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Examination of decision-making processes for resource allocation at the college-level and school-level within an academic unit

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For the degree of Doctor of Philosophy

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Date

EXAMINATION OF DECISION-MAKING PROCESSES FOR RESOURCE
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ACADEMIC UNIT

A Dissertation

Submitted to the Faculty

of

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by

Amy L. Childress

In Partial Fulfillment of the

Requirements for the Degree

of

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Purdue University

West Lafayette, Indiana

For Chell,
Anders and Niels,
and
my parents

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ABSTRACT

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The purpose of this study was to examine the quantitative and qualitative factors used when deciding how to allocate resources within a single academic unit and three subunits, and who was involved in those decision-making processes. It focused on the College of Engineering and three Schools of Engineering at Purdue University from 2000 – 2007, when Dr. Martin C. Jischke was president. The university underwent institution-wide strategic planning and increased use of metrics in decision-making under his leadership. Financial data from the college and three schools were collected and analyzed. An interview protocol was developed and piloted before implementation in interviews with nine administrators from three levels at the institution: university, college, and school. These participants all had some degree of involvement in the resource allocation processes affecting either the college or one of the three schools. The research was designed as an embedded case study and incorporated qualitative and quantitative data; systems theory provided the framework and grounded theory guided the analysis.

The results suggest that the role of strategic plan development and enactment served to address the issue of shared governance. The administrators' efforts to involve

stakeholders led to changes in perceived ownership in various places within the College of Engineering. The university's increased focus on interdisciplinary research, furthermore, encouraged new research collaborations across school and college boundaries. Suggestions for implementation include establishing and communicating a decision-making framework to improve stakeholders' understanding of this process, conducting regular reviews of existing programs to improve efficiency, and increasing interdisciplinary collaborations.

CHAPTER 1. INTRODUCTION

The changing economic climate and public sentiment regarding higher education have contributed to transformations in how academic institutions manage their resources, as well as how they compete against one another in a bid for available revenues. Increased accessibility influenced dramatically the transition of higher education post-World War II, which involved remarkable growth and expansion in college programs and facilities, student enrollment, and federal student aid. The GI Bill was responsible for providing access to millions of returning military veterans, which in turn spurred the significant expansion of campus facilities, faculty, and enrollment. Consequent federal financial aid programs were developed to increase access to most qualified college students.

Another remarkable transformation to impact available resources occurred during the 1980s, which ushered in a new era of accountability for universities and colleges. A contributing factor was the development of scientific managerial tools after WWII, such as cost-benefit analysis, that gave external parties what they believed was the ability to evaluate efficiency and effectiveness of academic institutions. State governments and the public amplified their calls for academic administrators to be more responsive. The states also created their own commissions on higher education, with much variation in structure and function from state to state. The economic climate of this time was chiefly

responsible for increased demands on accountability from higher education, as explained by Marcus (1997). Governmental services with higher perceived social value were given greater priority, which contributed to reductions in appropriations for higher education. Schools raised their tuition rates, a direct result of declining state support, which in turn caused public concern and outrage at a time when a college education was viewed as a requirement for job opportunity and security. Politicians acted on behalf of the concerned public through their demands for more modest tuition increases and measurable outcomes, while the state boards worked to determine how they might resolve to evaluate effectively the outcomes of academic institutions. The universities and colleges, for their part, were leery of external organizations controlling their activities and mandating additional reporting requirements. In his analysis of the restructuring of state higher education boards, Marcus found that politicians, either governors or legislators, initiated the majority of proposals. Reduction in costs and greater accountability were the two most popular reasons for creating these proposals. Marcus' conclusion for state politicians and higher education administrators was a message advocating cooperation: "the interests of higher education are best served when the intended barrier between higher education and politics is only infrequently breached, then focusing on the cooperative implementation of a shared vision of higher education excellence is more fruitful than jockeying for power and control" (p. 410). Higher education administrators, then, seek autonomy in deciding how best to use their resources. According to William Massy (1996),

What is there to study about resource allocation? Isn't it obvious that one just puts the money where it will do the most good? In the most prestigious universities, isn't it received wisdom that one should hire as many of the best faculty as possible and then step back and let them do their jobs? Can't informed people, who know the academic disciplines and their institution's strengths and weaknesses, simply decide what programs need funding the most and give them the money? It's not that simple. While resource allocation does boil down to knowledgeable people making informed decisions, the record shows that process – the way decisions are made and communicated – powerfully affects outcomes. The same knowledgeable people, blessed with the same information and diligence, can reach a successful conclusion through a good process but end up with failure if they must fight a poor process every step of the way. (p. 3)

The changing economic climate and public sentiment regarding higher education, however, have contributed to transformations in how academic institutions manage their resources, as well as how they compete against one another in a bid for available revenues.

Estelle James (1990) conducted an evaluation of the literature on decision-making in higher education and concluded that there was “relatively little empirical evidence about the resource allocation process at institutions of higher learning” (p. 77). She addressed the nature of economic objectives for higher education administrators, which has been different from profit-maximizing goals of business leaders. The presence of imperfect information (i.e. incomplete or biased) has greatly complicated decision-

making. Important lessons can be learned by examining the processes through which administrators make their decisions for allocating their limited resources. The creation and implementation of a strategic plan, for example, might aid administrators in focusing their goals and encouraging a transparent process for the allocating funds.

1.1 Statement of the Problem

Previous research has examined how entire institutions manage the overall procedures for allocating resources, such as funds, personnel, and facilities (Cameron, 1978; Immerwahr, Johnson, & Gasbarra, 2008; James, 1990; Massy, 1996). There is a need, however, for studies that examine the complex decision-making process within a single academic unit so that administrators can better understand best practices. This study sought to identify the quantitative and qualitative factors that higher education administrators took into account when they decided how to allocate those limited resources and then considered how these lessons might be implemented to improve resource allocation.

Specifically, this research examined factors used in the decision-making process for resource allocation within Purdue University's College of Engineering (CoE), the School of Materials Engineering (MSE), School of Agricultural and Biological Engineering (ABE), and the School of Electrical and Computer Engineering (ECE) (see Figure 1 for an organizational structure chart.) It focused on the years 2000 – 2007 when Purdue was under the leadership of President Martin C. Jischke, who was responsible for ushering in a new era of strategic plans and increased use of metrics in decision-making.

President Jischke led the university through a strategic planning process that focused on the tripartite mission of learning, discovery, and engagement. As part of this planning process, he “developed Discovery Park, an interdisciplinary hub that is home to ten research centers, and he led the Campaign for Purdue, which raised more than \$1.7 billion in private donations to the university” (Purdue University, 2015).

The College of Engineering (CoE) and its three schools were selected for a number of reasons. First, the CoE was chosen because it was one of the largest colleges at the university and had the enviable position of being an academic unit that only educates its own students. While many other colleges are responsible for offering general education courses to teach students from across the university, the CoE generally offered courses specifically for engineering majors. This characteristic served to control outside influences on the administrators’ decision making.

The three schools were chosen because they represent the largest school, ECE, and two of the smallest, MSE and ABE. (Size in this study was determined by number of students, faculty, and research dollars.) Another reason for these selections was accessibility to individuals who served as school administrators during those years.

The value of this study, therefore, is that it offers an account of one model where university administrators successfully responded to unprecedented internal and external changes. It incorporates quantitative metrics and qualitative characteristics, such as interpersonal communication and negotiations. The findings can be replicated in other units at Purdue as well as at other academic institutions.

1.2 Research Questions

The following two research questions guided this study:

1. How were financial decisions made about resource allocation within the College of Engineering at Purdue University at the college level and at the three listed schools' level during President Jischke's tenure (2000-2007) when strategic plans were broadly created and implemented?
2. How did the various levels of administrators – including the dean, associate deans, school heads, and financial directors – within the College of Engineering influence decision-making about resource allocation at each school level?

1.3 Significance of the Study

A review of the relevant literature showed that there have been limited dissertations or research projects that have analyzed the decision-making process related to resource allocation at a single institution. Phelps (1996) conducted a case study at the University of Nebraska about that institution's efforts at pairing resource allocation with their planning activities. Other research looked at higher education from the viewpoint of multiple institutions. Pagel (2011) examined how the California Community College system was able to integrate strategic planning with their resource allocation, particularly during a period of decreased state financial support. Kaporch (2002) studied the use of strategic planning across American Catholic universities and colleges and the perceived impact from external influences. And Horton-Wallace (2002) investigated the resource

allocation models across public higher education within The Bahamas at the state and institution levels.

The uniqueness of this particular study is that it reveals the impact of key factors necessary for tying the decision-making process to the implementation of strategic plan goals. One valuable component of the decision-making process is the communication between and among decision-makers and their subordinates. This study yields a description, based on actual data, which has the potential to improve transparency in the resource allocation process among stakeholders. It also provides a mechanism for connecting allocation decisions to strategic goals of an academic unit, as well as to the mission and goals of the overarching institution. Such considerations are important as calls for increased accountability and fiscal responsibility continue to mount both internal and external to colleges and universities.

1.4 Limitations of the Study

There are some limitations to this study. A new interview tool was developed because no existing tool was equipped to answer the specific research questions of this study. A new tool runs the risk of producing errors or faulty conclusions due to a lack of extensive testing on a large population of users. An additional limitation is that this study was conducted with one academic school within a single university. It is because of this small scale that the sample size was nine administrators, although the mix of administrator interviewed represents most of the decision-making levels shown in Figure 1.1. A third limitation is the small sample size for academic units, years analyzed, and

number of academic units within a single institution. While the College of Engineering was selected because it does not offer courses for non-major students, this flexibility may limit transferability of results to other units. A final consideration is the interviewer and the potential for researcher bias. The researcher served as an employee of three interviewees and was employed by the School of Agricultural & Biological Engineering from 1990-2003 as a student employee, an administrative professional staff member, and a graduate research assistant. The researcher remains employed at the university within a research center not affiliated directly with the college.

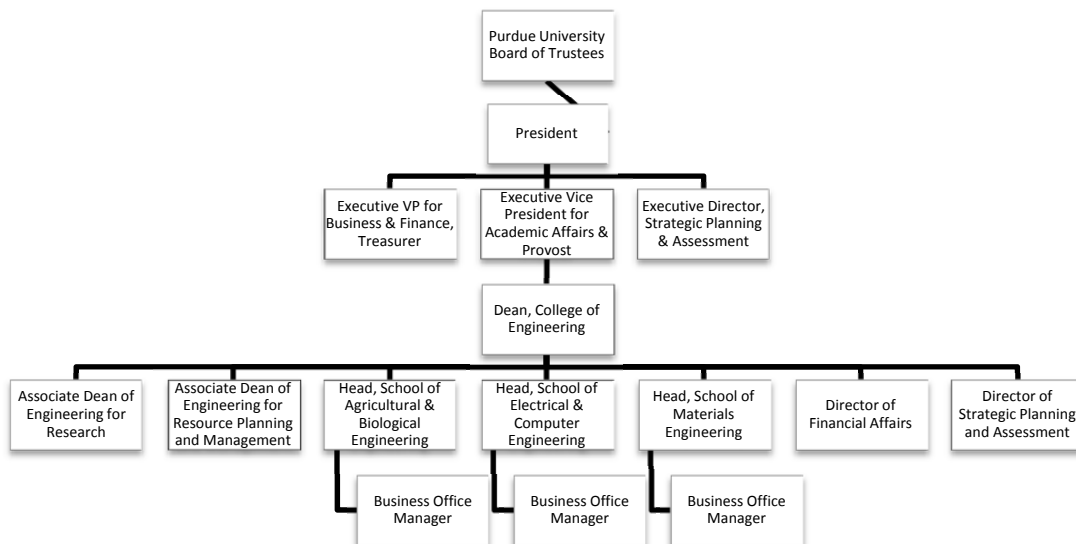


Figure 1.1 Select organizational chart for Purdue University and the College of Engineering

1.5 Definitions of Terms

- Data-driven decision-making: the process of collecting and/or generating data for the purpose of decision-making that yields successful outcomes aligned with specific goals.
- Decision maker: a person whose job description includes the responsibility for deciding how to allocate resources for the unit s/he oversees.
- Efficiency: “refers to the extent to which the organization can fulfill its responsibilities within its financial means” (Tuckman & Johnson, 1987, p. 6).
- Efficiency measure: a quantitative evaluation of efficiency evaluating inputs and outputs to “provide a reasonable estimation of return on investment and link resources to institutional performance” (Von Eschenbach, 2010, p. 1).
- Equity: as used here “refers to the effects of a public policy on the fairness of the distribution of benefits and costs in society; that is, whether or not a public policy has generated a more just, fair, or equitable distribution of income” (Paulsen, 2001, p. 96).
- Levels of administration: a hierarchical system of administration with the university board of trustees at the top level, followed by the president and the presidential cabinet, college administration, and school administration; see Figure 1.1.
- Loose coupling: “the concept ... allows theorists to posit that any system, in any organizational location, can act on both a technical level, which is closed to outside forces (coupling produces stability), and an institutional level, which is

open to outside forces (looseness produces flexibility)” (Orton & Weick, 1990, p. 205).

- Organizational structure: “the existence of a value for a group goal, over and above the sum of the individual goals, is a manifestation of a collective structure” (Tuckman & Johnson, 1987, p. 17).
- Performance indicators: “quantitative measures of achievement... [used] in assessing institutional performance” (Ball & Halwachi, 1987, p. 394).
- Resource allocation: the process of distributing academic resources of monetary funds, personnel (faculty and administrative, professional, clerical, and graduate student staff), and facilities from a higher level to a lower level; “resource allocation does boil down to knowledgeable people making informed decisions” (Massy, 1996, p. 3).
- Strategic planning: According to Richard Cyert, it “deals with a new array of factors: the changing external environment, competitive conditions, the strengths and weaknesses of the organization, and opportunities for growth. [It is] an attempt to give organizations antennae to sense the changing environment. It is a management activity designed to help organizations develop greater quality by capitalizing on the strengths they already have” (Keller, 1983, p. vii).
- Shared governance: The American Association of University Professors recognizes it to be “faculty involvement in personnel decisions, selection of administrators, preparation of the budget, and determination of educational policies” (2015).

CHAPTER 2. REVIEW OF LITERATURE

2.1 The Historical Expansion of Higher Education

The incredible expansion of American higher education post-World War II, in terms of student body population, faculty quantity and productivity, and institutional mission, led to profound and far-reaching impacts on how university and college administrators have approached nearly every aspect of managing their institutions. Gone were the days when administrators could retreat to the ivory tower and base their financial decisions on intuition, networking, and personal relationships. The general public and state legislators began to demand a greater say in how public funds were allocated to universities and colleges. Once the funds were distributed, furthermore, the public believed that it was entitled to demand greater accountability from the academic institutions. Higher education administrators began to institute efficiency measures as a result of this public pressure and the growing belief that business practices utilizing scientific management could produce more efficient and effective outcomes. As Immerwahr et al noted:

[T]he three main factors in higher education—cost, quality, and access—exist in what we call an iron triangle. These factors are linked in an unbreakable reciprocal relationship, such that any change in one will inevitably impact the others. Most of the presidents believe that if one wants to improve the quality of

higher education, one must either put more money in the system or be prepared to see higher education become less accessible to students. Conversely, cutting costs in higher education must eventually lead to cuts either in quality or access. A corollary to this view...is that in order to meet the educational demands of the future, much of the heavy lifting will need to be done by governments reinvesting more money in higher education, by students and their families paying more in tuition and fees (offset by more financial aid), and by private industry shouldering more of the burden through partnerships and philanthropy. (Immerwahr, Johnson, & Gasbarra, 2008, pp. 4-5)

Martin Trow (1973, 2005) wrote extensively on the change in higher education access that transpired post-World War II. He identified three stages of access within higher education – elite, mass, and universal – and classified elite institutions as “communities,” mass institutions as “cities of intellect,” and universal institutions as “aggregates of people enrolled for ‘instruction’ ” (1973, p. 11). Growth occurs in three ways: rate, absolute size, and percentage of college-age students enrolled. High growth rates impact institutions through their increased innovation, which comes at a cost of reduced mentorship of faculty and reduced ties to tradition and culture. As departments quickly expand their faculty ranks with new professors, they run the risk of these new individuals looking to each other for mentorship and dramatically altering the existing culture. Absolute size growth affects the social norms and function of the institution and its faculty. For example, faculty at smaller, elite institutions are obligated to serve their discipline to internal and external constituents. Trow argued that the increase in access

creates additional demands on faculty members' limited time and can potentially take them away from core scholarly responsibilities. Finally, as the percentage of the college-age population seeks access to higher education, issues of equal access to all qualified individuals take on growing importance. As American higher education shifted from elite to mass access, the government called for a larger voice in these discussions because elite status of higher education was in conflict with changing societal goals.

When higher education moved from elite access to mass access and then to universal access, it began to perform new functions. Trow (1973) discussed the substantial ways that the three types of access differed through all aspects of higher education, including size of student body, student perceptions of attendance, admissions requirements, the curriculum, student interactions with faculty, administration, and the role the institutions play in society. Access to higher education is reflective of society's attitude towards the purpose of college. He further explained that elite access has been perceived solely as a method for training the ruling class to take on leadership positions within government and professional fields. The difference with mass education was that its mission served to train a wider class of elite members of society for a broader range of leadership positions within industry as well. Universal access, on the other hand, included an increased responsibility to provide vocational training, often with a significant percentage of students who took off time to earn money by working between high school and college. The growing population of students from less affluent backgrounds required modifications with how faculty related to these students, in terms

of relationships between the two groups, the curriculum, and student motivation. These changing demographics certainly affected the culture, diversity, and size.

Changes to the structure and scope of public universities occurred within many public institutions. As Thelin (2004) noted, “The founding of UCLA [as a Southern branch of the University of California at Berkeley] also marked an important structural innovation in the governance of higher education: the multicampus statewide university system” (p. 207). These changes were a sign that higher education was involved in a major transformation toward mass access. Some university leaders had the foresight to develop their schools’ fundraising, often in the form of enhanced athletics facilities, alumni development, government relations, and faculty recruitment. Thelin cited examples of the presidents at the University of California and Indiana University as strategic leaders who worked determinedly to build their universities into well-respected research institutions. Robert G. Sproul, at the University of California and Herman B. Wells at Indiana University both relied on their accounting background and established relationships within their state governments to advocate on behalf of their respective universities for increased state allocations. Each man, furthermore, was instrumental in developing fundraising organizations to supplement state appropriations and tuition revenues. They also used state-of-the-art research facilities to attract rising talent and to lure star faculty from prestigious private universities. They recognized that the elite institutions struggled to engage these faculty members in their traditional departmental subcultures. The reason why these stories are important is that these public institutions were emblematic of the rapid growth in higher education and they served new

populations of college-eligible students as affordable, quality alternatives to the long-established elite colleges (Thelin, 2004).

2.2 Higher Education Enrollment Data

Historical enrollment data serve an important descriptive role when examining the impact of access to higher education for the general public. Thomas Snyder (1993) conducted an extensive analysis of many aspects of higher education, including enrollment figures, degrees conferred, expenditures, faculty levels, and income differentials of individuals with and without college education. The enrollment data from the early 1940s showed that female enrollment had increased to the point where they comprised about half of the college students, due to the overwhelming number of college-age males who served during the war. Once the men returned, however, their numbers quickly outpaced female enrollment once again. By 1949-50, college enrollments had increased to 2.4 million students, which was the equivalent of fifteen percent of all 18- to 24-year olds. Seventy percent of these college students were males. According to Snyder, “the 1950s and 1960s marked two major developments. First, large numbers of young people entered college and second, public colleges expanded dramatically to meet the demand” (1993, p. 66). The 1970s saw record college enrollments, although the growth was beginning to slow by this time. The same trend continued over the next thirty years. In 1979-80, enrollment was 11.5 million, with 25 percent of the 18- to 24-year-old population enrolled. In 1989-90, the enrollment was 13.5 million, with 30.9 percent of 18- to 24-year-olds attending college. These numbers increased during the

1990s to reach 14.7 million students, with 35.6 percent enrollment of college-age individuals. By 2007-08, enrollment reached 18.2 million students, with 38.8 percent of 18- to 24-year-olds enrolled. Part of these increases was attributed to a combination of increased college-age populations and a greater percentage of them pursuing college studies (Snyder & Dillow, 2010). Bound and Turner (2002) examined the effect that the GI Bill had on student enrollment in higher education post-World War II. The difference between the GI Bill and previous federal programs is that the GI Bill provided federal grants to individuals instead of colleges. They found that male enrollment post-World War II consisted of 70% returning veterans. These new classes looked different from those who had gone before them, with minorities, first-generation students, and students from low-income families represented heavily. They also reported on Goldin and Margo's (1992) research that educated veterans were in large part responsible for the massive increase in college graduates entering the U.S. workforce. As Bound and Turner explained, the grant aid afforded veterans from the GI Bill was unprecedented; it not only supplied enough funding to cover the tuition expenses of such traditionally expensive institutions like Harvard University and Williams College, it also compensated for a large portion of the opportunity costs associated with attending college.

2.3 Impact of Other Government Initiatives

Higher education took another step toward mass access when President Harry Truman created the Commission on Higher Education in 1946. The Truman Commission Report, issued in 1947, addressed a number of topics, such as discrimination based on

socioeconomic status and race, and the importance of community colleges in providing mass access. It is widely regarded as one of the key influences, along with the GI Bill, responsible for widening access to higher education (Kim & Rury, 2007; Thelin, 2004; Hutcheson, 2007). One important aspect of this initiative was the intervention of the federal government in a subject – education – traditionally left to state and local governments (Thelin, 2004). Another outcome at this time was a focus on increasing the university role in federally funded research. Vannevar Bush (1945), director of the Office of Scientific Research and Development, issued a report *Science: The Endless Frontier*, that advocated for the creation of a federal science agency that would eventually become the National Science Foundation (NSF). The NSF significantly impacted the research mission of higher education through its promotion of the peer-review grant process to award grant funds from numerous federal agencies to university faculty rather than solely funnel federal funds to national labs and corporations. The lasting impact from this report was the strengthened positions of universities as leading research institutions (Kevles, 1977; Thelin, 2004; Kleinman, 1995).

Student aid after the GI Bill was developed to provide financial assistance to a broader group of students. W. Lee Hansen (1983) summarized that the National Defense Education Act (NDEA) of 1958 was created to provide opportunities to educate individuals capable of competing in science and technology against the Soviet Union. Undergraduate students were eligible for low-cost National Defense Student Loans. The purpose of this program was to encourage students to pursue certain academic disciplines with the intention that they would enter careers or seek additional training to serve

national interests. What followed in the 1960s, according to Martin Kramer (1983), were programs different from the GI Bill and its ties to eligibility or the NDEA and its ties to student outcomes. The new philosophy “established the national policy that the federal government should help people obtain higher education because it was in their interest, not because they were owed it or because they had special talents of use to the nation (p. 62) As a result, programs such as federal work-study were developed to help students from poor families by providing employment opportunities while attending college. The Federally Insured Student Loan Program was another product of this time and was intended to benefit middle-income and upper-income families.

The federal government instituted the Basic Educational Opportunity Grant program in 1974. It later was renamed the Federal Pell Grant Program and it “provides need-based grants to low-income undergraduate and certain postbaccalaureate students to promote access to postsecondary education. Students may use their grants at any one of approximately 5,400 participating postsecondary institutions” (U.S. Department of Education, 2009, para. 1). As higher education transitions from elite to universal access, student aid can be a vital factor towards an eligible student’s ability to attend college.

Politicians were careful to avoid any adverse effects on state governments or private academic institutions because the federal government lacked a constitutional mandate to participate in legislation for higher education. The increasingly Democratic makeup of Congress during the 1970s, however, led changes to better reflect a more inclusive and general student aid interpretation (Kramer, 1983). Hansen (1983) investigated the effectiveness of federal grant programs in an era when the federal

government was debating program budgets. The Reagan administration advocated for budget cuts for the sake of fiscal responsibility. Higher education administrators argued that such a move would be detrimental to college accessibility for low-income students. They reasoned that the programs positively affected lower-income students' access to higher education, greater flexibility in college choice, and improved likelihood of graduation. Hansen's data analysis led him to conclude that greater access to "student financial aid, targeted largely toward students from below-median-income families, did little, if anything, to increase access. The results certainly do not accord with expectations that access would increase for lower-income dependents relative to higher-income dependents" (p. 93).

Michael McPherson and Morton Schapiro (1991) analyzed changes in student aid. The rising costs of federal student aid programs led to rising scrutiny by the federal government. As they pointed out, federal grant programs accounted for 29 percent of tuition revenue in 1980 for American higher education institutions. (Prior to the creation of the Pell grant, federal need-based aid accounted for three percent of tuition revenue.)

2.4 Different Decision-Makers and Their Roles

The major groups of decision-makers in higher education institutions include higher education administrators, state and federal government, state boards of higher education, the public, corporations, and donors. University and college trustees, along with senior administrators, have been responsible historically for setting tuition rates and admissions goals. State legislators have played an increasing role in this function at

public institutions. Departments have been responsible for decisions that control how funds are spent through the decisions they make on hiring faculty and setting their workloads, selecting graduate students, and setting the ratio of faculty to undergraduate students. The sources of revenues, including students, state government, agencies and foundations, corporations, and donors, create demand for services through their revenue allocations. James (1990) argued that decentralization creates wider-ranging issues when departments make decisions in their own best interest without taking into account the effects on other units. Individual faculty members are responsible for research topic selections and the allocation of time and resources between teaching and research responsibilities. All of these decisions have exposure to varying degrees of influences from external sources.

Higher education administrators are tasked with difficult decisions of how to allocate resources, decisions that reflect and reinforce an institution's mission and goals. One of the most important decisions for administrators centers on how to prioritize and distribute limited financial resources. Administrators must weigh competing internal demands and programs against institutional goals and objectives, while also considering the growing public requests for involvement in these decisions. James (1990) used an economic analysis to explain more deeply the effects of reduced spending on higher education administration; he found that decreased allocations from the government had negative impacts on university revenues. Universities were faced at this time with increased demand for more expensive services, such as competing against other institutions for students and offering smaller class sizes. The net effect led to less

profitable undergraduate programs that were not as capable of underwriting research activities and graduate student education. Universities had to search for alternate revenue streams from part-time students and corporate partnerships. These changes in revenues consequently caused a shift in university functions and created a need to hire administrators better skilled to handle fundraising and development activities.

The changing financial landscape led to consideration of who is best suited to decide how to allocate resources. Massy (1996) advocated the use of decentralized decision-making, with the goal of placing the resource allocation decision at the hands of the individuals he thought were the best qualified, due to their close proximity to programs and activities that directly served the institution's goals and objectives. He believed that decentralization permitted units to respond faster to evolving internal and external interests and opportunities. He further noted that the resource allocation dialogue "involves the question of how to decentralize budget-making authority without abandoning institution-level values and priorities – that is, of unleashing the expertise and motivation residing in schools, departments, and faculty without losing the funding agent's ability to influence outcomes" (p. 5). One danger with decentralization, however, is the risk that if administrators maintain too narrow a focus, they might lose sight of broader institutional goals that cross units.

Dill (1984), on the other hand, was a strong advocate for external evaluators, such as politicians, to begin to develop a deep understanding of and appreciation for the missions of higher education institutions in order to be able to understand the basis for administrators' decisions. He found that administrators had been reliant upon traditional

managerial behaviors rooted in strong interpersonal relationships and negotiations. Dill reported that research has shown that administrators make resource allocation decisions not on data but rather on power and whom they perceive as possessing it. Academic departments demonstrating stronger consensus were better equipped to advocate for increased resources, and as a result they were allocated more resources.

The public was an external entity calling for even greater accountability from universities and colleges during the 1990s through its insistence that higher education needed to recognize how it played an important role in economic development and growth. Higher education, according to Alexander (2000), was seen increasingly as a mechanism for developing the workforce to adapt to changing economic and technological demands as a way to better compete in the global marketplace. The impact created by accountability demands meant that results from higher education were tied even more to financial support from the government. State governments joined in the request for schools to institute cost-cutting measures and produce reports for use by a number of external groups, despite a long downward trend in state funding for higher education. They reasoned that higher priority state programs (K-12 education, police and fire departments, economic development, etc.) were also demanding even more financial support from limited state funds; higher education institutions, therefore, needed to justify why they deserved to be selected ahead of other critical programs. What it meant for the public institutions was that they had to report data such as time-to-degree, assessment of student perceptions, facility usage, faculty teaching loads, faculty research

productivity, return on investment, impact on state economic development, and evaluation of successfully meeting state-defined goals.

Calls for increased accountability were not limited to state governments and the public. The external perspective on the issue of governmental relationships with higher education offered by Former U.S. Secretary of Education Margaret Spellings reflects a prevailing expectation for universities to make better use of data-driven managerial tools to increase their efficiency while also producing more data-driven reports for prospective student (customer) use. She claimed that the federal government was doing its part to improve access to higher education by providing increased funds for federal financial aid programs. She called on academic institutions to understand fully the underlying reasons for their mounting costs and to work with state governments to institute efficiency and productivity measures as a way to decrease ultimately the tuition burden for students and their families, particularly those from underserved populations. Spellings, furthermore, highlighted the need for universities and colleges to produce accessible data to aid students and their families during the college selection process (Miller, 2008). When these viewpoints are taken into account, the question becomes a matter of communication and accountability. Communication relates to the decisions about what each party's responsibilities will be and which pieces of information are important to the many groups of stakeholders. Accountability depends on each party maintaining responsibility through its commitments to higher education and the public it serves.

Government groups generally developed evaluation criteria to measure higher education performance in ways that they thought would allow them to compare school

results across institutions. Indicators they selected frequently focused on student outcomes in the form of job placement for graduates, student satisfaction, and perceptions of value. Higher education administrators, conversely, preferred the use of qualitative indicators that ascertain how well the individual institution was able to educate its students while simultaneously serving its institutional missions and goals. Such types of evaluations are highly individualized and do not lend themselves to comparison with other academic institutions, regardless of how similar they may appear to outsiders. Administrators would rather use quantitative measures as one out of many tools available for them to use as a way to improve their performance (Alexander, 2000). Alexander believed firmly that the complicated relationship that academic institutions have with their state government has been responsible for prompting healthy debates about the nature and use of performance indicator tools that measure the effectiveness of higher education. This effect was seen as a move in a positive direction. He concluded that the uneasy relationship between higher education and society is necessary for a satisfactory outcome from the debate on evaluation models, as he noted: “This friction is essential for developing effective performance measurement systems that truly assess educational quality and productivity” (The changing face of accountability, 2000, p. 428).

2.5 How and Why Decisions are Made

Traditional administrative decision-making behaviors, such as intuition, negotiations, and interpersonal relationships, remained predominant through the early 1980s. Dill (1984) argued that the only way for external groups to positively affect

efficiency and effectiveness within higher education was for them to first gain an understanding of the roles and responsibilities of university and college administrators so that they may begin to appreciate why these administrators make the decisions that they do. From the early 1970s through the early 1980s, Dill found that administrators were more likely to allocate resources based on power held by individual departments rather than faculty workloads or student enrollments. In this quest, departments with greater internal consensus were more successful. It is important to note that times marked by scarce resources also revealed “the relative lack of independent criteria or values on which to base resource allocation decision, and the avoidance by administrators of management technology or expertise as inputs to resource allocation decision processes” (Dill, p. 88). While Dill highlighted the distinctiveness of administration from one institution to another, he found it noticeable that administrators during these times relied on their networks and interpersonal relationships to negotiate many aspects of their decisions and allocation of resources. This reason is why he emphasized factoring administrative behaviors and needs when devising managerial evaluation measures.

The shift from “elite” to “mass” higher education shifted the values of higher education to create a system that no longer saw academic freedom and autonomy as the end product itself but rather as a means to reach the new end goal where it contributes to the development of the workforce and overall economic growth, according to Massy (2006). In his description of higher education as a non-profit entity, he listed these three factors: education is a “social good” without substitute; students cannot easily calculate value and therefore must rely on the institution to create a positive return on investment;

and the costs of educating students is too expensive for an institution to recoup all expenses so it must rely on public subsidies.

Universities seek research funding in order to increase their revenues and enhance their reputations. These additional funds allocated for research allow administrators to achieve indirectly other mission goals of educating students and maintaining facilities by buying out faculty time and recovering indirect costs. The shifting sources of revenues allowing universities to conduct research have had indirect effects on the selection of research areas. Administrators and faculty in engineering disciplines commonly apply for funding related to applied research, which has more of an immediate impact than basic research, especially for industrial use. It often makes sense for administrators to encourage the pursuit of larger pools of attainable research dollars from a short-term cost-benefit analysis. This quest for available funding, however, comes at the cost of neglecting basic research and the long-term effects on the potential loss of monumental research breakthroughs could be detrimental not only to the institutions themselves but to society as well (Stillwell, 2003).

Advanced research activities at prestigious universities, coupled with deeper pools of endowment investment income, allow these institutions to position themselves for the greatest proportion of federal agency research funding. Faculty who are able to bring in large amounts of research dollars are then granted a great deal of authority within the institution. These revenue streams feed into one another and create a continual cycle. James (1990) found that universities are more likely to allocate internal funds to programs and faculty who can attract external funding during periods of economic

difficulties. This complementary relationship serves as an explanation for greater salaries and benefits to hard science disciplines because they pull in the greatest percentage of grant funding.

Internal efficiency has been defined as “producing the right bundle of outputs given the needs and wants of stakeholders, and then minimizing production cost for the given bundle” (Massy, 2006, p. 13). He outlined three guiding choices for higher education administration. The first choice was for institutions to utilize a free market system with the only (limited) interference coming from the government. In this case, it is essential that academic representatives pay close attention to signals from the market or else they risk losing their position and falling behind their competitors (i.e. peer institutions). Another potential problem with this model is the dependency on the government to manage two critical tasks: 1) to evaluate accurately educational outcomes of the students; and 2) to effectively and accurately manage the mission of higher education. The second choice Massy offered was for higher education to engage in the principal-agent model, with the government as the principal in this case and higher education serving as the agent. The principal provides resources to the agents to perform certain tasks that the principal is unable or unwilling to complete on its own. The issue with this model is that it runs the risk of the agents using resources in a self-serving manner, thus requiring additional oversight from the principal. The third administrative model that has proven the most effective for a number of reasons is the use of a “gentle approach” from the government when dealing with their university agents. The style that seemed to provide the best fit for this model depended upon the use of performance-

based measures, with suitable rewards and penalties, since he argued, “performance-based steering can protect universities’ autonomy while helping them balance public values with private market forces” (p. 17). In the end, each side is too dependent on the other for the government to jeopardize the relationship by using methods that are more restrictive.

2.6 Impact of Data-Driven Decision-Making

The increased demand for data-driven decision-making in higher education created a need for collecting and analyzing information in a variety of formats useful for myriad applications. Institutional research offices at universities and colleges serve a valuable role in the decision-making process by collecting institutional data and issuing regular reports on such topics as faculty productivity, student enrollment, degrees conferred, and facility usage. Higher education administrators are equipped also with vast amounts of technology that yield ever-increasing access to various types of institutional data. The staff are usually trained in research methods, which enables them to conduct data analysis and recommend policy design. Their continual work with institutional data and reporting makes them well-suited to suggest changes to existing policies and practices. Because of these skills, institutional researchers have seen a shift in their job responsibilities and duties to provide greater service to administrators who face increased external demands for accountability (Toutkoushian, 2005). Sellers (2005) found similar results and further addressed the challenges facing administrators, due to

the challenge for higher education decision makers “to form a comprehensive strategy for the use and impact of technology in decision-making” (pp. 365-6).

The expansion of available data, therefore, resulted in expanded participation from growing levels of administration. Sellers subscribed to the school of thought that overwhelming amounts of data available to administrators lead to “garbage can” decision-making, where the inputs (data, institutional goals, and conflicting opinions) and outputs (decision options) are thrown into a garbage can and, after extensive participation, a decision is made. He concluded that an increase in available technology has not improved decision-making by administrators or expanded decision-making authority to a wider group of administrators but does “provide paths for more participative input and the availability of much information” (2005, p. 373).

This increased use of data-driven decision-making attributable to corporate practices is indicative of an era of increased commercialization within higher education. Stillwell (2003), however, advised administrators to exercise caution when using these business-developed decision-making tools because of the difficulty in translating them from for-profit corporate use to non-profit academic purposes.

As evidence of the move towards commercialization, Stillwell referred to the developing relationships between academic researchers and industry. The financial support provided by corporate partners was valuable in replacing declining state appropriations. Once college administrators began to adopt decision-making tools, they pushed them downward through the academic units to the point where administrators at all levels were using performance-based evaluation measures for internal resource

allocation. It is important in such situations for decision-making processes reliant upon efficiency measures with performance indicators to tie directly to the school's goals and objectives. Administrators should also be mindful of the institutional mission, according to Ball and Halwachi (1987). They argued, furthermore, for reports using these data to include text explicitly tying the data to the goals and objectives, along with clear descriptions of each indicator and its significance. Their research upheld Sizer's belief that the indicators need to be applicable, reliable, unbiased, measurable, cost-effective, and accepted within the institution. Toutkoushian (2005), meanwhile, cautioned that institutional data "do not exist to accurately measure the true educational outcomes from research, teaching, and service, the indicators typically reported by institutions such as their retention and graduation rates are not particularly useful for evaluating the performance of [higher education]" (p. 958).

The creation of metrics for internal use in decision-making and the external use of accountability have inherent difficulties. Higher education is quite different from other institutions and industries, both non-profit and for-profit. It is complicated and difficult to translate university goals and objectives solely into quantifiable measures due to a number of issues. Some of these reasons include "complexity, diffuseness, ambiguity, and changeability" (Cameron, 1978, p. 609). Universities lack clear understandings of their own mission and goals, which means that it can be impossible to establish quantifiable effectiveness goals. Another concern is that higher education administrators are skeptical about defining and evaluating effectiveness because it will lead to increased

control from outside parties. It is an idea that still rings true more than 30 years later because many administrators seem wary of outside control (Basken, 2007).

The rules governing higher education can often be too fluid and unknown to evaluate. Individual institutions offer unique frameworks and cultures that complicate comparisons from one institution to another. According to Cameron, there is a continuum of organizational structure, from “loose coupling, i.e., organized anarchies” to “tight coupling, i.e. structured bureaucracies” that can provide some “common criteria” (p. 610). Comparing any of these organizations requires “identifying a core group of effectiveness criteria that are relevant to organizational members, applicable across subunits, and comparable across institutions” (p.611).

The educational reforms of the 1980s and 1990s resulted in broader impacts within higher education, where, “efficiency movements have coalesced around an agenda of cost containment, an increased business influence, a narrowing and vocationalising of the curriculum and an instrumental concern with enhanced system performance” (Welch, 1998, p. 165). The increased use of efficiency measures and business principles contributed to diminishing government resources dedicated to higher education, the creation of policy decisions negatively affecting issues of equity and social justice, and an arguable decrease in academic freedom and faculty autonomy.

2.7 Difficult Transition of Efficiency Measures from Industry to Higher Education

An additional issue in the use of efficiency measures within higher education administration was the increasing commercialization effects on higher education. Stillwell (2003) maintained that the use of efficiency principles does not translate easily from commercial markets to academic institutions. He focused on the prevalent connections academic researchers maintain with industry as evidence that universities came to rely more on these partnerships for a significant portion of their revenue stream, which he referred to in light of resource dependency theory. He acknowledged that diminishing governmental financial support along with increased competition and globalization were contributing factors in the use of efficiency principles. The competition for resources was continually pushed downward within the university setting. Administrators were “commonly adopting performance-based criteria for internal funding-distribution processes” (p. 53). The effectiveness of this method was somewhat evident at the individual faculty level with the possible shift in focus of a faculty member’s research agenda toward subjects with more accessible funding.

The use of performance measures within higher education resulted in unintended consequences (Stillwell, 2003). One was the creation of a layer of middle management tasked with instituting corporate efficiency measures, which led to even greater separation between the faculty and the senior level administrators. Such a move was possibly counterproductive to employee output by instilling a sense of distrust and lowering faculty morale. This separation also served to consolidate power at higher levels. Stillwell declared that “the changes are occurring within an institutional context

characterized by a concentration of power in a managerial class and a reduced capacity for most academic workers to influence the direction of university policy and the allocation of resources” (p. 58). The second item questioned the validity of the productivity measures. Research publications were used to illustrate this point; the proliferation of research journals could have increased the likelihood that research would be published, even if it were in lower tier journals. The overall impact was to jeopardize the traditional integrity of higher education.

2.8 Summary

The literature offered insights into the demand for and corresponding increased use of efficiency measures in resource allocation decision-making in higher education; however, an in-depth understanding of how an academic unit approaches its decision-making, particularly in conjunction with strategic plan goals, is lacking. Further research in this area could continue in a number of directions of higher education administration, including the use of scientific measures, policy decisions and government relations, accountability, and accessibility. Many studies focused on the declining funding streams from state governments and the demand from politicians for academic institutions to justify their use of tax dollars. Included in this strand of research was the call for creation of accountability measures, such as student learning assessments, accessibility, and time to graduation. Internal and external stakeholders have pressured administrators for more data-driven processes but it remained unclear exactly what those processes entailed and how administrators used the data. What we know about decision-making in these

situations does not fully address the process of how an academic unit establishes formal procedures for allocating its resources. The importance of this study is that it looked at an academic unit for a specific discipline (CoE) to understand its particular detailed process of establishing decision-making criteria tied to strategic plans that serve the mission of both the institution and the unit itself.

CHAPTER 3. METHODOLOGY

3.1 Introduction

This chapter discusses the methodology of this case study and consists of research design, the research context, data collection, interviews, participants, and data analysis. This research employed an inductive case study approach designed to further research on resource allocation decision-making in higher education and contribute to administrators' understanding of the implementation of these best practices.

3.2 Research Design

This research study is an embedded single-case study that examined a broad academic unit, the College of Engineering, and three subunit engineering schools. The justification for this approach is that it can document typical activities one would expect to find in similar settings (Yin, 2003), such as other academic units at the same institution bound by similar budgetary model restrictions and self-identified peer colleges of engineering from other institutions. It employed both quantitative and qualitative methods. The use of quantitative data in a case study can better inform findings derived from qualitative data analysis through triangulation (Johnson & Onwuegbuzie, 2004).

The framework is based on systems theory, which seeks to answer the question, “how and why does this system as a whole function as it does?” (Patton, 2002, p. 119). This approach is appropriate because the research questions seek to understand how the system of the College of Engineering – and its subordinate Schools – allocates its resources. According to Patton, the parts of the whole cannot be examined independently from one another and are not standalone pieces. The system is understood to be greater than the sum of its parts. Northcutt & McCoy (2004), however, argued that the parts themselves are subsystems and when these pieces work together, they also have competing demands. There is agreement in the literature about the interconnectedness within systems, particularly within organizations that are seen as loosely coupled systems (Orton & Weick, 1990).

The two research questions grounding this study essentially try to understand how the whole entity of the College decides where and how to allocate its resources. The subordinate entities – ABE, ECE, and MSE in this case – give additional context to what occurred at the broader system level. It is for this reason that multiple administrators with varying degree of decision-making responsibility at varying levels within the University were invited to participate in interviews. These multi-layered viewpoints combined with financial data contribute depth to the study.

If systems theory provides the framework for this study, then grounded theory serves as the process. This study is grounded-theory based, where the analysis begins with data and then builds up theory (Glaser & Strauss, 1967). It depends upon continually testing and examining an emerging theory with the empirical data. This

method requires objectivity in the researcher and follows from description to categorization and finally to theory development (Patton, 2002).

3.3 The Research Context

It is important to understand the context under which the research study was conducted because the University underwent a period of immense change during the timeframe when Dr. Martin Jischke served as president. Purdue University is a large land grant research institution that enrolls approximately 39,000 undergraduate and graduate students at the main campus (Purdue University, 2014). The university is governed by a Board of Trustees, which, according to Indiana Code, is responsible for making “all bylaws, rules, and regulations required to conduct and manage Purdue” (Purdue University, 2015). The trustees serve three-year terms, with the exception of the student trustee who serves a two-year term (Purdue University, 2015).

Dr. Martin Jischke became the tenth president of Purdue University in August 2000. Dr. Jischke is an engineer who earned his master’s and doctoral degrees in aeronautics and astronautics from the Massachusetts Institute of Technology and a bachelor’s degree in physics with honors from Illinois Institute of Technology. He served for seventeen years on faculty at the University of Oklahoma’s School of Aerospace, Mechanical and Nuclear Engineering. He later became dean of the College of Engineering and served one year as the interim president. Dr. Jischke’s next two administrative roles prior to coming to Purdue were serving as chancellor at the University of Missouri – Rolla and then president of Iowa State University.

Dr. Jischke arrived at the University with directions from the Board to institute a university-wide strategic plan, an activity that had not been implemented previously on an institutional scale at the University. The plan was developed during 2001 and approved by the Board in November 2001; its goals were focused on gaining preeminence in each area of the university's tripartite mission of discovery, learning, and engagement. The CoE, along with the other academic units, underwent its own strategic planning as the university's plan was adopted, and thus there was considerable consistency between the university plan and the CoE plan. According to its website, the college's 2001-2007 strategic plan was a relatively straightforward venture that resulted in numerous successes.

[CoE] hired 153 new faculty, especially in the signature areas, resulting in a 26% growth in our faculty. We substantially grew our ability to recognize our most accomplished faculty, with a 136% increase in named and distinguished professors. And we increased our space by 52% (ultimately 60%) through the addition of five major buildings/additions already completed and three more initiated under that last plan and currently underway... [The] execution plan was relatively straightforward: hire faculty, raise funds for endowments, plan and raise funds for buildings. Much of the execution was led by heads, deans, and advancement officers, with the principal faculty role concentrated in defining the signature areas and faculty searches." (Purdue University, College of Engineering, 2015)

The College of Engineering was selected because its sole focus on engineering allows the College and its Schools to have greater control over its own strategic planning and resource allocation, thus reducing susceptibility to outside influences beyond the parameters of this study. It is the largest academic unit based on faculty and students and has since become the largest unit in terms of external sponsored funding.

The College of Engineering underwent a new five-year strategic planning development process once the University's plan was complete in 2001. They began the process with a strategic retreat attended by representatives from the individual Schools and then followed up with a second retreat involving select administrators, faculty, and staff. Meetings and forums were held to solicit feedback from stakeholders, including alumni and industrial partners. A plan was drafted with input from all of these groups, formalized, and then refined through re-evaluations. The College intended to "redefine engineering higher education in the 21st century" (College of Engineering, Purdue University, 2015). The themes focused on people, programs (teaching, researching, and outreach), and the environment (culture and facilities).

3.3.1 Budget Models

There are three main types of funding sources for the CoE, which are the general fund, extramural sponsored programs (research), and gifts and other funds. The Office of Provost also provides general fund resources on a non-recurring basis to support expenses specifically related to instructional equipment and faculty start-up costs. As stated: "The general fund includes funds from student fees, state appropriations, proceeds from bonds,

Facilities and Administrative (F&A) recovery, and interest income” (College of Engineering, Purdue University, 2015). These funds are allocated to the College on an annual basis. The University uses the incremental base budget model for allocating general funds to all operating units across the main campus and to its regional campuses. General funds support salaries and wages (S&W) and supplies and expenses (S&E). The incremental base budget model begins with the prior year’s budget as the base. The University then allocates any remaining discretionary funds from the system wide budget as a percentage increase to S&W and S&E for the year. Any additions to faculty and staff typically result in a corresponding increase in the base budget. The incremental base model does not directly recognize any increases in revenues attributable to a unit. If the CoE, for example, increases enrollment resulting in increased tuition revenue, those additional funds are not allocated automatically to CoE.

The CoE deans’ office uses a combination of the incremental base budget model and a performance-based budget model for resources it allocates within the College and to the Schools. Base funds are distributed to subunits using the incremental base model. The College, however, collects a mandatory return of two percent from the subunit Schools and Departments. These funds are then redistributed back out to select Schools and Departments based on such metrics as changes to enrollment, personnel, and strategic targets (College of Engineering, Purdue University, 2015).

3.3.2 Discretionary Funds

The College of Engineering has discretionary funds from a variety of sources. The most flexible resources come from the Purdue Research Foundation (PRF), a separate nonprofit legal entity, and are often used for items that are typically restricted from other Purdue funds. Examples are gifts and entertainment. Another example of discretionary funds are gifts from donors: individuals, corporations, foundations, and endowment income. It is common, however, for such funds to have restrictions. CoE also categorizes funds from unfilled faculty and staff positions as discretionary. The College retains funds from unfilled faculty positions and permits the individual Schools to retain any funds from unfilled staff positions. The dean's office uses faculty-related discretionary funds for programs and activities that benefit the entire College. An additional form of discretionary funds arises from the salary savings a school might realize if their external sponsored research exceeds their commitment (approximately 10%) toward faculty salaries (College of Engineering, Purdue University, 2015).

3.4 Data Collection

There is a high degree of intricacy to this project in terms of the layered representatives (a college and three subordinate schools), quantitative detailed budgets across ten years, and qualitative data (interviews with administrators at multiple levels and functional areas). The combination of these robust data sources and the interactivity among them yielded a research study with a great deal of richness and complexity to strengthen the findings.

The data collection comprised three phases. The first phase studied various written documents related to the strategic plan at the college and school levels. The information was available on the College of Engineering intranet and contained limited information about planning participants, annual metrics, and university-level and college-level strategic plans. Additional university-level quantitative data were available from the university's annual Data Digest, beginning with FY 2000-2001. This initial phase enabled the researcher to review introductory background information and look for any inconsistencies or contradictions to bring knowledge to the second phase and further contextualize interviews. The second phase consisted of interviews of key personnel involved with the resource allocation decision-making processes at both the college-level and school-level.

The final phase of data collection involved gathering detailed budget data from the period FY 1998-1999 to FY 2007-2008 for CoE, ABE, ECE, and MSE. This phase was intended to occur prior to the interviews in order to better inform that process. The researcher first obtained permission to collect this financial information from the university's central administration. These data, however, were difficult to obtain due to the age of the records; furthermore, many business services personnel lacked access or ability to query the relevant databases. It took multiple contacts with staff at more than eight offices before an individual was located who was able to query the appropriate budget data. Unfortunately, the annual reports that supplied narrative explanations of activities and expenditures, required for every school and college, were no longer

available for this time period. None of this additional, narrative information, therefore, was collected.

3.5 Interviews

Interviews were conducted with employees from different administrative levels and functional areas to collect a variety of viewpoints. According to Patton (2002), interviews serve to insert ourselves “into the other person’s perspective... [It] begins with the assumption that the perspective of others is meaningful, knowable, and able to be made explicit. We interview...to gather their stories” (Patton, 2002, p. 341)

There was no known available questionnaire that specifically addressed this topic so one was developed for this particular study. It was piloted with an administrator from another college within the university. Minor modifications were made to the questions in response to this feedback. (See Appendix A for the final questionnaire.)

The researcher began the interview process once the interview protocol was finished. The first step was to identify employees responsible for making decisions about resource allocations for CoE, ABE, ECE, and MSE at any point during the period of 2000-2007. A spreadsheet was developed in order to more easily track changes in personnel and job titles over the course of the seven fiscal years. The researcher was able to identify a total of 22 faculty and staff administrators responsible for making decisions about resource allocations using internet searches and conversations with current employees within Business Services. The subjects consisted of faculty and staff from

central university administration, CoE, and ABE, ECE, and MSE. They were all invited to participate through an introductory email (see Appendix B for an example). The email contained the IRB-approved Research Information Form (see Appendix C). Eventual interviewees included representatives from nearly every level in illustrated in Figure 1.1 and functional areas participating in the resource allocation decisions for CoE. Table 3.1 provides additional information on who was invited, accepted, and interviewed by administrative level and employee classification.

Table 3.1 Invited subjects by administrative level and employee classification

	Invited		Accepted		Interviewed	
	Faculty	Staff	Faculty	Staff	Faculty	Staff
Central Administration	1	1	1	1	1	1
Engineering - College Level	7	2*	3	2	2	2
Engineering - School Level	5	6	3	1	2	1
Total	13	9	7	4	5 [†]	4

*Two faculty included at the *faculty - college level* had served previously at the *faculty - school level*

[†]Two employees who agreed to be interviewed were later unavailable

Once the subjects agreed to the interview, they were provided with a list of questions as a way to help prepare them for the process of recalling detailed information from events that had occurred several years in the past. The interview lasted 60-90 minutes and followed the set of open-ended questions. The interviews were audiotaped and then transcribed in preparation of the data analysis.

3.6 Data Analysis

The quantitative phase of the research consisted of an exploration of the annual budgets for understanding 1) within categories for the same year, 2) across units within the same year, and 3) within categories and units across years. The researcher made notes when looking at the quantitative data to form a more complete descriptive picture of the college and schools. Analyzing the quantitative data along with the qualitative data generated a method to triangulate the information, increasing reliability. There is no statistical analysis because there are not enough data points to offer statistically reliable and valid results.

The researcher began data analysis during the collection phases through the use of notes taken during the interview process. The advantage of this approach was that it allowed for reflections in the middle of the study for later analysis, which guarded against losing useful observations until analysis was complete. The qualitative phase of the research involved analyzing the interview data. The researcher transcribed each interview and reviewed them against the audio recordings to increase accuracy. Notes were taken during each interview to aid the interviewer in processing thoughts and ideas. It also aided in checking for inconsistencies and identifying areas for further examination. The researcher read the transcripts at least twice before beginning the coding process to understand the interviewees' responses. A preliminary, informal coding was conducted at this stage and an outline was created in MSWord. Definitions were created for each of the codes to increase shared understanding between the researcher and the outside coder. Multiple coding passes were conducted before developing a stable code structure. Open

coding was used as a way to capture whatever meaning was present. With axial codes, the researcher looked for relationships and returned to the data for degrees and hierarchy, and then organized into categories to determine the appearance of groups (Pandit, 1996). Once the coding process was complete and keywords were identified, the data were consolidated.

The qualitative data analysis relied on NVivo 10 software for content analysis. This study developed codes reflecting concepts related to the research questions and their focus on resource allocation, decision-making, and strategic planning processes. The codebook is available in Appendix D. The advantage of using this software was that it allowed for memo-taking, cross-referencing of keywords, and quick searches and sorting of keywords (Welsh, 2002). The overall goal was to determine the patterns among the participants at both the college- and school-levels in order to capture more complete system descriptions of quantitative and qualitative processes for allocating resources.

A code book was created within NVivo and was adapted from the initial codes, their definitions, and a rudimentary coding structure. The underlying thought during this entire process was a consideration for the original two research questions. While the researcher relied upon the grounded theory approach to let the interviewees' responses dictate the codes, the research questions provided a loose framework around which to focus this analysis and limit scope creep.

The unit of analysis was determined to be multisentence chunks, typically whole paragraphs of thought. Multiple codes were used, which could be handled easily when using computer software (Miles & Huberman, 1984). It was difficult to separate content

by words or phrases because the responses were given in paragraph form and did not lend themselves to unraveling into smaller chunks. Content was deemed significant to code for any of the following reasons: answered directly one of the interview questions, contained at least one of the research keywords (resource allocation, decision making, and strategic planning), related to the literature, appeared repeatedly within the same interview or across interviews, or the interviewee labeled it as important.

A second reader was employed to read and code approximately ten percent of the transcripts as a way to help reduce the possibility of researcher bias. The second reader was a doctoral candidate in the College of Education and worked as a graduate research assistant for the University. The researcher and the reader met first to discuss the research project and research questions; resource allocation background in general and at the University in particular; and the introductory coding structure and code definitions. The purpose of these meetings was to attempt to gain a similar understanding between the two readers. A comparison of the two coding samples yielded an average percent agreement on all 40 codes of 97.96%. The code with the lowest percent agreement was Resource Allocation, which had a value of 69.11%. The complete breakdown is available in Appendix E. This level of agreement is considered very strong (LeBreton & Senter, 2007; Miles & Huberman, 1984).

The codes and structure changed throughout the analysis, which is not uncommon (Miles & Huberman, 1984). The researcher relied on memos during the coding process to identify key thoughts or quotations that were particularly representative of a certain

code or experience. The codes were then grouped according to concepts and then placed into categories.

3.7 Trustworthiness of Data

The financial information for the college and schools came directly from the university's financial reporting system. It represented all expenses incurred with COE, ABE, ECE, and MSE for the given time period. The trustworthiness of the interview data was dependent on the interviewees' ability to remember events that occurred six to thirteen years in the past. At least four of the interviewees either wrote preliminary thoughts to the questions prior to the interview or brought personal documents to aid in stimulating recollection during the taped interview.

3.8 Role of the Researcher

The role of the researcher in this study was an important consideration of potential researcher bias. The researcher served as an employee of three interviewees and was also employed by the School of Agricultural & Biological Engineering from 1990-2003 as a student employee, an administrative professional staff member, and then a graduate research assistant. The researcher, at the time of writing, remains employed at the university within a research center not affiliated directly with the College. The familiarity and experiences the researcher had with the College and ABE provided further understanding of the operations of these units. The researcher was also able to work with

an existing professional network on campus to more easily gain access to background information and financial data.

3.9 Summary

This study was a mixed methods analysis of an embedded case study of resource allocation decision-making within the College of Engineering during 2000-2007. Dr. Martin Jischke was the president during these years and led the development of the first university-wide strategic plan. The data collection of the study comprised three phases: general background information, annual budget data for the four units, and interviews with administrators. Once the interviews were transcribed, they were coded, and then analyzed using NVivo 10. A coding structure was developed and the data were then grouped into concepts and categories.

CHAPTER 4. FINDINGS

4.1 Introduction

The purpose of this research study was to examine how decisions were made regarding resource allocation in the College of Engineering during the tenure of Dr. Martin Jischke.

Two questions served to guide this study:

1. How were financial decisions made about resource allocation within the College of Engineering at Purdue University at the college level and at the three listed schools' level during President Jischke's tenure (2000-2007) when strategic plans were broadly created and implemented?
2. How did the various levels of administrators – including the dean, associate deans, school heads, and financial directors – within the College of Engineering influence decision-making about resource allocation at each school level?

Interviews of nine faculty and staff administrators paired with financial information for the college and three of its schools – ABE, ECE, and MSE – yielded insight into the decision making processes and successes within the college during this eight year timespan. The quantitative data collection (budget data) and qualitative data collection (i.e. administrator interviews) were conducted and analyzed in parallel. This chapter on

findings begins with an overview of the financial data, which helps in explaining the following interview results.

4.2 Financial Data Overview

Financial data were collected for CoE, ABE, ECE, and MSE. These financial data start with FY1998-99 and continue through FY2007-08. The additional two years prior to the start of Dr. Jischke's presidency and the additional year following his retirement provide some pre- and post-tenure context to the seven years addressed by this study. The following tables and figures provide summaries of funding sources, expenses, and FTE levels for CoE, ABE, ECE, and MSE.

Table 4.1 and the corresponding Figure 4.1 provide summaries of the funding sources for CoE. The College has five broad categories of funds: federal sponsored programs, general funds, gifts, non-federal sponsored programs, and other. The overall funds for the College increased from \$80,811,232 in FY1998-99 to \$140,295,023 in FY2007-08. Each funding source had a net gain over the ten-year period. The largest account was general funds but was surpassed in FY2006-07 by the combined federal and non-federal sponsored programs funds.

Table 4.2 and the corresponding Figure 4.2 provide summaries of the expenses incurred within CoE. The majority of any academic budget is related directly to faculty and staff salaries and wages. The College of Engineering is representative of this phenomenon. The faculty salaries and wages expense (S&W) increased nearly 50%,

while the graduate student S&W expense nearly doubled. S&W expenses for administrative/professional staff and clerical/service staff grew at much smaller rates.

Table 4.3 and Figure 4.3 represent the summaries of funding sources for ABE. It is important to first note two differences between the School of Agricultural & Biological Engineering and the rest of the College of Engineering. ABE has a dual reporting structure: both the College of Engineering and the College of Agriculture provide administrative oversight to ABE. The School, however, only reports its budget through the College of Agriculture. The annual financial data presented for CoE in this chapter do not include the data from ABE.

[ABE] was administratively in another college. Yes, the faculty did have voting faculty privileges in Engineering and they went through the Engineering promotion and tenure process as well as Ag but at the deans' level, it was very clear ... they were [funded] by Agriculture, not by the College of Engineering. (INT7, College - Faculty, November 2013)

The second difference is that the annual financial data for ABE include federal appropriations and state line items. The majority of these funds are used to pay faculty salary and wage expenses in direct support of extension activities and, to a lesser extent, research activities.

The trend of overall fund increases seen in CoE continued in ABE. Table 4.4 and Figure 4.4 represent the summaries of expenses within ABE. The faculty S&W and

administrative/professional S&W expenses nearly doubled over the ten years while with respective amounts of \$1,843,380 and \$474,287 in FY1998-99 to \$2,766,797 and \$794,197 in FY2007-08. The clerical S&W expense actually declined over the same time period, dropping from \$291,811 to \$261,289. Graduate student S&W was relatively flat until FY 2007-08 when it had a significant increase to \$1,207,175.

Table 4.5 and Figure 4.5 represent the summaries of funding sources for MSE. General funds, non-federal sponsored programs, and other funds realized a net increase over the ten-year span. Federal sponsored programs and gifts, however, fluctuated over this timeframe. Federal sponsored programs was able to recover and realize a net increase from its lowest point of \$129,167 in FY2002-03 to \$475,817 in FY2007-08. Table 4.6 and Figure 4.6 represent the summaries of expenses for MSE. Faculty S&W more than doubled over the ten years from \$943,075 to \$2,362,638. Admin/Prof and Clerical and service S&W expenses are essentially flat. Graduate student S&W, however, more than doubled from \$395,100 to \$850,000.

The funding source summaries for ECE are represented in Table 4.7 and Figure 4.7. All of its funding sources yielded net gains over the ten-year period. Federal sponsored programs saw the largest increase, improving from \$6,338,673 to \$10,407,297. Its general funds also increased from \$8,501,007 to \$11,348,302. While these increases are large in total dollar amounts, the percent increases are smaller than either ABE or MSE. Table 4.8 and Figure 4.8 represent the summaries of expenses for ECE. ECE is similar to the other Schools in that faculty S&W and graduate student S&W rose greatly

during these ten years, with respective increases from \$5,858,450 to \$9,998,037 and \$2,652,774 to \$5,322,400.

Table 4.9 shows the FTE allocations within the College of Engineering. The majority of any academic budget is related directly to faculty and staff salaries and wages. The College of Engineering is representative of this phenomenon.

Table 4.1 Summary of funding sources for the College of Engineering

Funding Source	FY1998-99	FY1999-00	FY2000-01	FY2001-02	FY2002-03	FY2003-04	FY2004-05	FY2005-06	FY2006-07	FY2007-08
Federal Sponsored Programs	\$20,603,451	\$23,839,322	\$22,863,378	\$23,549,887	\$23,475,544	\$22,864,231	\$26,297,061	\$27,248,139	\$32,512,522	\$36,482,846
General Funds	\$38,072,215	\$41,346,049	\$42,100,303	\$42,954,782	\$44,184,127	\$45,745,969	\$48,004,904	\$55,056,439	\$53,537,573	\$55,936,538
Gifts	\$6,674,358	\$7,520,627	\$8,781,978	\$9,299,507	\$8,325,667	\$10,632,690	\$10,960,832	\$9,007,337	\$11,905,853	\$12,560,241
Non-Federal Sponsored Programs	\$9,505,027	\$13,602,059	\$14,744,021	\$17,663,890	\$20,746,849	\$20,412,861	\$20,279,932	\$23,064,104	\$29,504,408	\$26,890,253
Other	\$5,956,181	\$3,187,866	\$3,133,864	\$3,053,755	\$3,508,565	\$2,971,362	\$3,175,968	\$3,495,592	\$7,711,472	\$8,425,145
Total	\$80,811,232	\$89,495,923	\$91,623,544	\$96,521,821	\$100,240,752	\$102,627,113	\$108,718,697	\$117,871,611	\$135,171,828	\$140,295,023

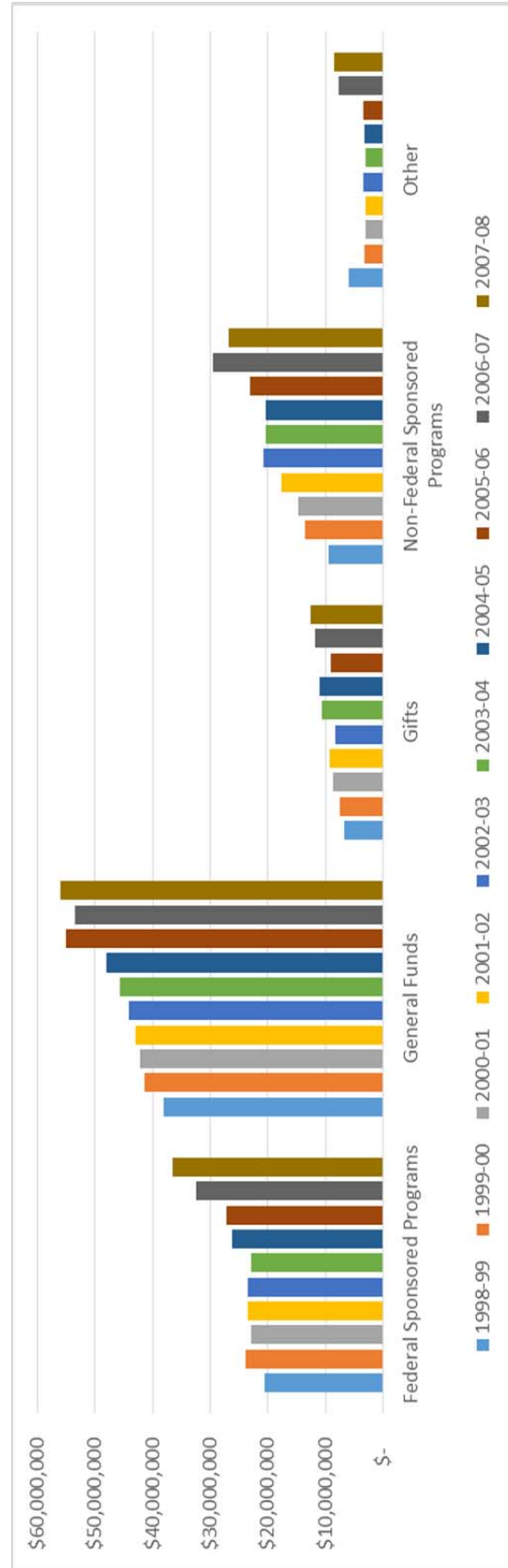


Figure 4.1 Funding sources by type for the College of Engineering

Table 4.2 Summary of expenses for the College of Engineering

Expense Type	FY1998-99	FY1999-00	FY2000-01	FY2001-02	FY2002-03	FY2003-04	FY2004-05	FY2005-06	FY2006-07	FY2007-08
Faculty Salaries & Wages (S&W)	\$24,869,771	\$25,114,045	\$25,537,091	\$26,972,318	\$27,234,827	\$28,609,320	\$30,911,593	\$34,083,492	\$35,380,711	\$39,575,264
Admin/Prof S&W	10,178,017	10,886,386	11,125,476	11,897,857	12,815,319	12,408,657	12,690,585	13,245,273	13,543,802	13,107,362
Clerical and Service S&W	3,428,162	3,287,873	3,339,852	3,307,503	3,389,463	3,326,720	3,350,475	3,530,525	3,527,364	3,634,704
Graduate Student S&W	11,869,645	12,513,722	13,816,238	13,840,759	15,494,749	15,599,666	17,647,532	19,570,334	21,489,871	22,833,603
Supplies & Expenses	20,327,490	25,293,544	24,325,559	26,769,927	25,115,364	27,227,296	25,543,721	23,948,063	35,099,956	33,474,256
Other	10,138,147	12,400,353	13,479,328	13,733,457	16,191,030	15,455,454	18,574,791	23,493,924	26,130,124	27,669,834
Total	\$80,811,232	\$89,495,923	\$91,623,544	\$96,521,821	\$100,240,752	\$102,627,113	\$108,718,697	\$117,871,611	\$135,171,828	\$140,295,023

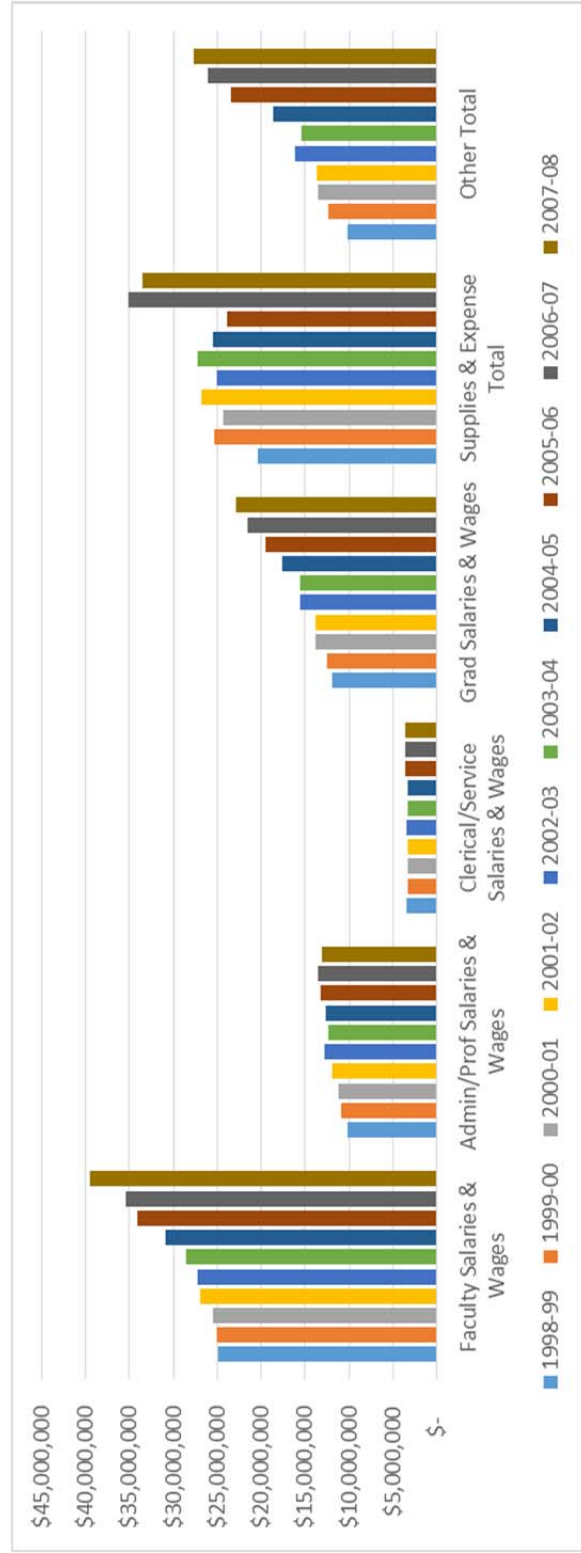


Figure 4.2 Expenses by type for the College of Engineering

Table 4.3 Summary of funding sources for the School of Agricultural & Biological Engineering

Expense Type	FY1998-99	FY1999-00	FY2000-01	FY2001-02	FY2002-03	FY2003-04	FY2004-05	FY2005-06	FY2006-07	FY2007-08
Federal Appropriations	\$433,156	\$516,076	\$402,576	\$356,326	\$391,691	\$391,691	\$385,423	\$371,691	\$371,691	\$311,100
Federal Sponsored Programs	993,412	1,010,864	974,746	1,275,000	1,400,000	1,379,964	1,470,720	1,766,025	1,538,026	2,225,046
General Funds	1,840,990	1,858,304	2,061,536	2,196,609	2,262,405	2,403,858	2,426,384	2,937,796	2,936,120	3,168,727
Gifts	65,000	36,000	69,000	90,000	204,727	195,284	240,830	314,700	200,000	60,000
Non-Federal Sponsored Programs	700,134	751,582	831,979	700,000	500,000	578,467	671,402	994,353	1,108,772	2,255,524
Other	119,850	166,263	228,250	195,000	180,000	90,173	76,332	47,106	359,508	502,782
State Line Items	169,774	169,774	169,774	169,774	169,774	171,303	171,303	171,303	171,303	171,303
Total	\$4,322,316	\$4,508,863	\$4,737,861	\$4,982,709	\$5,108,597	\$5,210,740	\$5,442,394	\$6,602,974	\$6,685,420	\$8,694,482

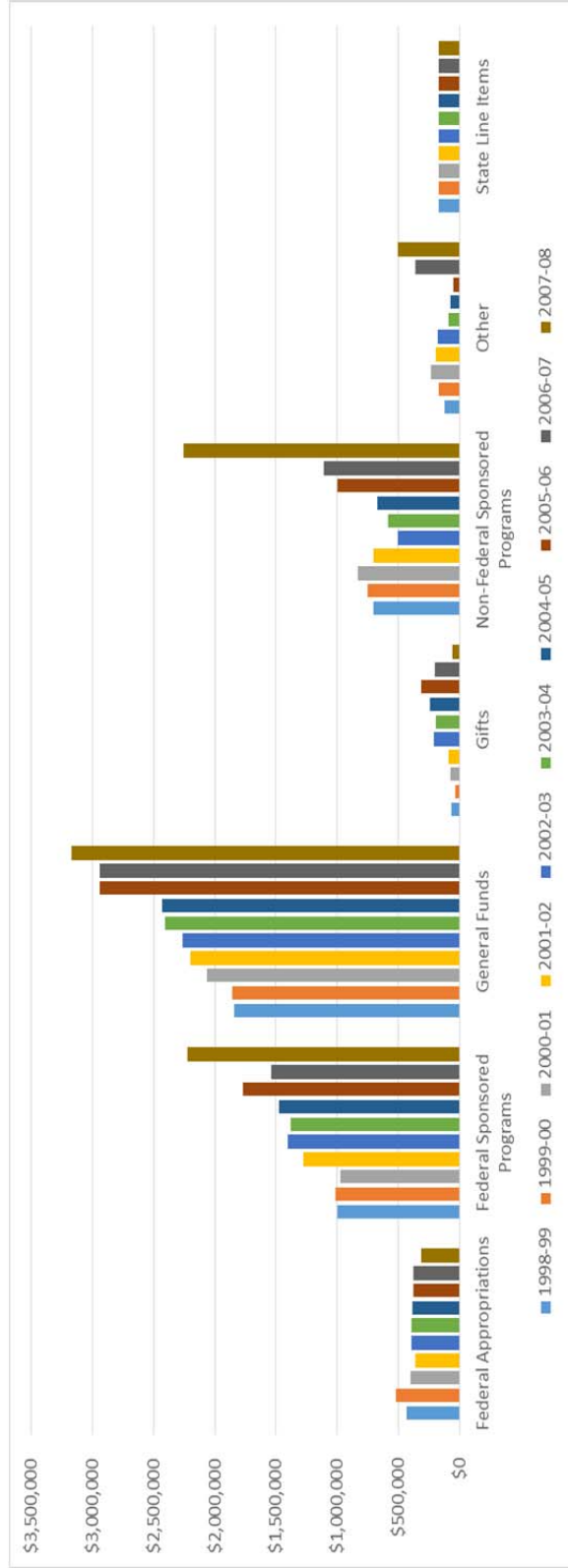


Figure 4.3 Funding sources by type for the School of Agricultural & Biological Engineering

Table 4.4 Expenses by type for the School of Agricultural & Biological Engineering

Expense Type	FY1998-99	FY1999-00	FY2000-01	FY2001-02	FY2002-03	FY2003-04	FY2004-05	FY2005-06	FY2006-07	FY2007-08
Faculty Salaries & Wages (S&W)	\$1,843,380	\$1,903,430	\$1,933,126	\$2,183,037	\$2,379,504	\$2,393,070	\$2,394,237	\$2,806,914	\$3,088,524	\$3,766,797
Admin/Prof S&W	474,287	479,739	593,526	553,802	479,455	460,303	489,456	815,037	689,330	794,197
Clerical and Service S&W	291,811	288,619	298,023	310,341	323,513	336,312	354,534	302,267	307,919	261,289
Graduate Student S&W	780,240	720,190	803,636	589,460	684,154	810,355	865,541	990,935	870,500	1,207,175
Supplies & Expenses	932,598	1,116,885	1,166,023	1,437,026	1,309,167	1,248,997	1,365,062	1,793,498	1,613,495	2,499,622
Other	-	-	(56,473)	(90,957)	(67,196)	(38,297)	(26,436)	(105,677)	115,652	155,652
Total	\$4,322,316	\$4,508,863	\$4,737,861	\$4,982,709	\$5,108,597	\$5,210,740	\$5,442,394	\$6,602,974	\$6,685,420	\$8,684,732

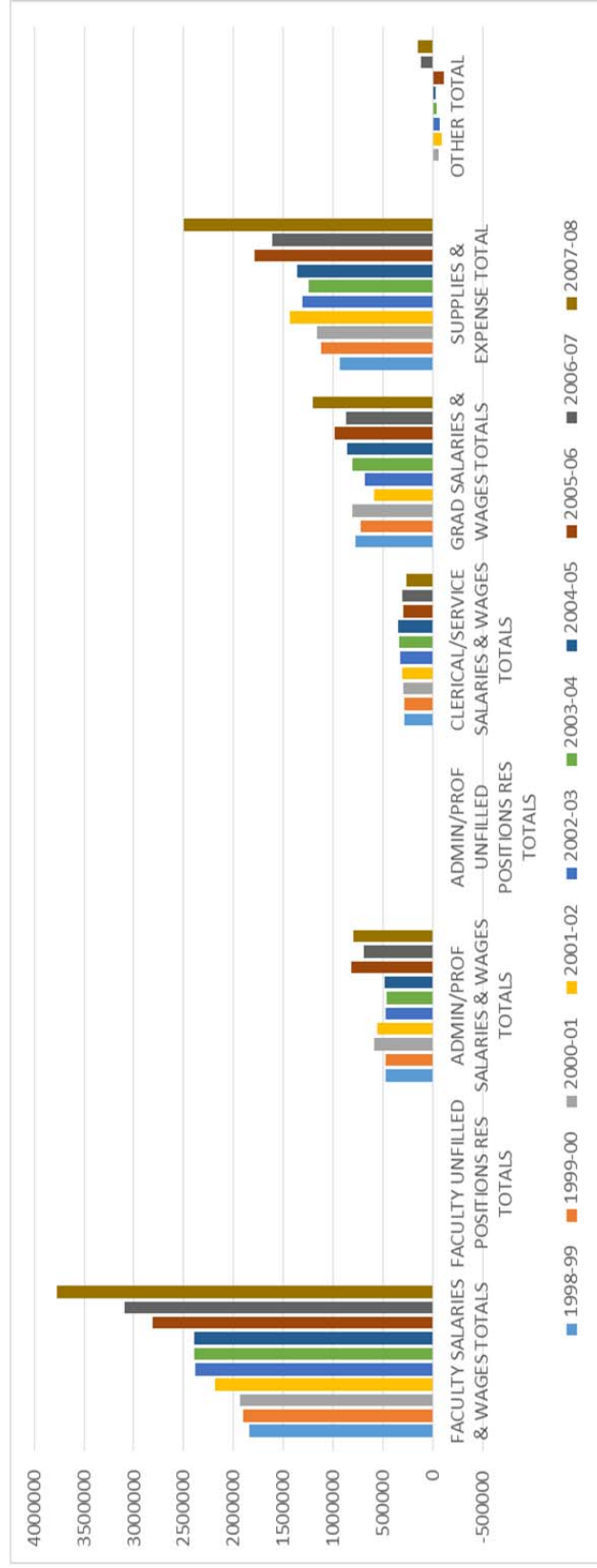


Figure 4.4 Expenses by type for the School of Agricultural & Biological Engineering

Table 4.5 Funding sources by type for the School of Electrical & Computer Engineering

Expense Type	FY1998-99	FY1999-00	FY2000-01	FY2001-02	FY2002-03	FY2003-04	FY2004-05	FY2005-06	FY2006-07	FY2007-08
Federal Sponsored Programs	\$6,338,673	\$9,008,319	\$9,663,999	\$9,655,748	\$9,730,837	\$9,199,167	\$10,108,304	\$8,457,296	\$10,092,447	\$10,407,297
General Funds	8,501,007	8,896,374	9,389,586	9,337,110	9,150,188	9,808,165	10,013,774	10,977,451	11,126,413	11,348,302
Gifts	819,983	637,313	673,937	918,660	1,023,272	1,444,369	1,247,701	1,095,149	1,016,154	937,833
Non-Federal Sponsored Programs	1,391,833	1,644,676	1,764,688	2,547,842	3,511,497	3,260,243	2,851,040	4,376,354	4,356,603	3,905,276
Other	383,531	404,146	448,031	411,765	531,436	492,095	434,206	469,375	385,064	532,080
Total	\$17,435,027	\$20,590,828	\$21,940,241	\$22,871,125	\$23,947,230	\$24,204,039	\$24,655,025	\$25,375,625	\$26,976,681	\$27,130,788

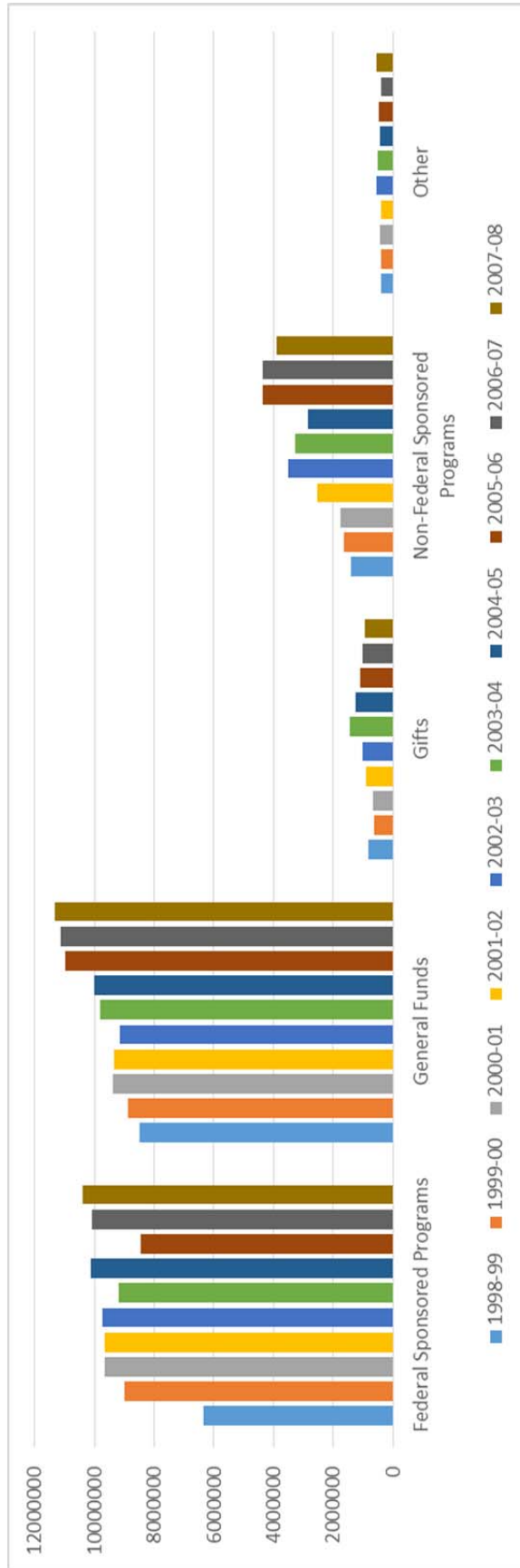


Figure 4.5 Funding sources by type for the School of Electrical & Computer Engineering

Table 4.6 Summary of expenses for the School of Electrical & Computer Engineering

Expense Type	FY1998-99	FY1999-00	FY2000-01	FY2001-02	FY2002-03	FY2003-04	FY2004-05	FY2005-06	FY2006-07	FY2007-08
Faculty Salaries & Wages (S&W)	\$5,858,450	\$6,036,425	\$6,467,606	\$7,090,800	\$6,758,489	\$7,504,426	\$7,751,832	\$8,890,351	\$9,488,552	\$9,998,037
Admin/Prof S&W	1,460,603	1,789,171	1,632,499	1,694,982	2,040,495	1,861,775	1,798,776	1,610,850	1,405,090	1,534,721
Clerical and Service S&W	520,349	482,974	540,958	555,561	555,928	624,547	604,273	637,514	584,380	600,631
Graduate Student S&W	2,652,774	3,095,675	3,498,699	3,877,650	4,050,640	4,068,718	5,038,400	5,374,400	5,374,400	5,322,400
Supplies & Expenses	4,549,200	6,909,809	7,349,452	7,521,463	7,099,629	7,385,946	5,720,985	5,721,500	5,640,378	5,568,631
Other	2,393,651	2,276,774	2,451,027	2,130,669	3,442,049	2,758,627	3,740,759	3,141,010	4,483,881	4,106,368
Total	\$17,435,027	\$20,590,828	\$21,940,241	\$22,871,125	\$23,947,230	\$24,204,039	\$24,655,025	\$25,375,625	\$26,976,681	\$27,130,788

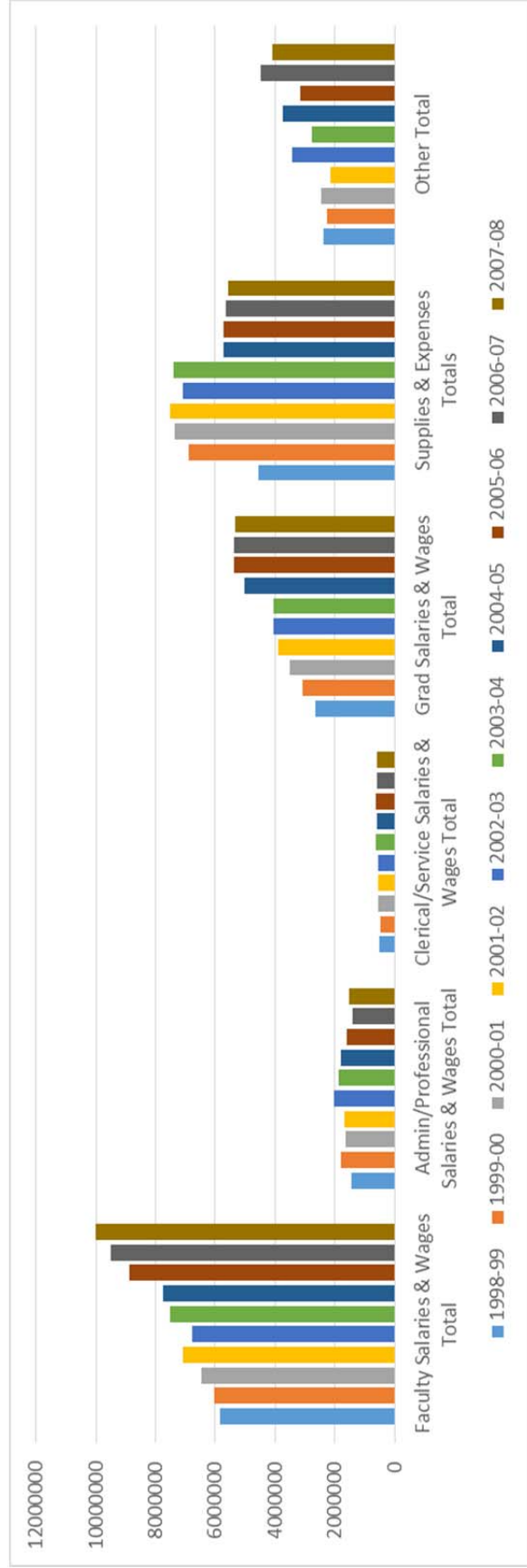


Figure 4.6 Summary of expenses for the School of Electrical & Computer Engineering

Table 4.7 Summary of funding sources for the School of Materials Science Engineering

Expense Type	FY1998-99	FY1999-00	FY2000-01	FY2001-02	FY2002-03	FY2003-04	FY2004-05	FY2005-06	FY2006-07	FY2007-08
Federal Sponsored Programs	\$2,733,590	\$788,383	\$661,332	\$1,227,337	\$799,581	\$429,680	\$468,171	\$643,008	\$847,078	\$934,729
General Funds	1,217,751	1,113,931	1,264,993	1,282,830	1,308,218	1,377,240	1,496,986	1,870,193	2,546,873	2,593,850
Gifts	245,100	241,989	131,090	109,550	126,760	235,135	248,954	228,690	243,702	273,306
Non-Federal Sponsored Programs	119,972	119,082	161,786	134,644	129,167	228,358	228,747	267,097	231,519	475,817
Other	154,535	170,041	179,967	190,584	193,744	184,492	203,723	298,145	325,924	503,738
Total	\$4,470,948	\$2,433,426	\$2,399,168	\$2,944,945	\$2,557,470	\$2,454,905	\$2,646,581	\$3,307,133	\$4,195,096	\$4,781,440

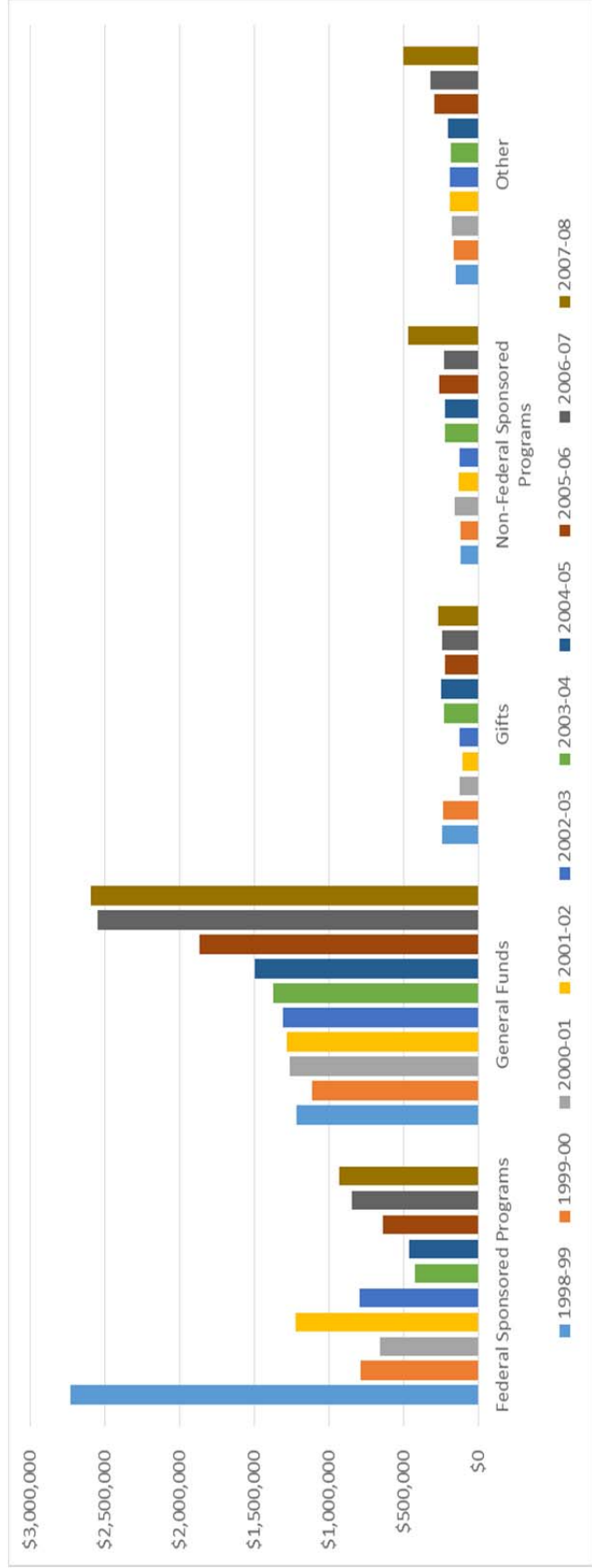


Figure 4.7 Funding Sources by type for the School of Materials Science Engineering

Table 4.8 Summary of expenses for the School of Materials Science Engineering

Expense Type	FY1998-99	FY1999-00	FY2000-01	FY2001-02	FY2002-03	FY2003-04	FY2004-05	FY2005-06	FY2006-07	FY2007-08
Faculty Salaries & Wages (S&W)	\$943,075	\$822,976	\$918,042	\$949,532	\$997,083	\$1,121,343	\$1,238,103	\$1,501,485	\$2,034,714	\$2,362,638
Admin/Prof S&W	380,500	366,277	245,367	178,578	183,797	207,558	212,500	462,536	367,739	332,290
Clerical and Service S&W	107,662	130,416	88,566	91,208	81,224	83,325	86,902	92,144	94,973	124,592
Graduate Student S&W	395,100	462,000	512,100	432,000	720,000	514,080	544,500	544,500	569,136	850,000
Supplies & Expenses	2,268,683	330,972	70,000	164,000	64,500	47,000	20,000	-	-	255,000
Other	375,928	320,785	565,093	1,129,627	510,866	481,599	544,576	706,468	1,128,534	856,920
Total	\$4,470,948	\$2,433,426	\$2,399,168	\$2,944,945	\$2,557,470	\$2,454,905	\$2,646,581	\$3,307,133	\$4,195,096	\$4,781,440

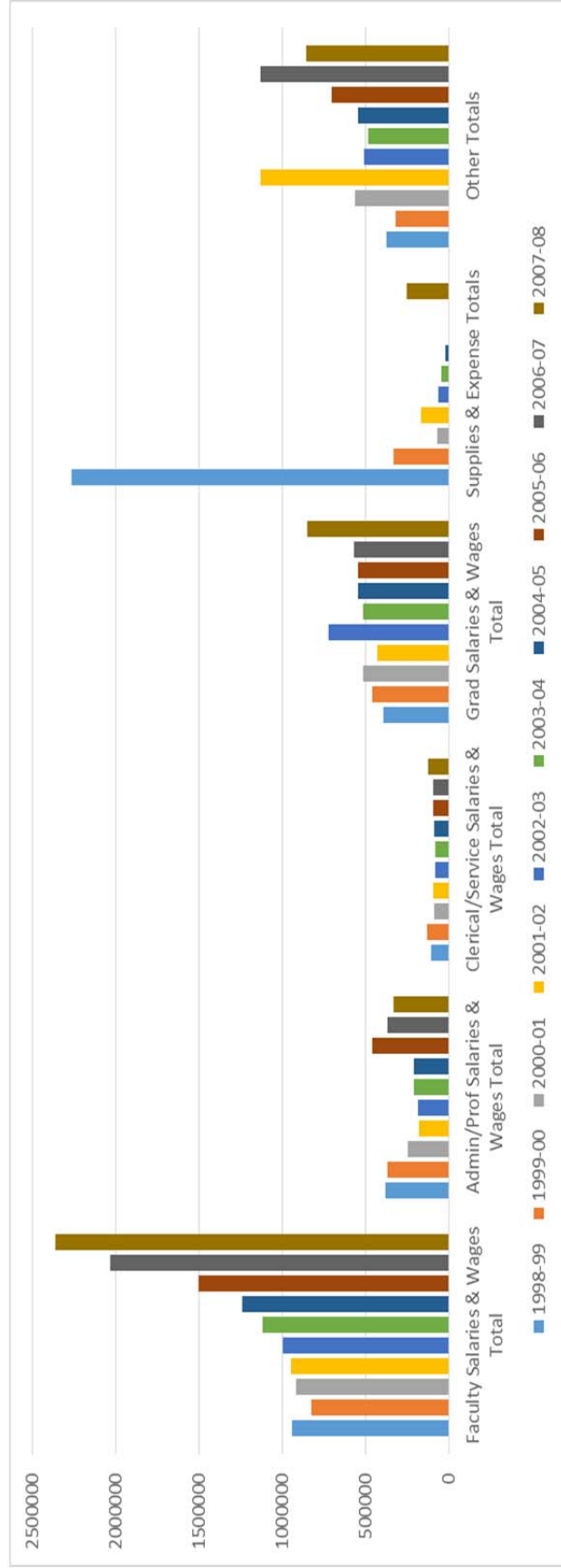


Figure 4.8 Expenses by type for the School of Materials Science Engineering

Table 4.9 FTE allocations for the College of Engineering

Total	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Faculty Salaries & Wages Total	307.61	299.68	292.81	301.99	297.11	298.83	318.92	347.7	360.69	398.19
Admin/Prof Salaries & Wages Total	230.95	239.45	240.35	249.77	260.69	249.21	249.01	250.56	249.57	237.33
Clerical/Service Salaries & Wages Total	140.25	134.26	131.79	125.6	126.8	120.65	121.93	122.88	118.15	117.9
Grad Salaries & Wages Total	444.75	450.75	465	442.25	471.3	465.8	511.05	561.05	579.8	567.73

4.3 Interview Data

Analysis of the administrator interview data yielded five broad categories of responses that addressed the two underlying research questions. The five categories were: 1) impacts on standard operating procedures, 2) impacts on the strategic planning process, 3) contribution of communication to administrative transparency and collaboration, 4) impact of faculty cluster hires, and 5) shift in funding sources on available resources and allocation. Table 4.10 provides a breakdown of how each of these categories and its concepts related to the two research questions.

Table 4.10 Categories and concepts as they relate to research questions

Category	Concept	Q1: How financial decisions were made about resource allocation	Q2: How the various levels of administrators within CoE influenced decision-making about resource allocation at each school level
Category 1: Impacts on standard operating procedures	Faculty cluster hiring	X	X
	Data-driven decision making	X	
	Operational efficiencies		X
Category 2: Impacts on the strategic planning process	Streamlined decision making	X	
	Participant understanding of the process	X	X
	Strategic planning advantages	X	X
	Resource allocations	X	X

Category	Concept	Q1: How financial decisions were made about resource allocation	Q2. How the various levels of administrators within CoE influenced decision-making about resource allocation at each school level
Category 3: Contribution of communication to administrative transparency and collaboration	Stakeholder buy-in and inclusion	X	X
	Transparency		X
	Participant agreement about buy-in	X	X
	Shared governance		X
	Role of networking		X
Category 4: Impact of faculty cluster hires	Growth in school faculty sizes	X	X
	Shifting resources	X	
	Decision making about resource allocations	X	X
Category 5: Shift in funding sources on available resources and allocation	Facilities expansion	X	X
	New fundraising campaign	X	
	Declining state support	X	
	Budget reallocations	X	X
	New funding sources	X	X

4.4 Impacts on Standard Operating Procedures

Impacts on standard operating procedures was defined as changes to a prior system of deciding how to allocate resources. The concepts involved in this category included faculty cluster hiring, data-driven decision making, and operational efficiencies.

4.4.1 Faculty Cluster Hiring

One impact from the University-wide strategic plan was the introduction of faculty cluster hiring. The plan introduced 300 new faculty positions at the University across five years and the provost assigned 75 to the CoE. The notion of cluster hiring focused on filling many of these newly created faculty positions in interdisciplinary strategic thrust areas through the use of joint appointments across Departments, Schools, and Colleges. Both the processes for defining the strategic thrust areas and for hiring these faculty were a departure from prior operating procedures.

Hiring faculty across units was complicated because of the traditional process for promotion and tenure. The insistence on an interdisciplinary focus for the new faculty hires led to a cultural shift within the College.

The whole process of hiring changed dramatically and to make sure that there was a multi-disciplinary flavor to it, any position that was offered ... had to first be approved by the deans' office, using the criteria that Dr. Jischke's office had established. But it basically... resulted in an approach in which we were hiring people with appointments split between more than one unit. That, prior to Jischke,

was really unheard of. It was the perception that ... hiring a person in a split position between academic departments was the kiss of death for tenure. That each of the departments would expect the person to accomplish as much in their discipline as a person who had a singular focus..... It was changed by Dr. Jischke because that was the mandate: that we would hire on a cross-disciplinary basis. And so suddenly all of the university had to accept the fact that there were going to be numerous split appointments. Number one. Number two, we brought in quite a large number, I don't know what the exact percentage was but maybe approaching fifty percent, at least forty percent of the hires were senior level people. These were people that were hired on split appointments but they came in with tenure. They served on the primary promotions committee. And so they were there to articulate that this was a valid model. (INT7, College - Faculty, November 2013)

The development of strategic thrust areas and hiring cluster faculty required faculty from across units to collaborate on shared goals.

And I think that our process in this cluster hiring, we developed these faculty generated proposals for signature areas, which were intended to be... where do we see some big picture, multidisciplinary research opportunities. And can we put that into kind of a vision concept statement and then hire around that? So I think that gave the opportunity for a lot of people to kind of weigh in on where the next

advances were likely to come from and to participate - because faculty hire faculty - participate in that. (INT4, College - Staff, November 2013)

The use of data-driven decision making also played a role in the allocation of available faculty positions. One downside to the continual faculty hiring was the amount of effort required from hiring committees. It was not unheard of for a faculty member to serve on multiple committees and this activity lasted for five years.

So certainly some of the faculty, the faculty line allocations and again then back to the budget model... it was driving things based on... student numbers and research metrics and other metrics that were in the strategic plan. (INT6, School - Faculty, November 2013)

4.4.2 Data-Driven Decision Making

The use of data and metrics in the decision-making process was not a new phenomenon during the Jischke era. The amount of use, however, did increase during these years. These metrics were frequently tied to strategic thrust areas.

I don't remember it being so numbers driven or data driven before Jischke. Certainly they would look at enrollment. If you said I need a new building and your enrollment's going down, they'd be saying what? If you had a distinguished faculty member that was at risk of being wooed away by another university and what they needed was a new lab or support, those were I'm not going to say gut feelings but a dean

would know if they're distinguished faculty and so those weren't always based on data. But some were, like I said, some were. Like a building. Or, you know, a renovation of things, looking at the age of a lab, how many labs. (INT1, University - Staff, October 2013)

Tied to the strategic plan and tied to the metrics within it. Yeah. I guess, thinking back, remember annual reporting for the unit, for myself, and... there were lots of things in that about how things aligned with the strategic plan. (INT6, School - Faculty, November 2013)

The process for requesting funds typically involved a justification based on a number of factors.

Typically, what's the sort of, what's the business case? What's the problem, or what's the opportunity? ... how is this going to change key things? ... is this going to improve student learning? Is this going to improve someone's competitiveness in going after... research support? Is this going to change a demographic that we're trying to make changes in? So some of those kinds of things. And so... if it's, it depends on what area of the program as to which metrics and what that business case might be. (INT6, School - Faculty, November 2013)

4.4.3 Operational Efficiencies

CoE responded to its growth in faculty and facilities by realizing operational efficiencies out of necessity. Although the faculty numbers grew by 75, there was no corresponding increase in staff to handle additional administrative oversight. One outcome from this increased workload was the Armstrong Service Center, which provided business services support separated by functional area to multiple Schools located within the newly built Armstrong Hall of Engineering. Another creation was the pre-award center, which offered centralized business services support for research grant proposals.

The idea for Armstrong Service Center, which [MSE] co-developed with the College's financial team, was, well, we're going to put all these people together, why not cohabitate them? Get two CPA-level people in there to run it, and make it so people have a specialty..... It means there's a one-stop shop for all those departments. It means when that person's not in, there's someone else available to back them up... I think the system overall is very effective. And that came about from building [Armstrong Hall] but it also came about from trying to rethink how we do the financial management side. (INT3, School - Faculty, November 2013)

The Service Center was an entity created to serve multiple select Schools located in the same building. The pre-award center was an entity designed to service all Schools

within the College. Some Schools, additionally, chose to review their own internal operations. As a result, they were able to realize efficiencies by identifying changing business needs and reassigning existing staff.

Part of the use of the secretaries that we felt like they're, not only did we have way too many but they weren't nearly utilized like they used to be. They used to be typing papers and typing up the research proposal. They just don't do that anymore, the faculty did it... The secretaries started doing all their travel... And that freed up the business office to be able to concentrate more on helping them with proposals, helping them with all of the electronic filings and then once we got the award, to kind of keep track of where they are. And that, that was more useful... the faculty wanted that more. (INT8, School - Staff, November 2013)

4.4.4 Category 1 Relationships to Research Questions

The concepts that form the impacts on standard operating procedures relate to the research questions in multiple ways. The faculty cluster hiring was very much a top-down approach that originated with the University's strategic plan and its emphasis on interdisciplinary research. As shown in the financial data with faculty S&W forming a unit's largest expense, however, the process for allocating these positions had profound impact on the Schools. The faculty played a significant role in the development of the

strategic research areas, thus guiding the allocation of the new faculty lines. Decisions during this time often relied on an increased use of data, which was a change from prior administrations. It became common for resource allocations to be based on whether or not they addressed the strategic initiatives, and to what extent. The third concept, operational efficiencies, highlighted how administrators and staff worked together to identify opportunities and create proposals for better allocation of resources. They recognized the need to change their business practices, analyzed the data, and developed proposals that resulted in improvements in different aspects of business services that served as models across campus. These collaborations allowed individuals from different levels (Schools, CoE, and the University) to work with faculty and staff from different functional areas (administrative, academic, and business services) to reallocate resources in mutually beneficial ways.

4.5 Impacts of the strategic planning process (Category 2)

Impacts of the strategic planning process was defined as changes to any or all of the units in the study (CoE, ABE, ECE, and MSE) relating to the University's strategic plan developing during the Jischke years. The concepts involved in this category included streamlined decision making, participant understanding of the process, strategic planning advantages, and resource allocations.

4.5.1 Streamlined Decision Making

Developing a strategic plan requires participants to identify and set goals and priorities, which can then be used to inform decisions on what activities justify the allocation of resources.

So it was a mandate that we all had to have a strategic plan and they all had to be done by a certain time. And that they would drive budget or resource allocation and decision making. (INT4, College - Staff, November 2013)

Well, there was a framework for everybody to work with. The thing that was really positive wasn't just everybody doing whatever they wanted. They decided that Purdue needs to focus on their strengths and put their resources there...So I think the framework around the strategic plan and the budgeting process, helped people focus on where their strengths were and where they should put their money. (INT1, University - Staff, October 2013)

4.5.2 Participant Understanding of the Decision Making Process

The CoE strategic plan from 2002 was developed after the University's plan was implemented, and both plans were created in such a way as to encourage support from the various stakeholders. This transparency resulted in a general understanding of the resource allocation decision making process among participants (CoE faculty and staff).

Everyone knew what was important, most of the work was already done. They knew that if they came in with a request, they were, they were much better off if they could point to a part of the strategic plan and say I'm responding to this sort of... Because we had already done a lot of our homework then in terms of what we wanted to get done.

(INT2, College - Faculty, November 2013)

If it fit and you could, you could line it with the strategic plan, it certainly gave it a major advantage, just because of all the background that had gone into the planning, you've already, you'd already exercised a lot of the decision making that you needed to. (INT2, College - Faculty, November 2013)

The chain of command was fairly clear: faculty had to start within their home School and make requests through the Head or his designee. If the Head deemed it important enough, he (sometimes in partnership with the faculty member) would then submit a request or proposal through the appropriate associate dean or assistant dean. The dean would then elevate select proposals to the provost in the event that CoE was unable to fund the entirety of an approved request. Of course, the consequences of this general openness with strategic priorities encouraged some individuals to be resourceful in their resource requests.

I think that people got creative with the funding and how they could move it around to meet the needs of the times. (INT1, University - Staff, October 2013)

I think that faculty are entrepreneurial and so when they've got an idea that they think is worthy and... exciting, they'll try to go through any door they can. (INT4, College - Staff, November 2013)

There were a number of resources that flow ...that are sort of opportunistic based and a lot of those then get into these personal relationships and ability to make cases for things outside of normal timelines and channels... There are always opportunities to make a strong case for something. And then there are... sort of normal timelines for making cases for things, too, but there are always sort of those special opportunities. (INT6, School - Faculty, November 2013)

4.5.3 Strategic Planning Advantages

Interviewees identified advantages they perceived to result from the impacts of the strategic plan across the College. An important aspect of the planning process was a period of self-reflection once the plan was enacted. Participants disagreed with the extent to which this analysis was carried out after the 2002 CoE strategic plan.

I don't see disadvantages to it. I think that it was overwhelmingly positive. There would be individuals that were not pleased because

they felt that their area had been de-emphasized. ... their retirement was not being filled with a person who was going to be a clone of what they had done. So in that sense, there was some carping. But the process, I believe, was overwhelmingly positive. (INT7, College - Faculty, November 2013)

I think that the, the things that came out of the strategic plan, so I'll give you my opinion on this, and this is the factors that I think even influenced the next strategic plan in the College of Engineering at Purdue. So I believe that, that a lot of the processes, so a lot of those committees for the Jischke plan, were all groups of people together that might not otherwise have been together. People got people in rooms... even in some of the sessions to talk about the university that would not have otherwise happened. My bias on this is that ... I think strategic plans can be, it's hard to judge whether a strategic plan is good or not but I can tell you what's most important for a strategic plan is the process behind making it. And how much it gets people to reconsider, rethink, and revise how they think and work. (INT3, School - Faculty, November 2013)

4.5.4 Resource Allocations

The strategic plan had a profound impact on the resource allocation within CoE and its Schools, mainly through an emphasis on activities that aligned with the overall University strategic plan.

The first budget, which presumably was developed in the summer of 2001, before the plan had been approved, was pretty ordinary. And did not have the plan framework but after that, every – at least at the University level – every resource allocation or budget was driven by the strategic plan. And driven in a very transparent way. There were specific goals. They had specific numbers in them. We allocated according to that plan. And then at the end of every year, after the fiscal year was over, we would report to the Board [of Trustees]. And we would report openly, transparently, on progress on each of the goals, on the financial metrics that we were using. So there was, there was a pretty direct correlation between what the plan's objectives were and how we spent the money...The discretionary allocations were all made according to plan. (INT9, University - Faculty, December 2013)

The creation and use of the College's strategic plan affected donors' understanding of what strategic goals CoE planned to implement and increased their interest in partnerships.

My own view is it was instrumental in, in us being able to get industrial and, and, both industry... the non-profit foundations, and our alums to support. And we got great support on it. And many have said to me, this is really what I want to see. Well these guys were in big companies. They're used to looking at this is the big picture. (INT2, College - Faculty, November 2013)

[Dr. Jischke] was able to say here's the, here's the overall plan and here's how this piece we're asking you to support fits into this and so... and that, and that was true right down the line. You go to somebody with a request, say to support a professorship, here's the, here's the strategic plan, here's why we think it's important, here's what it will let us do – and it wasn't this is an ad hoc oh, I wonder what I can ask this guy for and he might – it's here's the big picture. (INT2, College - Faculty, November 2013)

4.5.5 Category 2 Relationships to Research Questions

One of the most significant benefits from the strategic plan was that it clearly indicated the goals of the College and University. The strategic planning process was designed to be inclusive to both take into account the diverse interests across CoE and to elicit feedback at every step throughout development. The leadership team worked hard to identify representatives from all potential stakeholder groups, both internal and external to the institution. Many efforts were taken to make this process transparent and

allow feedback, in much the same way that the University's plan was developed. The strategic planning framework then served to guide administrators with allocating resources. It resulted in streamlined decision making for them because the transparent planning process itself yielded agreed upon strategic initiatives built upon existing strengths and research interests within the academic units. The faculty and staff had a shared understanding of the role that the strategic plans played in allocating resources because Dr. Jischke had frequently and clearly articulated these expectations university-wide. The chain of command remained unchanged: faculty submitting proposals to their School heads, School heads reporting to the CoE deans, the dean working with the provost, and the provost reporting to the president. At each level, the administrator could reject a request, approve it using his/her own limited resources, or pursue additional resources. The interviewees acknowledged, however, that while it was frowned upon, it was not unheard of for faculty to rely on networking and professional relationships to pitch proposals to decision makers outside the normal chain of command.

4.6 Contribution of Communication to Administrative Transparency and Collaboration (Category 3)

Contribution of communication to administrative transparency and collaboration is defined as the effect of being open and collaborative with stakeholders (e.g. faculty, staff, students, alumni, corporate partners, donors, and policy makers) about how resource allocation decisions were made. The concepts included stakeholder buy-in and inclusion, transparency, participant agreement about buy-in, shared governance, and the role of networking.

4.6.1 Stakeholder Buy-In and Inclusion

The College actively sought buy-in from its stakeholders and one example is the Engineering leadership team. Dean Katehi initiated the formation of this team and it included the dean's cabinet and School heads. They serve as the steering committee for the College and meet monthly.

How [Dean Katehi] operated with the heads and deans and key staff was a positive. Because they didn't know how to behave as a leadership team. In fact, they didn't even want to be called that at the beginning. Right? They wanted to just be like advisors or something. But they were a little hesitant about being called leadership team. They thought it put them on some... a pedestal or something, and raised them away from the faculty and they didn't, they were uncertain about that. And now... they really... that has continued with this dean and so they really see themselves more in that role and things are discussed pretty vigorously when we have a big issue that comes up and brought to that group. (INT4, College - Staff, November 2013)

I think again it goes back to this very frequent meeting schedule [of the CoE leadership team]. I mean, there were... those...yeah, those meetings were sort of changing culture, making sure people were on board and understanding and reaching consensus on direction. Uh, and

it was certainly clear that the dean was in charge. (INT6, School - Faculty, November 2013)

[Dean Jamieson] was very open during that six month period. More so than I had heard of. We did a lot of budget presentations. Lots. To all the faculty. So her six months, they pretty much put everything out front of all the faculty. I remember doing a lot of those with her. And so I think, I'm sure that there were... parts of that were the strategic plan components of... what programs they were still going to be able to do with the funding they had and... (INT8, School - Staff, November 2013)

The College employed a variety of communication methods to solicit involvement from the many stakeholder groups.

We did lots of other things. We did an intranet site where... they were alerted and could go there and weigh in on different... concepts that were coming up. And give feedback. I think she did some individual visits to the schools to talk about what was learned through this... this research phase, understanding where our stakeholders were coming from and how that was informing... the ideals of the plan. (INT4, College - Staff, November 2013)

4.6.2 Transparency

The idea of being transparent about the processes involved with strategic planning and resource allocation decisions are important concepts for improving acceptance among stakeholders. The College sought transparency through broad identification of its stakeholders and reaching out to representatives for feedback.

I think transparency is the most important piece... You can justify, I can explain why other people get more money but actually sharing... broad categories – it doesn't have to be narrow categories – but broad categories should be shared. I think transparency's very important inside of the College. (INT3, School - Faculty, November 2013)

Well I think that they were aware that they were being made in this leadership team but because there was a perception of it being, of... lack of transparency. Right? It wasn't intended that way. Nobody was trying to hold information back. It just, we hadn't gotten good at it. But I think the perception was because it wasn't transparent, they didn't, they figured the dean and her leadership team were making decisions but predominantly the dean usually. (INT4, College - Staff, November 2013)

4.6.3 Participant Agreement about Buy-In

The interviewees had mixed feedback on the agreement about buy-in from the various participants involved with the CoE strategic plan. The differing reactions impacted the ensuing growth within their respective Schools.

You know, I mean, I remember a faculty member from that program telling me, “Well, we don’t like this process the dean is using so we just don’t want to be involved.” (INT3, School - Faculty, November 2013)

[T]here was always a great deal of openness in both of the College of Agriculture and Engineering, between the dean being accessible to the school head to come in and share any concerns or issues that they might have. I know that that did occur during the budget time and all that sort of thing. But, as an associate dean, that was not an area that I had really any input and they didn’t have to filter through me to get directly to the dean. (INT7, College - Faculty, November 2013)

[Y]ou say, these are the funds that we think we need. This is why but this is in support of what we’ve already talked about, in terms of the strategic plan. You might be in disagreement over how much it takes to do that or whether this is the right time or all kinds of reasons not to do it but at least you sort of have a common base to start with. Is that something we think is important? (INT2, College - Faculty, November 2013)

4.6.4 Shared Governance

The interviewees addressed the idea of shared governance of the College between the faculty and CoE administration.

Well I would say it was, it was accelerated substantially over what it had been prior to that. There was much broader participation within the college, primarily because there were decisions to be made. (INT7, College - Faculty, November 2013)

I think that the perception we talked about... who owns the plan, affects that. Right? Because if they don't see that they, that it's theirs, that they live it and that they have a role in it, then they don't see that they have a voice in the decision making. So I would say from that point of view, that for the most part, faculty viewed it as something that... the dean did. Maybe the heads. Right? This leadership team. You know. That it was theirs and they did some kind of voodoo around decision making. And because they didn't see it as being an open process, it wasn't necessarily viewed as always fair and equitable. (INT4, College - Staff, November 2013)

4.6.5 The Role of Networking

The role of professional relationships and networks is an important factor that cannot be ignored in the resource allocation process, even in a system that relies on data-driven decisions.

Almost always if you could go together with two or more departments, you strengthen your prospect for approval of new resources. And I think everybody recognized that and so consequently valued those relationships a great deal. In both schools, of Agriculture and Engineering, the heads during Jischke's era would meet once a month and just have their own private luncheon, there was never an agenda that was fixed for them... That helped you keep aware of what was going on in the other schools and where there were difficulties. Because you could share things in a way that didn't go beyond that venue and that helped to cement those relationships. (INT7, College - Faculty, November 2013)

Personal relationships, I'm sure, had a big role in this... And part of it was: where are your strengths? Part of it was looking at where are you already successful and leveraging that up. And that's a good thing... There were lots of skeptics because there were people that really liked the traditional disciplinary core stuff and then there were people that got pretty excited and motivated by this new thing, this

signature area thing, and it caused tension. (INT5, College - Staff, November 2013)

4.6.6 Category 3 Relationships to Research Questions

The concepts within this category were interconnected with the research questions of the study. Communication was an integral component of how decisions were made to allocate resources and who participated in those decisions. Stakeholder buy-in and inclusion illustrated how the College encouraged faculty participation through multiple modes in-person and online; the CoE leaders were responding to the faculty requests for more shared governance. The dean led budget presentations and School visits. School heads were expected to solicit feedback and report back during the College's monthly leadership team meetings. The College developed an intranet site that allowed stakeholders to provide feedback. These attempts at transparency, however, were not universally accepted because the participants, chiefly faculty, had varying degrees of buy-in. The interviewees (both faculty and staff) recognized that despite the openness and pursuit of shared governance, there remained some perception that the strategic plan was a top-down activity. The role of networking, finally, was used predominantly in the development of strategic research areas and the bid for new faculty lines. Faculty and administrators recognized that given the University's push for interdisciplinary thrust areas, the Schools who willingly sought to partner with one another were in an advantageous position to secure newly available resources.

4.7 Impact of Faculty Cluster Hires (Category 4)

Impact of faculty cluster hires is defined as the effects that changes in the faculty hiring process had on the College and its Schools. The concepts involved with this category include growth in school faculty sizes, shifting resources, and decision making about resource allocations.

4.7.1 Growth in School Faculty Sizes

Faculty cluster hires allowed for rapid growth within some units through the hiring of faculty spread across multiple units.

I guess many of those had joint appointments.... we had a few joint appointments going into that and we picked up many more in that process. And have continued to add joint kinds of appointments. So, typically a 75/25 and we are on both sides of that. We're the tenure home majority appointment in many cases and we're the minority appointment in many cases as well. And... I think our program thrived with that concept. That may not be true in all units. Our group certainly understood and valued those kinds of opportunities. (INT6, School - Faculty, November 2013)

The faculty growth was not universal across engineering schools. The different Schools had varying degrees of involvement in the faculty cluster hires. Not all Schools embraced the change in procedures, either through a lack of trust in the new system or

leaders, or a hesitation to accept the departure from disciplinary research approaches. The overall effect was that these new faculty hires allowed some Schools to not only grow in numbers but also in relative size compared to other Schools.

Signature areas were created in the College of Engineering...and that's where the new faculty lines that came from the institution were going... So that's how it aligned with the bigger strategic plan... And some of those signature areas were cross-disciplinary... Now it became what are the areas that we want to be signatures of the College of Engineering at Purdue that are needed in the world and that are important. We're going [to] invest these new positions in those areas. And they may be multidisciplinary. It's a Biomedical Engineering/Mechanical Engineering split appointment. So you started to see more split appointments doing cross multidisciplinary or cross-disciplinary work. Interdisciplinary work. And I would say, in large measure, I mean that... sort of came out of this investment of new faculty lines in an area and that being a resource that then impacts budgets. (INT5, College - Staff, November 2013)

4.7.2 Shifting Resources

The budget for the new faculty positions created in the University's strategic plan assumed that they would be filled with assistant professors. The College of Engineering,

however, used this opportunity to take advantage of several factors (e.g. a stronger financial position than many of its peers, new facilities, strategic thrust areas, etc.) and instead pursued distinguished, full, and associate professors. These new hires, unsurprisingly, were more expensive in both salaries and wages and lab start-up costs. This situation quickly led to negative balances that had to be covered through reallocation at the College-level.

The College of Engineering would always fund the position at a hundred percent. Of the recurring salary. Always. During this time. If you were getting one of the strategic positions, at the departmental level, you got a hundred percent of the salary. And in fact, the college even tried to pay a portion of the start-up, as well. But the departments did have to absorb some of that start-up cost. So it would, the reallocation had to occur at the college level. Now, don't get me wrong, I'm not trying to make the college sound like they're ultra-generous or anything like that. Because what does a reallocation at the college level mean? It means somebody's not getting an allocation at a department that they were getting before... So a position would vacate in some other area. They would then put that in the central reserve for unfilled positions at the college level and they would have to cannibalize a part of a position, a position that was in Mechanical Engineering, let's say, in order to fund a position in ECE. And so that's why it created... there was a little bit of tension on where did the new positions went because

it may have to consume an old position in order to fund the new position. (INT5, College - Staff, November 2013)

What [Dr. Jischke] was going to put in the pot, it was a match. You had to leverage his money with your money. His idea of what he was leveraging was not clearly understood. He was giving what an entry level faculty position would be. And departments were going out and hiring maybe full professors. So there was a big gap in finances then between you know, what \$50,000 would buy and what you would need 150,000...So that took a lot of finagling. (INT1, University - Staff, October 2013)

We had to work out a scheme within Engineering to... to pay that difference [in faculty S&W], which is a recurring expense... We worked with the university to develop kind of an internal loan program that we agreed to pay back, over time. And so that was, I think, a pretty creative way to... the dean and the schools shared how, through budget reallocation, how they were going to finance the salaries and then this loan program helped them finance the start up. (INT4, College - Staff, November 2013)

4.7.3 Decision Making about Resource Allocations

Salaries and wages comprise the most significant portion of an academic budget so the decisions about where to allocate resources dedicated to these expenses can have profound effects on the makeups of the multiple Schools. The faculty cluster hires and their joint appointments across units began to redistribute resources within the College.

And in the case of Engineering, [Provost Mason's] plan gave, I think, maybe seventy-five to Engineering and the dean had to decide how to allocate those within Engineering. I mean, implicit in the whole planning process was that after the university developed its plan, every unit – including the College of Engineering – would have a strategic plan. And that plan, for the College of Engineering, for example, had to be consistent with the university's plan but it was Engineering's plan to develop. And there might be other aspects of it that weren't in the university plan but are consistent with it. (INT9, University - Faculty, December 2013)

The majority of the recurring base budget, which is what you allocate... is salaries. Over ninety percent of it. So the big decisions are, how do you allocate who gets what faculty lines? That is the biggest driver of the budget. Period. (INT5, College - Staff, November 2013)

There were two areas that they were advocating. One was to be a part of the long-range facilities planning. And the other area would be in

terms of competition for these new faculty positions... So they, in fact, typically would meet jointly with faculty and heads of other schools and they would come forth with proposals where each or both or, in a few cases, three schools had signed off that they would like to have a thrust in this area and have a joint appointment faculty hired to lead that kind of thrust. And so there was a lot of that that went on. Throwing new faculty positions in the mix changed the interest dramatically in terms of strategic planning and working together across Schools and so forth. (INT7, College - Faculty, November 2013)

4.7.4 Category 4 Relationships to Research Questions

The creation of 75 new faculty lines over five years within CoE had a significant impact on resource allocation across the Schools, both in how it was achieved and in who participated in those decisions. The growth of faculty ranks shifted from traditional disciplinary hires with a single academic home to the introduction of interdisciplinary hires with the joint appointments across multiple academic units, fulfilling needs in faculty- and administrative-identified signature research areas. These new positions, however, were the root of a growing financial problem for the College. The president promised to match fifty percent of an average salary and, while he had assumed that the new positions would be filled by assistant professors, that understanding was not understood universally. The engineering administrators were supportive of faculty decisions to actively seek full and associate professors, even though they were far costlier

and exceeded the University's match. The CoE did agree to fund these positions at 100% but required the Schools to share in the more expensive start-up lab costs. Since personnel expenses comprise the majority of the budgets, CoE used a combination of an internal loan program with the University and savings from unfilled faculty positions. These decisions on budget shortages meant that the College had to think deliberately about where to pull resources.

4.8 Shift in Funding Sources on Available Resources and Allocation (Category 5)

Shift in funding sources on available resources and allocation is defined as the impact that occurs when the underlying funding sources change and administrators decide how to allocate the resulting resources. The concepts involved with this category include facilities expansion, new fundraising campaign, declining state support, budget reallocations, and new sources.

4.8.1 Facilities Expansion

Substantial efforts to renovate and build new facilities occurred during the Jischke administration. The historical trend in new construction relied upon state funding, which the University received at a maximum rate of one building every two years. Declining state funds had negatively impacted repair and rehabilitation of existing structures. These factors paired with program growth and new research opportunities was beginning to hinder the College's ability to compete with its peers.

So there was a huge increase in development effort, advancement it ultimately became called. It was no longer necessary to have the university level decisions concerning priorities for buildings. What really drove priorities for buildings was it needed to be a part of the long-range plan but it really was driven then by external funding. If you could get alumni and industry funding for the thing, then you were going to be able to go ahead with it. And that was such a radical departure. Prior to that, you would start a campaign for a new building at least ten years ahead of time....And now it became a matter of very aggressively going out and dealing with your various constituencies and alumni and seeing how you could get there. (INT7, College - Faculty, November 2013)

That was not so much a resource allocation question as a priority setting question. What buildings would you try to raise money for? And that was a process, we had a capital projects council, we would meet regularly... We would meet and the questions were pretty simple. Where does this building fit in the priorities of the dean of the college? How much would it cost? Where would the money come from? (INT9, University - Faculty, December 2013)

4.8.2 New Fundraising Campaign

The University instituted a massive fundraising campaign in order to fund many initiatives in the strategic plan. The early fundraising proved to be successful; the University, therefore, expanded its target two times.

That was huge. That was scholarships, that was buildings. Lots of buildings. Distinguished or named chairs. Yeah. Thanks for reminding me about all of that. That campaign was huge. And he was a fundraiser, I'll tell you that. He could get blood out of a turnip. He could. He was just, because he had a story to tell. And people wanted to be a part of that story. (INT1, University - Staff, October 2013)

You have a lot more control within your discipline and alumni base and so forth to do that. And the long-term history and establishment of the external advisory committees was very effective in terms of identifying prospects to give. (INT7, College - Faculty, November 2013)

4.8.3 Declining State Support

The state of Indiana was unable to dedicate funds to the University beyond the rate of inflation. This declining state support required the University to look for replacement sources in order to maintain on track with its strategic goals.

There was speculation at the time: was that expansion of people and space going to happen? And Dr. Jischke said, “yeah, that’s what we said was... the critically important thing.” That we’d been building buildings kind of onesie, twosie at a time as the legislature had money and we hadn’t done any major expansion of our physical plant or of our faculty in, really, decades. And we were behind the eight ball on it. And so he said it’s not less strategic just because the state legislature has determined they can’t do their part. (INT4, College - Staff, November 2013)

4.8.4 Budget Reallocations

The University instituted a mandatory two percent giveback policy. Each unit was required to give back two percent of its recurring budget. These funds were allowed to remain within the academic units in order to support strategic thrusts.

And then there’s a fifth [funding source called] reallocation. You take an existing budget and you say, “Could we spend it differently? Could we take money from something that isn’t quite so important and put it into an area that is much more important?” And in the [University’s strategic] plan, we had an annual goal for reallocation. And units had targets for reallocation. (INT9, University - Faculty, December 2013)

I was pretty sure it was during Jischke's reign with Rab Mukerjea, every college needed to reduce their budget by 2% and reallocate some other places by 2% so that you were always evaluating your programs and putting you money in the most beneficial ones or new ones for growth or whatever your college needed. So I remember every year with Rab having to submit a 2% cut and where we would reallocate that. So at that time, that money wasn't taken back. (INT1, University - Staff, October 2013)

4.8.5 New Sources

The combination of declining state funds and ambitious strategic goals created a mismatch between available funds and anticipated expenses. Administrators made up for the shortfall by seeing new or expanded sources of funding. The University pursued increases in tuition, sponsored research, and fundraising.

Well and it changed the mode of the way the university operated on a permanent basis. The clear feeling that one of the biggest shortcomings of the university when [Dr. Jischke] came here was the lack of effective cultivation of alumni support and corporate support. That we were grossly underachieving in that area. (INT7, College - Faculty, November 2013)

So we did a strategic plan that really was used primarily for fundraising for the development activity and advancement activity. (INT4, College - Staff, November 2013)

4.8.6 Category 5 Relationships to Research Questions

The shift in funding sources influenced how administrators made decisions to allocate resources. The move toward private sources allowed greater flexibility in setting priorities and gaining more control over research activities. For example, the impact of the private fundraising campaign gave CoE the ability to construct state-of-the art research facilities targeted toward their strategic thrust areas. Although the decrease in state financial support was part of the decision to seek private funds, the benefit was that it provided the University and College the freedom to operate outside the traditional guidelines of one new building every two years.

The mandatory two percent budget reallocation within each academic unit forced the units to evaluate underperforming areas and propose new activities in better alignment with College and University strategic initiatives. The budget reallocation was important in that it forced units to conduct self-audits in the name of efficient use of resources.

4.9 Summary

The five categories emerging from the interview data show how the system of the CoE and its subsystems interacted within the larger environment of the College in relation to allocating resources. The time period from 2000-2007, under the leadership of Dr. Jischke, was guided by the strategic plans of the University and College. Many of the decisions in CoE, ABE, ECE, and MSE were focused on these strategic goals. Different participants engaged in the decision making process in various ways. Administrators, and faculty, to some extent, participated in the development of the strategic plan. Faculty were an integral part in the creation of strategic thrust areas, using strategic goals as a guide. These areas in turn informed the decisions of administrators about where to assign new faculty hires. Administrators and faculty worked together within and across Schools to develop proposals in broadening interdisciplinary research areas. The financial data showed that personnel formed the majority of expenses for the College and the three Schools included in this study, ABE, ECE, and MSE. As many interviewees indicated, deciding where to allocate faculty lines had the greatest impact within the College.

Two overarching themes developed from this analysis. First, the role of strategic plan development and enactment served to address the issue of shared governance. The concerted effort to involve stakeholders, particularly the faculty, led to a cultural change in perceived ownership in various places across the College. Second, the shift toward interdisciplinary research was responsible for the departure from traditional disciplinary silos where participants worked predominantly in their own Schools. The push to become more interdisciplinary in research areas led to collaborations across Schools and

Colleges, such as strategic initiatives, joint faculty appointments, and interdisciplinary research centers with newly built facilities. These efforts contributed to a transformation where resources were allocated within the College.

CHAPTER 5. DISCUSSION AND RECOMMENDATIONS

The purpose of this research study was to explore decision making about resource allocations within an academic unit and its subunits. The two specific questions that this study examined were: 1) how financial decisions were made about resource allocation within the College of Engineering at Purdue University at the college level and at the three listed schools' level during President Jischke's tenure (2000-2007) when strategic plans were broadly created and implemented, and 2) how the various levels of administrators – including the dean, associate deans, school heads, and financial directors – within the College of Engineering influenced decision-making about resource allocation at each school level.

The literature has shown broad perspectives about how resource allocation and decision-making are conducted from an entire organizational viewpoint. The need remains for closer examination of the complex decision-making processes employed within a single academic unit to better understand how these systems can operate successfully. The College of Engineering was selected because of its size and unique position within Purdue allowing it to focus on its disciplinary mission. The selected Schools were identified due to a combination of their relative sizes and ease of access to administrators.

This research was an embedded single-case study that explored resource allocation decision making within an academic unit, the College of Engineering, and three of its subunits, the Schools of ABE, ECE, and MSE. The benefit to this approach was that CoE could serve as a representation of colleges similar in description, scope, and budgetary constraints, whether at the same institution or at peer institutions. What made CoE unique at Purdue University was the singular focus on engineering, with very limited courses available to non-majors. This position allowed the College to dedicate nearly all of its resources related directly to engineering strategic initiatives.

An initial review of background information from all four units was conducted by examining strategic plan documents, annual metrics, and annual budget overviews to inform the interview phase. An interview protocol was developed to address the two research questions and was pilot tested. Administrators who would have had decision making authority over resource allocations within any of the four units were identified and invited to participate in the interview process. Nine interviews were conducted from the 22 individuals initially invited. Budget data from CoE, ABE, ECE, and MSE were obtained and analyzed.

The limitations of the study included the small sample size. The study examined a single academic at the institution, which might limit transferability of results to other units within the institution and across institutions. An additional limitation was potential researcher bias.

This chapter provides the summary of findings from the analyses of financial data and interview data, which address the two research questions. Conclusions that were drawn from these analyses are shared, along with recommendations with implementations. The chapter concludes with a discussion of implications for further study.

The financial data analysis revealed growth across the College and Schools. Each unit realized increases in their overall funding sources and in the major categories of general funds, federal and non-federal sponsored funds, and gifts. The corresponding increases in expenses were attributable to the significant growth in faculty and graduate student FTEs. The analysis of the interview indicated five broad categories of responses from the interviewees.

5.1 Summary of Findings on Impacts on Standard Operating Procedures

The category of standard operating procedures impacts identified how certain decisions worked to allocate new and existing resources within CoE and the Schools. The new faculty lines were included in the University's strategic plan and then distributed centrally within the provost's office. Once these positions reached the College, administrators and faculty worked together and across disciplines to identify and propose strategic thrust areas along with requests for new faculty hires. These hires often resulted in joint appointments across Schools, leading to additional recurring funds for those units and contributing significantly to the unit's growth.

A similar situation was seen with operational efficiencies across the College. The new faculty hires did not equate to increases in staff members. Units instead were asked to increase staff capacity without a proportionate increase of staff FTE. Staff and administrators were given the latitude – both explicitly and implicitly – to identify opportunities for improving clerical, business, and administrative efficiency.

Underlying all of these changes in operational procedures was the need for administrators to justify their actions through the use of data-driven proposals in relation to strategic initiatives. The need to support their resource allocations was driven in part by the University's reliance on metrics in regular strategic planning update reports, which permeated down to the College and its Schools.

5.2 Summary of Findings on Impacts on the Strategic Planning Process

The process of developing a strategic plan required the participants to establish goals and priorities for their unit, which then informed the strategic initiatives of the subunits. In this case, the University-wide strategic plan and its pursuit of preeminence through interdisciplinary research, expanded faculty ranks, new facilities, and increased fundraising, served as a roadmap for many goals within the College's strategic plan. Both with the University's plan and the College's plan, the leadership teams deliberately solicited feedback through multiple mechanisms to ensure transparency and buy-in among stakeholders.

The resulting strategic plans served as the framework for resource allocation decision making at all levels within the College. Faculty and administrators knew that any resource requests they were going to make had to somehow tie back to the CoE strategic plan. In this way, it made the decisions easier for the administrators because much of the background work was complete. This process also incentivized these faculty and administrators. Successful faculty and administrators were able to think creatively about how they could align their interests with the strategic initiatives in order to either retain existing resources or secure additional ones. One advantage to the strategic planning process was that it brought together individuals from seemingly disparate areas to work toward common goals.

5.3 Summary of Findings on Contribution of Communication to Administrative Transparency and Collaboration

The concepts of the communication category played an essential role in both of the research questions. Administrators at the College and School levels went to extensive efforts to provide transparency during plan development and resource allocation, as well as to promote shared governance among the faculty members within the College. Their efforts were evident in the development of the leadership team, which was tasked with serving as a conduit between College leadership and faculty. CoE also employed multiple modes of communication to engage stakeholders throughout all of these stages. It was through their interdisciplinary involvement in identifying promising research areas that faculty were able to

influence allocation of resources. Those faculty and administrators exhibited a more entrepreneurial spirit in this regard to unit expansion.

Despite the efforts to create an open and transparent environment, interviewees discussed the mixed reaction from faculty and staff within the College; a number of individuals across the College had expressed beliefs that the process and plan execution were top-down reflections of senior leader goals.

5.4 Summary of Findings on Impact of Faculty Cluster Hires

The biggest impact on resource allocation within the College and across its schools was a direct result of the 75 new faculty lines assigned to CoE over a five year period. As mentioned previously, employee S&W expenses comprised the largest part of an academic unit's budget. The influx of faculty meant that faculty and administrators who embraced the concept of joint appointments were better positioned to grow their areas relative to the rest of the Schools through successful proposals to CoE requesting these new resources.

One issue with these hires was that the president had initially budgeted University-wide resources on the assumption that College would hire assistant professor level faculty members. The Schools, however, took advantage of the fact that the prevailing economic downturn was negatively affecting its peer institutions; this situation allowed them to hire several distinguished, full, and associate professors. Their S&W and lab startup costs far exceeded the allocations available for junior

faculty and caused shortfalls within the College. The College responded with creative solutions for the redistribution of existing resources. These decisions on budget shortages meant that the College had to think deliberately about which priorities to fund and where to withdraw resources.

5.5 Summary of Findings on Shift in Funding Sources on Available Resources and Allocation

The shifting sources of funds gave new flexibility to College and School administrators in deciding not only how to allocate those resources but also on what new activities were possible. One of the largest impacts in this regard was the construction and renovation of research facilities. Prior to the Jischke-era strategic plan, buildings were funded nearly entirely by the state, which meant that the University was able to construct a new building every other year. The ambitious goals of the University's strategic plan, coupled with underfunding across multiple sources, pushed the University to initiate the institution's largest fundraising campaign to-date. A significant amount of private funds was then used to construct numerous state-of-the-art research facilities that benefited the College. The expanded resources also allowed the College and its faculty to respond to emerging research areas, many of which were in alignment with the College's strategic goals.

Another characteristic of this time was the mandatory two percent budget reallocation in each College. Dr. Jischke had introduced this reallocation and, at that time, allowed the Colleges to retain these resources as long as they were used in

response to University strategic goals. The benefit to the Schools was that it encouraged them to conduct periodic evaluations of their programs and submit proposals for more efficient uses for these funds.

5.6 Recommendations for Implementation

Universities continue to face internal and external pressure to improve operational efficiency. This is why it remains important to understand how to navigate successfully these issues while continuing to attract and retain top employees and students. Funding sources in the post-Jischke era have continued to shift away from state support, forcing institutions to focus more heavily on sponsored research, private donations, and tuition. Increased scrutiny has been directed toward managing tuition price strategies and admission rates for in-state, nonresident, and international students. The differential fees charged to students in three academic units to institute differential fees, which recognized a variety of factors in increased educational expenses and student demand.

This study has shown how an academic unit was able to leverage successfully university resources with its own to maintain its pursuit of strategic initiatives. It identified components of decision making within the College and three of its Schools that addressed both who was involved in allocating resources and how they went about it.

One significant understanding was the importance that the administrators at various levels placed on the strategic planning process as a way to develop a framework against which they weighed many of these allocation decisions. The administrators also undertook deliberate efforts to make these processes transparent and invite participation of all identified stakeholder groups. They invited feedback at multiple points in the planning process and acted on suggestions where appropriate. This clear and open communication signaled to the stakeholders the value placed on their participation. Administrators and stakeholders spent considerable effort in developing a strategic plan that then served as a roadmap for their decisions making, while allowing them to remain flexible enough to identify and take advantage of opportunities when they arose.

Another component from this study was the move towards interdisciplinary research, which led to an emphasis on faculty and administrators working across traditional disciplinary boundaries. Creating these incentives for faculty aided in faculty participation in shared governance through proposing new strategic thrust areas that would take advantage of newly available resources.

These findings can be implemented in multiple ways. Administrators should consider establishing and communicating a framework that defines the unit's decision making process for allocating resources. It can begin with a strategic plan, which has the benefit of identifiable goals and objectives serving as an action plan for a defined period of time. A decision-making framework contributes to a mutual understanding among faculty and other stakeholders. It allows them to more fully understand the

necessary requirements when developing and submitting proposals for new resources, improving the likelihood that their proposals align with unit and institutional strategic goals. All stakeholder groups should have the opportunity to participate in the development and implementation of such a framework as a way to increase buy-in and acceptance from these groups.

Another best practice for administrators is to conduct regular reviews of the unit's strategic plans, programs, and operational processes. The unit should undergo periodic strategic plan evaluations in order to understand the extent to which it is meeting the plan's goals and objectives. This review allows everyone in the unit to reflect on how well they have implemented their action plan according to the timeline, as well as examine their environment for unexpected opportunities or threats.

Units gain by reviewing existing academic and research programs to assess whether or not they remain sustainable. These activities allow administrators, faculty, and staff to consider possible reallocation of resources from existing activities to new areas. The unit can also benefit in multiple ways from conducting periodic reviews of their operational processes for potential improvements in efficiency.

Administrators, furthermore, should consider an emphasis on increased interdisciplinary collaborations. Bringing together individuals from diverse disciplines, both within and across units, has the potential to create otherwise unimaginable ideas and partnerships.

It takes a strong leader, someone confident in his or her own abilities, to open the planning and decision making processes to outside participation and scrutiny. It also demonstrates a powerful belief in the capabilities of different stakeholders to share ownership of the unit's successes and support further growth.

5.7 Implications for Further Study

Despite the limitations of this study, it serves as a starting point for further analysis in understanding where administrators decide to allocate a unit's resources and how stakeholders can participate in this process. Possibilities for further study are to expand it internally or externally, and to continue examination of the same timeframe or compare events under the leadership of subsequent presidents.

Internal studies could be expanded further within the College of Engineering to compare all Schools as a way to gain a more complete picture of what occurred during this research period. A study of other Colleges within the University would allow for better understanding of transferability of findings, since the other units have a larger service course mission. Another benefit would be the potential analysis of how other Colleges fared during this time, particularly in regards to the impact that faculty hiring and the fundraising campaign had on their growth, or lack thereof. It would also provide an opportunity to explore what happened with the Colleges that had fewer research initiatives in common with the University's strategic goals. The research could be expanded by also comparing the findings from this study to a similar analysis of effects on resource allocation from the New Synergies strategic

plan under President France A. Córdova or the current Purdue Moves approach under current President Mitchell E. Daniels Jr.

Other possibilities for further studies could be conducted outside of the University by including other colleges of engineering to expand the population size. Looking at peer institutions, who are similar in terms of size and scope of engineering programs, would allow for a comparison of the impacts different resource allocation decision models have on the available resources within a unit in addition to an examination of the various effects from the economic downturn. The inclusion of private universities would allow for the comparison of changing funding sources, such as state appropriations, federal sponsored programs, and private giving. It would offer the opportunity to investigate one of the most important revenue sources, tuition, through the impact of different tuition pricing strategies at public versus private institutions.

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APPENDICES

Appendix A: Interview Questions for Deans, School Heads, and Directors of Financial Affairs

1. What was the history of resource allocation within your unit prior to development of the strategic plan?
2. Would you please walk me through the process of creating a strategic plan from the beginning (draft form)?
3. How did the strategic plan goals and plans change from the beginning of the process until the final version was approved?
 - a. Did the process of creating plans and goals change? If so, in what ways?
 - b. Did the goals themselves change? If so, how?
 - c. Did you encourage faculty buy-in and, if so, how?
 - d. What kinds of negotiations, if any, took place during this complex process? Please describe.
4. How did the participants in the decision-making process understand the complexity of decisions or of the actual decision-making?
 - a. Did participants have similar or mutual understanding about different aspects, especially chain of command, communication, processes, and metrics?
 - b. What actions, if any, were taken to ensure similar understanding among participants?
 - c. What actions, if any, were taken to ensure similar understanding among faculty and staff affected by the new system in your unit?
5. What were the advantages to the decision-making system for resource allocation that arose from the strategic plan? Disadvantages?
6. Did you revisit decisions to decide if any revisions were necessary? If so, how often?
 - a. What factors did you consider when deciding whether or not a revision was necessary?
7. How often did you revisit allocations for improvement in efficiency, synergy, and leverage? Did you utilize a formal review or some other type of process?
8. What do you think was the most important aspect of the decision-making process? The least important?
9. What was the most difficult aspect of the decision-making process? The easiest?
10. Describe the impact that declining state funding had on available resources. How did you manage it?
11. What new resources, if any, were you able to secure?
12. How much importance did your decisions give to your unit's role in serving the state and/or the land grant mission? Were any new resources made available as a way to serve the land grant mission?
13. What importance, if any, did rankings have during the decision-making process?
14. What, if any, additional considerations did you take into account during the decision process?

15. How did these decision-making processes compare to your peer institutions? To other academic units at Purdue?
 - a. How did the outcome affect your competitiveness?
 - b. Did any decisions affect your competitiveness? Were there any lost opportunities?
 - c. What would you change?
16. How did departments, programs, administrators, faculty, etc. advocate for special projects?
 - a. What methods were the most effective?
 - b. What methods were the least effective?
17. What process did you use for requesting additional resources?
 - a. On a one-time basis?
 - b. On a recurring basis?
 - c. What types of data did you have to provide?
18. What role, if any, did networks and relationships between the decision makers and you factor into the decision-making? What process for requesting additional resources did you use for units under your oversight?
 - a. On a one-time basis?
 - b. On a recurring basis?
 - c. What types of data did you require that they provide?
19. When new resources were identified, what was the process for deciding how to allocate them?
20. If you were to create a new system to evaluate resource allocation, how would it look?
 - a. What factors, data, information, etc. would you include?
 - b. Are there any factors, data, information, etc. that you think are unnecessary?

Appendix B: Introductory Email to Interview Subjects

Dear Dr. XXX,

My name is Amy Childress and I am a doctoral candidate in the Department of Educational Studies within the College of Education. I am writing to you to request your participation in an interview for my research project under the direction of Dr. Anne Knupfer. This research examines university administrators' decision-making for resource allocation at Purdue University during the years 2000 – 2007 under the leadership of President Martin Jischke. My goal is to examine the decision-making process during strategic planning at the college and school levels within the College of Engineering and the Schools of ABE, ECE, and MSE.

Specific Procedures

If you agree to take part in this study, the interview will last 30-60 minutes and follow a set of open-ended questions about topics such as resource allocation, budgeting, and the strategic planning process. A second, follow-up interview will be completed, only as needed, to provide clarification of any possible inconsistencies. We would like to tape record this interview, with your permission, to aid our data analysis.

Confidentiality

Your interview responses will remain confidential. The records of this study will be kept private in a locked file until transcribed and then they will be destroyed, which we anticipate will occur within three months of taping. Only the researchers will have access to the records and files. Results will be disseminated in a doctoral dissertation. Research records will be destroyed in approximately one year.

I have attached the research information form with additional details. I sincerely hope that you will consider contributing in this effort to better understand the decision-making process. If you decide to participate, please contact me at childress@purdue.edu or 765.496.3590 to schedule an interview at your earliest convenience. I would also be happy to answer any questions about this request and/or provide further details regarding my research project.

Respectfully,

Amy Childress

Appendix C: IRB Information Form for Interviewees

RESEARCH INFORMATION FORM

*Examination of decision-making process for resource allocation
at the college-level and school-level within academic units*

Dr. Anne M. Knupfer

Purdue University

Educational Studies

Purpose of Research

You are being asked to participate in a research study about the factors that administrators have taken into account when they decided how to allocate their resources within the College of Engineering under the leadership of President Martin Jischke. We are asking you to participate because of your role in the resource allocation decision-making processes within the College of Engineering and three of its schools during the years 2000-2007.

Specific Procedures

If you agree to take part in this study, we will conduct an interview with you. The first interview will last 30-60 minutes and follow a set of open-ended questions about topics such as resource allocation, budgeting, and the strategic planning process. A second, follow-up interview will be completed, as needed, to provide clarification of any inconsistencies. We would like to tape record this interview, with your permission, to aid our data analysis.

Duration of Participation

You will receive the questions in advance and can expect to spend 30 minutes in preparation for the interview. The initial interview will last approximately 30-60 minutes. A second, follow-up interview will be completed, as needed, to provide clarification of any inconsistencies.

Risks

There are no foreseeable risks to participants other than those associated with daily life.

Benefits

There are no direct benefits to the subjects but there may be benefits to general knowledge or society related to a better understanding of how resource allocation decisions were made within the College of Engineering during the strategic planning process under the leadership of President Martin C. Jischke.

Compensation

There are no payments or incentives associated with participation in this study. There are no extra costs for participation in this study.

Confidentiality

Your interview responses will remain confidential. The records of this study will be kept private. Research records will be kept on a secure server. Audio recordings will be kept in a locked file until transcribed and then they will be destroyed, which we anticipate will occur within three months of taping. Only the researchers will have access to the records and files. Results will be disseminated in a doctoral dissertation. Research records will be destroyed in approximately one year. We anticipate no more than twenty participants. The project's research records may be reviewed by departments at Purdue University responsible for regulatory and research oversight.

Voluntary Nature of Participation

You do not have to participate in this research project. If you agree to participate you can withdraw your participation at any time without penalty.

Contact Information:

If you have any questions about this research project, you can contact Dr. Anne Knupfer, 49-47304, or Amy Childress, 49-63590. If you have concerns about the treatment of research participants, you can contact the Institutional Review Board at Purdue University, Ernest C. Young Hall, Room 1032, 155 S. Grant St., West Lafayette, IN 47907-2114. The phone number for the Board is (765) 494-5942. The email address is irb@purdue.edu.

Appendix D: Interview Data Analysis Codebook

Node	Node Description
Nodes\\Additional information	Open-ended question where interviewees decide what is important to highlight or mention.
Nodes\\Buy-in	decision support and agreement from key stakeholders
Nodes\\Chain of command	the order for making requests for additional resources
Nodes\\Comparison to peers	Evaluating oneself (either PU or CoE) against a known list of peers: institutional, collegial, and departmental. The unit establishes its own list of comparable and aspirational peers.
Nodes\\Comparison to peers\\Competitiveness	The ability of Purdue's CoE to remain competitive with peer institutions.
Nodes\\Decision making	The impact of the following items on the decision-making process for resource allocation.
Nodes\\Decision making\\Data-driven decision making	use of data as a factor when making decisions
Nodes\\Decision making\\New resources\\Budget reallocations	Any resources resulting from mandatory campus-wide budget cuts, which were then disbursed to select units.
Nodes\\Decision making\\Declining funds	Any donated resources resulting from development activities.
	Traditional mission of a university established from the Morrill Act, i.e. discovery (research), engagement (extension), and learning (teaching).
Nodes\\Decision making\\Facilities and buildings	National and international rankings of undergraduate and graduate programs. For example, the annual U.S. News & World Report Best College Rankings.
Nodes\\Decision making\\New resources	Any resources provided by the state of Indiana for Purdue or the CoE.
Nodes\\Decision making\\New resources\\Budget reallocations	miscellaneous items that are being moved or deleted
Nodes\\Decision making\\New resources\\Fundraising	Any donated resources resulting from development activities.
Nodes\\Decision making\\New resources\\Land grant mission	activity that happens at the individual school level (ABE, ECE, and/or MSE)

Node	Node Description
Nodes\\Decision making\\Rankings	The process of distributing academic resources of monetary funds, personnel (faculty and administrative, professional, clerical, and graduate student staff), and facilities from a higher level to a lower level; “resource allocation does boil down to knowledgeable people making informed decisions” (Massy, 1996, p. 3).
Nodes\\Decision making\\State support	Any resources provided by the state of Indiana for Purdue or the CoE.
Nodes\\Miscellaneous	miscellaneous items that are being moved or deleted
Nodes\\Miscellaneous\\Level - College of Engineering	
Nodes\\Miscellaneous\\Level - school	activity that happens at the individual school level (ABE, ECE, and/or MSE)
Nodes\\Resource allocation	The process of distributing academic resources of monetary funds, personnel (faculty and administrative, professional, clerical, and graduate student staff), and facilities from a higher level to a lower level; “resource allocation does boil down to knowledgeable people making informed decisions” (Massy, 1996, p. 3).
Nodes\\Resource allocation\\Additional resources	<ol style="list-style-type: none"> 1. One-time basis 2. Recurring basis 3. Requested data: the types of supporting evidence, information, and or data that a decision maker would request from someone making a request for additional or new resources.
Nodes\\Resource allocation\\Faculty cluster hires	A new type of faculty hire. It was introduced during the Jischke years and involved more than one school or department jointly hiring a faculty member. Can cross college lines (e.g. CoE and the College of Agriculture).
Nodes\\Resource allocation\\General personnel expenses	Traditional faculty and staff salary and wage expenses (sometimes referred to as S&W or S&E).
Nodes\\Resource allocation\\History	Procedures and policies prior to the start of strategic planning.
Nodes\\Resource allocation\\Impacts from	Changes made to allocating resources

Node	Node Description
strategic planning	based on the strategic plan or opportunities arising from strategic thrusts.
Nodes\\Resource allocation\\Impacts from strategic planning\\Strategic thrust areas	Any area (research, programmatic, educational, etc.) that decision makers deem important to pursue for the future of the College of Engineering (CoE).
Nodes\\Resource allocation\\Networking and relationships	The role of interpersonal communications and/or personal and professional relationships through professional networking to achieve an end goal.
Nodes\\Resource allocation\\Participant understanding of the process	The degree to which the participants understand what they are undertaking and how they will produce a strategic plan.
Nodes\\Resource allocation\\Special projects	A project that is not part of the original budget. It could be a new idea or expansion of an existing project.
Nodes\\Stakeholders	any stakeholders with a vested interest in the CoE and/or its schools; e.g. alumni, industry, donors
Nodes\\Strategic planning	According to Richard Cyert, it “deals with a new array of factors: the changing external environment, competitive conditions, the strengths and weaknesses of the organization, and opportunities for growth. [It is] an attempt to give organizations antennae to sense the changing environment. It is a management activity designed to help organizations develop greater quality by capitalizing on the strengths they already have” (Keller, 1983, p. vii).
Nodes\\Resource allocation\\Participant understanding of the process	The degree to which the participants understand what they are undertaking and how they will produce a strategic plan.
Nodes\\Strategic planning\\Advantages	The positive impacts from the strategic plan on decision making for allocating resources.
Nodes\\Strategic planning\\Changes	The process through which the strategic plan and its goals might have changed. Includes the formal review process.
Nodes\\Strategic planning\\Changes\\Formal review	A prearrangement to evaluate the degree to which the strategic plan is meeting

Node	Node Description
	goals and objectives.
Nodes\\Strategic planning\\Communication	How the participants transferred information among one another and among the multiple audiences.
Nodes\\Strategic planning\\Disadvantages	The negative impacts from the strategic plan on decision making for allocating resources.
Nodes\\Strategic planning\\Goals	Strategic plan goals
Nodes\\Strategic planning\\Participants	The decision-makers who participated in the actual process.
Nodes\\Strategic planning\\Plan development	The process through which the units created draft plans and developed the final strategic plan.
Nodes\\Strategic planning\\Transparency	A process to create open and clear understanding of the process about how decisions are made and what factors and data sources are taken into account.
Nodes\\Strategic planning\\Unexpected opportunities	Opportunities that were not expected or anticipated during the planning process.
Nodes\\Successes	Positive outcomes as a result of the strategic plan

Appendix E: Reader Comparison Percent Agreement Table

Node	Source	Agreement (%)	A and B (%)	Not A and Not B (%)	Disagreement (%)	A and Not B (%)	B and Not A (%)
Additional information	INT1	99.65	0	99.65	0.35	0.35	0
Additional information	INT1 (ATM)	100	0	100	0	0	0
Buy-in	INT1	99.05	0	99.05	0.95	0.95	0
Buy-in	INT1 (ATM)	100	0	100	0	0	0
Chain of command	INT1	96.08	0	96.08	3.92	3.92	0
Chain of command	INT1 (ATM)	100	0	100	0	0	0
Comparison to peers	INT1	98.29	0	98.29	1.71	1.71	0
Comparison to peers	INT1 (ATM)	100	0	100	0	0	0
Comparison to peers\Competitiveness	INT1	94.38	0	94.38	5.62	5.62	0
Comparison to peers\Competitiveness	INT1 (ATM)	94.35	0	94.35	5.65	0	5.65
Decision making	INT1	77.82	0	77.82	22.18	22.18	0
Decision making	INT1 (ATM)	100	0	100	0	0	0
Decision making\Data-driven decision making	INT1	82.38	0	82.38	17.62	17.62	0
Decision making\Data-driven decision making	INT1 (ATM)	100	0	100	0	0	0
Decision making\Declining funds	INT1	93.41	0	93.41	6.59	6.59	0
Decision making\Declining funds	INT1 (ATM)	99.25	0	99.25	0.75	0	0.75
Decision making\Facilities	INT1	95.75	0	95.75	4.25	4.25	0

Node	Source	Agreement (%)	A and B (%)	Not A and Not B (%)	Disagreement (%)	A and Not B (%)	B and Not A (%)
and buildings							
Decision making\Facilities and buildings	INT1 (ATM)	98.11	0	98.11	1.89	0	1.89
Decision making\New resources	INT1	92.97	0	92.97	7.03	7.03	0
Decision making\New resources	INT1 (ATM)	100	0	100	0	0	0
Decision making\New resources\Budget reallocations	INT1	98.83	0	98.83	1.17	1.17	0
Decision making\New resources\Budget reallocations	INT1 (ATM)	97.8	0	97.8	2.2	0	2.2
Decision making\New resources\Fundraising	INT1	97.78	0	97.78	2.22	2.22	0
Decision making\New resources\Fundraising	INT1 (ATM)	97.84	0	97.84	2.16	0	2.16
Decision making\New resources\Land grant mission	INT1	100	0	100	0	0	0
Decision making\New resources\Land grant mission	INT1 (ATM)	99.25	0	99.25	0.75	0	0.75
Decision making\Rankings	INT1	98.54	0	98.54	1.46	1.46	0
Decision making\Rankings	INT1 (ATM)	97.69	0	97.69	2.31	0	2.31
Decision making\State support	INT1	95.71	0	95.71	4.29	4.29	0
Decision making\State support	INT1 (ATM)	98.09	0	98.09	1.91	0	1.91
Lessons learned	INT1	100	0	100	0	0	0
Lessons learned	INT1 (ATM)	100	0	100	0	0	0
Level - College of Engineering	INT1	100	0	100	0	0	0

Node	Source	Agreement (%)	A and B (%)	Not A and Not B (%)	Disagreement (%)	A and Not B (%)	B and Not A (%)
Level - College of Engineering	INT1 (ATM)	100	0	100	0	0	0
Level – school	INT1	100	0	100	0	0	0
Level – school	INT1 (ATM)	100	0	100	0	0	0
Research focus areas	INT1	100	0	100	0	0	0
Research focus areas	INT1 (ATM)	100	0	100	0	0	0
Resource allocation	INT1	69.11	0	69.11	30.89	30.89	0
Resource allocation	INT1 (ATM)	100	0	100	0	0	0
Resource allocation\Additional resources	INT1	98.08	0	98.08	1.92	1.92	0
Resource allocation\Additional resources	INT1 (ATM)	89.13	0	89.13	10.87	0	10.87
Resource allocation\Faculty cluster hires	INT1	90.19	0	90.19	9.81	9.81	0
Resource allocation\Faculty cluster hires	INT1 (ATM)	100	0	100	0	0	0
Resource allocation\General personnel expenses	INT1	94.34	0	94.34	5.66	5.66	0
Resource allocation\General personnel expenses	INT1 (ATM)	98.59	0	98.59	1.41	0	1.41
Resource allocation\History	INT1	94.24	0	94.24	5.76	5.76	0
Resource allocation\History	INT1 (ATM)	90.37	0	90.37	9.63	0	9.63
Resource allocation\Impacts from strategic planning	INT1	100	0	100	0	0	0
Resource allocation\Impacts	INT1	99.72	0	99.72	0.28	0	0.28

Node	Source	Agreement (%)	A and B (%)	Not A and Not B (%)	Disagreement (%)	A and Not B (%)	B and Not A (%)
from strategic planning	(ATM)						
Resource allocation\Impacts from strategic planning\Strategic thrust areas	INT1	98.41	0	98.41	1.59	1.59	0
Resource allocation\Impacts from strategic planning\Strategic thrust areas	INT1 (ATM)	98.35	0	98.35	1.65	0	1.65
Resource allocation\Networking and relationships	INT1	97.18	0	97.18	2.82	2.82	0
Resource allocation\Networking and relationships	INT1 (ATM)	94.86	0	94.86	5.14	0	5.14
Resource allocation\Participant understanding of the process	INT1	97.66	0	97.66	2.34	2.34	0
Resource allocation\Participant understanding of the process	INT1 (ATM)	96.9	0	96.9	3.1	0	3.1
Resource allocation\Special projects	INT1	93.77	0	93.77	6.23	6.23	0
Resource allocation\Special projects	INT1 (ATM)	89.66	0	89.66	10.34	0	10.34
Resource allocation\Suggested changes to include	INT1	100	0	100	0	0	0
Resource allocation\Suggested changes to include	INT1 (ATM)	97.24	0	97.24	2.76	0	2.76
Resource allocation\Suggested changes to remove	INT1	100	0	100	0	0	0
Resource allocation\Suggested changes to remove	INT1 (ATM)	98.71	0	98.71	1.29	0	1.29
Stakeholders	INT1	98.42	0	98.42	1.58	1.58	0
Stakeholders	INT1	100	0	100	0	0	0

Node	Source	Agreement (%)	A and B (%)	Not A and Not B (%)	Disagreement (%)	A and Not B (%)	B and Not A (%)
	(ATM)						
Strategic planning	INT1	83.47	0	83.47	16.53	16.53	0
Strategic planning	INT1 (ATM)	100	0	100	0	0	0
Strategic planning\Advantages	INT1	98.47	0	98.47	1.53	1.53	0
Strategic planning\Advantages	INT1 (ATM)	98.7	0	98.7	1.3	0	1.3
Strategic planning\Changes	INT1	98.87	0	98.87	1.13	1.13	0
Strategic planning\Changes	INT1 (ATM)	99.35	0	99.35	0.65	0	0.65
Strategic planning\Changes\Formal review	INT1	98.87	0	98.87	1.13	1.13	0
Strategic planning\Changes\Formal review	INT1 (ATM)	99.3	0	99.3	0.7	0	0.7
Strategic planning\Changes\Unexpected opportunities	INT1	100	0	100	0	0	0
Strategic planning\Changes\Unexpected opportunities	INT1 (ATM)	94.6	0	94.6	5.4	0	5.4
Strategic planning\Communication	INT1	95.35	0	95.35	4.65	4.65	0
Strategic planning\Communication	INT1 (ATM)	96.98	0	96.98	3.02	0	3.02
Strategic planning\Disadvantages	INT1	100	0	100	0	0	0
Strategic planning\Disadvantages	INT1 (ATM)	98.02	0	98.02	1.98	0	1.98
Strategic planning\Goals	INT1	91.24	0	91.24	8.76	8.76	0

Node	Source	Agreement (%)	A and B (%)	Not A and Not B (%)	Disagreement (%)	A and Not B (%)	B and Not A (%)
Strategic planning\Goals	INT1 (ATM)	100	0	100	0	0	0
Strategic planning\Participants	INT1	98.42	0	98.42	1.58	1.58	0
Strategic planning\Participants	INT1 (ATM)	97.96	0	97.96	2.04	0	2.04
Strategic planning\Plan development	INT1	97.13	0	97.13	2.87	2.87	0
Strategic planning\Plan development	INT1 (ATM)	91.54	0	91.54	8.46	0	8.46
Strategic planning\Transparency	INT1	99.81	0	99.81	0.19	0.19	0
Strategic planning\Transparency	INT1 (ATM)	98.36	0	98.36	1.64	0	1.64
Successes	INT1	94.56	0	94.56	5.44	5.44	0
Successes	INT1 (ATM)	100	0	100	0	0	0

VITA

VITA

Amy L. Childress

Discovery Learning Research Center
 Purdue University, West Lafayette, Indiana

EMPLOYMENT

2012 – Present Center Operations Manager
 Discovery Learning Research Center
 Purdue University

2007 – 2012 Project Coordinator
 Discovery Learning Research Center
 Purdue University

2005 – 2007 Intern Coordinator
 Discovery Learning Research Center
 Purdue University

2004 – 2005 Coordinator of Advising
 School of Management
 Purdue University

2003 – 2004 Academic Advisor
 School of Management
 Purdue University

1996 – 2003 Multimedia Supervisor
 Agricultural & Biological Engineering Department
 Purdue University

EDUCATION

Doctor of Philosophy 1996
 Educational Studies, Purdue University
 Dissertation: *Examination of Decision-Making Processes for Resource Allocation at the College-Level and School-Level within an Academic Unit.*
 Advisor: Anne M. Knupfer, Ph.D.

Master of Business Administration Krannert Graduate School of Management, Purdue University Concentrations: Finance and Strategy	2003
Bachelor of Science Biological Sciences, Purdue University	1996
Bachelor of Arts History, Purdue University	1996

PUBLICATIONS

- Adedokun, O.A., Parker, L.C., **Childress, A.**, Burgess, W.D., & Teegarden, D. (in press). Understanding student development in undergraduate research experiences. *Cell Biology Education*.
- Adedokun, O. A., Zhang, D., Parker, L.C., Bessenbacher, A., **Childress, A. L.**, & Burgess, W. D. (2012). Understanding how undergraduate research experiences influence student aspirations for research careers and graduate education. *Journal of College Science Teaching*, Vol. 42 (1), 82-90.
- Varghese, M., Parker, L. C., Adedokun, A., Shively, M., Burgess, W., **Childress, A.**, et al. (2012). Experiential Internships: Understanding the process of student learning in small business entrepreneurial internships. *Industry & Higher Education*, Accepted for publication.
- Adedokun, O. A., **Childress, A. L.** & Burgess, W. D. (2011). Testing conceptual frameworks of nonexperimental program evaluation designs using structural equation modeling. *American Journal of Evaluation*, 32, 480-493.
- Teegarden, D., Lee, J., Adedokun, O. A., **Childress, A.**, Parker, L., Burgess, W., Nagel, J., Knapp, D. W., Lelievre, S., Agnew, C. S., Shields, C., Leary, J., Adams, R., & Jensen, J. D., (2011). Cancer Prevention Interdisciplinary Education Program at Purdue University: Overview and Preliminary Results. *Journal of Cancer Education*. Advanced Online Publication, DOI 10.1007/s13187-011-0232-0.
- Dyehouse, M., Bennett, D., Harbor, J., **Childress, A.**, and Dark, M. (2009). A comparison of linear and systems model approaches for program evaluation illustrated using the Indiana Interdisciplinary GK-12. *Evaluation and Program Planning*, 32, pp. 187-196.
- Childress, A.** & Rud, A. G. (2008). The university at the end of the last century: An essay review. *Education Review*, 11(2).
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PRESENTATIONS

Refereed Conference Presentations

- Weaver, G., Levesque-Bristol, C., **Childress, A.**, Parker, L. C., and Adedokun, O. A., (2014, January). *IMPACT: Instruction Matters: Purdue Academic Course Transformation – Using Student-Centered Approaches to Enhance Retention and Success in a Research University*. Presented at the Hawaii International Conference on Education , Honolulu, HI.

- Teegarden, D., **Childress, A.**, Adedokun, O. A., Parker, L. C., Burgess, W., Adams, R., Agnew, C., Knapp, D., Leary, J., Lelièvre, S., & Shields, C. (2014, January). *Purdue University's Cancer Prevention Internship Program Undergraduate (CPIP) Student Outcomes Over Four Years*. Presented at the Hawaii International Conference on Education, Honolulu, HI.
- Adedokun, O. A., Bessenbacher, A., Parker, L.C., **Childress, A.**, Kirkham, L., Teegarden, D., & Burgess, W.D. (2012). How do summer undergraduate research experiences compare to other models? Paper submitted for presentation at the 2012 annual meeting of the National Association of Research in Science Teaching.
- Adedokun, O. A., Bessenbacher, A., Parker, L.C., **Childress, A.**, Teegarden, D., & Burgess, W. D. (2012). Undergraduate research experiences: Modeling relationships among program outcomes. Paper accepted for presentation at the 2012 annual meeting of the American Educational Research Association.
- Parker, L. C., Suchack, M., Adedokun, O. A., Adams, R., Teegarden, D., **Childress, A.**, & Burgess, W.D. (2012). Assessing cross-disciplinary thinking in cancer prevention research. Paper accepted for presentation at the 2012 annual meeting of the American Educational Research Association.
- Adedokun, O., Carleton Parker, L., **Childress, A.**, & Burgess, W. (2011). Enhancing the Evaluation of Undergraduate Research Programs: A Theory Driven Approach. Paper presented at the Conference on Understanding Interventions that Broaden Participation in Research Careers.
- Teegarden, D., Parker, L.C., **Childress, A.**, Burgess, W., Adedokun, O., Jensen, J., et. al. (2011, September). Recommendations for Interdisciplinary Program Development from the Purdue University's Cancer Prevention Internship Program. Presented at the American Association for Cancer Education, Buffalo, NY.
- Zhang, D., Adedokun, O. A., Parker, L.C., **Childress, A** & Burgess, W. D. (2011, April). The effects of undergraduate research experiences on students' aspirations for research careers and graduate education. Paper presented at the 2011 Annual Meeting of the American Educational Research Association.
- Adedokun, A., Jensen, J., Adams, A., **Childress, A.**, Nagel, J., Burgess, W., Teegarden, D. (2010, October). *Purdue University's cancer prevention interdisciplinary program: A model for training future interdisciplinary cancer prevention and control researchers*. Presentation for the 2010 International Cancer Education Conference. San Diego, CA.
- Adedokun, A., Lee, J., Carleton-Parker, L., Suchak, M., A., **Childress, A.**, Burgess, W., Teegarden, D. (2010, October). *Examining the benefits of an undergraduate research experience in cancer prevention*. Presentation for the 2010 International Cancer Education Conference. San Diego, CA.
- Bennett, D. E., Burgess, W. D., **Childress, A. L.**, Dyehouse, M. A., Harbor, J. M., & Walls, L. E. (2009, February). *Eight things that really work in middle school math and science inquiry*. Presentation for the Hoosier Association of Science Teachers, Inc. (HASTI), Indianapolis, IN.

- Dyehouse, M. A., Bennett, D. E., Harbor, J. M., **Childress, A. L.**, & Walls, L. E. (2009, January). *Assessment of the impact of placing STEM graduate students in middle school classrooms on students' perceptions of scientists*. Presented at the Hawaii International Conference on Education, Honolulu, HI.
- Childress, A.** & Burgess, W. (2009, January). *Impacts of experiential learning on undergraduate students in research and entrepreneurial internships*. Presented at the Hawaii International Conference on Education, Honolulu, HI.
- Childress, A.L.**, Bennett, D.E., Burgess, W.D., & Dyehouse, M.A. (2009, January). *What are the impacts of partnerships between visiting scientists and middle school math and science teachers? Results of a multifaceted assessment of a GK-12 program*. Presented at the Hawaii International Conference on Education, Honolulu, HI.
- Bennett, D. E., Burgess, W. D., **Childress, A. L.**, Dyehouse, M. A., Harbor, J. M., & Walls, L. E. (2008, February). *Enhancing your curriculum through the use of visiting scientists*. Presentation for the Hoosier Association of Science Teachers, Inc. (HASTI), Indianapolis, IN.
- Childress, A.** (2007, January). *Benefits of experiential learning within an entrepreneurial environment*. Presented at the Hawaii International Conference on Education, Honolulu, HI.
- Childress, A.** & Wanger, S. (2007, January). *Low-Income Student Success in Gateway Courses Utilizing a Course Management System*. Presented at the Hawaii International Conference on Education, Honolulu, HI.

TEACHING

Course Coordinator

Discovery Park Undergraduate Research Program (Undergraduate)
 Interns for Indiana Seminar (Undergraduate and Graduate)
 Purdue University
 Fall 2005 – Spring 2009

Course Coordinator

Management Lectures (Undergraduate)
 Purdue University
 Spring 2004 – Spring 2005

Teaching Assistant

Introductory Accounting (Undergraduate)
 Problems in Management (Undergraduate)
 Purdue University
 Spring 2004 – Spring 2005

Laboratory Assistant

Fundamentals of Biology I & II (Undergraduate)
 Purdue University
 Spring 1994 – Spring 1996

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

Affiliations

Purdue Administrative/Professional Staff Advisory Committee (APSAC)	2012 – Present
APSAC Professional Development Subcommittee, Chair	2014 – Present
APSAC Professional Development Subcommittee, Vice Chair	2012 – 2014
Purdue Graduate Student Education Council (GSEC), Vice President	2010 – 2011
American Educational Research Association (AERA)	2008 – 2011
AERA Division J (Postsecondary Education)	2008 – 2011
AERA Division L (Educational Policy & Politics)	2008 – 2011
AERA Special Interest Group: Fiscal Issues, Policy and Education Finance	2008 – 2011
National Academic Advising Association	2004 – 2005

AWARDS / HONORS

2013 Sunrise Award, Office of the Vice President for Research, Purdue University
 2007 Global Partners Grant to India, Purdue University
 2006 APSAC Professional Development Funding Award, Purdue University