and one sample from among small rural institutions. These sample institutions will be most representative of the demographic cross-section of the universe of some 1160 American community colleges.

The study methodology will include a mix of qualitative techniques incorporating document analysis, focus groups, and individual in-depth interviewing across a broad sample of institutional staff, faculty and administrators. A mix of data gathering strategies coupled with a broad sample of data sources will ensure adequate triangulation of methodologies yielding data with sufficient breadth and depth for interpretation.

A survey of community college grant officers will also be employed to discover additional factors seen as contributing to grant success (or the lack of it) on a broader sample of campuses. Descriptive and comparative statistical analyses will be performed on the survey data. The survey sample will be derived from among the member colleges of the Council for Resource Development. Given that there are 1160 community colleges

in the United States, CRD member colleges offer a good cross-section of institutions both geographically and demographically.

CHAPTER 2 REVIEW OF THE LITERATURE

Introduction

This review of the literature provides a context for grounding the study within the existing body of scholarly research. More specifically, the review lends an historical perspective, describing the evolution of the problem of community college resource dependency and why a small sample of 150 or so community colleges are inordinately successful, well beyond the norm, in obtaining large grants. The literature review also places this question in the context of prior efforts to understand the problem and ameliorate it. I begin the review by looking at mission development in community colleges in the century since their founding. Mission development is described as evolutionary; moving toward increasing complexity in response to environmental pressures brought about by the increasing role of community colleges in American higher education. The evolution of multiple missions is, in part, the response to governmental and societal demands placed upon the colleges. Mission development is further understood from the perspective of how newly defined mission priorities have affected organizational design and organizational behaviors. The literature also reveals that mission development and an increasing pursuit of non-local and state funding sources are inextricably linked. The dependency on increasingly diverse revenue sources follows a trajectory that begins with the local, followed by increasing dependence on the part of the state, and more recently into the federal arena. The pursuit of large federal grants is but one strategy, albeit an increasingly important one, in ensuring the ongoing implementation of the expanding community college mission.

Mission development will first be discussed in section one, which considers the origin and expansion of public community colleges and the advent of the modern community college movement. The increasing role of government, both state and federal, is placed within this historical context and introduces federal grant-making as a response to resource demands. Community colleges have largely focused on resource development in support of mission expansion rather than the pursuit of a research agenda, and this, in part, is why the evolution of grant development within the community college has followed a different path from that of baccalaureate colleges and universities. (Slaughter & Leslie, 1997). Philippe (1998) suggests that resource dependency is the motivating principle around which community college leaders have increasingly prioritized grant development as an important funding stream. Section two looks at the pursuit of large grants in a political context, documenting the shift from local and state funding appropriations toward an increasing reliance on competitive grant-seeking as an expected revenue source in support of the college budget. The literature on mission development and funding looks first at the disparity in funding policies that exist among the states. This is followed by an examination of the history of government relations as community colleges developed relationships with federal funding agencies whose grants support the access mission. Section three concerns the rising preeminence of the economic development mission and the role of large grants in enabling mission expansion within this arena. The economic development mission was first reflected in the areas of vocational education and workforce preparation which led to new funding sources and relations with new federal agencies such as the national endowments and the National Science Foundation.

Section four looks at the rise of entrepreneurialism in community colleges and the pursuit of grant development as an entrepreneurial activity. The literature describes the inception of the entrepreneurial college and the expectation that the entrepreneurial organizational model will become more significant, and perhaps the dominant organizational model in the foreseeable future. Roueche (2006) and O'Banion (1997) contend that the entrepreneurial model will continue to be driven by resource dependency as community colleges further wean themselves from traditional state and local government sources.

Section five explores organizational theory and the impact of mission development on organizational structures including organizational leadership. The entrepreneurial model of organization design is described as the emerging model in support of college grant seeking. Multiple authors (e.g. O'Banion, 1989; Grubb, 1997; Roeuche, 2003) demonstrate how the development of new organizational structures within community colleges influence the variety and types of federal grant sources that community colleges are eligible to pursue. The relationship between organizational structures and the choices institutions make around what grants to go after is evidenced by an expansion in the number of governmental and non-governmental grant-making bodies with whom community colleges now do business. Section five further considers the impact of large grants on organizational change as well as changes in the type and scope of grant funding to community colleges.

The final section, section six, follows the history of federal grant funding with specific attention to the interplay between community college mission expansion and the concurrent expansion of federal funding opportunities. The review reveals that mission

expansion and the expansion of federal grant opportunities are co-evolutionary, accelerating in tandem as mission expansion and federal funding opportunities expand.

The review concludes with a focus on the National Science Foundation as the primary example of a federal agency which has sought to increase the participation of community colleges in its grant programs. The central research question around college success in getting large grants will be viewed, in-part, through the experience of community colleges with the NSF. Among the federal agencies funding community colleges, the NSF has been aggressive in promoting increased grant submission and the success of community college faculty in achieving grant awards (Watson, 1996).

The Origins and Expansion of Public Community Colleges and the Advent of the Modern Community College Movement

Origins and Mission Expansion

The idea of the Junior College was first conceived in 1900 by William Rainey Harper, then president of the University of Chicago. Harper reasoned that the lower division liberal arts core of the baccalaureate could be best delivered by institutions affiliated with high schools, leaving the universities free to concentrate on students pursuing their academic major (Cohen & Brawer, 2001). Joliet Junior College, which opened its doors in 1904, was the first such “junior” college to offer students baccalaureate transfer opportunities as its singularly focused mission. While Joliet was the first institution known as a junior college, the junior college movement began to take hold in the state of California over the ensuing decade and by 1910, enabling legislation permitted public school districts to establish junior colleges within the high schools and

subject to the public schools governance structure (Cohen & Brawer, 2001). To this day, many states organize their community colleges as part of the K-12 system with the superintendent of schools as the chief executive (Cohen & Brawer, 2001). The junior college movement continued to expand in California, with junior colleges becoming a primary feeder of students to the growing system of state colleges.

According to Deiner (1986), Fields (1962), and Parnell (1985), the expansion of the high school into the freshman and sophomore years of college was the origin of the access mission. As part of the public schools, the junior colleges were first controlled by local boards of education and largely funded through local tax levies with advocacy from the K12 administrative structure. These same authors go on to assert that the junior colleges were of little concern to the state, as was most of higher education in the early twentieth century.

When first organized as extensions of secondary schools, the colleges derived their support from the public school budgets (Cohen & Brower, 2001). According to Levin (1998), and Lovel (2002), the rationale for local funding relates to the access mission, and the ability to prevail upon local constituencies for funding authority and decision making. In many states, community colleges go directly to the public for tax levies and bond issues. These same authors assert that this arrangement effectively ties community college performance to local voter satisfaction and ultimately favorable budget allocations.

Expanding enrollment in junior colleges was soon followed by the recognition that increasing numbers of students were leaving higher education at the end of the second year, not intending to pursue the baccalaureate. By 1915, the junior college of

Sacramento proposed the Associate Degree in recognition of the educational attainment students with two years of college had achieved. The Associate degree has become the benchmark of achievement for junior and community college students whether they intend to transfer or not. Baccalaureate transfer remained the core of the junior college mission through the first half of the twentieth century. The second half of the twentieth century saw important expansion of mission and purview that has accrued since the advent of the modern community college movement which began shortly after the conclusion of the Second World War.

The mandate to create a national system of comprehensive junior/community colleges was first proposed in the Truman Commission Report of 1947, which envisioned a need to educate Americans for citizenship in an increasingly globally influenced society (Deiner, 1986). This same commission created the GI Bill in anticipation of the need to provide postsecondary education to large numbers of returning veterans of the Second World War. The Truman commission serves as a major transition in the stepped-up role of the federal government in community college mission development and funding

With the Truman commission report as a mandate, the mission of the two-year college expanded from the narrow baccalaureate transfer role to the broader public mandate of increasing educational attainment among American's through greater access to a college education. This expanded mandate is reflected today in the comprehensive community college, providing access to greater numbers of Americans for baccalaureate transfer opportunities as well as vocational programs. The access mission remains at the core, coupling increased enrollment with the academic support structures necessary to

ensure college success. Federal funds in the form of student financial aid continue to be the major source of federal funds to colleges and universities (NCES, 2008)

Multiple authors including Fields (1962), Parnell (1985), and Brint & Karabel (1989) describe modern community colleges as uniquely American institutions formed as a response to many factors, but most notably the promise of economic and social mobility that results from a college education. The promise of increased access began to extend college entry to increasing numbers of Americans, beginning with the GI bill. Subsequent federal financial aid programs extended federal support to other Americans with modest economic means. The advent of federal financial aid began to change the funding dynamic from tuition payments through personal resources to increasing reliance on state and federal financial aid programs in support of tuition.

Since the 1950's, federal funding has influenced the community college mission in important ways. According to the American Association of Community Colleges (2004), mission expansion in the 1950's was driven by colleges having become the locus for technician level training as a result of increasing demand in the American workforce for technical support personnel. Cohen and Brawer (2001) echo the finding that increased employment demand for technical personnel became critical in the 1950's and remained critical throughout the 1960's, fueled first by the cold war and competition for technical supremacy in science, math and engineering. During the decade of the 1950's, an expanded federal influence in the community college mission had also led to further influences in federal funding.

Beginning with the National Defense education act of 1958, the United States Congress put in place a host of legislative acts, creating funding streams that have

affected subsequent mission development. Of particular influence are the vocational education act of 1963 and the amendments to it in 1968 and 1972. While the United States has been without a federally directed workforce development policy, the act of 1963 and its subsequent amendments provided funding for states to allocate dollars to community colleges for the development of vocational programs. According to Brint and Karabel (1989), the act of 1963 formed the primary impetus for expansion of vocational curricula at community colleges and a concurrent expansion of career/technical associate degrees seen as terminal at the associate degree level. Brint and Karabel, in particular, view the increased emphasis on vocational programs as a driver of diminishing transfer rates of students to baccalaureate degree programs.

Other federal policies such as those created under the Higher Education Act of 1965 and its subsequent reauthorizations have greatly expanded federal funding for the creation of student support programs and student retention initiatives continuing a strong federal role in promoting access to education by historically under-served populations. The Higher Education Act of 1965, coupled with the Perkins Vocational Technical Education act of 1968, have created funding streams tied to increasing access for under-enrolled populations while strengthening both vocational and transfer degree programs. These two pieces of federal legislation are prime examples of the longstanding federal role in supporting the access mission while expanding the community college vocational mission. The demand for technical level personnel has continued to be driven by the rapid expansion of technology in all fields. By the 1970's two-year programs had also become common in the allied health occupations, fueled by a growing national population, increased access to healthcare for more Americans, and increasing demand

for geriatric care as population demographics shift toward an aging population. The aging of the U.S. population has been cited as the second primary driver of increased enrollment demand in vocational/technical degree programs, particularly among the allied health professions (AACC, 2008).

The origins of the workforce development mission emanate from the expansion of the vocational/technical mission. With the increasing focus on workforce development, the states have taken a greater interest in community colleges as the implementation mechanism of state workforce and economic development policy. As higher education in general became increasingly tied to economic development and workforce preparation, the states began to assert their interests by assuming a coordinating function and began to provide funding commensurate with the states interests. By the 1970's, most states had taken at least a planning and supervisory role in the operation of community colleges (Deiner, 1986; Lovel, 2002). Developments in the structure of the American workforce since the 1980's have continued the rapid expansion of degree programs considered terminal at the associate degree.

Wattenbarger and Tillery (1985) assert that by the mid 1980's, federal and state aid to colleges in support of the access, vocational and workforce development missions as well as direct federal and state aid to students had become a foundation of all college funding. Further, the continued reauthorizations of the Workforce investment act of 1968 and the reauthorized Perkins vocational education act of 1968 continue to fund ongoing development of vocational curricula. The term vocationalization was coined by Brint and Karabel to describe the curriculum shift from baccalaureate transfer to vocational/technical programs throughout the 1980's (Brint & Karabel, 1989). The

expansion of the vocational/technical curriculum is supported by the recognition that employability rather than baccalaureate transfer had become the prime motivation to attend the community college by almost 50% of enrollees by the late 1990s (NCES, 2005).

A most recent trend in the vocationalization of the curriculum is evidenced by data that predicts that most new economic development (and hence future employment) in the United States will come as a result of small business development (NBIA, 2002). Such data has provided the impetus for curriculum expansion in entrepreneurial studies which is among the fastest growing areas of study within community colleges (IEDC, 2001; NACCE, 2006).

Community colleges are also increasingly valued for their capacity to anticipate and respond quickly to educational needs arising from regional economic and workforce development. Economic and workforce development has led to the expansion of local, state, and federal funding, often through competitive grant funding, designed to enable colleges to develop new curricula in response to state and local workforce demand. According to Cohen and Brawer (2001), it is the confluence of curriculum vocationalization, responsiveness to workforce and economic development, and informal education through co-curricular programming that will define the mission of the community college in the early 21st century. Continuing throughout the the 1990's and the turn of the century, funding policies, and grant development opportunities have developed in response to the evolving and expanding mission (CRD, 2006)..

The most recent thrust in community college mission expansion, the economic development mission, was made explicit by the American Association of Community

Colleges in its annual report to the membership in 2000. Since that time, the use of the term “college entrepreneurship” has largely become synonymous with economic development activities most closely associated with contracted training and workforce education. According to Brint (2002), the rise of college entrepreneurship may be seen as a logical outgrowth of an increasing shift toward vocational curricula in both credit and non-credit programs.

In retrospect, the history of the community/junior college mission and the history of federal support have followed a parallel trajectory. External funding to community colleges during the decades of the 1960’s and 1970’s largely supported the access mission and to improve student baccalaureate transfer opportunities. Expansion of federal financial aid coincided with the creation of large grant programs, mostly through the U.S. Department of Education and its predecessor, the U.S Department of Health, Education and Welfare designed to strengthen the community colleges ability to support the learning needs of greater numbers of historically non-traditional college going populations. With the advent of the 1980s and 1990s, community colleges saw their missions begin to grow into new areas such as the sale of education and workforce training to business and industry, ongoing development of vocational curricula, and more recently, a more active role in local and regional economic development. Large grants from such federal agencies as the U.S. Department of Labor and the National Science Foundation have supported these mission initiatives particularly through grant programs emphasizing new curriculum development in fields with high employment demand (CRD, 2006). The NSF continues to step up its support of course, curriculum and

laboratory development in all areas of science, math, engineering and technology related courses that underpin technical as well as baccalaureate transfer programs.

Most recently, the topic of community college entrepreneurship is well represented in the literature and will be treated at length later in this review. The entrepreneurial community college and the entrepreneurial mission is an evolving concept, carrying multiple definitions, all falling under the rubric of college entrepreneurship. According to Brightman (1989), in most cases, entrepreneurship is seen, in part, as revenue generation through continuing education activities and in particular the sale of education and training services through outreach to business and industry. Roueche (2006) suggests that college entrepreneurship is also a function of organizational leadership in the form of the entrepreneurial leader, who encourages all segments of the college to examine opportunities for revenue generation. Such opportunities are brought about by bringing the intellectual capital of faculty and other college assets to bear on revenue generation and organizational development. A third view of college entrepreneurship offered by Grubb (1997) and O'banion, (1997) centers around the curriculum and the development of courses that teach entrepreneurship skills to students.

Taken together, community college entrepreneurship defined by the stepped-up sale of education and training, entrepreneurship focused courses, certificates and degrees, and entrepreneurial college leaders form the core of the new entrepreneurial mission (Brightman, 1989; Grubb, 2009; Levin, 1998). Entrepreneurial leadership legitimizes organizational behaviors that promote outreach by departments of the college to pursue new funding sources and growth opportunities related to the colleges' mission and vision.

Later in the review I will elaborate on the role of entrepreneurship as a revenue generation strategy and the role of grant seeking as an entrepreneurial activity.

To summarize the community college mission in the first decade of the 21st century, the ideal model of community college organization is the comprehensive college, offering a mix of career and vocational programs in conjunction with baccalaureate transfer programs (AACC, 2008; ACE, 2009; NCES, 2005). The responsiveness of community colleges to local and regional need for education and training has led to a more central role in workforce and economic development with career and technical degree programs being driven by local employment demand. Brint and Karabel (1989) and later Grubb (2009) assert that this expansion of mission into economic development has led to increasingly diverse enrollment demographics by students seeking gainful employment through vocational training as well as an increasing number and diversity of students seeking access to a college education. Federal support of the access mission through student financial aid remains the primary source of federal dollars flowing to community colleges. The latter two decades of the twentieth century saw mission expansion into workforce and economic development largely supported through federal grants directed toward vocational education and contracted training. Taken together, mission expansion and changing enrollment demographics form the premise for expanded federal outreach through grants to community colleges in the latter half of the twentieth century. The economic development mission now forms the basis for increasing state, local, and corporate grant support to community colleges along with the ever-expanding federal role.

The Rising Preeminence of the Economic Development Mission

Multiple authors (Grubb, 2009; O'Banion, 1989; Roueche, 2003) see the emerging economic development mission as representing an on-going shift from the historically reactive response of workforce training to a more proactive strategy. Proactiveness is evidenced by the college response to the education and training needs of new and emerging industries in a region as well as the direct support of new business start-ups. Support of new businesses start-ups is seen most recently by community colleges creating business incubation facilities and expanding credit and credit free programs that support entrepreneurs.

The expanding economic development mission has followed several well defined trends since the 1980's (O'Banion, 1997; Roueche, 2006). Early on, contracted training options for employers were offered by providing a menu of training options from which the customer might fill a need. With the advent of more entrepreneurial thinking, contracted training became customized, with training options developed according to the specific needs of the customer. In the current decade, the economic development role of the community college is evidenced by the increasingly central role taken by some colleges as the conveners of economic development planning within their respective communities. Examples of this trend are seen in community colleges serving as the locus of economic planning by cities and towns. Community colleges host community forums and serve as neutral entities that are held in high regard by otherwise competing interests. The marketing of the community college is now seen as a major attractant in recruiting new business and industry to a region.

Both contracted training and regional economic development have been influenced by external funding opportunities through local, state, and federal grants, with local and state grants focusing on regional priorities, and federal grants focusing on more nationally focused priorities such as the demand for workforce development within critical industries of national significance.

According to the American Association of Community Colleges (2006), contracted training delivered to external entities is still the most prevalent type of economic development activity across two-year institutions. Contract training differs from traditional occupational training in that the employer (public or private), rather than the student, is the client. The employer contracts for a specific course or set of courses with the college, shapes the course content, selects the students, and defines what constitutes success. Several authors (Jacobs, 1991; Grubb, 1997; Lynch, 1991; Parnell, 1990) contend that because of this deep involvement with employers, the programs are almost always customized to the contractor's requirements in some fashion. Even if a course is not customized in content, it will often be customized in mode of delivery; it may be shorter than a semester, offered on weekends, delivered on the contractors' premises, or use the contractors' employees as instructors. These kinds of contracted activities have historically been developed with state and local funding directed toward job training activities for certain targeted populations including dislocated workers or incumbent workers in industries seen as critical in sustaining a local or regional economy. This type of economic development outreach builds upon the community colleges' existing access mission. In addition to contracted training from employers and targeted state and local government grants for specific populations, funding for workforce

development programs have also come through the federal government as disbursements to the states under such federal legislation as the Job Training Partnership Act of 1975. More recent iterations of such federal legislation include the High Growth – High Skills Job Training initiative of the Bush Administration (USDOED, 2005) and the Community Based Job Training Program (USDOL, 2005).

Contract training is most influenced by grant funding in two ways: a) Increasing institutional involvement in grant funding from multiple state and federal agencies and conformance to those agencies policies and rules and b) the contribution of available funding in pushing mission shift. More recent expansion of the economic development mission includes: assisting new and existing small businesses to modernize their production technologies, improve their marketing and management, compete for government grants and contracts, and secure facilities and administrative assistance at low cost (Roeuche, 2003). Local economic development planning assistance might also include working with local economic development agencies to retain existing industries and attract new ones. These might include services such as business incubation and commercialization support for new product development and marketing (NBIA, 2002).

In the following sections on the rise of entrepreneurialism in community colleges and the history of grant development we will look at how grant seeking activity since the 1960's has been influenced by the dual forces of mission expansion and resource dependency

The Pursuit of Grants in a Political Context

Grubb (2009) suggests that today's environment requires college operations to be based on a new paradigm by securing more funding from sources outside of traditional government appropriations. This requirement has given birth to a new generation of college leaders who are often required to spend more time off campus than their predecessors, cultivating industry partnerships, fundraising, and communicating with multiple government agencies. Several authors (e.g. Zussman, 1999; Brint, 2002) refer to an increasing expectation that higher education serve as an engine for the nation's economic growth, underpinning the point of view that the primary purpose of education is workforce and career preparation. Giroux (2003) attributes the careerist view to the pressures of neoliberal philosophy and the politics of globalization. In higher education today, we are experiencing a confluence of external forces that portend an increasing role for higher education in global economic development through the transfer of technological innovations to the private sector (Chomsky, 1999; Giroux, 2003). The effect of the confluence of these forces is to extend the traditional role of research and innovation, particularly within the university, toward hands-on commercialization activities and economic policy implementation. The commercialization of invention and innovation is a new arena in which community colleges are beginning to participate. This is particularly so as community colleges expand their role in the implementation of economic policy while simultaneously seeking to fund this expansion of mission (Clark, 2000; Giroux, 2003).

A further explanation for the stepped-up pursuit of new revenue sources is offered by Grubb (2005) when he calls for the adoption of academic capitalism in response to an

increasing dependence of colleges and universities on external resources. The premise of resource dependency theory is that organizations depend upon their external environment for essential resources. According to Pfeffer (2010), resource dependency theory is defined as organizations altering their structure and patterns of behavior in order to acquire and maintain needed external resources. The external environment is assumed to contain scarce and valued resources essential to organizational survival. Resource dependency is more acute for community colleges because open access admission policies and student recruitment activities are targeted toward economically disadvantaged students, making community colleges extremely price sensitive. Thus community colleges are more reticent to pass on costs to students in the form of regular tuition increases (AACC, 2006).

The alteration of organizational structure and behaviors is a consequence of external pressures, much like the influence of government grants in promoting policy adoption. Slaughter and Leslie (1997), define academic capitalism as an organizational behavior that has occurred in response to the actions of external agents who control the resources. Much like the influence of government grants, they argue that as colleges and universities are forced by diminishing public funds to raise tuition. Faculty are likewise forced by diminishing support from their colleges to seek outside funding. This places faculty in the position of having to anticipate and answer to the vagaries of the market. As market forces begin to drive the research agenda in universities, federal and state governments drive mission development and expansion in community colleges through the carrot of grant funding. In this sense, academic capitalism, driven by resource dependency, reaches into the community college through competition for grant funds as

well as the sale of training to business and industry. The entrepreneurial role of college leaders has received considerable attention in the literature on academic capitalism (Clark, 2000; Deegan & Tillery, 1985; Roeweche, 2003; Slaughter & Leslie, 1997; Townsend, 2006). The consensus of these authors suggests that showing entrepreneurial spirit is a characteristic of many successful college leaders who have risen to the challenge of financial survival. Thus, entrepreneurial leadership can be understood as a response by organizational leaders, who are driven by resource dependency, to create an institutional environment where the ongoing search for new sources of funding is essential to mission implementation and maintenance.

Despite the ubiquitous nature of resource dependency among community colleges, the consensus among many authors, including Brightman, (1989) Cohen and Brawer (2001), Breneman and Nelson (2000), Levin (1998), Lovel (2002), Martorana (1978) and O'Banion (1997), is that there is no one best plan for acquiring resources for the financing of community colleges. State officials most often express the view that community services are primarily a local responsibility to be supported by user charges, local taxes, payments by local businesses or some combination thereof. While decentralization and local control may be the preferred philosophy when it comes to mission responsiveness to local conditions and local accountability, the authors cited above point to other compelling interests of the state and federal government. States have a compelling interest in avoiding unnecessary duplication of programs and in ensuring the adequate distribution of programs based upon workforce demand. Cohen and Brawer (2001) contend that the decades of the 1980s and 1990s witnessed a consistent shift toward increased state funding, as local tax limiting initiatives focused on property tax

limitation have threatened the funding base of public education for both the K12 systems and locally funded community colleges. Increased state funding is increasingly seen as both a stabilizing force in the face of local tax-limiting initiatives as well as an increasing assertion of states interests in workforce planning and statewide economic development. The assertion of states interests, particularly in workforce and economic development is actualized by the creation of discretionary funding streams for which colleges compete through the pursuit of grants.

Various community college professional organizations including the League for Innovation (1999), and the American Association of Community Colleges (2006), as well as private foundations (e.g., Carnegie Foundation, 1970; Kellogg, 2011), have weighed in on the issue of local funding. For example, the Carnegie Commission (1970) opposed the elimination of any local share of community college funding on the grounds that that if local policy making is to be meaningful it should be accompanied by some substantial degree of financial responsibility. The commission also believed that states should maintain a share of funding sufficient to permit institutions to follow a policy of very low tuition thereby reinforcing the relationship between state funding and the access mission. The federal role in maintaining the access mission has also been consistent since the 1960's, most notably through the evolution of federal student financial aid programs such as Pell grants. According to Lovel (2002), the philosophical stance of providing direct aid to students allows the consumer to direct aid to colleges that are most responsive in attracting students. This position was most recently re-asserted under the Clinton administration. Through a combination of new tax credits (a.k.a. the Hope Scholarship), and Pell grants, public education through the associate degree would essentially be

without cost to the student. Such a stance is consistent with the position of the Truman commission in recognizing that the associate degree should become the new standard for public educational entitlement (Townsend & Dougherty; 2006).

The Rise of Entrepreneurialism in Community Colleges

As yet, a definition of the entrepreneurial college remains rather elusive in that it carries many interpretations. Some (Coleman Foundation, 2003) view community college entrepreneurship in terms of curricula, ranging from a few course offerings to an academic concentration often connected to schools of business or engineering. Others (O'banion, 1997; Roueche, 2003) view college entrepreneurship as an institutional mindset, a unique aspect of organizational culture that seeks opportunities for organizational growth and revenue enhancement. Such a view cuts across all disciplines. Finally, some (Grubb, 2009; Clarke, 2001) see the entrepreneurial college as a separate organization or department within the college. This is often borne of a fear that an entrepreneurial mindset inherently conflicts with the collegial values of academe.

Most community colleges incorporate an office of business and industry training within their organizational structure, often attached to divisions of continuing education (Grubb, 1996). In an era of resource dependency, the sale of non-credit instruction to business and industry has become an increasingly important mechanism for raising financial resources. For many colleges, the expansion of contracted training for corporations as well as targeted training and educational programs for specific populations has been characterized as having created colleges within the community colleges. This notion of the college within the college forms the earliest inference of what

has come to be called the entrepreneurial college within a community college context. Grubb (1996) argues that this college within the college operated with a new culture, new rules and regulations – an institution now labeled the entrepreneurial college – a term used to capture its entrepreneurial spirit, a market oriented drive and responsiveness to external organizations. O’Banion (1997) defines entrepreneurial activities as those that help generate resources such as contract training with employers and other revenue generating activities that may or may not relate to the delivery of education and training. While the notion of entrepreneurship has gained great attention in the realm of economics and new business creation, the term entrepreneurship remains controversial in public organizations and particularly higher education (O’Banion, 1989). The basis for controversy lies in the concern that entrepreneurial interests, particularly the search for revenue, might influence both the direction of research and influence research outcomes. In this vein, entrepreneurial interests may sully the pursuit of knowledge and truth as an endeavor in its own right with no need for justification. Much like their earlier reference to resource dependency, Giroux (2003) and Chomsky (1999) assert that college entrepreneurship represents the incursion of a global neoliberal agenda into higher education. Neoliberalism according to Giroux and Chomsky seeks to influence both the curriculum and research agenda in service to globalization of the world economy.

As far back as 1987, Peter Drucker described the entrepreneurial business model as having spilled over into the public service sector as reflected in a growing call for the use of entrepreneurial activities as a supplement to traditional funding sources. The need for innovation and entrepreneurship is clear. Public service institutions now have to learn how to build those qualities into their own systems. Drucker proceeds to suggest that a

fundamental basis of entrepreneurial management is the need to create a proper climate, or organizational culture conducive to developing an awareness of opportunities for entrepreneurship. Clarke (2001) made explicit the notion of the entrepreneurial organization and its practice in colleges and universities. Community colleges have responded in several ways beginning with a move toward college entrepreneurship in the form of new curricular emphases such as an entrepreneurial track within the traditional business associate degree as well as the expansion of contracted training with employers as an entrepreneurial revenue generating activity. According to Brightman (1989), new demands for services, a changing clientele, and new competition from other educational providers will require more entrepreneurial strategies to complement collegial bureaucratic and political processes. The next section of the literature review will focus on the role of government agencies as well as private foundations and corporations in the development of the entrepreneurial mission, a trend that is widely acknowledged in the literature (Zeiss, et. al.1997 and Roeuche & Roeuche, 2003) and may very well become the dominant paradigm in mission development that views college entrepreneurship as the newest philosophy of community college funding.

Organizational Theory and College Entrepreneurship

The literature on organizational theory, organizational behavior, and leadership is replete with references to the influence of external forces on the mission and structure of academic organizations at all levels. Thus, the theory of resource dependency forms the backdrop for subsequent discussion of organizational theory and college entrepreneurship. External forces in the form of governmental policies at the state federal and local levels

impact educational institutions from k12 through the university. Within community colleges, external forces in the form of funding priorities and policies of corporations and the philanthropic interests of individuals and interest groups is becoming increasingly important as the overall philanthropic giving to community colleges rises at a faster rate than other sectors of higher education (ACE, 2009). While viewed as philanthropic, corporate and individual charitable giving usually happens in the donors self-interest thereby influencing the institutional mission in a less direct but no less influential way. Until such time as charitable giving becomes much larger in terms of total amount of dollars raised, the impact of large government grants will remain the primary influence of fundraising on institutional mission and mission implementation strategies.

According to Clark, changes in organizational behaviors within research universities over the last thirty years include a rise of the utilitarian ethos among students, the rise of faculty and university entrepreneurship, and the extension of social partnership models in community relations (Clarke, 2001). The rise of the utilitarian ethos and the notion of faculty and college entrepreneurship are not found solely within the university, but are also seen in the community colleges. Clarke (2001) identifies four converging trends that create turbulent environments within academic organizations causing them to become more complicated and fast changing. First, enrollment demand has moved over time from elite to mass to universal, with a particularly disparate impact on community colleges with their open access mission. Second, high knowledge fields are changing faster than people are able to change their skills. Universities and colleges become the source for up to date education and training. Third, the acceleration of knowledge growth exacerbates the above, and, fourth, government and the private sector increasingly turn to universities

to assist them in solving societal problems. Clark (2000) recommends five pathways of transformation as an entrepreneurial response to the above complications.

1. A strengthened Steering Core – Stronger line authority from the center to department must develop and around that structure stronger decision making groups of administrators and faculty appear. The idea of a steering core can serve as a useful replacement for old concepts of “leadership” worn out by a thousand definitions.
2. An enhanced developmental periphery – Outreach, industrial liaison and technology transfer as well as consulting and continuing professional education. The developmental periphery is a place for experimentation. The danger in the development of peripheral units is that they may move an institution toward the character of a shopping mall.
3. A diversified funding base – Develop dependable lines of income from other sources. A diversified funding base enhances university discretion. It not only increases total resources, it allows an institution to roll with the punches, replacing a loss here with a gain there.
4. A stimulated academic heartland. While Science and Technology departments commonly become entrepreneurial first, academic heartland departments ultimately buy-into entrepreneurial change. There will remain some entrepreneurial/traditional split in character.
5. An embracing entrepreneurial culture – movement from an idea, to a belief, to a saga Clarke’s second pathway is analogous to the development of the entrepreneurial college within the traditional college. The entrepreneurial college becomes the place to take risks, try out new high risk ventures and to fail without catastrophic disruption to the institution.

According to Roeuche (2006), highly competitive grant seeking falls within the sphere of a highly competitive and high stakes activity. Roeuche and Clarke agree that the entrepreneurial college is the place where the failure to win highly competitive contracts (including grant proposals) is not discouraged by failure to support second and third attempts. Much like business ventures, strategies for measuring grant office productivity often involve a return on investment (ROI), which measures revenues raised versus the expense of fundraising (personnel costs, office costs). Productivity measures based upon ROI provide an incentive to raise as much money as possible. One drawback

to such a narrow measure as total funds raised is that it sometimes leads to the pursuit of less competitive grant funding resulting in easier money but targeted to less important college priorities. Alternatively, the freedom to pursue sources with a higher risk of no return (i.e. more competitive grant programs) may often support priorities of the college for which it is otherwise difficult to find funding. This is why an entrepreneurial organization might best measure grant productivity in relation to innovations achieved or new sources of revenue uncovered. Total grant funds raised does not necessarily equate with impact in terms of innovation objectives achieved.

Many national trends, including increases in the numbers of under-prepared students, growth in high-performance workplaces, and weakened public support for education could continue to fragment the community college and to drive the regular college and its entrepreneurial counterpart further apart (Grubb, 2009). The alternative is that greater integration between the two could provide benefits for both by creating richer connections to employers and the community while maintaining the commitment of the community college to high quality instruction, equity, and its comprehensive mission. The benefits of increased connections to employers can spill over into the academic arena in the form of internships and cooperative work experiences for students as well as career placement opportunities for graduates. Increased connections to the community, particularly in those colleges that receive local funding, can foster support for ballot questions favorable to the college. Above all, it is important to recognize that the breadth of mission of the comprehensive community college places the onus on campus leaders to advance the founding mission of access and opportunity while embracing workforce development and community service. An entrepreneurial culture would support and

advance the comprehensive mission by imbuing an ethic of ongoing environmental scanning, collaboration building and venture creation in support of the colleges overall mission and goals.

A close reading of these recommendations reveals that at their source exist pejorative assumptions that community colleges do not scan their environments, plan well, or adequately build strategic collaborations in support of mission. These assumptions are, in part, common criticisms of those who view a business model of organization as a standard toward which public entities should aspire (Martorana, 1986). Others (Bourdieu, 1998; Chomsky, 1999; Giroux, 2003) view college entrepreneurship and its relationship to the neoliberal agenda and academic capitalism as the co-option of higher education.

Others (Gantes, 1995; Keller, 1983; Lynch, 1991) suggest that because administrators' time and attention are finite, the more energy they devote to the college's new economic role, the less time available for promoting such traditional measures as education for citizenship, providing access to four-year colleges, and serving under-prepared students. The time and energy necessary to construct and maintain transfer articulation agreements with four-year colleges or to improve remedial education programs may instead be poured into forging stronger connections with business and industry. According to Grubb, (1997); Gantes, (1995); Jacobs, (1991); Johnson, (1995); O'Banion (1997), and others, the debate thus far suggests that entrepreneurial behavior in the form of grant development may actually enhance, through additional funding support, the traditional activities of providing student services or curriculum enhancements rather than threaten those activities. Grant seeking as an entrepreneurial activity has historically

served the traditional and the expanded workforce and economic development mission as it has evolved and changed.

The development of an institutional ethic of entrepreneurship has profound implications for grant development for two main reasons: a) grant development becomes a key entrepreneurial strategy for growing external funding in an organization with entrepreneurial leaders, and b) for institutions choosing to enter economic development, significant new sources of funding exist to develop major grants (Coleman Foundation, 2006; International Development Council, 2001).

Early in the development of the concept of the entrepreneurial college, there was some consensus (Drucker, 2007; Deegan & Tillery, 1985; Keller, 1983; Parnell, 1985) that entrepreneurship is facilitated by strategic planning, the development of a collaborative organizational climate, an active search for opportunities, and an agreement on rewards and incentives. These authors cited above suggest that community college staff should consider whether entrepreneurial oriented projects are part of a plan with goals and limits and not growing in an ad hoc and piecemeal manner. They further suggest that these projects need goals, quality control, and a realistic sense of potentials and limits. The importance of grounding projects within institutional goals is especially true in programs such as contract training where colleges may be setting up separate sub organizations such as “management institutes”, part of the “college within the college”, to market these programs and where there may be a high use of adjunct staff. As cited thus far, the area of least agreement is whether a separate organizational structure should be maintained between the regular and the entrepreneurial college.

The impact of external forces on the organizational design and leadership of the college as well as the impact of college entrepreneurialism as a response to those forces has yet to be fully demonstrated. Speaking specifically of community colleges, Roueche (2006) agrees with Clarke when he suggests that the environmental factors currently affecting today's community colleges will either cause irreparable damage to their fiscal health and organizational structure or contribute to their rebirth-transforming systems and processes to meet current and future challenges successfully. According to Roueche, the current environment of declining public resources and demands to do more with less, it is more important than ever that our community colleges become even more entrepreneurial. Programs and services must be high quality, but that is not enough to excel – the best community colleges will be those that are the most flexible and adaptive. The focus of the entrepreneurial college is not merely on making money but making things happen and developing resources so the college can meet the needs of students and communities. It is important that a college's activities are compatible with and contribute to its mission and values (John Roueche, July 26, 2005 "personal interview").

Over the past two decades, some positive results have emerged from community college experimentation with entrepreneurship. Much entrepreneurial activity has occurred in the area of resource development which has been guided and driven by institutional advancement activities primarily in the grants and development arena. The expansion of funding sources is well documented within the history of grant making to community colleges as described by CRD in its federal funding task force reports and by the American Council on Education through its annual reports on voluntary support to higher education. Revenues generated through entrepreneurial activity in the form of

contract training have increased exponentially over the past two decades according to the American Association of Community Colleges. When viewed from an entrepreneurial perspective, community college fundraising activity has resulted in much needed funds targeted toward academic departments and high cost programs such as those with extraordinary needs for equipment. Faculty members across the institution have also benefited from funds that support professional development (AACC, 2006). Such funds are often the first to be sacrificed in times of diminishing institutional budgets and externally raised funds become important to sustaining organizational change. Profits made through entrepreneurial activities coupled with targeted philanthropic giving (often focused on corporate giving) have also provided funding for campus-wide technology enhancements. Fiscal pressure brought about by the ongoing need to upgrade technology has placed extraordinary pressure on academic institutions both for equipment and for associated training for faculty and staff. While this path of emphasizing and rewarding a more entrepreneurial spirit should not entirely replace the collegial and political ways community colleges govern themselves, entrepreneurial ventures should become an even more significant complement to state appropriations as community colleges seek to generate resources externally, reduce costs, and expand curricular offerings in the future.

Various authors (e.g., Dougherty, 1994; Gantes, 1995; Grubb, 1996; Johnson, 1995; Lynch, 1991) agree that tensions also arise when regular and entrepreneurial programs are established in separate centers within the college. The allocation of revenues, including the profits generated by entrepreneurial efforts is often a source of tension. Additionally, the basic purposes of the community college are to some extent at issue, since the college's commitment to the quality of teaching, to equity, to non-

traditional students, and to a range of academic as well as occupational offerings are less important in the entrepreneurial college (O'Banion, 1997). However, the greater danger is that the growing entrepreneurial college will become increasingly independent of the rest of the college, preventing the kind of cooperation and communication that has potential to strengthen both program areas (Johnson, 1995).

Even in light of these sources of tension, Grubb (1996), Dougherty (1994) and Clark (2001) recommend that entrepreneurial activities, as much as possible, should be organized separately. For an organization to be capable of innovation, it has to create a structure that allows people to be entrepreneurial. The college must devise relationships that center on entrepreneurship, and to make sure that its rewards, incentives, and policies all reward the right entrepreneurial behavior and not penalize it. This means that the entrepreneurial, the new, has to be organized separately from the old and existing (Grubb, 1996). The separate entrepreneurial college also means that someone in the top levels of administration should be responsible for providing support and guidance for entrepreneurial initiatives in order to break down barriers and ensure a fair chance for new ventures. Opponents, such as Parnell (1990), Lynch (1991), and Johnson (1995), warn of the danger of leading the college into the wrong kinds of programs, of potential divisiveness, and of the potential to change community college value systems in ways that might have a negative effect on long-term consequences. This same concern has been voiced by some (Grubb, 1996) in regard to grant seeking, whereby the aggressive pursuit of grants unanchored in the clear pursuit of mission can mire the institution in commitments that not only fail to support the core, but often undermine it.

According to Johnson there is a danger that community colleges, in their ardent pursuit of a strong connection with business, will lose interest in the traditional tasks of schools to prepare citizens and not just workers (Johnson, 1995). The new economic role of the community colleges carries the risk of Balkanizing the college. The economic and workforce development programs tend to differ substantially from traditional wings of the college in organizational culture, revenue sources, pedagogy and kinds of students enrolled (Lynch, 1991). The nature of institutional change and its effect on mission and values is a recurring theme in the literature on educational institutions as organizations. This concern for mission and values is enduring and cuts across institutional types from community colleges to research universities. Authors as diverse as Deiner (1986) writing about the Virginia community colleges and Martorana (1986) writing about cultural politics and the curriculum voice the concern that with the rise of college entrepreneurialism in institutions of higher education will lack an overarching ideology. While the entrepreneurial culture encourages individual ideas, it stymies an overarching effort to define the institution. To alleviate this sense of institutional anomie and the tug-of-war that ensues when an entrepreneurial ethic is pitted against the traditional as mutually exclusive. Grubb (1996), Roeweche, (2003), and others again propose an entrepreneurial college within the college, or some segregated division dedicated to entrepreneurialism.

From the opposite perspective, Jacobs (1991) suggests that the entrepreneurial college shows great promise for serving local community needs, including groups that may have been neglected prior to its emergence and that greater attention should be paid to this emerging college role. Careful assessment of community needs and strategic

planning to decide which responses to make could help institutions expand their entrepreneurial activities. Others including (Cohen & Brawer, 2001, Drucker, 2009; Keller, 1983; Parnell 1990) go on to suggest that colleges need to find ways to integrate the regular and entrepreneurial college, or they will continue to grow apart. Several mechanisms can enhance the connection between the traditional and emerging college programs, including sharing faculty; eliminating the differential between credit and non-credit courses; creating joint student services, joint advisory committees, and joint instructional centers to improve the quality of teaching and integrating their administration.

Cohen and Brawer, (2001) recommend that the colleges themselves and the states should undertake more research around basic issues such as the magnitude of the entrepreneurial college, its effects on employment and business productivity, the quality of instruction in non-traditional settings, and the most appropriate mechanisms of planning and evaluation. The evaluation of entrepreneurial activities has received almost no attention. Entrepreneurial resource development in the form of increased grant activity and its impact on the institution has also not received adequate attention in the literature. As cited above, the pursuit of grants without attention to potential adverse impacts in the form of institutional commitments of time and resources can negate any benefit of grant funding and may well lead the college in directions contrary to the mission and strategic vision. Research into entrepreneurship broadly and the effects of grant seeking specifically is needed to help colleges and state policy makers improve the effectiveness of the entrepreneurial college.

Grant Seeking By Community Colleges and Organizational Change and Changes in Grant Funding to Community Colleges

Grant Seeking

It is my contention that increasing dependency on external resources is the primary impetus for stepped-up grant seeking at community colleges. As community colleges continue to define their role in American higher education, the question of institutional funding has risen to the fore as key to advancing the mission(s) (Breneman and Nelson, 2000). Grant development may then be viewed as an inherently entrepreneurial activity as grants are most likely to provide the funding that underpins mission expansion and new program development (Roeuche, 2006). In this sense, grant funds are the equivalent of venture capital in underwriting the growth of the organization. The growth in external resource development is clearly demonstrated via the history of grant-making to community colleges that has taken place since the mid 1960s (CRD 2006). Since that time, competitive grants to community colleges have risen from approximately 1% of federal expenditures on higher education (CRD, 2006), to just under 10% in 2005 (CRD, 2006). In part, this growth was enabled by the Higher Education Act of 1965, which recognized community colleges as eligible entities for grant programs created under the act, most notably grants designed to increase the capacity of colleges to provide support services to increasing numbers of college students resulting from the post world war two baby-boom (AACC, 2006). Most of the grant programs funding community colleges at the time of the Higher Education Act were housed in the U.S. Department of Health, Education and Welfare (HEW), the predecessor of the U.S. Department of Education, which remains the primary federal government source of grants to community colleges (CRD, 2006). A summary of CRD Federal Funding Task

Force reports published annually between 1976 and 2006 indicates that the U.S Department of Education remains the largest source of grant funds to community colleges while significant increases in grant funding now come from the U.S. Department of Labor, the U.S Department of Health and Human Services, and smaller amounts from the National Endowment for the Humanities, and the National Endowment for the Arts. By far, the U.S Department of Education continues to be the largest funder of community colleges having spent in slight excess of \$200 million on community colleges in 2006.

Competitive grant awards by other federal agencies remain much smaller but have also grown substantially (CRD, 2008). These include the U.S Department of Labor, the National Science Foundation, and the National Endowment for the Humanities. Current data from these agencies indicate that the U.S. Department of Labor allocated \$45 million to community colleges in 2003 and almost \$125 million in 2005 and an additional \$125 million in 2006 (CRD, 2008). Discretionary grants to community colleges from the National Science Foundation rose from a mere \$10 million in 1996 to over \$125 million in 2006 (CRD, 2008). Much of the available data on grant awards to community colleges is found in the internal reports of the federal agencies and other funding organizations. These funding organizations include federal and state agencies as well as private foundations and corporations.

In an effort to provide a comprehensive overview of federal funding to community colleges, the Council for Resource Development (CRD), a professional organization for community college grant and development officers, compiles an annual summative report on federal funding through its federal funding task force. Although limited to federal agencies, data derived from these task force reports include funding

levels by program from across federal agencies. These reports now exist for the years 1970 to 2006. Comparative data on funding to baccalaureate granting colleges and universities versus community colleges are also derived from the reports of the CRD Federal Funding Task Force. In 1970, the Federal Funding Task Force was convened by CRD to act in an advocacy role for federal grant funding to community colleges as well as to collect pertinent funding data to distribute to its members. According to the task force, less than 1% of all reported federal grants to colleges and universities went to two-year colleges in 1970. In 2005, community colleges received only 9.2% of federal competitive funding with the remaining 90.8% going to four-year colleges and universities (CRD, 2008). At first glance, these numbers show an almost ten-fold increase in the percent of competitive funds going to community colleges from 1970 to 2005. The share of federal spending on grant awards to community colleges still remains only 10% of the total expenditures on higher education. During this same period, enrollments in community colleges have risen from 10% of the total undergraduate population in 1970 to almost 50% of the total undergraduate population in 2005. Over the past 30 years for which the Task Force has been collecting data, the types of grant programs providing funding for baccalaureate colleges and universities has differed from the programs funding community colleges. Historically, grant programs in which community colleges have successfully participated, reflect their distinct missions of open access rather than the research mission of baccalaureate colleges and universities. Funding for community colleges from such agencies as the National Institute for Health and the National Science Foundation have been limited since these agencies had focused primarily on funding basic research, which largely remains the province of four-year colleges and large

research universities (Watson, 1996). As of the late 1990s the increased role of community colleges in undergraduate education, has led some agencies to rethink their funding priorities. Longitudinal data indicate an expanding number of funding agencies creating programs specific to community colleges (CRD, 2008). Concurrent with these new set-aside grant programs are efforts to increase community college participation in existing grant programs from which they had historically been excluded.

As cited above, the 10-fold increase in grant funding from federal government sources is significant, yet it remains less than 10% of federal grant expenditures to higher education. There remains an even greater disparity in the share of private foundation and corporate funding to two-year colleges. At present, less than 2% of private and corporate grant expenditures to higher education go to community colleges (ACE, 2009). This scenario is changing as corporate and private foundation grant funding priorities become more aligned with the shifting mission of community colleges toward workforce and economic development (ACE, 2009). Recognizing that community colleges serve half of the undergraduate population, an understanding of this disparity in grant funding between two-year colleges and four-year colleges is imperative. Understanding this disparity underpins the purpose of this study. What we are able to document through a review of the literature is the impact of mission expansion on the expansion of opportunities to pursue large federal and private grants. At the same time, we must examine how shifting governmental policies toward higher education have influenced the community college mission. Competitive requests for proposals are a primary tool by which governments influence the mission and strategic objectives of organizations that pursue grant funds. For the purpose of this study, I will look specifically at the opportunities for community

colleges to pursue large federal grants. Federal grants tend to be the largest in terms of dollars and have the greatest potential to impact the missions of institutions.

Organizational Change and Changes in Grant Funding

The relationship between mission development and the development of grant funding opportunities is sometimes understood as a paradox (Carberry, 1993). Grant funding has historically been the vehicle by which governmental priorities and policies are implemented. In this sense, college mission and practice is influenced by funding availability. Mission expansion and shifting mission priorities have in turn influenced the creation of new grant programs (Carberry, 1993). This dynamic has resulted in the expansion of funding opportunities for community colleges as evidenced by the increasing numbers of federal agencies that have begun to do business with community colleges. This has changed the nature of government relations and increasing both the breadth and depth of grant funding options. At the same time, budget pressures have emphasized grant and development activity as ways of replacing diminishing state and local funding. Therefore, grant development in community colleges is increasingly recognized as an entrepreneurial activity. Grant development staff are expected to anticipate organizational need and devise grant acquisition strategies that will meet those needs.

The Entrepreneurial Organization and Grant Funding

The aggressiveness of grant and development officers in pursuing corporate funds, the presence of faculty with connections to employers, the stability of support for

revenue generating activities, and the effects of faculty senates and unions on the rigidity of the regular colleges have influenced the development of the entrepreneurial college. Collectively, these forces have responded to the rigidity of the regular college which has forced colleges to undertake new activities outside the regular college (Grubb, 1996).

The establishment of the entrepreneurial college as a sub-organization within the regular college often results in the entrepreneurial division becoming a large consumer of services from college grant offices (Carberry, 1993). What the entrepreneurial colleges tend to have in common is that they have been developed with a focus on entrepreneurial functions such as the promotion and adoption of a for-profit ethic and an attendant focus on college outreach, marketing and competitive positioning. In large measure, the pursuit of large grants from federal, state, and increasingly private sources is influenced by the efforts of the college to prioritize business and industry outreach and to maintain a competitive position (Carberry, 1993).

Embracing outreach and competitive positioning represents the core values of entrepreneurial management and leadership and is reflected in a growing call for entrepreneurial activities as a supplement to traditional funding sources. According to Drucker (2009), once decisions are made to encourage an entrepreneurial organization, a key first step is to build a systematic search for sources of opportunity to both meet client needs and to create new revenue streams by maximizing profit. The success of community colleges in acquiring large federal grants is key to the creation of new revenue streams and thus underpins the purpose of this study

Given the findings from this review of literature, it is my contention that the shift toward college entrepreneurship or academic capitalism has and will continue to promote

the pursuit of large grants across all divisions of the college from an ever-expanding base of potential funding organizations. Government sources including such diverse and historic sources as the U.S. Department of Education and the National Science Foundation are creating new programs targeted to community colleges. This trend arises from the recognition that increasing reliance on competitive government funding has resulted in increasing opportunities to influence the community college mission by offering large competitive grants. Indeed, the trend in funding community colleges has moved toward both formula funding and competitive grant funding in tandem in the belief that best practices are advanced through competition.

Community Colleges and Large Scale Grants.

Success in winning large-scale grants has remained elusive for most of America's community colleges with the most success accruing to institutions in the northeastern United States and along the west coast (CRD, 2008). While demonstrable increases in success with large-scale grants is now evident within the U.S. Department of Education and the U.S. Department of Labor, these grants pertain mostly to the expansion of college infrastructure and increase the capacity of colleges to do workforce development (CRD, 2008). Less success is seen within agencies such as the National Science Foundation and the National Endowments whose grant programs are more directed to the expansion of academic disciplines. Community colleges have historically had limited participation in research related funding.

The National Science Foundation (NSF) and its large grant programs that are targeted toward community colleges will form the basis of this study. The reason for

choosing the NSF rests on several factors. First, as a quasi-federal agency, the NSF has given significant recognition to community colleges and their increasing role in higher education. This recognition has been seen in both increasing fiscal appropriations to community college centered grant competitions as well as the expansion in number of large grant opportunities targeted toward community colleges. Recent NSF publications (*Shaping the Future*, 1996; *Land of Plenty*, 2000) have made clear that “in order to improve the science, technology, engineering and mathematics (STEM) preparation of our nations’ undergraduates we must focus on community colleges, where approximately half of the nations undergraduates are now enrolled (1996).” *Shaping the Future* was a particularly seminal publication in that it first recognized the impact of community college STEM education in achieving two national educational priorities: “a) the importance of a technician level workforce to the conduct of research and development in corporations and national laboratories and b) the role of community college STEM courses in baccalaureate education (Watson, 2000)”. Given the fact that community colleges enroll nearly half of the nation’s undergraduates, the NSF reasoned that community college transfer students would comprise an increasingly significant number of future baccalaureate candidates. They also reasoned that because most undergraduates take their general education requirements in their freshman and sophomore years, increasing numbers of professionals and graduate students would have taken college math and science while at a community college. This reasoning gave impetus to NSF’s decision in 1996 to increase funding to community colleges in an effort to improve overall undergraduate STEM education. The mandate to increase funding to community colleges was the immediate outcome of *Shaping the Future*.

A second NSF monograph, (*Land of Plenty*, 2000), was published in response to the report of the Congressional Commission on the Advancement of Women and Minorities in Science, Engineering, and Technology. *Land of Plenty* served to bolster the findings of *Shaping the Future* by acknowledging community colleges as the major point of entry to higher education by women and minority students. Subsequent efforts by the National Science Foundation to increase funding and scholarship support to women and minorities have also resulted in new funding opportunities directed toward community colleges. These include the S-STEM program first funded in 1999 and the Talent Search program, first funded in 2000.

While existing publications and data on grant making to community colleges is limited, the NSF has been the most assertive of the federal agencies in its outreach to community colleges and has been the most focused of the federal agencies in its research on community college impact. This is the reason for focusing on the NSF as the primary data source for the study. As a principal investigator under several NSF grant projects, my access to NSF data sets will greatly facilitate the conduct of my work. My preliminary review of those colleges that are successful in getting large grants from the NSF are also successful in obtaining large grants from other funders. In this sense, I believe that we may generalize that those factors which make colleges successful with the NSF are the same as those that promote success in getting large grants from other sources.

In my discussions with NSF program officers regarding the topic of this dissertation, there is both a demonstrated interest in the study and its outcomes as well as

a commitment of support in supplying the necessary data to allow the study to be completed. I very much look forward to getting this dissertation underway.

Conclusion

The history of community colleges and particularly the evolution of the community college mission reveals a continuous quest for fiscal resources. Such a quest parallel's the course of mission innovation and expansion. Resource dependency then becomes the driving force for the expansion of college fundraising (development) efforts. While funds from individual donors, private and public foundations and corporations have funded many community college initiatives, especially in the areas of capital development and student financial aid, the grant arena remains the largest source of funding for the development and expansion of academic programs curriculum related projects. Given the declining reliance on tax derived funding of higher education, we can expect the pursuit of grant funding to become an increasingly important aspect of community college funding.

CHAPTER 3

RESEARCH METHODOLOGY

Introduction

The purpose of this chapter is to describe the conceptualization, development and implementation of a study design that sought to answer the primary question: “Why are some community colleges inordinately successful at winning large grants?” Much anecdotal commentary exists in the popular and professional literature regarding why so few community colleges are successful in this realm, but no scholarly inquiry has yet to formally investigate what makes some campuses more successful than others. The following section begins by first placing the question within a conceptual framework. This framework places the question in the context of the relationship between environment, mission and organizational behavior in community colleges. The remainder of the chapter then presents the research design that was employed to collect and analyze that data that in order to illuminate our understanding of what makes some community colleges more successful than others in obtaining large grants.

Conceptual Framework

The conceptual framework under investigation begins by placing the research question within the context of current community college experience with the pursuit of large federal grants. The experience of community colleges that have interacted with the National Science Foundation (NSF) serve to illustrate the problem. An examination of the 150 or so community colleges with which the NSF does most of its granting reveals that these same colleges are more successful across the range of federal funding programs

(CRD, 2008). Therefore, it seems reasonable to assume the experience of community colleges with the NSF can be generalized to their work with other large funding agencies.

The NSF's response to the low participation rates and awards to community colleges provides an additional context under which the research question is posed. Ongoing intervention by the NSF to improve community college performance has thus far focused on the implementation of a faculty professional development model grounded in adult learning theory (E. Teles, May 4, 2006, "personal conversation"). Since the fall of 2000, the NSF has funded a total of 30 professional development workshops delivered to community college faculty from across the country. Over two-thousand faculty members have participated representing more than three hundred individual institutions. To date, professional development programming has failed to demonstrate positive results in the form of increased submission rates and awards. Assuming that the development of technical skills, such as grant writing expertise, does not increase faculty and institutional success, what knowledge, skills and beliefs might be operative? What is not yet understood are those factors, either within the faculty themselves or within the institutional setting, that lead a small subset of institutions and faculty to be inordinately successful when compared to the universe of community colleges. By understanding these factors we can develop a better model of faculty development and institutional change that will lead to greater success in acquiring large grants.

In anticipation of conducting the research described in this chapter, a small pilot study was conducted in the spring of 2006, and was pursued, in part, in satisfaction of the course requirements for EDUC 643, Qualitative Research Methods. The impetus for the study arose from a summative evaluation of the above referenced NSF faculty

development project, which over a six year period found no change in submission rates nor successful grant awards to faculty who had participated. While a formative evaluation of the project has not yet been conducted, the efficacy of a professional development model based upon grant writing skill development has now been called into question. Preliminary findings from the pilot study suggest that technical training on grant writing is insufficient in impacting the problem of low submission rates. The proposed study will employ qualitative methodology to query faculty who have been successful in order to reveal the necessary knowledge and skills that will help others be successful. Examples of such knowledge may pertain to faculty skill in developing relationships with NSF program officers, beliefs or preconceptions about NSF priorities, or misconceptions about NSF organizational culture, all of which were suggested in the pilot study as avenues for further inquiry. Taken together, this exploration of faculty knowledge, skills, and beliefs reflect an internal focus on what goes on within the individual that promotes or impedes effectiveness.

The context within which I explore the question of success in obtaining large grants is also influenced by the interplay of three primary external influences: the current political, social and demographic environment, the shifting (and expanding) mission of the community colleges, and the organizational behaviors that are, in part, a response to these factors. These environmental factors have influenced the mission of the community college and hence the role of the community colleges within American higher education (AACC, 2006; Cohen & Brawer, 2001). As the point of entry to higher education by an increasing diversity and number of students, the access mission is increasingly sustained by the pursuit of large grants directed toward the academic and social supports necessary

to promote college success. In turn, a diminishing reliance on tax dollars, a key factor in the political environment, has made the pursuit of grant funding a higher priority (O'Banion, 1997; Roeuche, 2003). Other factors in the social and political environment that influence mission shift include the demands of workforce development and the increasing vocationalization of the curriculum (Brint & Karabel, 1989). Increased grant activity is again a response to mission shift and the need to find funding in an environment of scarce resources. The pursuit of grant funding has further influenced the behavior of administrators and faculty, in some cases formalizing the acquisition of grants as a measure of staff and faculty performance. In this sense, the conceptual framework that underpins the importance of the research question is that the pursuit of large grants is a response to the pressures of a changing environment for community colleges that in turn influences a shifting mission and the organizational behaviors necessary to meet a new and expanded mission (Grubb, 1997; Levin, 1998). In sum, the pursuit of large grants is a response to resource dependency and to sustaining organizational viability.

Given the limited success of the faculty professional development model in improving community college faculty outcomes in NSF programs, this dissertation study represents a first attempt to understand these outcomes by focusing on the experience of community college faculty and administrators in the process of grant development. While quantitative outcomes have shown that a problem exists, qualitative methodologies will be employed as the primary research strategy. The administration of a survey and subsequent statistical analysis to a research strategy to reveal the reasons underlying the underperformance of community colleges.

Research Questions

Having demonstrated that most community colleges underperform in obtaining large federal grants, the key question addressed by this study was why a small sample of 150 or so community colleges are extremely successful well beyond the norm and what can be learned from them? In effect, what makes these colleges successful? Pertinent sub-questions include: What factors within the faculty themselves i.e. their skills, knowledge and attitudes affect their motivation to pursue grants? What factors in the organizational environment promote or discourage grant seeking? This study was designed specifically to shed light on the lived experience of faculty and other college personnel involved in the grant development process. More specifically, the study focused on the attitudes, beliefs, and underlying feelings of faculty as they describe their experience with the NSF and other federal funding agencies. My interest also included the attitudes, beliefs, and experiences of college administrators as well as the program officers within the granting agencies. My premise in conducting this study was to uncover those factors impacting faculty grant productivity that lay outside the assumption that professional development based upon adult learning theory is the answer to increasing faculty success in winning large grants.

Research Design and Methods

According to the CRD Federal Funding Task Force Report (2006), quantitative outcomes have been useful in demonstrating the modest increase in successful awards to community colleges over the past decade. However, the modest improvement has led me to question the overall impact of attempts to improve faculty success solely through a

professional development model. While a quantitative outcomes review of large government grants to community colleges has documented the problem of underperformance, my interest was to look at the question through a research design that incorporated qualitative methodologies. In essence, my research attempts to better understand what else might be happening within the faculty, within the proposal review process, and within individual colleges that impact the ability to increase the number of grant submissions, the quality of grant applications, and hence successful grant awards to community colleges. While formative evaluation of the professional development model used by the NSF and based on adult learning theory has been well received by faculty participants, a focus on the mechanics of proposal writing fails to address other underlying obstacles. My contention was that those obstacles can only be understood by gaining a more in-depth understanding of the day to day experience of faculty in their work settings. My primary approach sought to understand the faculty through their own words as well as the through descriptions of how they were perceived by other significant agents (college grant development staff, college administrators, and funding agency program officers) with which they engage in the grant development process. Through data derived from a review of pertinent documents, in-depth interviews, and focus groups, I have identified themes which begin to reveal a broader set of dynamics that inform the research question.

The qualitative approach emphasized the importance of understanding the context in which specific events and outcomes occur. Assessment experts frequently assert that “qualitative methods allow for variables that seem to predict faculty success but are difficult to measure (i.e. motivation) and might be better understood with qualitative

measures” (Stassen, 2001). Frechtling, (2002), in the NSF’s User-Friendly Handbook for Mixed Method Evaluation suggest that “qualitative techniques, such as focus groups, allow us to hear faculty in their own voices, to hear from them what they have learned and experienced” (p. 32)

My research question suggested that the primary data collection strategies and methodology be focused on a case study of successful colleges using ethnographic tools and approaches. Ethnography is a phenomenological approach that is often used in education in the area of program evaluation. While not a program evaluation per se, the study sought to uncover reasons why traditional interventions to the problem of community college underperformance in getting large grants, such as the NSF’s professional development workshops, were not getting the intended results. The ethnographic approach was based largely upon participant interviews and artifact analysis in the form of a document review. I reviewed a number of documents including the minutes of grant development meetings, grant applications, funding agency scoring sheets and the written analyses of reader panels. In-depth interviews with selected informants were conducted with college personnel as well as funding agency program officers. In-depth interviewing is usually a core methodology within an ethnographic research design, and my in-depth interview style represented part of an eclectic approach that best fit with the research question. In essence, it was necessary to understand the lived experience of each of the participants to an extent that enabled me to understand both the emotion and the reasoning behind their points of view. Multiple authors including (Fontana, 2005; Frechtling, 2002; Phillippe, 1998; Stassen, 2001) speak to the

efficacy of in-depth interviews in gaining rich or thick description of the interviewees experiences.

The Focus groups helped in identifying participants to be invited for in-depth interviewing. Focus groups were also employed at the end of the study for purposes of member checking and the presentation of initial findings from the study.

Frechtling, (2002), in the NSF's User-Friendly Handbook for Mixed Method Evaluation go on to suggest that quantitative methodologies, when combined with qualitative methodologies, enhance triangulation and add depth to the analysis. A considerable advantage of quantitative methodology is an expanded data set (n or universe of informants) which may reinforce (or not) the validity of the qualitative analysis. Toward this end I conducted a survey and performed a comparative analysis of high and low performers and to a wider cross section of community colleges.

Case Study Participants

The specific populations of interest were community college faculty and administrators on two campuses. My primary informants were faculty as they are the principle initiators of grant activity pertaining to the academic disciplines (CRD, 2006). Other college professional staff and administrators were included in my sample as they are often participants in the grant vetting process and subsequent management of large grant awards (CRD, 2006). Administrators included the president's and academic leadership on each campus including the provost, academic deans, and department chairs. Grant support personnel included grants office and sponsored research staff as well as grant accountants within each college's business office. A faculty focused study was

further supported by the culture of large funding agencies like the National Science Foundation whose program officers prefer to interact with faculty as the primary contacts in the grant development process (Teles, 2006). Much of my sample was drawn from faculty who teach in the disciplines of science, technology, engineering and mathematics, commonly referred to as the STEM disciplines. This is the target audience for which the NSF currently offers the greatest number of grant opportunities to community college faculty. At the same time, these NSF grant opportunities are among the most underutilized by community college faculty.

Using the case study approach, I performed the study within two community colleges that have been inordinately successful compared to the universe of community colleges. Successful campuses are those that have achieved a rate of proposal submission and successful awards commensurate with the NSF average for its undergraduate focused grant programs. The sample was drawn from among the 150 colleges cited by the NSF as those that have been most successful in achieving NSF grant awards. These 150 colleges also correspond to a list of colleges who have raised the most external funds according to the National Council for Education in their 2007 report “Voluntary Support to higher Education”. Having identified these high performing colleges, I segmented them according to institutional and regional demographics, I then looked at those colleges that identified themselves as being comprehensive in regard to their curriculum mix. According to the American Association of Community Colleges (2008), comprehensive community colleges form the largest segment of community colleges. Comprehensive colleges also represent the most current institutional model to which most community colleges aspire. This is in contrast to technical colleges or colleges focusing more

narrowly on liberal arts and baccalaureate transfer programs. Having identified comprehensive colleges, I chose one that is both large and urban and one that is small and rural. Large was defined as a college having a headcount enrollment greater than 5,000. Urban was defined as a geographic entity with a population density greater than 5,000 persons per square mile. The college size criterion is based upon enrollment levels that fall within the first quartile (top 25%) of individual institutional enrollment for community colleges nationwide. Small colleges fall within the fourth quartile (lowest 25%) of enrollment distribution nationwide. I eliminated large institutions with enrollments above 25,000 headcount as well as institutions with below 500 headcount. Extremely large or small colleges were viewed as outliers within the normal distribution of institutional enrollment. Rural colleges are defined as located in communities with a population density of less than 200 persons per square mile. Rural versus urban criteria are consistent with definitions provided by the U.S. Census Bureau (2000). I chose to link small with rural and large with urban as this is a common characteristic of community college demographics across the U.S. Upon identification of a small/rural and large/urban sample, I considered geographic diversity with respect to regional location within the United States.

Upon approval by the University of Massachusetts Institutional Review Board, I implemented the case study by first contacting the college presidents and department chairpersons of the selected campuses and sought approval to involve the campus and to approach the faculty. Faculty participants were chosen from among those who have been successful in winning grants from the NSF. I then called the prospective participants and

invited their participation. Each of the two sample campuses was assigned a pseudonym as were the study participants who are quoted in the findings.

Focus Groups and Interview Data Collection

Interviewing in the form of focus groups and in-depth interviews was the primary source of data gathering. I began with an initial focus group at each of the two sample colleges. The purpose of this group was to provide a context for understanding the current campus climate toward grant development and the history of grant development at each institution. The initial focus group formed the basis for identifying participants for in-depth individual interviewing. A thematic analysis of focus group responses helped identify those offices/functions and individuals within the college who could elaborate on those themes. The initial focus group included eight faculty who had been chosen based upon their history of active grant development.

The ability to capitalize on group dynamics was a key advantage of using focus groups in this type of data collection. The focus group allowed the explicit use of group dynamics and discussion as firsthand insights into the respondents' behaviors, attitudes, and language. Focus groups were useful in answering the same type of questions as in-depth interviews except in an interactional social context. Both group and individual interviews employed audiotaping with subsequent transcription. Transcripts were reviewed with a mind toward interpretive analysis that began with coding for key concepts that arose from the data. Thematic coding is a process of ongoing refinement with the goal of developing categories of concepts that emerge as themes running throughout the data. It is an open process that allowed me to explore the data without

making prior assumptions of what I might discover (Strauss & Corbin, 1998). Thematic coding was followed by axial coding which assisted me in identifying connections between categories and themes (Strauss & Corbin, 1990). I began by asking interviewees general questions about how they felt about working on grants and then more specifically around how grant development had affected their own work. (Please see Appendix A for the protocol and questions for the initial focus group). These questions pertain to how factors in the external and internal college environments have influenced faculty behaviors. I then queried faculty around the extent of institutional support they received from both administrators and administrative support units of the college.

The in-depth interviews also included faculty, administrators and administrative staff. I asked administrators to comment on the impact of grant acquisition on their own work and how the acquisition of grants related to the colleges mission. Faculty were asked how grant acquisition supported or failed to support their work and especially how grant acquisition has effected how they spend their time. Finally I asked about the respondents' relationship to the NSF and the extent of their interaction with NSF program officers and other personnel. I also queried the faculty around the panel review process and their reactions to panel and reviewer comments. In-depth interviews followed the faculty focus groups as individuals are identified for more extensive probing. In-depth interview protocols can be found as Appendix B.

The faculty focus group enabled me to identify individuals who were both highly verbal and who had divergent opinions. Multiple interviews, as part of a focus group and followed by a one on one in-depth interview also served to check the consistency of responses made by the same informant from interview to interview. Member checking

also took place as a follow up focus group at the conclusion of the in-depth interviews. In this second focus group, I presented preliminary data and findings and gained feedback on their accuracy and veracity. Such a process lent to both the trustworthiness and authenticity of the findings (Rallis, 1994). Interviewing in the form of focus groups along with in-depth interviewing was my primary data gathering methodology. The second and final focus group at each sample college consisted of both faculty and administrators together. Interviewing a cross-section of informants was a primary triangulation strategy. Triangulation was facilitated by the inclusion of administrators and other college staff in the in-depth interviews and final focus group which allowed for a broader data set and wider range of institutional perspectives.

I first visited Mammoth Community College, arriving on Monday, the 15th of November, 2009 with the completion of my visit on Thursday, November 18, 2009. I then drove to Littleton Community Technical College and commenced interviewing on Friday, November 19th. All interviews and data collection activities were completed on Wednesday, November 24, 2009.

Interview and Focus Group Data Analysis

The use of multiple data collection strategies underpins the assurance of reliability, especially when employing a limited sample within a single institution. By employing techniques as varied as document analysis, focus groups and in-depth interviewing, I reviewed the consistency of my findings across varied data gathering techniques. This triangulation process improves reliability by demonstrating the consistency of interpretive outcomes.

Analysis of the data gathered through focus group and in-depth interviews began with coding, a process for both categorizing qualitative data and for describing the implications and details of these categories. Initially, I performed open coding where the data was considered in detail. Coding became the process for both categorizing the qualitative data and for describing the implications and details of these categories. Open coding involved a detailed massaging of the data and that led to the development of some initial categories. As the categories begin to emerge, I moved on to an axial coding process which facilitated the building of connections both within and among categories thus deepening the theoretical framework that is the underpinning of the analysis. By moving from open coding to the identification of categories to axial coding I began to systematically identify linkages among categories. The exploration of such linkages, both within and among categories, led to a theoretical construct that related directly to answering my research questions. As the study unfolded, the process of interpretation and re-interpretation further refined the codes I used to define new categories of potential findings. The refinement of categories then led to new linkages among categories which then gave rise to themes. Pattern analysis then focused further on the relationships among emerging themes. Pattern analysis also considered chronologies, taxonomies, language analysis, and repetitions which further strengthened the support of thematic relationships. Taken together, coding followed by the development of categories were then supported (or not) by pattern analysis and the identification of overarching themes. Most, but not necessarily all of my coding efforts emanated from the research questions and ultimately returned to those questions with descriptive analysis and conclusions.

Document Review Analysis

The documents that were reviewed in this study consisted of grant applications, meeting minutes, and a sample of proposal review panel scoring sheets. As a current principal investigator with the NSF, I am authorized to access documents archived by the NSF including: sample grants, program reviewer notes, and review panel scoring notes. Some of these documents are available through the NSF website while others will be made available to me by visiting the NSF offices in Arlington Virginia. Scoring sheets from the NSF consist of a Likert scale for reviewers to rate proposals and assign them to the categories of: poor, fair, good, very good, and excellent. In addition, the reviewers write narratives with specific comment on the NSF's two primary review criteria: Intellectual Merit and Breadth of Impact. Scoring sheets from other agencies making large grants include the U.S. Department of Education and the U.S. Department of Labor. While their scoring rubrics are based upon a point system rather than a Likert scale, reviewer anecdotal comments lay at the core of both NSF and other agency processes. My intent in undertaking the document review was to gain insight into issues or problems that might be common among proposals submitted by my sample institutions. Problems with proposals were evidenced by both the numerical scores as well as through the reviewers' ratings and comments. Common themes arising from the document review have been noted.

Survey Data Collection and Analysis

Using the web-based instrument "Survey Monkey", I developed a survey with the intent of discovering additional factors associated with success as well as those

capabilities that might enhance an institution's ability to secure large grants. I also asked additional questions that would provide baseline data about the organization of the grants function such as: staffing, numbers of grants submitted and to what funding organizations, success rates as a ratio of grants submitted versus grants awarded, and the purposes for which grant funds were sought. I also asked about proposals originating from faculty versus grant writers and the levels of institutional support from administration and from colleagues. Demographic information on each respondent was obtained in order to identify large and small colleges as well as rural versus urban. Respondents were also segmented by whether they were single campus institutions, multi-campus institutions, or part of a larger system of semi-independent colleges. In this way, respondents could be matched with the two case studies for further comparative analysis. In order to maintain consistency of focus with the two qualitative case studies, the National Science Foundation was again the lens through which success with large grants could be measured. While I wanted to know about the success of each survey respondent with regard to large grants from diverse sources, by focusing on the National Science Foundation I was able to hold constant the relative difficulty of obtaining large NSF grants. A total of 638 surveys were sent on the 10th of August, 2010. Responses were collected until the 18th of September with 133 surveys being returned. While this sample size is insufficient to claim scientific validity, the study results are broadly supportive of the findings in the cases studies. In the final chapter I recommend further expansion of the survey methodology as a potentially important source of additional data on my research questions.

Data analysis then proceeded with an array of descriptive statistics including frequency distributions of the responses to each question. Most questions are constructed in a forced response format allowing for frequencies to be calculated without further coding. Cross tabulations were performed, particularly cross tabulations that conformed to the study questions in the qualitative analysis. Chi – square analysis was used to ascertain the strength of correlation between the factors being compared. One example of a relevant cross tabulation included institutional interest in collaborative grant applications and partnerships and number of successful awards. Other cross tabulations viewed success in obtaining large grants with factors such as administrative support and support from colleagues. The survey instrument can be found as Appendix C.

Survey Participants

The list of participants was developed using the membership directory of the American Association of Community Colleges (AACC) and the membership directory of the Council for Resource Development (CRD). The intent was to survey a large sample that was inclusive of colleges of different demographics in order to obtain a broad base of knowledge about community college grant seeking. The survey was sent to 638 different community colleges and 72 community college systems.

Limitations

The limitations of this study can be characterized in several ways. First, there are the limitations imposed by the study design and by qualitative studies in general. There are also limitations imposed by quantitative studies involving surveys. A common

criticism of qualitative studies is that the findings are derived from limited samples. While the findings of my study may not support their being generalized to all higher education settings, the degree of commonality between community college settings supports the transferability of knowledge gained in this study. The intent is for community colleges to be able to reflect on the study outcomes with respect to the environment and culture of their own institutions. Qualitative studies attempt to compensate for small sample size by the depth rather than the breadth of the data collected. A second limitation pertains to the response rate of the survey which did not yield a sample size large enough to claim scientific validity. Nevertheless, the survey methodology suggests further research questions. The survey outcomes also lend to the breadth and depth of triangulation and confidence in the validity of the study's qualitative findings. Finally, I attempt to compensate for the ability to generalize findings derived from limited sources by choosing participants from two community colleges that are representative of common institutional types and examining them in-depth. Hence my expectation is that the study outcomes will prove useful in their transferability to other community college settings of similar demography to the institutions studied.

Conclusion

In conclusion, this mixed method study sought to understand the lived experience of community college faculty and other community college professionals as they engage in the pursuit of large grants. The case study method yielded a broad understanding of the impediments, facilitators, and catalyzing agents that influence the effort to successfully seek and obtain such grants. The survey served to confirm the outcomes of the qualitative

review while suggesting other key differences between high performing and low performing colleges. The study also generated results that both support institutional change toward the creation of more grant-friendly environments while supporting additional and more refined questions for future research in community colleges.

CHAPTER 4

RESULTS

Introduction

This chapter presents an analysis of the data collected during fieldwork conducted at two sites, Mammoth Community College in the Midwestern region of the U.S. and Littleton Community Technical College located in the Southeastern region of the U.S. Situated in a midsized city (population 185,000), Mammoth is a large (enrollment 19,000 headcount), urban community college serving the Montcalm county community college district, an eight county region in the southeastern portion of the state. Mammoth is locally governed by a nine member board of trustees and is chartered by the state board of regents. Interviews and focus groups were all conducted on the Mammoth campus. Littleton Community Technical College is a small (enrollment 3,200 headcount) and rural (Littleton population 12,000) and one of sixteen community colleges that comprise the state Community Technical College System. While Littleton and each of the state's community colleges is locally governed by a campus president, a centralized system office, located in the center of the state, houses a system-wide president and a chancellor who serves as the system's chief academic officer. The system office is the locus of much system-wide grant development and coordination. The roles of the campus and the system office are pertinent to the study's findings and will be described in this chapter.

The chapter begins with an analysis of Mammoth and a description of the evolution of its mission and its distinctive organizational culture. Mammoth's organizational culture is presented in the context of its impact on grant development.

Institutional culture is followed by a discussion of formal and informal organizational structures that are manifested in institutional policies, procedures, and norms that affect grant development. The chapter then moves to an analysis of Littletown community technical college. The Littletown analysis focuses on the relationship of the campus to the system office, the dynamics of which impact grant performance at Littletown and on each of the systems campuses. Following both analyses, a section is provided that describes the commonalities and differences between the campuses that contribute or inhibit successful grant development. The final section is a summarization of faculty and campus concerns and recommendations pertinent to the National Science Foundation and its grant programs and review processes.

Mammoth Community College

Evolution of Mammoth's Organizational Culture, Values, and Mission

Since the latter part of the nineteenth century (1887), Mammoth community college and its predecessor, City College, have embraced community development as a core institutional value in which its' workforce development mission is grounded. Curriculum development and community engagement have focused on the needs of local organizations and institutions and are guided by the needs of local constituencies. Local responsiveness is both the origin and the impetus for Mammoth's deeply embedded role in workforce development, economic development, and the improvement of elementary and secondary education in the city and its environs.

The workforce development mission can be traced to the vision of Mammoth's first president when the college first transitioned from its historic affiliation with the City

YMCA. It was then known as Mammoth College until its transition to a public community college in the mid 1960s. At the time of its transition, Mammoth College's curriculum included a school of commerce and school of law in addition to a school of liberal arts and school of technical studies. County funding of the community college enabled Mammoth to carry forward its historic emphasis on business and engineering as important elements of its locally focused mission. The seminal event in solidifying Mammoth's workforce development mission came during the tenure of president Alfred Jones, the community college's first president. One of President Jones's first initiatives was to build a connection with the U.S. Department of Defense in relation to the local Air Force base, which at the time was the city's (and the county's) major employer. The Department of Defense became concerned with the lack of succession planning for the base's workforce in important functional areas and sought to engage the college as a primary education and training provider. The outcome of this initiative was the implementation of a career ladder and succession plan designed to ensure that adequate numbers of appropriately trained personnel would be available to staff the base's operations. The career ladder and succession plan formed the basis for what would become Mammoth's outreach to other business and industry sectors throughout the City and surrounding region. Ever since the initial Air Force partnership, outreach to business and industry became inculcated in the ongoing practices of the Business and Engineering divisions of the college. Faculty and administrators routinely visit their counterparts in business and industry in order to assess curriculum alignment with industry need and to explore potential collaborative opportunities. Such ongoing outreach has become the norm, especially within the Business and engineering divisions.

The continuity of focus on the workforce development mission has enabled Mammoth to build upon its early success in getting grant awards by leveraging those awards into ever greater numbers of successful grant applications. Mammoth has had three presidents since its founding as a community college and each has remained consistent to the vision of his predecessor in emphasizing community outreach and the workforce development mission. One adjunct faculty member who came to the college from the business community remarked that throughout the community college's history, "bringing the resources of a significant engineering division to the needs of the business community was key in leveraging collaborations and partnerships and the reputation of responsiveness." Faculty comments throughout the interviews are consistently characterized by the statement that "Steve Jamison, Mammoth's current president, came on and just continued without a hiccup". The consistency of presidential vision and emphasis on community and business outreach has given faculty and staff a consistent focus for over four decades.

Embedded Values that Drive Organizational Goals and Strategies in the Present

Mammoth's faculty, staff, and administrators have successfully carried forward the value of constituent outreach such that community engagement can now be characterized as normative across the college. As a matter of practice, division deans and the faculty are guided by the question of how the college can bring its resources to bear on solving problems and meeting the education and training needs of external organizations? The development of strategies to serve external needs has been the route by which "workforce and economic development" has become operationalized, and these

strategies provide the foundation by which Mammoth has been so successful in building its grant activity. One of these strategies, continuous environmental scanning, is clearly embedded within all areas of the organization. The function of environmental scanning is performed in large part by the faculty because of the extensiveness of their community affiliations. Faculty affiliation with external organizations is one mechanism by which data on the external environment is brought back to the college and incorporated within the colleges strategic planning. Attentiveness to the external environment is also evidenced by the recruitment of adjunct faculty, particularly from among well credentialed and well known business and government leaders. Several faculty remarked that their outreach efforts can be characterized as an ethic of continuous improvement by always asking the question “How are we doing and what more can we do?” An additional strategy for identifying and serving external needs is the hiring of adjunct faculty who remain connected to area agencies, organizations, and employers. Staff and faculty are encouraged by the college administration to serve on community boards.

Strategic outreach to constituents is grounded in the institutional norm of collaboration and partnership building both internally and in service to the external community. With approval and endorsement from the President on down the administrative ladder through the departmental Deans, faculty engage in outreach and partnership building that pertain to their disciplinary areas. One faculty member reported that “under the previous president, we (faculty) were sent out to interview companies in our field and ask them—what do you need and what can we do for you?” Another faculty member from engineering reported that the dean “expects us to go out and interview our peers (industry job incumbents) and report back on potential ideas to partner and

collaborate.” The origins of partnership building began in the engineering and manufacturing disciplines which are an historic strength of Mammoth’s curriculum. College and community based partnerships have extended from their origins in business and engineering to local and regional educational institutions from the elementary schools to other local colleges. Mammoth has been very successful in leveraging existing relationships by building upon them in order to serve additional organizations and constituencies. Leveraging its partnerships across all segments of education, the college is seen as a bridging institution between the city’s schools and local universities. Bridging is evident in the colleges role as facilitator of curriculum articulation from the high schools to the university. The college also serves in a coordinative role in the many school improvement and student support activities that have been initiated through partnerships. Some of these activities have been put in place with grant funding and where the college has taken the lead as the applicant organization. The notion of the Community college as a bridging institution has emerged nationally as a “best practice” whose origin, in part, can be traced back to Mammoth (G. Boggs, October 3, 2010, “personal conversation”). Elementary and secondary school improvement initiatives as well as baccalaureate transfer now form a basis for Mammoth’s extension of large grant acquisition to major non-governmental funding sources such as the Gates foundation.

The cultivation of funders and the acquisition of large grants is a strategic approach for acquiring the resources that enable collaboration and partnership building. In turn, existing collaborative activities leverage new and deeper partnerships which lead to the identification of new grant opportunities. In the words of the grants office, “we need good partners to be successful and we look far and wide for partnering

opportunities.” “Funders want to see collaborative grant requests because it speaks to efficiency and broader outcomes for their investment.” The pursuit of large grants facilitates problem solving and serves to sustain and advance existing partnerships. Large grants also lead to the creation of new partnerships as newly identified needs emerge or new segments of the city and surrounding community become engaged.

An illustrative example of the process of collaboration and the leveraging of new resources can be seen in the expansion of manufacturing education. In 1995, the National Center for Advanced Manufacturing Education was inaugurated through an award from National Science Foundation with an award of five million dollars. Since that first round of funding, the Center has garnered an additional million to support the national center from local corporate sponsors and from the sale of the centers products and services. Since 1995 an additional two NSF grants were awarded, expanding the National Center into a “Center of Excellence”. Following the establishment of the Center for Excellence, two additional grant awards were received through the Society of Manufacturing engineers (SME) and one additional curriculum development award through the NSF. With the new connection to the SME, a national clearinghouse was created that offers resources for manufacturing educators and industry professionals. With the creation of the National Center for Excellence, a visiting team of scholars and industry incumbents was organized from among the collaborators. The team of scholars exists to provide a pool of expertise to support educators and their community partners across the U.S.

Building an Internal Culture that Promotes Success in Getting Large Grants

Mammoth has made a practice of bringing well known executives from business and industry, non-profit organizations, and government agencies onto its faculty as adjuncts. Such a practice serves not only to bring talent to the college but also to build important connections to the private, non-profit and government sectors. In describing the purpose of this study to President Jackson during our introductory meeting, he commented that “Mammoth’s present position in the community is evolutionary in nature, and that much of what we have built here is the result of our responsiveness to needs that were identified and responded to over time.” Other study informants, particularly among the long-term faculty said that there was not much that was deliberate in creating the grant getting powerhouse that Mammoth is today. According to Dave Seigal, a former City Tire Co. executive and adjunct faculty member - “We have to make sure we understand what the secret sauce is that made us what we are and now. It is hard to understand because it is so much a part of who we are, it is so close to us now. We might lose it if we aren’t careful”.

Most of the interviewees throughout the study had a very clear sense of where the college mission emphases lie, and it is clear that there is a unity of vision that Mammoth must remain an anchor for regional revitalization. While members of the college community know collectively that they have been successful through their commitment to community outreach, it is less clear, from the President on down, which elements have enabled Mammoth’s success. Dave Seigal goes on to say that “I think the culture here is entrepreneurial – The institution wants to foster innovation and commits to resourcing it, there is no shortage of ideas. Mammoth empowers people to make decisions appropriate

to their role – they understand our organizational values first and then create objectives. Values and objectives are coincidental. The values are intrinsic – you can identify and articulate them and then you have to make them happen. Grants are viewed as essential to research and development, you have to envision what you want the organization to look like, then you have to commit to this personally from a leadership point of view”. An essential premise of grant development at Mammoth is that the genesis of grants is a college-wide function and not isolated within a particular office or specific individuals within the organization. The empowerment of individual faculty and staff, including adjunct faculty, to participate in all aspects of the college is understood and encouraged. Faculty expect that their ideas will be heard, even if they are not ultimately embraced – and if they are embraced, an ad hoc group from across the organization will be assembled to help bring the idea to fruition.

Siegals analysis begins to articulate how a set of institutional practices evolve from pre-existing institutional values. In this sense, the norm is connected to the practice (and prioritization) of Mammoth’s external relations and a management philosophy that create an internal organization that is so responsive to external need. To paraphrase several informants, Mammoth has always been able to “connect the dots” and make important connections internally. “Mammoth builds upon internal relationships to leverage future opportunity by connecting faculty across disciplines. Cross-disciplinary dialog is a characteristic of Mammoth that underpins the college’s ability to build national models. One example of an interdisciplinary model is to build curricula (and grant projects) at the nexus where disciplines meet. At Mammoth, the divisions of business and engineering have developed a joint curriculum in the area of distribution

logistics, bringing course content in Radio Frequency Identification (RFID package tracking) technology to both business and engineering majors. The innovation included bringing business courses in supply chain management into a proposal in Advanced Technological Education funded by the National Science Foundation. The proposal, based upon the engineering aspects of production manufacturing, is an example of connecting two divisions by their mutual (overlap) on engineering. In this sense, the two divisions were connected through STEM.

According to the faculty, there exists a confluence of practices going on at Mammoth that develop these inter-institutional synergies.”One consequence of connecting the dots is that by connecting the disciplines the college gains maximum benefit from grant funded knowledge building”. The Supply Chain Management program is an example of what later became known internally as “connecting the dots”. It is also an example of an Interdisciplinary connection not just a multidisciplinary comingling of content areas but a real leap in knowledge that is the stuff of innovation.

Collegiality among staff and faculty is a defining aspect of Mammoth’s culture. Across the spectrum of interviewees there was recognition that professional expertise and best practices exist everywhere and that the staff and faculty actively seek opportunities to leverage each other’s expertise or to look outside the college to advance institutional goals. In the pursuit of large grants, when the college recognizes a lack of internal expertise, partners are sought from around the nation by identifying the expertise and best practices that can be imported and adopted. One faculty member reported that “the answers to most questions are out there somewhere – what’s important is to look around you and find out who has the answer or who knows best how to accomplish something”.

This same sentiment was heard repeatedly in one focus group comprised of faculty from across the college's departments and divisions. "Part of what makes us successful is that we are out there – we're a good college but we don't know everything – even lesser known colleges have something we can learn from them – you can't get too full of yourself."

The grants office at Mammoth also demonstrates this same openness to learning from peers. When the grants office recognizes a lack of expertise they turn to others to learn best practices that can be imported and made their own. One demonstration of the grants office openness to learning is through its participation in professional organizations whose primary focus is four-year colleges and universities. Primary among these is the National Association of College and University Research Administrators (NACURA). In an interview with Neil Armistad, director of Mammoth's grants office, "we borrow contract and other document templates from schools like Harvard and Brown because we know they have the experience and that their practices are vetted with the federal grantors. We see few other community colleges participating in these organizations". According to Dave Seigal, "the openness to importing outside expertise is, in part, what drives innovation at Mammoth.

Encouraging Faculty Participation in Grant Development—Getting Plugged In

Encouragement to collaborate comes internally from multiple directions. Encouragement comes clearly from the top, originating with the president and implemented by the division deans and the department chairs. Encouragement to participate in grant activity is also a function of faculty to faculty encouragement

particularly in the interest of developing interdisciplinary and multidisciplinary grant proposals. Internal to the college and externally within the funder community, Mammoth is known for pulling non-STEM disciplines into NSF projects. In its faculty evaluation and promotion practices, the college actually inventories faculty talent and expertise and disseminates this inventory of faculty interest and expertise across the college. Faculty use the talent inventory to identify internal collaborators. Faculty report that they feel a part of the organization and a part of the greater whole. One informant commented that “Mammoth assesses and then uses faculty skills – they want to “Plug you in”. The act of “getting plugged in” is, in part, the process that Dave Seigal describes when he talks about connecting the dots. When faculty and staff at Mammoth are apprised of each other’s interests and expertise, they are quick to seek out colleagues who can strengthen and add value to their grant proposals. When plugged in to a grant, another faculty member commented “you can see growth in the faculty and in yourself just because you participated in the grant.” To paraphrase a number of informants, top down encouragement is a characteristic of Mammoth, communicated to faculty through the department chairs. Administrators at Sinclair are very engaged with us when we develop grants. Deans and department chairs grease the wheels and help protect us from some of the bureaucratic processes that divert us and bog us down. “Administrators treat faculty as peers.”

In addition to the offices of the division deans, the grants office is another administrative area that is hugely supportive. There is consensus among the study informants that “The grants office will facilitate a group of faculty from the stage of idea generation to an outline of a project and then have us write those parts that pertain to our

disciplinary interests. The grants office also lifts from us the bureaucratic detail and allows us to focus on the scholarship”. Most grant sources want to see the scholarship written in the voice of the scholar. The very positive relationship between the grants office and individual faculty is largely due to the attitude of its staff as a support service to the faculty.

Faculty Encouragement of Faculty

Despite concerns over whether the increasing mix of adjunct and part-time faculty would negatively affect the grant-seeking culture, full-time faculty were clear that there are no artificial distinctions between salaried and adjunct faculty. The issue of increasing dependence on adjunct faculty is a concern in community colleges across the nation (AACC 2008). The origin of this shifting reliance on adjuncts is largely the result of increasing personnel costs resulting from rising health insurance premiums and the savings that can be had by hiring non-benefitted adjunct faculty. While adjuncts are broadly enfranchised within Mammoth’s academic culture, it is true for Mammoth, as in most institutions, that adjuncts do not participate as extensively in non-teaching activities (i.e. grants) and that grant activity could diminish as a result of the changing faculty mix. The prevailing attitude across the institution is to train adjunct faculty and enfranchise them into the organization. Adjunct faculty are provided professional development and participate in departmental meetings and other departmental and college-wide events. Like full-time faculty, adjuncts are valued for the additional expertise they bring to the organization and are not seen as merely fillers for courses left open by full-time faculty with released time or other non teaching assignments. Adjuncts are, as alluded above, a

rich source of expertise that Mammoth is able to attract to its faculty from among its external constituencies. One faculty member summed up the view of adjuncts in his comment that “there are very good adjuncts who are highly qualified and I don’t have a qualm saying I am going to give up a course because I know that we have a pool of very qualified adjuncts.” This confidence enables faculty to place their attention toward grant projects by feeling confident that the core curriculum in their departments are being well taught. The attitude toward adjuncts also extends to less experienced faculty as evidenced by mutual agreement in a focus group that: “We don’t care if you are a junior faculty member either!”

There is a great deal of peer support in the pursuit of grants. One faculty member related that she was told by her peers in her department that it was her turn to get involved when another department came looking for participation. On one hand, the perception of taking turns responding to other departments might be viewed as “passing the buck”, the faculty informant who was the target of the request was honored at being asked to participate. Her perception was that “being asked felt like acceptance into the fold” .Her turn to participate was a genuine effort on the part of department faculty to engage their peers in activities that most find professionally gratifying. Peer engagement and support is also evidenced by such comments as: “when I have a problem with my project I pick up the phone and six other project directors come over to help me.” Clearly there is a great deal of peer support but also a great deal of professional challenge posed by one’s peers and a collegial expectation that all must rise to the challenge of advancing personal, departmental, and college goals. One faculty member recalled her entry into grants as a combination of the grants office coming to her with a potential opportunity

and the push of the college via the department chair and her peers to see her involved. This faculty member got her grant on the third try and admits that her persistence was a consequence of the support of the grants office and her peers. Even though her project is now over, she continues to build upon activities originated with grant funds having woven those activities into her goals as a faculty member. This level of commitment, supported by peers and administrators, is the most important factor in the sustainability of a project and its outcomes. The depth of commitment by faculty to participate in grants contributes greatly to Mammoth's reputation as a good investment by major funders.

Faculty to faculty encouragement is considered an important aspect of Mammoth's organizational culture that promotes grant getting. Comments include: "I really am finding here that the organizational culture has a lot to do with promoting success." "Faculty will cross disciplines to consult on grant ideas and bring multidisciplinary perspective to their proposals. There is a huge internal spirit of collaboration across disciplines in some really unique ways. Lot's of collaboration by the Business division in NSF proposals but also the liberal arts". One part-time faculty member whose professional focus in organization development is quoted as saying: "I have been working for years on how to build cultures of innovation. People are inclined to be looking at what is obvious. I think to me the issue is around the social implications of the innovation – this is where I get excited to see something of value can come from an original idea."

Another contributing factor in grant success is that faculty are highly active professionally. The college depends upon faculty to link-up professionally – "Mammoth does not build its partners from cold calls." Faculty are always looking for connections

among their peers when they are attending professional conferences or read articles in the professional literature. Faculty at Mammoth will readily connect with peers from around the country when potential synergies are identified. Mammoth is fortunate to have built significant professional development and travel opportunities into its grants with professional development and travel being key supports for outreach and connecting activities. Grants supporting Mammoth's workforce development division have been built on collaborative activity with colleges from across the country. Mammoth actively reaches out to small colleges and those who have not participated in the pursuit of large grants as part of grant required dissemination strategies.

The Impact of Reward Systems

Faculty and administrators report that the opportunities to grow professionally are a function of Mammoth's culture and central to their job satisfaction. Faculty also report that professional growth is a prime motivator to take on additional work, especially when the work is professionally gratifying. Many respondents report that "the reason I do so much with grants is that it is interesting stuff." Much faculty sentiment is characterized by comments like "one of the reasons for my longevity at Mammoth is that it stays interesting." Many respondents also say that "you can't get lost in the shuffle here – other's will seek you out and get you involved." Among the faculty interviewed who are most involved in grant work, it is the intrinsic motivation brought about by "our interconnectedness as faculty and the chance to do interesting work." That is the prime motivator

There exists at Mammoth an opportunity for faculty to receive additional pay based upon merit. Merit awards come in the form of additional money that comes as a bonus and does not apply to the base of the awardees pay. It was clear from the interviews that merit awards, while sought, were not important in the compensation scheme of the college and in particular as an incentive for faculty to pursue grants. More often, the conversation moved toward the value of intrinsic motivators including: opportunity for professional practice at the highest level, the positive regard from one's colleagues and professional development support. Many of these intrinsic motivators are provided or enhanced by participation in grant development.

In the absence of extrinsic motivators to pursue grants there exists a cadre of faculty grant seekers sufficient to fuel Mammoth's success in getting large grants. Yet one emerging threat and of considerable importance to faculty was the diminishing practice of granting course releases in exchange for time spent working on grants. The diminishment of course releases is an effort by Mammoth's senior leadership to bring full time faculty back into the classroom as a cost containment measure. Presumably full-time faculty that teach full course loads would reduce the demand for adjunct faculty. The curtailment of course releases is consistent with the colleges desire to realign its ratio of part and full-time faculty. The granting of course releases is the preferred method of extrinsic compensation for some faculty while other faculty preferred overload pay for additional work. While faculty expect to be paid, none reported that either means of compensation had much to do with their motivation to seek grants.

Among the most cited reasons for participation in grants was that grant work was usually cutting edge and made faculty feel that they were optimizing their skills and

abilities. Faculty reported that grant activity kept them current and in particular, lent a more global view to their profession through enhanced knowledge of current and best practices in their disciplines. Faculty reported that they often heard reference to Mammoth at professional conferences and in the professional media. The experience of one faculty member is illustrative - “while attending this year’s NSF’s conference for Principal Investigators of ATE grants, 15 of the 60 in the room were from Mammoth.” Mention of Mammoth’s prominence was often made in the context of being a college where best practices are generated. At the same NSF PI conference, one faculty member reported that “I heard a familiar reference and then realized that it was my project that was being highlighted.” Recognition by a broader professional community was often stated as an incentive because of the notoriety you get outside of the institution – most interviewees said that grant work helps faculty to “get well known in their field.” One faculty member remarked that Mammoth and grant work in particular “satisfied his professional competitiveness”.

Institutional Capacity to Sustain and Steward Large Grants

Formal organizational structure. Mammoth’s success is not only a function of organizational culture it is a function of organizational capacity which is broadly defined as possessing sufficient infrastructure to manage grants both fiscally and operationally. Mammoth does not differ substantially from other postsecondary organizations of its type (large urban comprehensive community colleges) in its internal organization and structure. Like other colleges, there is a grants development office that serves in the capacity of a sponsored research office. The structure of the grants office is not

extraordinary in that it does not differ much from the standard which generally includes a writing staff, a prospect researcher and a grants management officer. The college includes a typical array of student service functions, a business office which also performs grants accounting, and a division of academic affairs which is structured in groupings according to affinity of academic disciplines. The college does have a foundation and donor development office which bears no line relationship to the grants office according to the organizational chart. The college also has an institutional research office which works closely with the grants office. Both institutional research and grants are housed within the division of academic affairs. The college does have a large division of workforce development that, in the words of the current President, Steve Jackson, “was cobbled together as this aspect of the college’s mission evolved”. The workforce development division is large by comparison to other institutions. According to the Jackson, Mammoth’s model of organization development arose organically and over time. “Mammoth was able to establish a niche and build relationships with certain funders. The community you are in defines the kind of organizations you have to work with – we pursue grant opportunities based upon institutional expertise.” There is nothing else in the existing organizational structure that appears to correlate with grant productivity. What is evident is that the organizational norm of outreach to community constituencies has fueled the practice of grant getting and that this norm and the practices associated with it have been consistent since the colleges’ founding.

Informal organizational structure. Understanding Mammoth’s success from the view of organizational structure is more a function of the informal rather than the formal.

While the formal structure incorporates a grants office which is responsible for grant production from inception of an idea to final submission, grant development is not isolated within this office. A development mindset permeates the college, and the prospect of developing a grant proposal arises naturally as a consequence of planning and problem solving. In this sense, grant ideas come from all corners of the college as staff, faculty and administrators connect advancement goals at the departmental level with grants as a potential tool for reaching those goals. The overarching function of the grants office is to manage an institutionalized adhocracy. According to Waterman (1992), “an adhocracy is a just in time organizational model that develops to address a need or proposal, draws widely from the resource pool of talent and expertise in the college, and dissolves when it is no longer needed.” The expression of an idea for a grant proposal may be made in various places and at various levels. At times it happens in discussion with one of the grant office staff and equally as often it happens at the departmental level with one’s peers or with the department chair or dean. An ad hoc grant development team is assembled from multiple starting points but ultimately ends up including expertise from across the institution. In fact, informants to the study concur that the development team would ultimately look the same (consist of the same people) regardless of where and how the team were initiated.

Institutional size. While Mammoth’s formal institutional structure does not differ substantially from other institutions that are successful at winning large grants, institutional size does allow for greater breadth of structure (a grants office, dedicated grant management staff) and greater depth (more grant writers, more grant management

support personnel) than smaller institutions. Larger institutions can better demonstrate to funders that they possess sufficient infrastructure to support grant development and grant management. According to the NSF's director of Advanced Technological education, "The NSF knows that Mammoth will manage our investment well" (Salinger 2010). The effects of institutional size on grant productivity will become more evident in the cross case analysis of Mammoth versus Littleton.

Institutional size becomes a success factor when larger institutions, like Mammoth, demonstrate a breadth of impact from the result of grant activities that is compelling to funders. While a well devised work-plan and demonstrated ability to manage a project is a must, larger colleges can best demonstrate that their projects will impact greater numbers of the target population and for this reason have a greater likelihood of being funded. Large colleges like Mammoth also have more faculty and subsequent opportunities for faculty to take on special projects.

Demonstrated capacity to manage grants. Mammoth's success with funders of large grants also results from its focus on grant management. The grant development office works closely with the colleges' budget office and procedurally, the budget office is the first stop when a project idea is proposed. The budget office offers more than procedural advice by assisting the grant developers in placing the project within the overall schema of college budget priorities. A prime example of this is Mammoth's ongoing work in the area of elementary and secondary school improvement. Grant funds that support the establishment of curriculum articulation and student recruitment also support Mammoth's enrollment management priorities. Grant funds that support school

improvement efforts, particularly at its feeder high schools are seen by college administrators as an investment in promoting student academic readiness and thereby diminishing the necessity for remediation upon enrollment at the college. Faculty report that the budget office is helpful in aligning grant projects with college priorities. “the budget office helps us understand how our proposal may or may not match up with college goals.” “Knowing up front how to look at our project (in the context of the whole college) is a good thing because we don’t feel too let down when we don’t go forward.” Subsequent to the input from the budget office, the grant developers will engage the faculty in concept revision. According to the director of the grants office, “Mammoth has a good process of checks and balances internally which lends to its reputation with funders as a sound investment”.

Balancing the Formal with the Informal

Recognizing that grant development is an entrepreneurial endeavor, Mammoth strives to seek a balance between enabling faculty to run with their ideas while lending administrative oversight that is not intrusive or controlling yet assures consistency with college goals and objectives. Much like the budget office which advises grant proposers on how their project fits within overall college spending priorities, the “Signs” committee, an interdisciplinary group of grant managers, takes on a coordinative role by providing oversight to grant development that ensures that proposed project goals and objectives are aligned with the mission and goals of the college. The Signs Committee is responsible for giving a green light to proposed projects before they reach the President’s level. According to the study informants, the Signs committee is effective in its

coordinative and communicative roles but is also effective as a generator of ideas. The division deans are members of the Signs committee and participate in an informal give and take about projects they and the faculty are working on. From these conversations new ideas for grants are generated and new internal collaborations often arise.

One faculty informant referred to the Signs group as a “network model of organization designed to stimulate ideas and to qualify ideas so that what you commit to would be purposeful in terms of institutional value”. “Grants should be used to create a culture of innovation and empowerment aligned with your objectives and values”. Grants provide research and development money or start up funding and leveraging grants from previous grants empowers the organization. In this sense, many respondents spoke of Mammoth as “running like a university” but consistent with the mission of community colleges in directing research and innovation toward curriculum development and the improvement of teaching and learning.

Summative Comments

Across my interviews with faculty there was an undercurrent of concern over whether Mammoth would sustain its level of grant productivity into the future. The origin of this concern is an administrative effort to adjust the ratio of full to part time faculty from its present 60/40 ratio toward a goal of 50/50. It was broadly voiced by the faculty that full-time faculty were necessary to ensure that certain academic functions occurred and with sufficient quality to move the institution forward. Full-time faculty were seen as important to curriculum development and especially to anchoring the work of many part-timers in alignment with the curriculum as a whole. Full-timers were seen as necessary to

the supervision and especially the “mentoring” of part-time faculty so that part-timers would become integrated into the life of the college. Several faculty voiced the sentiment that full-time faculty were also important to “honchoing” grant projects. While part-time faculty at Mammoth might undertake grant related responsibilities, no part time faculty are responsible for grant oversight – providing assurance that grant activities are implemented and completed. Full-time faculty also felt that grant projects needed advocacy and that full-time faculty were the only faculty in a position to sufficiently advocate for grant projects. A number of interviewees expressed the sentiment: “I’m wondering if what is happening now to the campus climate will have an effect on whether or not we will receive the number of grants that we apply for and if that will taper off?”

Historically, some departments at Mammoth have preferred offering faculty re-assigned time for grant work rather than overload assignments and pay for additional hours. There is strong sentiment among the division deans that the administration must come to terms with striking a balance between re-assigned time and overload. The division deans are unanimous in saying that they must guard against violating grant commitments while balancing full and part-time faculty.

Most faculty spoke in terms of needing to strike a balance between teaching and grant activity, desiring that neither be diminished. One respondent characterized the situation as follows: “We’ve got to decide as an institution how we are willing to give and take. Do we want to give up on grants or do we want to give up on students or are we willing to say we are going to provide this support so that you can back off on your teaching enough to be innovative in your grant work and stay in the classroom so that you

are still in touch with what is going on with students. I will admit that if you take me out of the classroom completely and say just do the grant then I have lost touch with the whole purpose of the grant in the first place. I think that this is a key issue for community college faculty.”

Littletown Community Technical College and the State Community Technical College System

Overview of Littletown and the State CTC System

Littletown Community Technical College is one of sixteen colleges within a larger statewide Community Technical College System. Littletown was selected for study based upon its level of participation in the development of large grants as well as its success in achieving awards. The college is small (3000 fte) and rural (Littleville pop 14,000) and is governed, in part, by a system office which oversees certain centralized processes including grants management. The community college presidents report to the president of the system who reports to a single system-wide board of trustees. There is also a system chancellor who acts in the capacity of the systems chief academic officer. At the time of the study, the system grants office reported to the chancellor who was an important promoter and driver of system-wide grant activity. Over the course of the study, the centralized system model of organization and its impact on the state’s colleges became increasingly germane to the analysis of Littletown’s success at winning large grants.

At the campus level, each college has autonomy to pursue grant opportunities of its choosing. However, there are constraints on the ability of multiple campuses to pursue the same federal grants in the same round of competition. This is not unusual in

community college systems where a system office holds a single employer identification number (EIN). In this sense, the colleges are viewed externally as a single entity and are allowed only one grant submission per competition. As a result, the colleges must broker a decision amongst themselves as to which college, in a specific federal grant competition, would pursue grants from among the many federal departments requiring EIN's. A further constraint on the individual campuses is that grant awards must be managed at the system level. Therefore, upon receipt of an award, grants must be reassigned to the system office as the awardee of record. Some ambiguity remains as to the costs and benefits of allowing the campuses to submit grant proposals independently, while managing them through the system office. The system grants officer's view is that "most funding organizations don't have a problem with our system of centralized grants management, yet the National Science Foundation would prefer not to have to reassign grants from a college to the system." While centralized management affords the smaller colleges' additional backup and grant management capacity some funders, like the NSF, prefer to work with personnel directly involved with a project. According to the system office director of grants, the issue of who constitutes the award recipient of record is not insurmountable one and continues to be a source of give and take in this centralized community college system. "Our role at the system is not to take away recognition from the individual colleges – as we continue to develop trust between the campuses and the system office we are getting more comfortable with how we relate to each other." The System office views their role as a service to the campuses and the campuses are largely appreciative of the support. The coordinative and support role of the system office could just as easily be seen as controlling; yet in the view of faculty who participate in grant

development, the state model works well. In a focus group, the collective view of those faculty most heavily engaged in grant activity is best characterized by one faculty statement that “the system supports us and at the very least stays out of our way.” Large grants from corporate and private foundations are also administered through the system office as there is only one not-for-profit entity (The System Foundation) which can receive grants from private, non government, funding organizations that require grantees to have Internal Revenue Service non-profit status under section 501 of the federal tax code. The Community/Technical Colleges foundation receives grant awards on behalf of the system and the individual colleges.

The System evolved as a spin-off of the State University, which once had the sixteen community colleges organized administratively within its purview. The separation took place in 1998 when the CTCS system was formally established. The independence of the colleges from the University was seen by many study informants as a very positive move. The sentiments of several faculty informants are characterized by one focus group participant who said that “the university just didn’t understand us – didn’t understand our workforce mission or what we were trying to do with grants. We’re better off now that we are self-governing.” Another sentiment in this regard was, “The university values us as feeder institutions for their enrollment. This is what we used to be and we continue to be valued for our transfer mission, but today we are so much more!” Of the 16 colleges, only one remains a part of the university and is housed on the flagship campus.

Leadership at the System Level and at the Campus Level

Presidential leadership at the system level as well as Presidential leadership at the institutional level are important aspects of both individual college success and the success of the system in winning large grants. The president at Littleton says that: “the system president supports each of the college presidents by supporting our local agenda while also supporting our statewide agenda.” “His presence locally shows our funders that we are in sync at both the local and state levels.” The system president is extremely visible, travelling to each colleges region of the state and holding community meetings in the towns that comprise each college’s service area. The system president and each college president facilitate these meetings jointly. The system president is also the key person interfacing with large employers and industries that have a statewide presence and impact. For example, it was the system president who brokered the relationship with the automobile industry which brought the statewide resources of the community colleges to bear in founding the NSF funded National Center for Automotive Technology in 2005. A collaborative effort among system colleges and system faculty were successful in securing this grant from the NSF under the Advanced Technological Education program. The well coordinated and collaborative relationship between system leadership and individual college leadership is an example of a positive practice when a system with strong centralized authority balances system-wide interests with individual campus autonomy. While most study participants agree with this perception of balance between campus and system interests, comments from faculty like “keep the administrators out of our way” and system staff insistence that “we want to build trust and be of service” belies some dissonance. Nevertheless, most study participants spoke to the positive nature of the

campus-system relationship. The President of the System is a strong advocate for bringing the academic resources of the system as a whole to bear on industries such as automobile manufacturing and coal mining which are considered key statewide industries and where the state legislature expects a coordinated response. Presidential leadership at the campus level is, in part, what distinguishes Littleton and what makes that campus more successful than other institutions of similar demographics across the country. The campus president at Littleton supports grant seeking as a way of advancing both the system wide strategic agenda and those of Littleton Community Technical College.

The experience of the individual colleges in grant development varies among the campuses. In part, this is a result of presidential leadership. The President at Littleton had himself been successful as a faculty member in writing and winning grants from the National Science Foundation. In fact, the president, who earlier in his career had been a faculty biologist, had been personally active in lobbying the NSF for the inclusion of community colleges within NSF's sphere of eligible applicant institutions. Given the Littleton presidents background, he came to his position with knowledge of what grants can accomplish. Faculty appreciate this quality in their president and feel empowered to bring forward ideas. According to one faculty member "If you convince him (the president) of how a grant will help the institution, help students, and that the college can meet the additional costs of maintaining and sustaining the project, then he is inclined to go with it." In fact, the president will often send grant ideas to the faculty and staff. Presidential support is a key factor in motivating faculty to move forward with grant projects. According to one faculty informant, "the criteria for getting to yes with the president are clear- we know what he needs to be convinced."

The recently retired system Chancellor, who served as the systems chief academic and student affairs officer, was instrumental in the development of a centralized grants office within the system office. It was this chancellor who hired the first professional grant development and management staff. It was also this chancellor who developed the first policies around how the colleges and the system office would relate to each other in preparing and submitting grants. The Chancellor had also come to his position with a background in grant development and a specific interest in workforce development. During our interview, the Chancellor shared that “my experience in grants in New Hampshire and after that my experience with workforce development as a President in North Carolina prepared me well to use grants as a driver of workforce development in our state.” Since the chancellors’ retirement, the system grants office has been reassigned to report through the system presidents’ office. At the time of this writing, a new chancellor had not been selected. The system grant director feels that the system grants office is sufficiently developed and in place and there is little concern over this reorganization and reassignment to the president’s office. “We were housed originally under the chancellor’s purview because of his experience and background in grants.” What the characteristics of the new incoming chancellor will be is uncertain. The system grant director and grant developer say that “we are not concerned about this transition as we are well entrenched in system policy and practice. We may get bounced around the system office but feel we can operate the same under the system president”.

Formal Organizational Structure at the Campus Level

The 16 system campuses vary in their capacity to develop and manage grants, and while each campus possesses the autonomy to initiate and submit grant applications, some campuses rely wholly on the system office while other campuses have invested in a grant writing staff position. The system office encourages campuses to make this investment and the Littletown campus was one of the first to acquire a dedicated grants officer. Fewer than half of the system campuses have a dedicated grants officer in place. Littletown's president told me that he "knew from his own experience with getting NSF grants that a dedicated staff position to support faculty was key to being successful." While grants management is largely viewed by the campuses as a benefit of system coordination, it has caused some complication with funders who prefer to deal directly with the personnel responsible for project implementation. In both the personal interviews and focus groups faculty commented is summed up by one respondent who said that "system grant management allows us to do more with grants than we could if the campus had to do the accounting and produce all of the reports." Part of the give and take between campus autonomy and system control was summarized in the comments of multiple respondents, "because we're viewed as a single entity with one EIN, we have to have this debate about who is going to get to apply this year." The governance structure of community colleges and community college systems across the country differ widely and do cause some consternation among the federal agencies like the NSF which prefers to deal directly with the faculty PI's. Thus far, Littletown's success at the campus level results, in part, from a president who both endorses and enables faculty to pursue grants. Success also results from having staff in place (grant development specialist or grant

writer) to support faculty in the grant writing endeavor. Both grant staff and active grant faculty are not evenly distributed across the campuses. Three campuses, Littleton, Central State, and Farmington have records of participation and success far greater than the remaining thirteen campuses. According to a focus group of faculty from across the system, the differences have to do with “the very different experiences of the campus presidents with grant development and the faculty who happen to be there.” This statement was further clarified by adding that “the faculty interest is in part because of different curriculum emphases on each of the campuses.” “The NSF funds STEM related curricula and STEM is bigger on some campuses than others.” A cadre of committed faculty are key to campus and system productivity and specific behaviors by these faculty can be categorized. Such faculty embrace grant development as key to the growth of their departments, and like the faculty at Mammoth community college, the motivation is largely intrinsic. There are no formal reward structures tied to grant acquisition and again much like Mammoth, faculty at Littleton look forward to the acquisition of equipment via grant funds and occasional travel for professional development. Several faculty referred to these incentives as “travel and toys” but were clear that equipment and travel were incidental and not prime motivators.

Faculty informants at Littleton and several of the other, more successful state campuses had several behaviors in common: they actively stay on top of their fields and actively seek out other faculty from across the country to discuss ideas and build collaborations and partnerships, they actively seek professional development opportunities and they actively work across departments. Much like the faculty behavior described by Seigal at Mammoth, successful colleges have staff and faculty who

“connect the dots” and appreciate that capitalizing on the strengths of their peers across the college and across the system leverages success. In a focus group comprised of faculty from three of the system colleges, there was general recognition that “prior NSF grants that supported the building of the system-wide IT infrastructure had leveraged each colleges’ ability to offer online courses and to realize enhanced revenues as a result.” “The increased capacity of IT has further led to additional large federal grants to improve advising and enrollment counseling.” Faculty experienced with grants understand the concept of leveraging and the notion that grants have consequences that move the institution (and system) in multiple directions (i.e. the relationship between enhanced IT and the growth of distance learning). Faculty go on to note that Littleton, in particular, has an administration that actively supports them. At some of the other colleges, faculty reported less direct support and encouragement but expressed the feeling that “at least administration stays out of the way!” Faculty at the less involved colleges report that “even though we don’t do as much as Littleton, when we are approached to collaborate it’s not hard to get the go-ahead from our campus administration.” Faculty also felt that administration at both the system and campus levels do a “good job of engaging business and industry and bring faculty into the outreach efforts toward business and industry.” The National Science Foundation, according to its stated goals and priorities for advanced technician education prioritizes business and industry involvement in its award criteria and expects business and industry participation in funded projects.

While Littleton lacks a formal grant vetting process, (given its size), the vetting process operates informally and effectively through faculty conversation followed by the

presentation of a project idea to the president. “The president here is a grants guy and you can always get time with him.” This may very well be an advantage of a small organization in which employees have ample opportunity to interact informally. The president has been clear about his three criteria for moving forward with a grant application: benefit to the college, benefit to students, and the manageability and sustainability of a project within the constraints of campus resources. Several of Littletown’s faculty said during our interviews that “If you can meet the presidents criteria of benefit to the college, the students, and sustainability, then you will get the go ahead.”

Potential threats to grant productivity were also voiced by faculty. “In some disciplines it is harder to get adjunct faculty to fill in for faculty seeking released time to pursue grants”. This was particularly true in the comments from the smaller and more rural institutions. Comments such as “I can’t find an adjunct around here that has a master’s degree or who can otherwise teach my two hundred level course.” Several faculty said that overload pay was diminishing as an incentive particularly as full-time faculty are not being replaced. Many faculty had concerns and uncertainty around how they were going to balance teaching with reassigned time or overloads. “We’ve been feeling some pressure to work our full load in the classroom – lessening the need to hire adjuncts.” Also heard were concerns about an aging faculty – “I don’t want to teach so many overload semesters as I did a decade ago.” The reality of an aging faculty was also heard in concerns about succession planning: “I don’t see new faculty coming along who will replace us.” Succession planning is a common concern across the colleges I visited and is a direct consequence of an increased reliance on adjunct and part-time faculty. One

faculty informant commented that “while administrators often make the case for the quality and benefits of adjunct faculty, especially the value to our students of adjunct faculty drawn directly from business and industry, adjuncts are not as often engaged in the overall life of the institution.” Another common concern expressed by faculty was that “full-time faculty are necessary to anchor the curriculum, to mentor new adjuncts, and to maintain grant productivity”.

Formal Organizational Structure at the System Level

Being largely a system of small and rural colleges, the system office is positioned to reach out to external collaborators, especially with business and statewide industries on behalf of all sixteen colleges. Administration markets the benefits of working with the state’s community colleges collectively and engages in dialog with potential collaborators. The automobile industry is a good example; the system President having brought together Toyota, Ford and GM to the same table to pitch the collective capacity of the colleges to help expand the industry within the state.

According to the system director of grants, the system office approach to the colleges is one of support as opposed to control and this is demonstrated in a number of important ways. Most importantly, the system office serves to aggregate demand allowing many small colleges to demonstrate a greater breadth of impact to potential funders. The director of the Advanced Technological Education program at the NSF concurs with this view and is, in part, why he recommended this state’s system for inclusion in this study.

Upon the hiring of a system grant development coordinator and a grant writer, the chancellor convened a “dream team” of faculty and staff from among the sixteen colleges who would work for the benefit of each college and collectively on behalf of the system. The dream team is, in part, meant to serve system priorities and enable the participation of campuses lacking faculty experienced with grants and thereby enabling universal participation in system generated grants. Membership in the “dream team” is comprised of faculty who self-select based upon a common interest in pursuing grants. The dream team has no set membership yet there are a half-dozen faculty who consistently participate. Evidence of expanding participation in the dream team has been seen since the founding of the system largely through the encouragement of faculty to faculty.

Most of the grant success of the colleges, and almost all of the success with the National Science Foundation have come as a result of system-wide coordination. In this sense, the system provides additional capacity for the smaller colleges that don't have dedicated grant staff. It is also a stated objective of the system grant office to increase the capacity of the individual colleges and the system by working with the campuses to hire a dedicated grant writer on each campus. The system grants office has made clear that “the return on investment (ROI) for a grants officer is almost immediate.” This view is corroborated by the Council for Resource Development who state that experienced grant writers should be able to exceed their salaries and other compensation in the revenue they develop in any given year (CRD 2006).

The system grants office remains comprised of two staff members, one, a grant writer, who is focused on assisting campus based faculty and staff with writing, and the grants coordinator whose focus is on the grant submission and the grants management

processes. The two system staff say that “their primary job is not writing grants for the system office but to help make the colleges better so that they can bring in more grants.” System-wide grants become the focus when a unified response makes sense, such as a coordinated approach to an industry with statewide impact. “Our primary goal is to make sure that the individual colleges get all the money they can to serve their missions.” The system grants office also sees its role as facilitating system-wide planning and expects that grant developers hired on each campus will take on a planning and organizational development role. “We have a great respect for planning and we are thoughtful and deliberate in our project planning process”. The system grants office characterizes its role as facilitating the development of a “community of practice” and providing professional development for campus based staff. They profess to be building “a culture of collaboration” and to act as facilitators for collaborative projects as well as efforts that may happen on a single campus”. System grants office staff perform the role of a sponsored research office, giving final approval around the readiness of applications and then making the actual submission. While system grant staff retain final approval around the readiness of a grant application for submission, they do not prevent individual campuses from moving forward on their own with applications based upon and individual campuses needs or interests. Individual campuses are empowered to pursue grant applications independently yet the system office retains the authority to submit the application and be responsible for grant management as the reporting authority.

In sum, the system grants office is mission focused. The office focuses on a strategy of relationship building with the colleges primarily through the facilitation of a community of practice. The system office offers professional development to the

campuses as a culture building strategy using the rubric of community of practice as an organizing principle. According to system staff, coordination, professional development and facilitation are core functionalities of the system and are essentially the result of qualitative organizational development processes. The ultimate placement of a grants officer on each campus is viewed as a goal toward enhancing core functionality. There is a firm belief that there are people in the system that have a great deal of expertise and savvy that must be tapped. The chancellor speaks of this as a latent “systems brain trust.”

Given that the system office is the recipient of all grant awards, grant management remains a core system responsibility. The commitment to strong grant management is seen as a necessary precondition to building strong relations with funders which is the key to leveraging future grants from those sources. Some faculty did report that “system-wide grants are sometimes a pain in the neck” yet this sentiment did not override the sense of importance of system-wide grant initiatives. The sentiment of system grants being a “pain in the neck” derives from faculty not wanting to “jump through too many hoops to get to a decision.” Equally important to faculty was that “system-wide grants require a lot of negotiation – who gets what and when.” No faculty reported that they avoided involvement in system-wide proposals because of these additional “pains.”

Cross-Case Analysis

Upon inception of the study, the intent was to discover and describe those factors underpinning the inordinate success of Mammoth Community College, a large and urban institution and Littleton Community College, a small and rural institution in getting

large grants. While the distinguishing features that mark the success of these two colleges as compared to their peers can be described, the findings for Littleton bear heavily on the status of the college as part of an organized system of largely small and rural campuses that comprise the State Community College System.

Having discovered the role of the System Office in leveraging the success of this small college, I returned to my original selection criteria and again reviewed the NSF's longitudinal award data for Littleton as a single applicant institution against the award data for each of the State system campuses. I also reviewed the NSF's longitudinal award data for the State system in aggregate. The review reaffirmed the disaggregated performance of Littleton as a high performing stand alone institution. Aggregation of outcomes and impact can be achieved by small colleges whether part of a centralized State system or through other collaboration and partnership building strategies. In the end, the data demonstrates that aggregation of outcomes can leverage the success of all colleges, large and small, urban or rural through collaboration.

One overarching concern in both institutions is succession planning for faculty and the need to develop faculty interested in and dedicated to pursuing grants. A mutually important source of this concern is the continued erosion of full-time faculty which is common to community college campuses across the country (AACCC, 2008). Requiring full-time faculty to devote their time to classroom teaching certainly increases their return on investment by teaching greater numbers of tuition paying students yet ultimately diminishes their capacity to devote effort toward grant development. It must also be recognized that in some disciplines adjuncts are harder to find than in others. Some campuses are creating ways to enfranchise adjunct faculty by enabling fuller participation

in the life of the campus community. This is particularly so on campuses (like Mammoth) that enjoy long standing and committed adjuncts. Several study participants came from among adjunct faculty at Mammoth and a common sentiment was that “Mammoth makes us a part of the college – we get professional development and we participate in interesting projects.” Mammoth’s adjunct faculty often choose to remain part-time with business and industry and part-time with the college. The full-time faculty and administrators encourage these adjuncts as they “further our goal of keeping the college connected with business and industry.” According to the division deans, “It is the long term adjuncts who are connected to industry that truly tie us together.”

Faculty at both Mammoth and Littleton feel that grants need to be developed by both grant writers and content experts. As stated many times at both sample campuses “grant writers can organize the narrative but that content experts must add their stuff in the voice of the discipline. Grant staff at Mammoth and at the State System office are both highly regarded by the faculty who interact with them. Faculty at both sample campuses speak of intrinsic motivation as the primary motivator of grant activity with all other incentives being quite secondary. For some, summer pay is an incentive and for others, some combination of released time or overload compensation is preferred. Faculty agreed across the board that released time was harder to get with the universal effort to get full-time faculty back into the classroom. Other than time and pay, incentives included equipment, often referred to as toys, and travel for networking and professional development.

Both case studies pointed toward the need for a dedicated grants office with grant writing staff. Both campuses spoke to enlightened leadership and that good grant

leadership and stewardship (as in grant management) were key to a sustainable grant program.

For small colleges, it is my contention that the data and the conclusions drawn from the data can be transferred to other small institutions whether part of a larger system with system office support or not. In addition to a second review of the source data for sample selection, I contacted Dr. Gerhard Salinger, the NSF's director of the Advanced Technological Education Program and Dr. Elizabeth Teles, recently retired director of the NSF's division of undergraduate education. Drs. Salinger and Teles reaffirmed their recommendation that access to funding through the NSF can be strategically leveraged by small colleges when they can present an increased "breadth of Project Impact" by collaborating on applications and aggregating expected project outcomes. "Breadth of Impact" is one of two primary NSF funding criteria, the other being "Intellectual Merit".

While larger institutions like Mammoth inherently benefit by impacting larger numbers of students in typically more highly populated regions of the country, institutions large and small can leverage success through collaborations that are inter and multi-disciplinary as well as through collaboration that brings together institutions from different geographic regions of the country.

Shared Characteristics that Promote Success in Getting Large Grants

This section seeks to categorize the findings of this chapter under four distinct headings, Leadership, faculty and staff interaction across departments, outreach – partnering and collaboration, and shared concerns. Characteristics that promote the

success of each of the colleges studied can be described under each of these broad categories.

Leadership. Faculty and administrators at both Mammoth Community College and Littleton Community Technical College voiced two overarching sentiments regarding institutional leadership. First, the approval processes for pursuing large grants must be well defined, expedited in a timely manner, and decisive. Second, college leadership must get “out of the way”, allowing faculty and other grant development staff to produce the application. Delegation of oversight authority might fall within a grants office or within the college department in which the project will reside.

At Mammoth Community College, an idea for a grant project is often brought forward by a faculty member or group of faculty to a department chair or division dean. Sometimes faculty approach the grants office directly. In either case, a summary of the proposed project is produced and circulated through the administrative ranks beginning with the department chair, advancing to the division dean and on to the vice president of academic affairs. The proposed project is also reviewed and discussed with the business office and the accountants responsible for overseeing grant budgets. Advice and feedback from all levels is incorporated into the proposed project summary to refine the approach and gain approval from all internal stakeholders. The project summary is presented to the provost who adds his final signature of approval. The president of the college is informed but does not weigh-in on most proposals. The formality of this process stands in contrast to the informality of Littleton's approval process which is simply to convince the president by meeting his three criteria (How does the project support institutional goals,

How does it impact students, and is it sustainable). The commonality between Mammoth and Littleton is that when approval is reached, the faculty, department chair and grants officers complete and submit the application. In both cases the vice presidents, provost, and the president “stay out of the way.”

The style of Leadership at the college and system levels also effects grant activity in important ways. The presidential leadership at both Mammoth and Littleton are externally focused and their engagement with external constituencies paves the way for collaboration and partnership building. These leaders also encourage community engagement by faculty and staff. The driving principle for community engagement by faculty and staff is to understand community need and to facilitate a college response to that need. Mammoth, Littleton and the State Community Technical College Systems have presidents who are engaged in national organizations and participate in professional activities that are national in scope. These leaders encourage faculty and staff to develop a global awareness – to understand what’s happening in community colleges beyond their state or region. Faculty and staff are encouraged to network and build the capacity of the college through strategic linkages.

Faculty and staff interaction across departments. Interaction across departments is the opposite of working in silos. A great deal of cross fertilization happens at both Mammoth and Littleton when faculty and staff talk with each other. In fact, faculty at both institutions report that ideas for grants and internal collaboration often begin with casual conversation. An illustrative example of this at Mammoth is an NSF award in supply chain management that was conceived by engineering faculty in

collaboration with business faculty. While business, as a discipline, is not generally regarded as within the sphere of NSF funding, the wedding of “product tracking technology”(an engineering sub-discipline) with “product distribution management” (typically a business/marketing sub-discipline) created an opportunity for business faculty to share in NSF funding. The same wedding of math, science, and business is demonstrated by Littletown and the State system through its NSF funded National Center for Automotive Technology. At both Mammoth and Littletown cross-disciplinary discussions happen as a consequence of organizational culture. At Mammoth there is a formal committee, the Signs committee, that convenes monthly without an agenda other than to talk about what’s new in the various member departments. The Signs Committee is a formal structure that promotes informal conversation. As several faculty at Mammoth have suggested, informal conversation is a way to “connect the dots” between and among disciplines and to identify institutional strengths and deficits. Connecting the dots also results in building upon current projects to leverage new projects.

The structuring of opportunity for informal conversation seems effective in drawing faculty from across Mammoth’s large campus, connecting faculty with other faculty with whom they would not normally interact. Given its small size, faculty interaction at Littletown arises more spontaneously.

Outreach, partnering, and collaboration. A shared hallmark of Mammoth and Littletown is their mutual emphasis on outreach and collaboration in grant development. As noted above, an organizational ethic of collaboration begins with the colleges’ leadership. With an ethic of collaboration as a starting point, there is broad recognition

among colleges that are successful in winning large grants that funding agencies prioritize applications that demonstrate the broadest possible impact (CRD 2008). This criterion is made specific by the National Science Foundation which requires a breadth of impact statement as one of two primary evaluation criteria. Breadth of impact may be demonstrated through the numbers of persons affected by a project as well as the expansiveness of a project across geographic regions. In each case, collaboration with other colleges or other entities can strengthen an application in multiple ways. In addition to aggregation of demand and impact, the aggregation of expertise strengthens proposals by bringing together the distinct strengths of collaborative partners. The NSF expects proposals with strong links to business and industry and both Mammoth and Littleton can demonstrate ongoing collaboration with industry both locally and statewide.

At Littleton Community College, breadth of impact was leveraged when the college joined three of its sister institutions in creating the National Center of Excellence in automotive technology. With leadership from the President of the system, representatives of Toyota, General Motors and Ford were convened to identify mutual need across the automobile industry and to forge a collaborative response by the systems community colleges. Each of the partnering colleges is located in a region of the state where one or more of the automobile manufacturers have a plant. Faculty from the collaborating institutions came together to develop curricula based upon the common needs of the automotive workforce and to implement certificate, degree, and continuing education programs on each of the campuses. The philosophy of the system is to forge statewide responses to those industries that operate statewide. Each college is free to pursue other more localized business and industry connections and partnerships with

other local agencies. The NSF has recognized the State community colleges workforce model as a “best practice” for other states to model (G. Salinger, October 12, 2010 “personal conversation”).

Mammoth Community College recently inaugurated the Center for Excellence in Manufacturing in collaboration with community colleges, large and small from across the U.S. The premise of this project was the recognition on the part of the U.S. Department of Labor that contrary to popular belief, manufacturing is not a dying industry but represents growing opportunities for careers in what are largely clean and safe environments. The thrust of this collaboration is to create partnerships with high schools to promote manufacturing as a field to enter. The project then incorporates curriculum articulation between high schools, community colleges, and baccalaureate colleges to both develop curricula and promote enrollment. Mammoth counts partners in eighteen states as part of its NSF funded Center for Excellence. In some instances Mammoth has brought on board partner community colleges who had never before benefitted from NSF funding.

Shared concerns. A number of common concerns were voiced by faculty and staff at Mammoth and Littleton. Primary among these concerns was the ability of each college to sustain its’ grant productivity into the future given the erosion of full-time faculty positions. The costs of maintaining a full-time workforce has limited the ability of community colleges across the country to hire full-time faculty thereby leading to an increased reliance on adjuncts (AACC, 2008). At Mammoth and at Littleton, adjunct faculty have historically been hired to fill-in for full-time faculty who have been granted

course releases to pursue grants. College policy at Mammoth expressly seeks to reduce the number of adjuncts by increasing the number of full-time faculty who carry full course loads. Many faculty informants to this study readily admitted that they could not pursue grant work solely on overload compensation and that their grant activity would necessarily diminish. This same sentiment was voiced by faculty at Littleton. And while adjunct faculty are typically less involved in the life of the college, some colleges have been making efforts to enfranchise long-term adjunct faculty into the mainstream (CC Times, August 2010). Enfranchisement includes access to professional development at some institutions as well as a voice in shared governance. Some adjuncts are now afforded faculty union protections as far as seniority and course assignments are concerned. What remains to be seen is whether adjunct faculty can be brought into the grants arena to serve as project personnel and Principal Investigators. An additional concern voiced over the course of the study was the absence of an adjunct role in curriculum development, which serves as the focus for much grant activity.

Quantitative Analysis of Survey Responses

Statistical analysis of survey data was guided by the research question: “Why are some community colleges much more successful than others at winning large grants and what can be learned from them? Using a case study approach, qualitative methodologies were first employed at the two sample colleges that were identified from a list of high performing colleges as identified through National Science Foundation grant submission and award data. These two case studies provided an inductive approach to generating new insights about the factors and characteristics that contribute to the success of these

community colleges in pursuing and winning large federal grants. The survey portion of this study was designed to supplement the findings from the case studies and provide data from a broad sample of colleges on self reported factors that respondents believe contributed – or not- to their college’s success in pursuing and obtaining large grants.

Sample colleges were selected randomly from the universe of community colleges. The criteria for selection included geographic distribution (rural versus urban) and institutional size (as identified by enrollment). A sample of six hundred colleges was derived from the membership list of Council for Resource Development (CRD), the largest community college grant and development professional organization. The quantitative analysis of the survey data was designed such that the respondent colleges could be empirically categorized into high and low performing institutions. Additional statistical analysis revealed significant distinctions between the high and low performing institutions. When viewed in light of the case studies, the quantitative data supports the qualitative findings on factors contributing to high performance while providing additional data on low performers. When taken together, the two methodologies are complementary with the quantitative data enhancing transferability of the knowledge generated from the case studies. The first step in statistical analysis was to examine the distribution of responses to the question: How many federal grants were received by your college in federal fiscal year 2010? Fiscal 2010 was chosen as a standard timeframe given that all colleges conform to the federal fiscal year despite differing state fiscal years. Hence, the grants counted were those received between October 1, 2009 and September 30, 2010. Table 4.1 illustrates the frequency distribution:

Table 4.1 Number of federal grants.

<u>Number of Grants</u>	<u>Frequency</u>
0	48
1	13
2	15
3	18
4	10
5	5
6	1
7	4
8	2
9	1
10	0
11	1
12	2
13	0
14	3
15	1
16	1
17	1
18	0
19	0
20	2
21	0
22	0
23	1
24	0
25	1
26	0
27	0
28	0
29	0
30	1
58	1
64	1

Analysis of the frequency distribution was the first step toward identifying trends in the data. Upon examination, the data revealed a broad variance in performance of the

respondents based on the number of grants awarded. The sample ranged from one grant award to sixty four. A cluster analysis was then performed. Based upon the frequency distribution in Table 4.1, it is noted that 23 colleges achieved a return of six grants or more while 110 of the sample colleges were awarded less than six. Moreover, an eyeball analysis of the data indicated that six awards or more was the point at which wide distributions began to appear in the number of grants received among a relatively few campuses. In contrast, the colleges with five or fewer grants were clustered closely together in the distribution and represented the largest cluster of colleges in the sample. Therefore, a cut-off score of six (6) awards was then used to define high performers - those colleges who achieved six or more awards and low performers - those receiving less than six awards. While this is a relatively arbitrary cut-off – it does reflect a distinct break in the pattern of responses and the resulting high performers represent only 17.3% of the sample; a highly selective group.

Table 4.2 High and low performer frequency output.

High (> 6 grants) = 23 (17.3%)
Low (≤ 6 grants) = 110 (82.7%)

Survey analysis proceeded by looking at the responses to individual survey questions. Responses to these questions were then segregated according low performers and high performers. The percentage of positive (yes) and negative (no) responses to select questions were then used to construct Tables 5.3, 5.4, and 5.5. The questions selected for in-depth analysis were chosen based upon the relevance of the responses in framing recommendations for improving performance among low performing colleges. Relevant recommendations are derived from self identified success factors relating to

institutional and individual performance. Factors pertaining to the need for professional development are also identified. These quantitative data further inform the study of question of what can be learned from high performing institutions. The quantitative analysis also lends support to the qualitative case studies. A chi-square test was then used to analyze and to identify statistically significant differences between the responses of low performers versus high performers. Chi-square was used as the test-statistic because the data were not normally distributed given the use of dichotomous variables. The chi square analysis was used to measure the degree of deviation between the percentage of positive responses and negative responses to each question by group.

Table 4.3 was constructed from responses to the following survey question: What factors contributed to your colleges success in securing grants? The identification of success factors by high performers is especially relevant to creating change and development strategies for lower performing institutions. These strategies might impact organizational design as well as organizational policies and procedures. The survey offered 14 possible responses to these umbrella questions. Potential responses are listed in descending order as determined by the observed chi-square value and associated level of statistical significance (where applicable).

Table 4.3 Chi-square analysis of self-reported factor(s) contributing to colleges' success in securing grants.

<u>Item</u>	<u>Percentage Responding Positively</u>		<u>Chi-Square</u>
	(1 = No, 2 = Yes)		
	<u>Low Performer</u>	<u>High Performer</u>	
	(N=109)	(N=23)	
Innovative Ideas	54%	83%	10.27***
Experienced Competent Grant Writers	68%	100%	10.05**
Sustainability Models	12%	30%	5.06*
Few Competitors	0%	0%	4.78*
Reputation of the College	30%	52%	4.05*
Interest/support from the President or senior administrators	59%	78%	3.95*
Being Aware of Grant Opportunities	72%	91%	3.95*
Collaborations and Partnership Opportunities With other Colleagues or Agencies	60%	87%	3.09
Political Influence	12%	26%	3.09
Sample Evaluation Plans	13%	22%	1.22
Past Success with Similar Projects	55%	61%	0.26
Ability to Research Opportunities	50%	57%	0.37
Access to Model Proposals	33%	30%	0.06
Adequate Preparation Time	36%	35%	0.00

*p ≤ .05

**p ≤ .01

***p ≤ .001

The most significant factors in this analysis relate to institutional capacity.

Institutional capacity is cross cutting and subsumes factors that pertain to organizational design, organizational policies and practices, and the skills and abilities of its people.

Capacity also has to do with institutional factors that pertain to institutional climate and to the level of regard for the organization among external communities. Most significant among the factors in table 5.4 was the importance attributed to having “innovative ideas”.

The capacity for generating innovative ideas rests, in part, with other factors having to do with the grant writing skills of staff and faculty and with the availability of successful

models that can be replicated. These factors include “experienced grant writers” followed by “sustainability models.” Each of these factors can be addressed through internal decision making (hire or develop experienced writers) or by acquiring models and best practices by borrowing them from peer institutions. Other factors such as having few Competitors, or the Reputation of the College, are external and would influence the development of organizational change strategies that pertain to the college’s image and reputation. Interest and Support from the President and Senior Administrators may relate to both institutional climate or professional development for the colleges leadership. Being aware of grant opportunities can also be affected through the professional development route to building institutional capacity. Both low and high performers value innovative ideas and experienced grant writers as the most statistically significant. The percentage of positive responses to these factors was high for both groups. The difference in the percentage of positive responses between low and high performers to having more experienced grant writers (68% versus 100%) indicates that high performers place even more emphasis on experienced writers than low performers. While the availability of sustainability models was statistically significant, the low percentage of positive responses by both low and high performers indicates that this factor was not nearly as important as the ones innovative ideas or experienced writers. Sustainability, as a factor, also relates to institutional capacity which is well demonstrated in the qualitative analysis. While having few competitors appears statistically significant, the one positive response makes the appearance of significance a statistical artifact. The reputation of the college and having the support of the president and senior administrators is important to both groups but with greater importance to high performers. The reputation of the college

may be seen as an institutional capacity issue but might also yield to change via institutional development strategies. Gaining the support of the president and senior administrators might also be influenced through institutional development. The variance in percentage response to “awareness of grant opportunities was much greater among high performers (91% versus low performers, 72%), a response that also has less to do with institutional capacity and more to do with factors that might be influenced through professional/organizational development. Collaboration and partnership opportunities are important to both groups. The development of such opportunities pertain to institutional values that can be influenced through professional development and institutional development strategies. Political influence is valued more by high performers (26%) than low performers (12%) but is less likely to be responsive to intervention strategies. Past success with similar projects and ability with research opportunities are fairly important to both groups while access to model proposals and adequate preparation time were less important. Model proposals can be made available through professional development (Institutional development) whereas adequate preparation time is more a function of institutional capacity

Table 4.4 was constructed with data derived from a survey question which asked: “What factors or capabilities would enable you to improve your ability to secure grant funding?” Factors are listed in descending order of strength of correlation.

Table 4.4 Chi-square analysis of self-reported factor(s) that would improve your ability to secure grants.

<u>Item</u>	<u>Percentage Responding Positively</u>		<u>Chi-Square</u>
	<u>Low Performer</u>	<u>High Performer</u>	
	(N=110)	(N=23)	
Adequate Preparation Time	49%	78%	6.52*
More Staff Dedicated to Preparing Proposals	55%	83%	5.85*
Becoming More Aware of Opportunities	72%	91%	3.84*
Access to Model Proposals	38%	17%	3.63*
More Innovative Ideas	50%	30%	2.93*
More Experienced and Competent Grant Writers	34%	52%	2.81*
Sustainability Models	35%	17%	2.59*
Ability to Meet Deadlines	15%	26%	1.84
Ability to Research Opportunities	15%	30%	0.74
Sample Evaluation Plans	25%	17%	0.68
Political Influence	20%	26%	0.42
Collaboration/Partnership Opportunities			
With other Colleges or Agencies	42%	39%	0.06
Improved College Image	8%	5%	0.03
Greater Interest/Support from Senior Administrators	24%	26%	

0.02

*p ≤ .05

**p ≤ .01

***p ≤ .001

The three most important factors to high performers are reflected in both the percentage of positive responses and significance of chi-square value. These include: adequate preparation time, more staff dedicated to preparing proposals, and becoming more aware of grant opportunities. More staff and more experienced staff are related factors but more dedicated staff is a function of institutional capacity versus the level of experience and competence that can be elevated through institutional development. Higher percentages of low performers responded affirmatively to a need for: greater access to model proposals (38% versus 17%), more innovative ideas (50% versus 30%),

sustainability models (35% versus 17%), and collaboration/partnership opportunities (42% versus 39%). These factors pertain more to institutional capacity but may be influenced by organizational development and change strategies. Improved college image and greater support from administrators were not seen as important factors in improving the ability of respondents to secure more grants most likely because these factors are not within their control. Nevertheless, improved image and improved relations with key administrators may be influenced through institutional development but not through professional development for grant writing staff. Most federal granting agencies adhere to a prescribed 45 day period between the announcement of grant availability to a final due date. Preparation time within an individual college is in part dependent upon when the college becomes aware of this opportunity. The significance of more dedicated staff is further reinforced by the data in table 4.3 which shows the significance of “experienced staff” to success in writing winning proposals.

Table 4.5 was constructed with data derived from survey question number nineteen which asked: Which professional development opportunities would you consider participating in?

Table 4.5 Chi-square analysis of self-reported opportunities for professional development you would consider participating in.

<u>Item</u>	<u>Percentage Responding Positively</u>		<u>Chi-Square</u>
	<u>Low Performer</u>	<u>High Performer</u>	
	(N=109)	(N=23)	
Implementing Effective Evaluations	44%	22%	3.93*
Developing a Budget	30%	0%	3.84*
Building Relationships with Foundations	44%	39%	1.19
Developing the Evaluation Design	59%	48%	0.63
Planning, Developing and Writing the Proposal	25%	17%	0.577
Partnerships with K12, Business, Industry, Other Colleges, etc.	41%	48%	0.33
Conducting Needs Assessments	45%	39%	0.26
Building Relationships with Program Officers	45%	39%	0.26
Developing/Incorporating Collaborative Managing Writing Teams	39%	43%	0.20
Conducting and Summarizing Literature Reviews	22%	35%	0.194
Researching Funding Opportunities	26%	22%	0.158
Building Relationships with Funding Agencies	43%	39%	0.124
Improving/Developing Facilitation Skills	27%	26%	0.003
Building Proposal Development Teams	39%	39%	0.001

*p ≤ .05

**p ≤ .01

For the top two statistically significant factors, the percentages of low performers responding affirmatively was much greater than the high performers. Professional development around “implementing effective evaluations (44 % versus 22%) and “developing a budget” (30% versus 0%) was deemed of much less value for professional development by high performers than low performers. In part this may show that low performers are aware of their skills deficits and professional development needs. Less significant were the percentage of affirmative responses to the remaining factors which average under 50% for both groups. Effective evaluations are an increasingly important

aspect of what makes a proposal successful and is reflected by an increase in the scoring value (usually point spread) of the evaluation plan to the overall score.

CHAPTER 5

EXPANSIONS AND LIMITATIONS

Introduction

This study was designed to investigate factors related to the high performance of community colleges with demonstrated the ability to secure large grants. The outcome is to understand what could be learned from these high performing colleges.. In order to understand the day to day experience of faculty, staff, and administrators within their institutional setting, a case study approach was employed at two sample community colleges. In addition, the study included a survey of community college grants officers designed to identify self revealed factors that contribute to, or inhibit their college's success. As shown in chapter four, the findings from this study provide valuable theoretical insights and data-based implications for improving the performance of community colleges in winning large grants. These findings, in turn, suggest opportunities for further study. Hence, chapter five synthesizes the data analysis and provides an expanded discussion of the implications, recommendations, and limitations that arise from the study. The chapter begins with an overview of findings from the two case studies: Mammoth Community College, a large urban institution and Littleton Community College, a small and rural institution. An analysis of the data described in chapter four reveals specific and identifiable factors within each sample college's institutional culture that promote success in winning large grants. Factors pertaining to formal and informal policies and processes also contribute to their success. While the nature of this inductive research precludes widespread generalizability of the findings, this chapter provides a description of how these findings are perhaps transferable to other

institutional settings and provide a foundation for further inquiry. The findings from the quantitative analysis of the survey are integrated within the overall discussion of findings from the case studies.

Building the Culture of Success

The term “culture of success” describes the constellation of organizational values – explicit and implicit – and organizational norms, symbols and artifacts. Taken together, these cultural identifiers help explain why the colleges in this study are able to support the submission and successful awarding of large grants, particularly those from NSF. The values, beliefs and traditions within any particular organization guide and shape priorities and their implementation. Institutional culture is both shaped by and reflected in an organization’s structure and design as well as its formal and informal policies and practices. Culture is first influenced by the organizations leadership which sets a tone that encourages grant development. In the sample colleges, encouragement to pursue grants is evident from the president on down the administrative ladder. The following section on organizational culture begins with a discussion of leadership followed by a discussion of institutional history and its relation to an ethic of outreach and collaboration. Developing an ethic of internal collaboration is discussed as an important consequence of external affairs and the importance placed on serving external constituencies. Intrinsic motivation is then discussed in relation to organizational behaviors that create an internal environment that promotes success in acquiring large grants.

Organizational Leadership

Both Mammoth and Littleton are led by presidents who value grant development by actively encouraging faculty and staff to pursue grant projects. Coincidentally, the presidents at both Mammoth and Littleton s had been involved in grant writing earlier in their careers. Setting the tone from the top down is seen by faculty and staff at both institutions as important to facilitating and driving a culture of grant acquisition. At Mammoth, the president was not involved in a strong “hands-on” manner, given the size of the college and its many administrative layers. He clearly encouraged the faculty through his vice presidents and deans but rarely saw faculty individually. In contrast, Littleton’s president was much more hands-on. He would meet with faculty to specifically hear their ideas for grant proposals and personally vet their moving forward. All Littleton faculty members had direct access to the president. Common characteristics shared by both presidents include staying out of the way of the faculty after initial vetting, exhibiting strong external relations skills, and empowering and encouraging faculty and staff to meet and collaborate with individuals and groups from the community who share a common interest . Community engagement is seen by these presidents as advancing the college’s interests. The results from the survey of community college grants officers support the qualitative findings as the survey results demonstrated a statistically significant difference in the importance attributed to support from the president and other administrators between the high performing colleges and the lower performing colleges.

At Mammoth, the size of the administrative structure left the president (and the vice presidents) at a distance from the individual faculty members. Nevertheless, it was

the division deans and department chairs who became very involved in communicating the administration's support of grant activity. The deans and department chairs actively broker relationships among the departments by communicating to their faculty what projects other departments were pursuing and by connecting faculty with their peers across the organization. At Littleton it was often the president that would take the role of brokering connections among faculty. Littleton is also part of a larger statewide community college system with a strong central office. The central office personnel (primarily the grant manager and grant writer) are very engaged in promoting grant development across the systems campuses.

External Outreach and an Ethic of Collaboration

Since its founding, Mammoth Community College made responsiveness to its external constituents a core value of its mission. The president requires his administrators to survey the college's constituencies in an ongoing practice of community need assessment. Community needs are then integrated within the college's strategic plan. At least once a year, the department chairs interview local business and industry leaders whose products and services align with each academic departments degree programs. This practice of external relations and data gathering extends down through the faculty, yet it is not a formal requirement and is not a contractual expectation. External interviews identify potential partners and collaborators in large grant development projects. External outreach was the genesis of Mammoth's several NSF funded Advanced Technological Education (ATE) projects. Mammoth has many collaborative grant projects with local organizations and does business with many large federal granting agencies as well as

private foundations. A prime example of internal/external collaboration leading to major grant funding opportunities was the formation of a Center for Advanced Manufacturing Education. A collaboration of regional manufacturers , a city public school system, and two regional universities succeeded in obtaining funds for the Center through the National Science Foundation's Advanced Technological Education grant program. Subsequent to its founding, the collaboration has expanded to include statewide and national partners from both industry and institutions of higher education at the community college and university levels. The Center has been successful in leveraging its NSF funding to include other government grants from the U.S. Department of Labor, as well as funding from corporate sources and the National Association of Manufacturers (NAM). The administrative structure of the Center includes two, full-time, executives who were recruited from industry. The Center's executive administrators form an ongoing link between industry and education – transferring knowledge on the latest industrial practices to the faculty who then develop curricula in response. The Center also performs research under contract with industry thereby providing additional revenues for the Centers operations. Revenue generation through grant initiated projects in an entrepreneurial activity that provides funding support for student interns and additional part-time faculty. Mammoth faculty members are also encouraged to network through their local and national professional organizations a practice that has led to the development of grant partnerships and collaborations with faculty and colleges from across the country.

Outreach and collaboration are also valued at Littleton and these values are demonstrated in several key ways. Primary among the strategies used by campus leaders

at Littleton is the brokering of relationships with other small colleges in an effort to aggregate demand and demonstrate greater breadth of impact through project outcomes. According to Dr. Gerhard Salinger, director of the NSF's Advanced Technological Education (ATE) program, program officers in the NSF generally believe that collaboration speaks to efficiencies in project delivery by aggregating expertise and by leveraging cost effectiveness (personal communication, Salinger 2010). Collaboration also lends to greater impact through the distribution of project outcomes across a broader student demographic and a broader geographic distribution. Much like the Center for Advanced Manufacturing Education at Mammoth, Littleton first engaged other colleges within its state in a coordinated response to the needs of the automobile industry. An eventual outcome was the establishment of a Center for Automotive Industry Training that ultimately included educational and industry partners from across the U.S. Clearly winning large grants can be leveraged by demonstrating breadth of impact through collaboration. Breadth of impact is one of two primary funding criteria of the National Science Foundation, with program evaluation and dissemination rising to a heightened importance (Salinger, 2010).

The findings from the analysis of the community college grant survey also support the assertion that the high performing colleges and their grant development practitioners rank collaboration with other colleges as important to their college's success. Survey respondents were asked to rank the importance of collaboration with other schools and with business and industry to their success in winning large grants. Respondents were also asked to rank the relevance of instruction on how to develop partnerships and collaborations as a professional development opportunity. In both cases,

grant development personnel from the high performing colleges valued collaboration more than their colleagues at lower performing colleges.

Developing an Ethic of Internal Collaboration

Mammoth and Littleton prioritize external relations as important practices to understanding the needs of their constituents. The extent and variety of internal collaboration at these colleges is influenced by their emphasis on external relations. As collaborations and partnerships are created externally, new linkages are forged internally. Internal linkages between college departments and programs serve to marshal institutional resources in service to external needs. As each college constructs its strategic plan, the collective resources of the internal departments are again brought to bear in developing to strategic objectives. An ethic of internal collaboration is an important characteristic of the institutional cultures of both Mammoth and Littleton.

Intrinsic Motivation

The faculty at Mammoth and Littleton were quick to talk about their motivations to pursue grants. Much of that motivation derives from intrinsic satisfiers inherent in their professional work, and most faculty respondents spoke to the importance of the academic and non-academic leadership in encouraging grant development as an activity of great value to the institution.

The value of intrinsic motivation was first recognized in the work of psychologist Abraham Maslow in the middle of the last century. In promulgating his “hierarchy of needs” (Maslow, 1982), Maslow identified high performers in any field of endeavor as

“self-actualizing.” Self-actualizers are those individuals whose high performance is sustained by their deep interest in their work and the contribution of their professional work to sustaining a strong self-image. Subsequent research on personal performance further posits that among skilled individuals, regardless of their field, intrinsic (internal) motivators are often more important to sustaining productivity than extrinsic motivators (Csikszentmihalyi, 2008). Generally, the importance of intrinsic motivation as essential for high performance among college faculty members has been well documented in numerous studies (Bess, 1997). Intrinsic motivation was identified by faculty and administrators at Mammoth and Littleton as a primary motivator of grant activity. Intrinsic motivation is perhaps best evidenced by the faculty interviewees who felt that their peers among highly educated professionals in fields other than higher education were compensated more highly in the form of extrinsic rewards , usually in the form of higher salaries.

Formal and Informal Structures, Policies, and Practices that Promote Grant Development

Introduction

The culture of grant development that has evolved at Mammoth and Littleton gives rise to formal organizational structure, policies and practices that have made the pursuit of grants inherent to achieving the the colleges’ strategic goals and objectives. Both Mammoth and Littleton have a grants office within their formal organizational structures whose functions support faculty in ways that enhance both the volume of grants produced and the quality of grant proposals. Unlike baccalaureate colleges and research universities that typically house an office of sponsored research that assists

faculty in constructing grant applications, community college grant activity has its origins in non-academic pursuits. A review of community college grant activity since 1976 shows that most grants were focused on building institutional capacity to support the access mission. Grants were awarded largely through the U.S. Department of Education and its predecessor the U.S. Department of Health, Education and Welfare (CRD, 1976). Most of this grant activity provided for enhancements in student services and learning support. According to longitudinal award data compiled by the Council for Resource Development, the 1980s and 1990s saw community college grant activity expand into workforce development through business and industry outreach and contracted training.

In the 1990s and concurrent with large increases in undergraduate enrollment, community colleges began to see an increase in both the number of agencies and funding organizations making grants to community colleges as well as the number of awards focusing on academics (CRD, 1999). At both Mammoth and Littleton, the impetus for hiring dedicated grant writers arose out of the faculty and academic departments and their demand for support. At Mammoth, the grants office was established in the late 1970's while Littleton hired its first dedicated grant writer in 2009. Prior to 2009 Littleton was able to take advantage of a system grant writing and research office that was founded in 1994. The grants office at each college has evolved in different trajectories but both have in common the development of formal policies and procedures that reflect the unique history of each college and the way each college conducts its business. Other policies and practices are informal in that they are not codified but constitute regular and routine behaviors characteristic to the grant seeking culture and to the people staffing those offices. In this section I will begin with the formal and informal practices that

underpin the contributions of the grants office in promoting institutional success and will follow with a discussion of formal and informal policies and practices for promoting internal collaboration.

The Grants Office

Formal policies and practice. Part of the success of Mammoth Community College results from the level of support that faculty receive from the Grants Office. The grants office at Mammoth assumes the responsibility for ushering proposed grant projects through an administrative vetting process. This process first involves working with a faculty member to conceptualize their idea in the form of a short concept paper. The director of grants then vets the idea with the office of budget and fiscal management which serves to place the project idea within the college's strategic plan. The office of budget and fiscal management requires a draft budget to be presented which is then evaluated for its fit within the colleges' overall spending priorities and fiscal constraints. Upon approval of the budget office, the director of grants will then bring forward the grant idea through a series of successive steps beginning with the council of academic deans to the vice presidents. Vetting ends at the Vice Presidential level and it is at this point that the President is apprised. The director of grants relieves the faculty of these administrative vetting processes. The key role of the grant office is to serve in an internal consulting function for faculty, thereby enhancing faculty productivity in producing grants by limiting their role to that of discipline and content area experts. The grants office frees the faculty from having to attend to administrative activity as well as the production of those parts of a grant application that do not pertain to subject area content.

The grants office serves as a place where faculty can propose an idea and get expert feedback. The grants office also coordinates award implementation with the college's budget office thereby freeing the faculty from this additional administrative requirement. The more that the grant development process is streamlined for faculty was seen by Mammoth's as important to enabling their participation in grants.

Littletown Community College was one of the first colleges within the state system to create a full-time position of grant coordinator. The creation of the position was endorsed by the president upon the urging of the faculty. The grants office at Littletown employs a single individual with the title of grant writer. Like Mammoth, the grant writer is involved in the vetting process which at Littletown is a much less formal process and with fewer steps. Nevertheless, grant ideas that gain the approval of the president must then be taken forward to the system office whose system-wide grant manager fulfills similar functions to what takes place at Mammoth. The system manager appraises the system chancellor of the project and then takes responsibility for grant submission. Like Mammoth, the grant manager conducts the award negotiations and performs ongoing fiscal management on behalf of Littletown and the faculty. Littletown and its grant writer use the system office to a greater extent than the rest of the system colleges.

Data from the national survey of community college grants officers indicates that somewhat more than half (54%) of the responding colleges employ staff whose work is solely focused on grant development. Among those colleges that employ dedicated grant development staff, only those colleges with a headcount enrollment of over 20,000 students employed at least one dedicated grants officer full-time. Thirty-five percent (35%) of respondents indicated that they employ staff who have grant development

responsibilities as part of their job description. Of the 67% of colleges reporting that they were very active in pursuing grants, a full 100% of those colleges with enrollment of 20,000 students or greater said that they were very active. In essence, all of the very large community colleges were very active in pursuing grants yet had widely varying success rates. The data described in chapter four pertaining to the diminishment of full-time faculty may be generalized to the diminishment of full-time personnel overall. The threat to grant productivity attributed to diminishing full timers points to the potential reticence of community colleges to hire full-time personnel across multiple classifications of employee. The point here is that a reticence to invest in grant development staff may be a function of the reticence to invest in full-time staff in general. Perhaps the larger colleges enjoy such economies of scale that enable them to invest more in personnel. Nevertheless the data does show that it is the larger colleges that are more consistent and persistent in their grant activity and that they employ at least one full-time person.

Data from the survey also indicates that full-time grants officers offer a spectrum of services in support of faculty. The range of services includes interfacing with the budget office and ushering grant projects through the internal vetting process. Such a “full-service” approach is consistent with the case studies where the grant officer minimizes the need for faculty to attend to administrative requirements allowing them to focus on discipline specific expertise.

Informal grants office policies and practices. The grants office at Mammoth employs a grants director whose background is academic (He holds an advanced degree in physics and has served as a high school physics teacher). The grants office also houses

a grant writer who is an attorney and a grants manager whose background is in project management. While the academic and professional degrees of the staff support the grant work, the most important aspect of their role as professionals is that they are seen as peers by the faculty. Both Mammoth and Littleton grants office staff have cultivated a relationship with faculty such that their office is seen as a place to come by for casual conversation. The formal work of concept development and vetting begins to take place only after a series of casual conversations. Faculty at both Mammoth and Littleton spoke frequently of the grants office as a supportive environment where conversation could take place without obligation.

While collaboration among faculty is largely facilitated by the department chairs and academic deans, the grants offices at both Mammoth and Littleton promote collaboration informally. Apart from the SIGNS committee which disseminates information about grant activity among the academic deans, the grants office is positioned to know what is happening with grants across the institution. Given this knowledge, the grants office often takes the lead in putting faculty together for potential collaborations.

The importance of collaboration and partnering in achieving grant success has been emphasized in both the popular and professional literature for much of the last decade (CRD, 2005 & 2010; AACCC; 2008, 2011). The emphasis on collaboration is often referred to in the context of the “new normal.” The new normal is a euphemism for the political and economic climate that has brought about an increased emphasis on accountability through documented results. Accountability is seen in a demand for demonstrated student outcomes as well as efficient budget management. In the new

normal, funding agencies look toward collaborations among institutions as a means to deliver more products in the most cost efficient way possible. Collaborations and Partnerships have now become a hallmark of well constructed grant projects with the promise of delivering greater outcomes in the most cost-effective manner. Requests for proposals from both government agencies and private foundations call for collaborative responses and sometimes award additional point scores to projects with multiple partners (U.S. DOL, 2007, 2010; NSF, 2009, 2010, Gates, 2010; Lumina, 2010). While the focus on collaboration is often external , internal collaboration among departments is an equally important strategy for leveraging grant success (NSF, 2009). The survey of grant officers indicated that knowledge and ability to form partnerships across organizational departments as well as with external entities is an strategy of high performing colleges in achieving grant success.

Formal Institutional Policies and Practices for Promoting Internal Collaboration

Faculty and staff at Mammoth and Littletown benefit from formal opportunities to collaborate internally on grant projects. As a small institution, internal collaboration for Littletown includes developing projects across departments from among the sixteen colleges that comprise the community college system. Departmental meetings at both Mammoth and Littletown include presentations by faculty who serve as principal investigators (PI's) on grant projects as a standing item on departmental meeting agendas. These presentations serve to inform the PI's peers on the nature of their collateral academic activities and often serve as the genesis of additional faculty participation. Departmental meetings often become the locus of problem solving and idea generation, a

process that carries forward as faculty continue to meet informally. At Mammoth, departmental grant activity is also a standing item on the agenda when department chairs and division deans meet. Information shared at these meetings both inform academic administrators of grant activity across the college but also make connections between projects. The identification of common interests often arise at these meetings which leads to the launching of interdisciplinary and multidisciplinary projects. Mammoth also has the SIGNS committee, a formal committee that meets without a formal agenda. At these meetings the division deans come together for a freewheeling discussion of educational issues that face the nation, the community, and the college. Potential grant projects are often born at these meetings. Mammoth faculty and professional staff members also come together in college-wide forums several times per year. At these forums faculty and staff make presentations about their academic work which often focuses on their current grant activity. Faculty and staff are also able to present their grant work in applying for merit awards that provide additional compensation.

At Mammoth, the formal organizational structure in the form of standing committees with regular meetings serves to facilitate communication among the campus constituencies about grant activity. The committee structure also formalizes groups that meet with no formal agenda thereby structuring an open conversation. Freewheeling conversation often becomes the genesis of ideas for projects.

As a small institution, Littleton relies less on formal institutional structures internal to the college and more on system-wide coordination of staff and faculty grant activity. Meetings of faculty from across the system campuses are convened by the system grant manager and system grant writer. These system grant staff see their core

role as providing facilitation for faculty as well as grant technical support. Faculty from across the campuses frequently meet informally by discipline and out of this has arisen a considerable number of grant awards that serve multiple campuses. The system-wide activity of Littleton represents an internal collaboration among a closely knit group of small colleges that enable them to act as a single and larger entity when applying for large grants. As a single institution, Littleton does enjoy greater grant success than its sister institutions. Given its size, informal connections between Littleton's faculty arise without the formal structures that enable internal collaboration at a college the size of Mammoth.

Informal Institutional Policies and Practices for Promoting Internal Collaboration

A common hallmark of success at each sample college is the practice of faculty engaging faculty. Faculty engagement often includes the active encouragement of new faculty to become involved in grant projects. Of particular note is the collegiality found among Littleton and Mammoth full-time faculty as they encourage part-time staff and adjunct faculty to attend meetings and get involved in departmental and campus-wide projects. Mammoth draws many part-time faculty and grant project staff from among a large pool of retirees from regional business and industry. The grant staff that I interviewed felt that the projects they were working on had a valued place within both academic life and in the advancement of the strategic growth of the institution.

A second hallmark of enfranchisement and collegiality is the informal problem solving that takes place. Faculty and administrators alike feel comfortable in picking up the phone and calling a colleague for advice. At times the entire SIGNS group would

come together in an unscheduled meeting that was called at the behest of a single project director. The prevailing attitude is that the success of the college as a whole leverages the success of each component department.

Threats to Grant Productivity

Faculty and staff at colleges across the country are being asked meet the enrollment demand of ever increasing numbers of students and to do this without an increase in funding. At many institutions this has led to a re-thinking of the alignment between available financial resources and those programs and activities that are identified as core to meeting the college mission (AACC, 2008). The increased pursuit of external funding through grants and donor development has been shown to be related to resource dependency. While grants and gifts can, in part, relieve the college budget by funding some activities through grants and raised funds, the deployment of a grant program requires staff and faculty time and effort. This section discusses the implications of current fiscal constraints on colleges to the maintaining an infrastructure that is conducive to winning large grants.

Workload. Faculty at both Mammoth and Littleton pursue grant work and receive compensation through four methods: reduced course load, grant funded release time, overload compensation, and funding for summer months and other off-contract time. Faculty at both institutions have preferred a combination of the above methods. It is the current priority of both colleges to deploy full-time faculty into the classroom. Given that classroom teaching is the primary contractual responsibility of the faculty, each

college has sought to reduce its reliance on adjuncts by striving to assign full class loads to its full – time faculty. Many faculty suggested that they would reduce their grant activity rather than accept overload pay or summer compensation. The assignment of increased class sections to full-time faculty and the resultant reduction in release time to work on grants presents a conflict by potentially reducing fund raising through grants by adjusting faculty workload to reduce reliance on adjuncts. Faculty were clear that the loss of course releases would diminish their grant work.

Faculty at Mammoth felt that refocusing on classroom teaching would adversely affect their ability to put time into building partnerships and collaborations which are key elements to their grant success. External collaboration between the college and its local constituencies is core to the college mission, yet collaboration with other colleges and organizations around the country could be threatened. At Littletown, external collaboration was less of a concern as system office personnel often filled the role of brokering partnerships among the system colleges as well as collaboration with major industries that operate statewide.

Extrinsic motivation. The standards for evaluating community college faculty generally focus on classroom teaching as the primary criterion. Activities such as research bear little weight in community college faculty evaluation rubrics. At both Mammoth and Littletown faculty spoke of their inherent interest in their professional work and the connection to their scholarly interests as the prime motivator for participating in grants. In this sense, it is intrinsic motivation that sustains their interest and effort. Nevertheless, extrinsic motivators including travel (to conferences and other

grant related activities) and the acquisition of equipment through grants have become increasingly important as other sources of funding for non-essential equipment and travel are eliminated.

Improving Grant Performance with the National Science Foundation

The impetus for studying large grant acquisition at community colleges was the disparity of success among community colleges in winning large grant awards from the National Science Foundation (NSF). Focusing on the NSF was in part motivated by the effort being made by that agency to engage greater numbers of community colleges among its' successful awardees. The survey of community college grants officers reveals that the NSF ranked third among the federal agencies as a focus of grant submissions in federal fiscal year 2010. The highest ranked agency was the U.S Department of Education followed by the U.S. Department of Labor. The following sections include: NSF concerns around grants from community colleges Followed by strategies for increasing grant success.

Strategies to increase grant success with the national science foundation—intellectual merit and breadth of impact. The two primary criteria upon which NSF proposals are evaluated are intellectual merit and breadth of impact. Intellectual merit speaks to the logic and academic soundness of an idea but mostly to the level of innovation. The ability to generate innovative ideas was shown to be important to the success of the high performing colleges in the survey portion of this study. The ability to be innovative presumes that the grant applicant is well informed around trends in NSF

funding including: the NSF's funding priorities, the history of funded projects, and the best practices that have been derived from previously funded projects. These topics can be explored in-depth through the NSF's web-based resources. Of prime importance is the ability of the applicant to ground their project idea in the context of current best practice and to show how their project will build knowledge. This is the essence of innovation. The NSF advises that colleges new to NSF funding seek participation in collaborative grant applications. For community colleges the most likely path is through the Advanced Technological Education program under the NSF's Division of Undergraduate Education. This grant program requires that individual applicants must be community colleges or that consortia of colleges led by universities must include community colleges. Community college faculty are advised to explore the possibilities of participating in consortium grant applications by contacting one of a network of Advanced Technological Education Centers (ATE Centers). The ATE Centers each have a specific disciplinary focus such as: Information and Communications Technology, Biotechnology, and Cybersecurity. Opportunities to find collaborative partners can be accessed through this system of ATE Centers.

The Mission of the ATE Centers is to serve as both a source of professional development and as repositories for curriculum and course content. Colleges new to NSF grant funding might first seek funds to adopt curricula from an ATE Center which can then be adapted to fit their unique institutional circumstances. The NSF also provides opportunities for ATE funding through a program known as: "The small grants for first time applicants" program. This program provides small grant awards (25K to 150K) for three-year projects, to colleges seeking entry into NSF funding. The ATE program was

founded with the expectation that it would increase community college participation in NSF grants yet experience to date shows that consortia of community colleges led by universities are the primary recipients of ATE funding.

Other strategies. Success with the NSF as well as other funders of large grants to community colleges presumes that applicants will ground their projects in the context of what has come before and how the proposed project will build upon prior knowledge. Professional development activity must then focus on building awareness of NSF priorities. The faculty and college leadership must also internalize the notion that the case for funding must focus on how grant projects advance NSF priorities. Focusing on funding agency priorities will often require a shift in thinking by community college applicants who have a history of producing need-based grant applications. In part, developing a case for support based upon institutional need is a legacy of decades of grant applications to the U.S Department of Education (CRD, 2008). In a pilot study of NSF program officers, an overarching concern was that community colleges tend to make the case for funding based upon the needs of the institution rather than the priorities of the NSF.

Additional recommendations for improving success were put forward by interviewees. Participation in grant review panels was primary among them. The NSF (and other funding agencies) seek faculty from community colleges to serve as grant reviewers. The selection of reviewers is most often based upon the disciplinary focus of the proposals under consideration. Serving as a reviewer provides valuable insight into the grant ranking and awarding process as well as the construction of successful grant

applications. Participation on review panels can be facilitated by direct inquiry with the funding agency. At Mammoth and Littleton the contact is often facilitated by grants office staff. The value of participation in proposal review was best put by one interview who said “ The NSF picks good panelists – but the majority are from 4yr schools. There is a preference for Ph.d’s on the panels but with the ATE program this is not so often the case – Panelists get involved with a lot of behind the scenes communication. There is a payoff for involvement in these conversations. Talking to others and especially program officers lets you know what they think and you can avoid going off on tangents that won’t be successfully funded. – As a reader, I have to know real quick if a proposal has merit.”

While funding to community colleges is not limited to the ATE program, funding under other NSF programs is typically much more competitive. Faculty are encouraged to look at other programs under the Division of Undergraduate Education, particularly the Course and Curriculum Improvement program (CCI).

General Summary of Change Strategies to Build Success in Winning Large Grants

Many of the recommendations made for improving success with the NSF extend to grant activity with other governmental and non-governmental funding sources. Participation on review panels is a generally good recommendation as is making contact with program officers. Contact with grants officers can usually be made through via telephone or email. Study participants suggest that contact with a program officer can be invaluable in guiding the development of a project idea or in steering clear of ideas with little prospect of funding. Multiple interviewees on both sample campuses suggested that

contact with a funding agency program officer early on in the development of a project idea also gets program officers invested in the idea. Interviewees felt in general that program officers were invested in helping usher good ideas through the proposal development and submission process. In the experience of those faculty and administrators participating in this study, program officer contact can be facilitated by grants office staff.

The existence of full-time staff dedicated to supporting faculty grant development was key in the success of Mammoth and Littleton. Institutions are advised to make this investment. In a time of scarce resources, the value of investing in grant personnel can easily be measured in terms of the monetary return on the investment made by the college in creating the position.

Recommendations for Further Research

Professional development opportunities for presidents in the area of grants and fundraising exist within such organizations as: the American Association of Community Colleges (AACC) and the League for Innovation in Community Colleges. The AACC offers a program in fundraising that includes a strong grant component which it offers through its affiliate the Council for Resource Development (CRD). Participation in this workshop provides a good introduction to both the power and pitfalls of grants and has proven useful in convincing presidents to start or accelerate their colleges grant programs. Contact with the Council for Resource Development (CRD) can be made through its website at www.crdnet.org.

The survey of community college grants officers revealed that in addition to the NSF, grant opportunities were on the increase with other federal departments including the U.S Department of Labor. Grant activity with the National Endowments (NEH and NEA) are also on the increase (CRD, 2011). Each of these organizations look to fund projects that meet specific agency priorities. Additional opportunities for funding are now, more than ever, being made by public and private foundations. The implications for seeking large grants through the large national foundations is an area that should be studied.

The conceptualization of this study was motivated by the failure of the faculty professional development model to deliver the intended result of increasing the submission rates and success of community college faculty in winning large grant awards. Formative evaluation of the NSF funded professional development workshops indicated a great deal of satisfaction by participants with regard to the content and structure of the program. A recommendation for further study might include a revisiting of the several hundred attendees to ask the question: “What happened after the workshop when you returned to campus?” Valuable information might be gained in understanding the impediments faced by workshop attendees in sustaining their effort. An expansion of the survey methodology used in this study would also improve the validity and generalizability of the outcomes by providing an expanded data set from which to draw conclusions

A study focusing on the attitudes of funding agency personnel toward community colleges might also prove informative in directing an effort to build image and awareness. Increasing community college participation in grant funding might benefit through a

focus on educating the funders as to the increasing role of community colleges in American undergraduate education.

Conclusion

This study represents a first-step in understanding institutionally related factors in promoting and sustaining the activity of community college faculty in producing large grants. The survey of community college grants officers revealed that almost all large institutions actively pursue grant funding. Success rates at large institutions vary, and my hope is that the elements of success found at Mammoth will prove useful to other large colleges. What can be said is that large colleges won't necessarily need much convincing to get into the grant business. At the smaller institutions the lay of the land is different. In an era of scarce resources, the survey revealed that small colleges (less than 5000 FTE) employ many fewer personnel and typically have a lean operation with regard to grant support staff. The concept of Return on Investment (ROI) is a case that can be made as a reason for creating an office that supports faculty grant development. The Council for Resource Development is a good source best practices in evaluating the productivity of a grants office.

When additional funding organizations begin to embrace community colleges, they would do well to encourage collaborative applications from consortia of colleges. Community colleges could be linked with other successful community colleges or with baccalaureate granting colleges and universities. Encouragement is key to bringing more community colleges into the grant development fold, and such encouragement must begin with senior administrators or grant activity is unlikely to be sustained.

APPENDIX A
FOCUS GROUP PROTOCOLS

Introduction

Good morning: Introduce myself

The focus group will begin with a description of my study and the research question and sub questions being explored. The initial focus group will also provide me with a context for understanding more about the institution as an organization. Further, I will seek to identify candidates for the individual, in-depth interviews from what I learn in the initial focus group.

Then reiterate the three lines of questioning pursued in the individual interviews

The first focuses on the origins of your interest in pursuing grants. I want to learn about your background and what motivated your interest in grantsmanship.

Secondly, I want to hear about others – individuals and positions/offices within the college that influenced you positively or negatively along the way.

Third, I want to explore your experiences.

Tell me about the history of grant seeking at this college?

Probe: Maybe some disciplines more than others

What about the NSF specifically?

What is best about pursuing and working on grants here?

Probe: Particular colleagues or administrators?

What are the challenges?

Probe: Challenges in doing the grantwriting as well as challenges you face bureaucratically

What more can the college do?

Probe: Resources in grantwriting support – workload issues?

Given our conversation, are there others in the college that you think I should talk to?

Probe: particularly those who might contribute to understanding my research questions.

What is best about working on NSF grants?

What are the challenges?

What other sources of funding have you pursued?

Probe: How did you find those funding sources – other people, online, professional publications

How do other agencies compare to the NSF?

APPENDIX B

IN-DEPTH INTERVIEW PROTOCOLS

Name of Interviewee:
Position: (faculty member/discipline)
Date:

Introduction:

Good morning (introduce myself)

This interview is being conducted to get your input on the grant development process at XXX community college with particular attention to your experience in securing large federal grants. I want to talk specifically about your experiences with the National Science Foundation. My central research question is why some community colleges are much more successful at winning large federal grants than their peer colleges. While I have a number of questions I would like you to respond to, I would like to have a free-flowing conversation.

If it is okay with you, I will be tape recording our conversation. The purpose of this is so that I can get all of the details but at the same time be able to carry on an attentive conversation with you. I assure you that all of your comments will remain confidential. As I report my findings, I would like to use occasional direct quotes but without reference to the individuals who made them. If you agree to the interview and tape recording, please sign this consent form.

I have three distinct lines of questioning.

- The first focuses on the origins of your interest in pursuing grants. I want to learn about your personal history and what were the motivations for your interest in grantsmanship throughout their personal history.
- Secondly, I want to hear about others – individuals and positions/offices – within the college that influenced you positively and negatively along the way.
- Third, I want to explore your experience with the NSF and its processes.

I'd like to start by asking about your career and how you came to be affiliated with a community college. – Are you involved in any NSF grants at this time?

Probe: Are you currently the PI or a Co-PI – or how do you contribute?

Do you recall how you first became involved in grant seeking and grant development?

How did you become involved in developing NSF grants?

Probe: What happened that piqued your interest? What made you want to go after a grant in the first place?

How did you first make contact with the NSF?

Probes: Was it an RFP that you responded to directly? Did you contact or otherwise meet a program officer? Were you influenced by colleagues at this college?

How did the college respond to your interest and effort toward pursuing grants?

Probes: Following up on that I'd like to know who at the college was supportive? Was it your colleagues, or particular staff or administrators? Was their resistance? Where was support lacking?

What kind of support does your college provide in terms of grant writing?

Probe: In what ways can they be helpful – What more can they do?

Does your college have a formal vetting process for grant ideas - or a process for getting the approval to move forward with a proposal?

What has your experience been with this process? Is it helpful or cumbersome?

Overall do you feel supported and encouraged to pursue your grant interests?

Probe: who or what is it that supports or hinders your interests and effort – can we be more specific – no need to name individuals (remind respondent that this will be held confidential). Did you have others mentor you, or alternatively, did you have to overcome roadblocks?

Tell me about the most positive influences you have had – those times or circumstances of people that you can say have been part of your success?

Probes: Were their people or events outside of this college? Did you benefit from professional societies or other organizations?

What have been some of the frustrations or areas for improvement with regard to supporting grant development?

What sources of Funding have you pursued?

What were these experiences like?

Have you gotten to know anyone at the NSF? If so, how?

Probes: Have you met with any program officers personally – Had telephone conversations, exchanged email? Have you worked with grant administrators? NSF's fiscal department? *(based upon the responses I will initiate additional lines of questioning around who and how helpful and supportive the different offices of the NSF have been for the respondent.)*

Have you had the opportunity to review your proposal scoring sheets and seen the comments of the reviewers?

Probe: Did these summary reviewer reports encourage you further or discourage you?

What was your reaction to the reviewers comments?

Probe: Were they helpful? Do you know the background of your reviewers? Have you ever considered being a reviewer or suggesting colleagues who you would like to see as reviewers. ?

What kinds of background knowledge did you have (going into the grant writing process) that you found especially helpful?

Probe: Maybe other settings you have worked in? Partnerships or collaborations that you have been a part of?

Are there other skills that you possess that you think were helpful?

Probe: Perhaps you are a particularly convincing writer? Anything that might have to do with personal characteristics – Personality?
I'd like to ask you about NSF processes - Did you get to know a program officer prior to or during the development of your proposal.

Probe – did you just write and submit? Any calls or emails to program officers?
(anecdotally, over the years faculty have shared with me that program officer contact had been key to their success)

How about the format of the RFP and the forms? Anything about the RFP that you would like to react to?

How about the submission process – Was it straightforward enough? Difficult?

Probe – Did you have support from your college with Fastlane? Did you have to do it yourself?

Do you have any comment on the Institutional Review Board Process?

Given the purpose of my study, what else do I need to know?

APPENDIX C

SURVEY INSTRUMENT



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**NATIONAL GRANTS SURVEY
COMMUNITY & TECHNICAL COLLEGES**

Name: _____

Title: _____

College: _____

1. Are you the primary grants person at your college?

- Yes
- No

Are you a full-time employee?

- Yes
- No

2. How long have you been in your current position?

- Less than 2 years
- 2 to 5 years
- 6 to 9 years
- 10 years or more

Do your job responsibilities include? Check all that apply:

- Identifying grant opportunities
- Preparing proposals for competitive grants
- Developing budgets
- Negotiating awards
- Grants management
- Other _____

3. Is your college a:

- Single campus institution
- Multi campus institution

4. Please indicate your institution's full-time headcount enrollment.

- Up to 999
- 1,000 – 2,999
- 3,000 – 4,999
- 5,000 – 9,999
- 10,000 – 14,999
- 15,000 – 19,999
- 20,000 or more

5. Is the grants program organized with the institutional advancement/resource development office?

- Yes
- No (Please indicate the function area where grants are included.) _____

(If "Yes" to question 5 – go to question 6)

(If "No" to question 5 – go to question 7)

6. What other functions are included in institutional advancement/resource development at your college? Check all that apply:

- Grant administration
- Private sector fundraising
- Alumni relations
- Legislative relations
- Public relations/marketing
- Business and industry programs and services
- Other _____

Questions 7, 8 and 9: Assess the amount of time and type of employee involved in grant preparation. We want to learn how many full-time people consider grants procurement their primary job description. Additionally, we want to learn how many part-time and "other college employees" help with grants procurement. As such, please answer the following three questions with extra attention to the questions.

7. How many full-time employees are considered grants officers? (Count yourself if applicable.)

- 3 or more
- 2
- 1
- 0

8. How many part-time employees are considered grants officers? (Count yourself if applicable.)

- 3 or more
- 2
- 1
- 0

9. How many full-time employees, whose primary job is something other than grants, dedicate a portion of their time to prepare grants?

- 3 or more
- 2
- 1
- 0

10. How would you describe your college's level of activity in seeking competitive, discretionary grants from federal and state agencies or private foundations?

- Very active (pursue numerous grant opportunities)
- Moderately active (pursue some opportunities)
- Slightly active (pursue very few opportunities)
- Inactive (no active grant function)

11. Using the last fiscal year (FY10), indicate area(s) your college has applied for grants. Check all that apply:

- Academic program enhancement, including faculty development, equipment and new program development
- Student support, including academic and personal support services and activities
- Adult education
- Institutional enhancement such as buildings, facility remodeling and administrative improvement
- Workforce development
- Other _____

12. Please provide the number of grants the college has received by the following sources in the last fiscal year (FY10):

	Number of proposals submitted	Number of proposals funded
Federal	_____	_____
State	_____	_____
Local	_____	_____
Non-government groups	_____	_____
Private foundations	_____	_____
Other (please specify)	_____	_____

13. In the last three years, what grants has your college pursued? Check all that apply:

- Title III, Title V, GEAR UP, TRIO or other US Department of Education Programs
- US Department of Labor
- American Recovery and Reinvestment Act (ARRA)
- United States Agency International Development (USAID)
- National Telecommunications and Information Administration (NTIA)
- Sustainability and renewable energy programs
- National Science Foundation (NSF), advanced technology centers
- Department of Health and Human Services, Health Resources and Services Administration (HRSA)
- National Endowment for the Humanities (NEH), National Endowment for the Arts (NEA)
- Community Development Block Grants (CDBG)
- State government programs
- National or regional private foundations
- Local foundations
- Other (please specify) _____

14. Over the last three years, what percent of competitive discretionary grant proposals submitted has been funded?

- 75% or more
- 50% to 74%
- 25% to 49%
- Less than 25%

15. In the last fiscal year (FY10), what was the approximate amount of competitive grant funds received by your college?

- \$10 million or more
- \$7 to \$9.9 million
- \$5 to \$6.9 million
- \$3 to \$4.9 million
- \$2 to \$2.9 million
- \$1 to \$1.9 million
- Less than \$1 million

16. What factor(s) have contributed to your college's success in securing grants? Check all that apply:

- Experienced, competent grant writers
- Interest/support from the president or senior administrators
- Being aware of grant opportunities
- Innovative ideas
- Ability to research opportunities
- Adequate preparation time
- Sustainability models
- Sample evaluation plans
- Access to model proposals

- Reputation of the college
- Past success with similar projects
- Collaborations/partnership opportunities with other colleges or agencies
- Political influence
- Few competitors
- Other (please specify) _____

17. What factor(s) or capabilities would enable you to improve your ability to secure grant funding? Check all that apply:

- More staff dedicated to preparing proposals
- More experienced, competent grant writers
- Greater interest/support from the president or senior administrators
- Becoming more aware of opportunities
- More innovative ideas
- Ability to research opportunities
- Adequate preparation time
- Sustainability models
- Sample evaluation plans
- Access to model proposals
- An improved college image
- Collaboration/partnership opportunities with other colleges or agencies
- Political influence
- The ability to meet deadlines
- Other (please specify) _____

18. Would you participate in grants professional development opportunities?

- Yes
- Maybe
- No

(If "Yes" or "Maybe" to 18 – go to 19)

(If "No" to 18 – go to 20)

19. Please indicate which professional development opportunities you would consider participating in. Check all that apply:

- Developing a budget
- Building proposal development teams
- Building relationships with foundations
- Building relationships with funding agencies
- Building relationships with program officers
- Conducting and summarizing literature reviews
- Conducting needs assessments
- Developing the evaluation design
- Improving/developing facilitation skills
- Managing writing teams
- Planning, developing and writing the proposal

- Researching funding opportunities
- Implementing effective evaluations
- Development/incorporating collaborative partnerships – K12, business, industry, other colleges, etc.

20. Has your college utilized the services of a consultant in the grants development process?

- Yes
- No
- Not sure

(If “Yes” to 20 – go to 21)

(If “No” or “Not sure” to 20 – go to 24)

21. Please mark the tasks in which you have used a consultant for in the past.

Check all that apply:

- Identifying funding sources
- Developing/defining the project
- Establishing goals and objectives
- Developing evaluation measures
- Writing a proposal
- Editing a proposal
- Critiquing a former proposal
- Developing a budget
- Other (please specify) _____

22. Please indicate any factors that influenced your decision to use a consultant in the grants development process. Check all that apply:

- Prior relationship
- Reputation
- Availability
- Cost
- Success record with funding source
- Don’t know
- Other (please specify) _____

23. Would you consider using a consultant again for grant support in the future?

- Yes
- Maybe
- No

(If “Yes” or “Maybe” to 23 – go to 25)

(If “No” to 23 – go to 28)

24. If you have not used a consultant for grant support for your institution, would you consider it?

- Yes
- Maybe
- No

(If "Yes" or "Maybe" to 24 – go to 25)

(If "No" to 24 – go to 28)

25. Please indicate any areas of consulting expertise you might utilize. Check all that apply:

- Identifying funding sources
- Developing/defining the project
- Establishing goals and objectives
- Developing evaluation measures
- Writing a proposal
- Editing a proposal
- Critiquing a proposal
- Developing a budget
- Other (please specify) _____

26. What type of relationship would you be more likely to have with a consultant?

- One-time grant writing project
- Ongoing research and development of grant opportunities based upon a pre-determined contractual agreement
- Other (please specify) _____

27. Please mark any factors that would influence your decision to seek the services of a consultant.

- Prior relationship
- Reputation
- Availability
- Cost
- Success record with the funding source
- Don't know
- Other (please specify) _____

28. Are there any other factors unique to the grants program at your college that should be noted? If so, please describe:

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