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ENROLLMENT MANAGEMENT: STRUCTURE AND DECISION PARTICIPATION

by

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Submitted in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy
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COLLEGE OF EDUCATION AND HUMAN SERVICES
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APPROVAL FOR SUCCESSFUL DEFENSE

Doctoral Candidate, **Lauren Haddad Friedman,** has successfully defended and made

the required modifications to the text of the doctoral dissertation for the **Ph.D.** during this

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and date this document only when revisions have been completed. Please return this
form to the Office of Graduate Studies, where it will be placed in the candidate's file and
submit a copy with your final dissertation to be bound as page number two.

ABSTRACT

Once a novel strategy adopted by a limited number of private colleges, enrollment management (EM) is now a standard practice for most institutions in American higher education. The units engaged in EM and strategic enrollment management (SEM) serve as change agents in support of student recruitment, retention and graduation. Over time, the units supporting EM have expanded from admissions to include financial aid, advising, the registrar and institutional research. As a result of this expansion, structural models developed in the 1980s provide little insight into the team organization that EM has become. Using data collected in a survey instrument administered to 680 mid-level directors of public and private colleges and universities accredited by Middle States Commission on Higher Education and the New England Association of Schools and Colleges, this study developed a new model for researching enrollment management systems. The research identified information on respondents' engagement in EM and their participation in the decision-making processes of their institutions. Results from the survey indicate that mid-level managers actively engaged in enrollment management are more likely to be involved in decision making than similarly situated mid-level managers with little to no engagement in enrollment management. Leadership of today's colleges and universities can benefit from these data-based findings that decision participation was impacted by formalization of the EM environment, centralization of authority (such as an EM division) and respondents' interactions with other institutional units.

Keywords: change management, data management, decision making, decision participation, enrollment management, higher education, leadership, SEM, work organization, work teams

DEDICATION

To the one and only,

Gibran Steven Mathewson,

my much loved son:

I celebrate your curiosity and your independence.

I am confident you will go places.

I know you will have fun getting there.

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Chapter I

INTRODUCTION

Enrollment Management: A Shift in Perspective

Setting sail for the New World, Christopher Columbus was navigating a course through uncharted waters. So it was for enrollment managers in American higher education as they made the journey from gatekeeper to strategic partner (Henderson, 2008; Hossler, 1984). Whereas Columbus, in his search for new trade routes, relied on his investors' beliefs that the earth was round, enrollment managers in the competitive environment of the 1970s "altered the frame of reference that college and university administrators use to view the students as well as the institution" (Hossler, 1986, p 11).

More specifically, colleges shifted their admission practices from gatekeeping, that is, applying a myriad of qualifying characteristics aimed to eliminate the majority of applicants (Steinberg, 2003), to aggressively recruiting targeted groups of students in competition with other institutions (Riehl, 1982). Over the past four decades, American institutions of higher education have expanded their enrollment management activities beyond admissions functions to include the registrar's office, financial aid, institutional research, and student advising (Bontrager, 2004a). These siloed, function-based units, which traditionally operated independent of one another, evolved into a student services team, collaborating to facilitate recruitment, retention, and the graduation of students (Dolence,1998; Hossler & Kalsbeek, 2013).

In support of this transition, enrollment managers have become agents for change within their institutions (Behn, 1983; Black, 2001). As illustrated by Hossler (1986), for some colleges, enrollment management resulted in the adaptation of existing structures and processes. For others, enrollment management developed new structures under a planned, incremental process:

a "rational" evolution (p. 57). For a third group, the changes undertaken were transformational. As the architects of these transitions, enrollment managers developed structures and decision-making processes that support change management. Although significant research has been conducted related to the organizational structures that support enrollment management efforts, there has been little investigation of the connections between those organizational structures and the processes, notably the decision-making processes, which support change within institutions that have developed an enrollment management enterprise.

Historical Context of the Enrollment Management Revolution

As "an assertive approach to ensuring the steady supply of qualified students required to maintain institutional vitality" (Kemerer, Baldridge & Green, 1982, p.21), the practice of enrollment management arose in the United States during the 1970s in response to three forces impacting the higher education—(a) industry expansion, (b) a projected decline in college enrollment, and (c) increasing consumer control of the marketplace, more commonly described as student choice.

Industry Expansion

Fueled by government investment, the total number of colleges in the United States nearly doubled between 1900 and 1950 - growing from 977 institutions at the turn of the century to 1,851 institutions following WWII (Snyder, 1993). The pace of expansion accelerated as a program of federal financial aid was established and the community college sector became integral to America's system of higher education (Cohen & Brawer, 2003). By 1980, the number of colleges and universities in the United States had more than tripled, growing to 3,152 institutions (Snyder, 1993).

In the three decades that followed, the number of institutions grew at a much slower pace, approximately 10-12% in each decade - rising to 4726 institutions in 2013 (NCES, 2015a). Most of the growth (89%) experienced in this 30 year period occurred in the for-profit segment of the higher education industry (NCES, 2015a). As a consequence of this growth, for-profit institutions grew from a negligible 5% of the marketplace in 1980 to a substantial 31% of the industry in 2013, while the growth for public and private institutions remained stagnant (NCES, 2015a). The increased competitive presence of for-profit institutions has had significant impacton the higher education marketplace, notably in the area of marketing and recruitment (Deming, Goldin & Katz, 2011).

Projected Decline in College Enrollments

Declining high school enrollments gave rise to concerns that college attendance would decline (Coomes, 2000). The resulting reduction in tuition revenues was expected to have negative results for the financial stability of the industry and its institutions (Boulding, 1975). From 1950 to 1970, the number of students enrolled in public high schools more than doubled rising from 5.7 million to 13 million students. Throughout the 1980s, high school enrollments declined, hitting a low of 11.4 million in 1990. Thereafter, 9th to 12th grade enrollments rose at a slower pace, reaching 14.7 million in recent years (NCES, 2015b). This decline was reflected in college enrollments which remained relatively stagnant since 1980, with growth of 12% from 1980-89, 10% from 1990-99, and 9% from 2000-09 (NCES, 2015c). As a consequence, admissions officers were tasked with actively and effectively marketing their institutions in an increasingly competitive market (Lewison & Hawes, 2007).

Student Choice

Concurrent to the downward shift in high school enrollments, the federal government, under the Higher Education Amendments of 1972, changed the distribution of financial aid monies, transferring control of these funds from the colleges and universities by placing the funds directly into the hands of the student. The resulting portability of federal financial aid facilitated a student's choice among an increased number of colleges and assisted a student's transfer from one college to another (Thelin, 2011). This change in policy gave the student more financial power in the college selection process and, thereby, drastically altered the relationship between the suppliers of college education and their consumers (Gladieux, 1995).

Managing Change

Faced with the challenge of student choice in an environment that had experienced an increase in institutions and a decline in enrollments, America's colleges and universities were forced to change the way they did business (Coomes, 2000). Enrollment management was identified as the vehicle for making that change (Black, 2001; Henderson, 2001). Just as institutions took various paths to produce change, such as adaptation and evolution or transformation (Hossler, 1986), the shape and size of their enrollment management enterprise varied from one institution to the next (Dolence, 1996).

<div align="center">

Statement of the Problem

</div>

As increasing numbers of American colleges and universities were building their enrollment management efforts in the 1970s and 80s, the assimilation of new and developing enrollment management activities into existing organizational operations presented a major challenge for the individuals responsible for managing this change (Hossler, 1984, 1986). Foremost among the obstacles to effective organization was coordinating siloed student services

units to produce a cohesive series of actions that effectively recruited and enrolled students (Hossler, 1986). Furthermore, those administrators most often tasked with enrollment management (i.e. admissions officers), commonly lacked the expertise and the authority needed to integrate existing systems and structures in a systematic way (Henderson, 2008). As a result, there were no methodical approaches for building the earliest enrollment management systems.

The Need for New Models

In response to the haphazard environment in which these early enrollment management efforts were established, Kemerer, Baldridge and Green (1982) developed a framework that grouped existing structures along a continuum of four organizational models.   These models drew attention to the need to develop effective structures and they provided enrollment managers with a range of alternatives for building an enrollment management enterprise that was in keeping with the cultural norms of their individual institutions. The models ranged from:

1.	the loosely coupled advisory *committee* with a broad base of participation, without an assignment of authority, or accountability, to any individual or group,

2.	a *coordinator* who interacts with individual members of the effort, relying on informal relationships, essentially the "goodwill" of constituent units that make up the enrollment management team,

3.	a *matrix* which provides structured cooperation among units, notably across divisional lines, with provisional leadership from a management level individual housed in one of the divisions, and

4.	the formal hierarchical enrollment management *division,* which represents a change in the organizational structure of the institution and permanent assignment of responsibility to one individual.

In the decades since their development, these models have provided a framework for much of the current research on enrollment management. Specifically, the Kemerer, Baldridge, and Green (1982) models were developed to support the establishment of enrollment management systems and current research has successfully captured the expansion of enrollment management as a practice by all types of institutions. Over time, researchers identified specific organizational characteristics that distinguished these models from one another, notably the level of institutional restructuring required and the level of coupling between functional units participant to the enrollment management effort (Hossler, 1986). In addition, scholarly discussion has expanded to include the impact of institutional culture and the location of leadership on the establishment of enrollment management efforts (Bontrager, 2004a, b).

Despite these advances, the 1980s models used in current research remain unchanged, and some critical questions remain unanswered about the effectiveness of specific models (Hossler & Kalsbeek, 2013). As the practice of enrollment management has expanded beyond admissions and marketing to include retention, graduation and career services, enrollment managers are still seeking evidence based approaches to integrating the units engaged in enrollment management (Schulz & Lucido, 2011a). As a consequence of several decades of developments within enrollment management, the Kemerer, Baldridge, and Green models (1982), which helped to establish the enrollment management enterprise, serve less well for understanding the operation of 21st century enrollment management systems (Black, 2004).

In conclusion, the Kemerer, Baldridge, and Green models (1982) contributed much to the development of enrollment management efforts, providing a common language as the number of colleges and universities engaged in enrollment management grew to include more than 80% of the industry (Schulz & Lucido, 2011c). However, these models, effective as tools for developing

enrollment management structures, did little to support the management of those structures (Henderson, 2005). As stated by Hossler and Kalsbeek (2013), "To date, we have no empirical evidence as to whether the structure and composition of enrollment management units influences their effectiveness" (p. 6).

Developing New Structural Models

In developing new structural models, scholars can look to existing research, to gain insight and information to inform those new models. From a strategic standpoint, enrollment management is a set of activities put in motion to achieve a specific and measurable set of outcomes (Dolence, 1996). In this way, enrollment management supports the business end of higher education, responsive to both the financial well-being of the institution and to external measures of performance (Hossler & Kalsbeek, 2013). In the context of the education environment, however, there are philosophical considerations related to the mission and vision of an institution that must be preserved (Bontrager, 2004a). Developing decision processes that support the integration of these perspectives is, therefore, critical to an effective enrollment management system. In developing new models for understanding the methods, techniques and tools that support managers' effective direction of their enrollment management systems, it is necessary to reframe the structure of the enrollment management enterprise to include these decision processes.

Scholars have identified that the structural frame of an enrollment management enterprise goes beyond the collection of units that comprise that enterprise, or the location of the authority structures that support the enrollment management effort, to include policies and processes employed by that effort (Black, 2004). Additionally, researchers have considered the role that political and cultural elements of institutional environments have in shaping the policies and

processes within institutions (Bontrager, 2004a, b). Research has not, however, fully explored

the nature of those processes, notably the participant interactions that support the development of

policies, the establishment of goals or the resolution of problems - those very factors which

represent the operational heart of institutional change.

By their nature, enrollment management systems operate at the cusp of the external

environment and the internal workings of the college. In practical terms, enrollment managers

use these systems to position and leverage the assets of an institution in the competitive higher

education marketplace, and routinely make connections between consumer interests and

specialized units of the college (e.g. admissions and financial aid). Managing institutional

change within enrollment management systems, therefore, requires a balance between top-down

approaches that capture external goals and shared governance, which serves both to maintain the

integrity of the institution's academic core (Birnbaum, 2003) and, ultimately, as a source of

legitimacy for decisions made (Eckel, 2000). Although the participative approach to decision

making is perceived as a means to balance external influences and internal values (Gilmour,

1991; Hagedorn & Van Slette, 2006), it is unclear if a participative approach is compatible with

other structural elements of the enrollment management enterprise, notably the trend toward

centralized authority in the form of the enrollment management division (Schulz & Lucido,

2011c).

Purpose of the Study

The purpose of this study was to confirm the use of participative decision-making

practices in enrollment management and to explore if these practices are influenced by elements

of organizational structure. The results of a qualitative study — undertaken from September

2012 through June 2013, during which I conducted semi-structured interviews with 45 senior

enrollment managers (i.e. deans and vice presidents), from colleges and universities accredited by the Middle States Commission on Higher Education and the New England Association of Schools and Colleges, with undergraduate enrollments ranging between 5,000 and 15,000 students — identified that senior managers perceived themselves to be adopting participative management practices. Specifically, more than 70% of senior level enrollment managers in the study described decision-making processes based on the inclusion of unit directors in creating change, setting goals, solving problems, or making operational decisions related to the enrollment management effort. Nearly 25% of the managers interviewed indicated that generating discussion to make decisions took the majority of their time.

Research Questions

To confirm these participative practices, I developed a survey that was administered to collect the perceptions of mid-level managers, specifically directors of admissions, advising, financial aid, institutional research and the registrar, regarding their participation in decision making at their colleges and universities. This survey tool investigated the activities of these mid-level administrators and identified those who actively supported enrollment management along with those with little to no involvement in enrollment management, to determine the extent to which these administrators were participating in the decision processes at their institutions. The research questions that guided the study are as follows:

Research Question 1: To what extent do mid-level college administrators engaged in enrollment management perceive themselves to be participating in the decision-making processes of their institutions?

Research Question 2: Is there a relationship between structural elements of the

enrollment management effort – specifically, centralization of authority, formalization

and participant interaction - and decision participation by mid-level college

administrators?

A quantitative analysis of the data collected through this survey instrument was

conducted in order to explore whether mid-level administrators are engaged in enrollment

management and if these managers are participating in decision making at their institutions.

Additional survey items captured data about structural elements, notably authority, interaction,

and formalization. The survey questionnaire was distributed electronically to directors of

admissions, advising, financial aid, institutional research and records or registration from the

same set of institutions utilized in the 2012-13 qualitative study: those public and private

colleges and universities accredited by the Middle States Commission on Higher Education

(Middle States) and the New England Association of Schools and Colleges (NEASC), which

enroll between 5,000 to 15,000 undergraduates.

Significance of the Study

To advance managers' understandings of enrollment management systems, it is critical to

reframe these systems, to expand research perspectives beyond organizational considerations and

characteristics, and to view the enrollment management enterprise as an operational entity or

work group housed within the institution it serves. At present, the models applied to enrollment

management focus on organizational elements related to restructuring, coupling and political

culture. This approach restricts researchers' abilities to evaluate the impact of operational

dimensions common to work groups, notably the level to which mid-level managers are participant to the decision-making processes that guide their work.

      This study proposes a framework for understanding the connections between enrollment management systems, the structures that support these systems and the relationship those structures have to the decision-making processes that support the enrollment management effort. Research into these facets of the enrollment management enterprise will advance enrollment managers' understandings of operating these systems in the cohesive, effective manner the profession demands. In other words, this study will lend detail to the map by which enrollment managers can chart their course.

Chapter II

LITERATURE REVIEW

The practice of enrollment management and the systems that support this practice evolved in an environment where action and results are critical components of the work. Two categories of literature developed to support the manager tasked with producing "optimum" enrollments (Dolence, 1996, p 15). The largest body of literature pertains to the functions that comprise an enrollment management enterprise. A smaller set of publications addresses the development of structures that support the enrollment management effort. Neither group offers information on managing enrollment management systems or developing decision processes that support these systems. In short, the literature focuses on the management of student enrollments not management of the enrollment team.

Although enrollment practitioners are calling for information on these management issues (Schulz & Lucido, 2011a), this gap in the research persists. Additionally, scholars have expressed concerns regarding a broad range of unintended outcomes arising from mismanagement of the enrollment enterprise, including the subversion of institutional values (Kraatz, Ventresca & Deng, 2010), the reversal or reinvention of an enrollment management effort coincident with changes in leadership personnel (Bontrager 2004b) and restricted access to higher education for under-represented groups of students (Hossler, 2004).

By looking to literature on organizational structure, the models for enrollment management can be expanded to include a broader range of characteristics that are common to work organizations. These expanded models would support research that assists the enrollment management professional in building structures and decision processes that support effective enrollment management teams.

Enrollment Management Functions

The research that has examined the functions that comprise an enrollment management effort demonstrates the evolution of enrollment management from a policy to a practice to a profession (Henderson, 2001). In the early years of enrollment management, the aim of the literature was to support a paradigm shift which defined college attendance as a product that could be branded and marketed to a targeted group of consumers (Ingersoll, 1988).

This perspective informed the definitions of enrollment management that guided the practice. The definitions presented in scholarly literature include: "a process, or an activity, that influences the size, the shape and the characteristics of a student body" (Hossler, 1984, p. 6); "a comprehensive process designed to help an institution achieve and maintain the optimum recruitment, retention, and graduation rates of students, where "optimum" is defined within the academic context of the institution" (Dolence, 1996, p. 16); a "systematic set of activities designed to enable educational institutions to exert more influence over their student enrollments" (Penn, 1999, p.5). This literature legitimized the policy of marketing in higher education and promoted the role of admissions officers as recruiters (Dolence, 1993; Henderson, 2008; Hershey 1981; Hossler 1986).

As growing numbers of institutions adopted the policy of managing enrollments, issues of practice became increasingly important. Various studies, conducted over several decades, demonstrated that enrollment managers are (a) commonly recruited from narrowly defined administrative roles, notably admissions, and (b) tasked with integrating the activities of other highly specialized units, such as marketing, financial aid, advising, and institutional research, into an enrollment management effort (Dolence, 1993; Henderson, 2008; Hossler, 1984; Huddleston 2005; Niles, 2012; Schulz & Lucido, 2011a).

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A large body of literature was developed to familiarize these administrators with the functions of other specialists. The emphasis on the functional units that comprise enrollment management is evident in the array of articles published in enrollment management's two preeminent publications: The Enrollment Management Review and the Enrollment Management Journal. The majority of articles appearing in these publications are written from an admissions perspective. From 2007-2008, marketing was an emphasis. This trend seems to have tapered off in 2008, and it was nonexistent from 2010 -2011. The absorption of additional specializations, notably financial aid and advising, into enrollment management is also evident, along with the integration of data as a critical component. The article topics appearing in these publications between the 2007 Winter issue through the final issue in Winter 2011 are presented in Table 1.

As the practice of enrollment management became commonplace in the 1980s, the number of components integral to enrollment management grew, the enterprise increased in complexity, and the practice evolved into a profession (Ingersoll, 1988). Case studies of enrollment management efforts at specific colleges were published to encourage informed practice among a broad range of institutions. These case studies provided details on the experiences at some individual colleges that installed enrollment management efforts. The aim of these studies was to demonstrate that enrollment management was doable and required no specific construct, but could be applied in a manner unique to each college. The position that enrollment management would take different forms at each college contributed to the delay in development of a body of literature that would support management of the systems themselves.

The case studies highlight the integration of admissions, advising, financial aid, institutional research and marketing (Dolence, 1996; Hossler, 1990; Huddleson, 2005) into the enrollment management enterprise with a focus on the need to include an ever-widening range of

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functions (Bontrager, 2004a). However, the trend toward the accumulation of administrative units represented a hit-or-miss process which Dolence (1996), portrayed as a "false start" characterized by "a process that is more fire, ready, aim than…ready, aim, fire" (p. 23). In this period, adaptability of the enrollment management structure to the needs of individual institutions was the primary target. The need to create a cohesive enrollment management engine meant a void in expertise, or as Behn (1983) suggested, an opportunity for colleges to develop change leadership. At present, there has been little literature or research to address this void.

Within the case studies literature is a niche group associated with strategic enrollment management or SEM. This literature highlights the need to navigate the political environment and cultural climate of each institution (Beals, 1996; Bontranger, 2004b; Siglar, 1996; Whiteside, 1996). Frameworks for strategic planning that had been applied to the institution as a whole, were readily adaptable to the enrollment management organization (Hossler, 1990; Rowley, Lujan & Dolence, 1997). Literature on strategic enrollment management supported the management-by-objectives approach that translated external objectives into internal goals (Hundrieser, 2012). With the focus on measurable outcomes, notably retention and graduation, enrollment managers advanced in the organizational hierarchy to become strategic partners (Henderson, 2008) with assigned responsibility for managing innovations and other changes to practices and policies in support of student recruitment, retention and graduation (Black, 2001). Although the literature moved towards a discussion of management issues, this discussion focused on establishing an enrollment management effort, notably gaining support and establishing goals for the effort, rather than managing the resultant components or developing processes that supported the activities of the enterprise.

Enrollment Management Structures

Literature on the functional components of enrollment management has assisted practitioners to pull together those units most critical to the enrollment goals of their institutions. However, as demonstrated by Pugh, Hickson, and Hinings (1969), the structuring of a work organization such as an enrollment management system requires more than the integration of specialized units. Additional dimensions related to concentration of authority and line control of workflow are critical to the effective operation of these systems. Although the models—committee, coordinator, matrix and division— provided by Kemerer, Baldridge, and Green (1982) address organizational factors related to concentration of authority, the operational aspects of that authority have not been addressed in the literature. Structural elements that support line control of workflow, notably operational decision-making processes, have been similarly neglected.

Interpretations of the Model

For the most part, with little variation in description, the majority of researchers have merely adopted the Kemerer, Baldridge, and Green (1982) models without interpretation or extension. Consequently, current research on enrollment management structure has produced two types of results: (a) frequency distributions of specific organizational models within certain systems, regions or sectors of higher education, and (b) case studies of the successes or failures experienced by institutions, depending on the fit between the model selected and the cultural or political atmosphere in which the enrollment enterprise was established. This latter segment of the research emphasizes political buy-in while neglecting the operational aspects of concentrated authority and line control of work flow.

Hossler (1986), in his discussion of the Kemerer, Baldridge, and Green (1982) models, introduced two continua related to centralization of authority—specifically, the tight or loose coupling of units within each of the models and the level of organizational restructuring undertaken to develop the model. Although effectiveness of the models was the focus of Hossler's research, the impacts of these institutional characteristics on decision-making processes were not addressed.

More recently Bontrager (2004a), in his discussion of enrollment management structure, suggested that the selection of a particular model reflects the political and cultural climate of the institution. Bontrager positioned the Kemerer, Baldridge, and Green models relative to the commitment of an institution to change (low to high) and the expertise of the person leading the effort (less to more). Bontrager posited that the division structure represents the highest level of commitment to change and the highest level of expertise, and concluded that this form was the most effective.

Bontrager (2004a) introduced three additional dimensions to consider when studying systems: institutional type, composition, and philosophical alignment. For the most part, Bontrager focused on the organizational aspects of these dimensions. Although he framed institutional types as public and private, Bontrager raised the issue of reporting lines, with the statement that "where formal reporting lines do not exist, strong communication links [and] formalized relationships must be established …with direct ties to institutional mission, academic program, and student success" (p. 15). However, since 2004 when Bontrager made these observations regarding communication and formalized relationships, there has been no research to capture the activities or processes that support these necessary relationships.

Also, Bontrager (2004a) introduced composition as an organizational characteristic. Using the chronology of institutional activities related to the student's enrollment cycle, Bontrager described the composition of an enrollment management effort as a range of activities beginning with pre-college programs and ending with alumni relations. In accordance with strategic enrollment management techniques, specifically the "cradle to grave" approach introduced by Dolence (1998, p. 71), Bontrager focused on the centrality of various specialized units to the effective operation of an enrollment management enterprise. He observed that "such structure suggests a limited view of the enrollment management concept, characterizing it as a grouping of services rather than management of goals and strategies" (p. 15). Although Bontrager highlighted the need to connect enrollment activities with strategic goals, he stopped short of suggesting that enrollment managers develop the skills and knowledge needed to engage functional units in the development of goals and strategies.

Lastly, Bontrager (2004a) added philosophical alignment to the dimensions of an enrollment management system. He expressed concern that the cross-functional nature of enrollment management makes organizational fit complex. For Bontrager, the approaches that might be taken by academic units are quite different from the approaches that could be taken by student services units. He emphasized that academic units are more likely to be aligned with "top-level decision makers" (p. 16).

Kalsbeek (2006) expanded on this discussion of philosophical alignment in a pre-conference paper submitted to the American Association of College Registrars and Admissions Officers (AACRAO). Described by the author as a "thought experiment," the paper presented the viewpoint that "the variety of (enrollment management) structures currently in place across the landscape of American colleges and universities do not seem to be directly tied or explained

by differences in institutional mission, values, strategy, or type" (p. 5). Kalsbeek argued that

organization structure is an outcome of the strategic orientation of an institution, specifically its

approach to its marketplace. According to Kalsbeek, this orientation can be described as

administrative, student-focused, academic, or market-centered. He suggested that the differences

in orientation serve to explain the structural differences among colleges. In his third article on

the topic of enrollment management structure, Kalsbeek (2007) centered his discussion on

Jungian theories of decision making, specifically the impact of perception on information

collection and the impact of judgment on analysis. Kalsbeek extended the variations in

individual thinking processes to decision processes within institutions. Kalsbeek's typology,

with its four organizational orientations, aligns in many ways with Bontrager's (2004) assertion

that differences in philosophical perspectives produce variations in organizational structure.

One critical difference between Bontrager and Kalsbeek is their contrasting theories on

the forces that impact organizational structure. According to Bontrager, philosophical alignment

is the result of internal factors such as mission and values along with the cultural and political

climate within the institution, whereas Kalsbeek's organizational orientation is the product of

external factors, specifically "the higher education marketplace and an institution's competitive

market position" (Kalsbeek, 2006, p 5). Although both Bontrager and Kalsbeek suggested that

different approaches and outcomes might result from differences in the decision processes

utilized in an enrollment management effort, neither explored how those processes are

represented within the enrollment management enterprise, for example, the groups that

participate in decision making.

Enrollment Management Practitioners

More recently, as the number of institutions engaged in enrollment management has risen to more than 80% of the industry (Schulz & Lucido, 2011c), literature supported by practitioner-based survey research and interview studies has proliferated.

Survey Research

Numerous studies with senior level enrollment managers and some studies with mid-level functional administrators have been conducted to capture the expansion and perceived effectiveness of enrollment management activities at various groups of institutions. Various facets of enrollment management have been considered ranging from leadership styles to preferred models for enrollment management structure.

Hughes (2005) conducted research on leadership styles among enrollment managers using the classifications *transactional and transformational*. The findings were that enrollment managers did not have a predilection towards either of the two styles. In other words, enrollment managers appeared equally likely to lead their teams through a top down reward-punishment style or an adaptive participative style "ascribed with effecting change by influencing values, attitudes and behaviors…converting followers into leaders…work[ing] with followers to enhance performance and generate creative solutions to complex problems" (Hughes, 2005, p. 8). However, the structure of the enrollment management enterprise was not a factor that informed Hughes's study.

Abston (2010) used a survey of community college administrators to capture perceived availability, importance and the effectiveness of the various constituent units that comprise enrollment management in the community college system in Alabama. The survey instrument used in his study provides a description of the Kemerer, Baldridge, and Green models that

captured reporting relationships and functional units, but did not address these elements individually. One finding from the study was that certain groups of administrators identified more closely with specific organizational models (e.g. chief academic officers who responded to the survey were the most likely to select a coordinator model as being similar to their institution's model and. directors of admissions were most likely to select a division as being similar).

Cesarini (2011) conducted a similar study with 4-year institutions in Ohio and expanded the inquiry into existent and preferred organizational models for enrollment management. Data from the Ohio study shows that although most colleges utilized the division model, academic administrators favored less centralized forms of enrollment management structures.

Everett (2012) surveyed financial aid directors from 4-year institutions regarding their perceptions of the effectiveness of the enrollment models developed by Kemerer, Baldridge, and Green (1982). One significant finding from this study is that financial aid directors perceived the division model to be the most effective. The research focused on the functional elements represented within the four models (i.e. committee, coordinator, matrix, and division), but did not capture the structural elements present in the models. As a result, no conclusions could be drawn about the relationship between the perceptions of financial aid directors and the structural elements that differentiate the models.

Interview Studies

Schulz and Lucido (2009, 2011a, b, c) conducted numerous interview-based studies related to institutional efforts and enrollment managers perceptions. In a study that looked at centralization of enrollment systems, Schulz and Lucido (2009, 2011c) viewed centralization as an organizational behavior. Their study captured the factors that influence the institution's choice

to centralize rather than the impact of that choice on the decision processes of the enrollment management enterprise.

In another study, Schulz and Lucido, (2011b) looked at the sources of information available to enrollment managers regarding managing their enrollment systems, noting that their primary sources were commercial vendors. The researchers raised numerous concerns about the impact of external influences, noting the need to find "the proper balance between educational values and commercial practices" (p. 20). Although Schulz and Lucido's research raised important issues, it did not capture these choices as the outcome of decision-making processes. As a consequence, the researchers suggested changing the choices being made by institutions, but not the decision processes by which those choices were made.

In a third study, Schulz and Lucido (2011a) captured the concerns of enrollment managers regarding their professional development, with the highest level of concern related to managing the units and the personnel that directly support the enrollment management effort. The area of experience that was most valuable to these managers was "working within an institution that strategically coordinates a variety of individual units using a holistic approach to enrollment management" (p. 18). Having gained this emphasis from the enrollment managers, the research failed to capture the reasons this experience was considered valuable.

<div align="center">**Enrollment Management Teams**</div>

The literature on enrollment management does not capture information about the full range of structures that guide the governance and decision-making processes that impact the operation, and therefore the success, of the enrollment management enterprise. Two of the challenges to developing this research are the need for theories that accommodate a range of governance modes and a definition of decision making that permits comparisons among

institutions. More specifically, it is known that college and university environments are a complex mix for managers because these environments require a balancing act between the interests of internal and external stakeholders. As a consequence, there is a range of governance modes that operate within higher education, anchored on one end by shared governance —which is guided by internal areas of expertise—and, on the other end, by the management-by-objectives approaches that routinely integrate externally-driven goals into the decision- making processes of the institution. Enrollment managers—who are sitting at the cusp of the internal and external environments—experience the pressures that arise when they try to reconcile the goals of both spheres. Given the constancy of these pressures and the need to develop structures and processes that accommodate these pressures, it is critical that researchers expand their work to address the challenges enrollment managers face when managing their teams. As observed by Adrianna Kezar in the foreword to Gayle, Tewarie and White's (2011) book on university governance, although there is a lack of consensus regarding effective practices, there is agreement that current practices are failing American institutions.

> "Tension is growing between traditional academic governance and corporate
> approaches to decision-making, with most commentators concluding that neither
> approach in its current form will successfully meet the challenges of today's
> environment. (p. ii)"

Although enrollment management literature is not currently addressing these issues, there are sources of literature, notably from organizational theory, which can provide appropriate models.

Team Configurations

Bolman and Deal's (2008) discussion of team configurations provides a framework for understanding how decision-making models impact enrollment management efforts. A shared

governance structure engages all members of the college community based on their functional

areas. This structure is akin to the "all channel network" where "decisions require touching

multiple bases" (Bolman & Deal, p. 104). According to the authors "this arrangement works

well if a task is amorphous or complicated, but it is slow and inefficient for a simpler

undertaking" (p. 105), For the goal-directed, time sensitive work undertaken in enrollment

management, shared governance is too unwieldy to produce results.

In contrast, management-by-objectives is similar to the "one-boss" arrangement that

keeps subordinates isolated from one another (Bolman & Deal, 2008 p 102). This arrangement

permits, but discourages, a two-way conversation about goals. As a consequence of reduced

feedback, "Subordinates quickly become frustrated when directives they receive are poorly timed

or ill-suited to a situation" (Bolman & Deal, 2008, p 103). Additionally, given the level of

interaction required among team members to effect enrollment management activities, the one-

boss arrangement creates communication hurdles that disrupt cohesive action.

Participative management techniques require a decision-making structure similar to the

"circle network," described by Bolman and Deal (2008, p 105) as lateral and sequential wherein

"Each person has to deal directly with only two others." In a circle network, communication is

constantly occurring, notably information is exchanged and feedback is received. With the many

factors that can obstruct or propel student success, a participative decision-making structure can

be more responsive than shared governance or management by objectives.

Structure and Function

In their discussion of organizational structures comprised of units based on operational

functions, Bess and Dee (2008a) highlighted some potential disadvantages that may arise

including: reducing knowledge of other functional units, hindering cooperation and coordination

between functional units, and elevating decision making to senior managers. Using enrollment management teams as their example, Bess and Dee stated "In spite of the apparent logic of the conclusions about organizing by function, current organizational design research is exploring whether functional forms are effective in every case" and, citing Hackman (1990), Bess and Dee continued, "Instead, teams of different kinds of experts completing a set of specialized tasks may be better than many whole departments of different kinds of specialists" (p. 217). From this discussion, it is clear that Bess and Dee viewed the enrollment management enterprise of colleges and universities as a work group or team.

Bess and Dee (2008a) connected function and structure, and noted that project-based work teams "require communication among different departments and projects to improve the linkages across the system and to induce a more organization wide orientation and focus" (p. 220), thereby necessitating a shift in organizational structure. Although the authors asserted that centralized structures hinder decision participation, they acknowledged that, in colleges and universities, both "centralized and decentralized decisions can be made hierarchically or with much participation" (p. 214).

Decision Making

In their discussion of decision making, Bess and Dee (2008a, p. 212) highlighted a schema developed by Helsabeck (1973) wherein decision activities are divided into four basic functions: allocation of authority, allocation of resources, acquisition of resources, and production. When plotted against two criteria, centricity and participation, production decisions at both the institution and the unit level ranked high in participation regardless of centricity. With the exception of unit level resource acquisition, the other decision activities required low levels of participation. This demonstrates that operational decisions are best made among a

broad range of staff at the production or line-level, while organizational decisions—such as allocation of authority and allocation of resources—require a reduced level of participation. Consequently when looking at the effectiveness of work teams, it is critical to consider various elements of structure, including the decision processes that support the team's activities.

In their article on decision making, Morris, Greenwood, and Fairclough (2010) highlighted the characteristics of professional service firms and contrasted these organizations with the more labor-capital intensive organizations that are commonly studied when looking at decision making in organizations. As described by the authors, professional service firms are founded on the application of specialized areas of knowledge to specific client contexts. In this way, the activities of professional service firms mirror the role that an enrollment management enterprise plays within a college or university.

Management of these firms is also similar to that of an enrollment management enterprise. Morris, Greenwood, and Fairclough (2010) suggested that the successful professional service firm (PSF) is often led by a manager who can "build the consensus needed to form agreements about the decisions a PSF needs to make in order to remain competitive" (p. 302). Additionally the authors present that, "The traditional means of addressing the challenges posed by the professional, institutional and technical requirements of professional service has been through the use of an organizational form which emphasizes collegial forms of governance" (p. 284) and "professional partnerships" (p. 285).

Morris, Greenwood, and Fairclough (2010) further asserted that professional service firms provide an opportunity to explore non-strategic or routine decision making (e.g. operational decisions) in their statement "Although these small (non-strategic) decisions were

not of great import for the long-term direction of the organization, they were not always as 'trivial' or inconsequential as implied by the state of existing decision-making research" (p. 290).

The authors claimed that "collective" decision practices are sometimes replaced with more formal structures and bureaucratic controls, but observed that, despite such changes, "managers must still deal with a diverse set of autonomous professionals whose working agreement requires the establishment of consensus" (Morris, Greenwood, & Fairclough, 2010, p. 301).

Marshall Sashkin (1986) advanced the theory that managers can design or construct workplace conditions that will support participative management practices. He endorsed participative management claiming that participation promoted the acceptance of goals and, consequently, greater likelihood of achieving those goals. Sashkin also discussed the limits of management research that focused on individual aims and performance rather than groups and organizational processes, notably "organizational approaches to improvement" (p. 73). When applying these participative practices to organizational change and the decision processes of work groups (e.g. enrollment management teams), the decision activities highlighted in Sashkin's (1982) research include: setting goals, developing decision alternatives, solving problems, and creating change. As a means to establish a definition for decision making in work organizations, these four decision activities are a good core from which to start.

Structural Elements of Work Organizations

Having established an understanding of work teams and their decision-making processes, it remains to review literature relative to the structural elements of work organizations. Mintzberg (1979) provided a perspective on organizations that captured concepts critical to projects and work groups such as enrollment management teams, and stated "The structure of an

organization can be defined simply as the sum total of the ways in which it divides its labor into distinct tasks and then achieves coordination among them" (p.2). The early enrollment management literature that focused on functions supported the assignment of specific roles and distinct tasks to units and individuals that are engaged in the management of enrollments for an institution, but failed to address the coordination of these functions.

Existing organizational models (coordinator, committee, matrix and division), even with the advanced interpretations contributed by Hossler (1986) and Bontrager (2004a), fall short of explaining how enrollment managers can achieve the level of collaboration required among those functional units. Even for institutions without formal centralization of the enrollment management effort, "coordination" and "cooperation" along with cohesion in a variety of decision-making processes is reported as desirable (Schulz & Lucido, 2011c, p.31). Therefore, a greater understanding of these processes and of the connections between decision making and structural dimensions is critical to developing effective enrollment management systems.

Pugh, Hickson, and Hinings (1969) developed a taxonomy of work organization structures which provides a framework for discussing the characteristics that differentiate one organization from another, specifically (a) the structuring of activities within the organization, (b) the level to which authority is concentrated and (c) the line control of workflow. Identified in this taxonomy, and in support of these three dimensions are elements related to: (a) specialization of functions, (b) the standardization of procedures, (c) centralization of authority, (d) formalization of operations, and (e) decision making, notably as it relates to line control of workflow.

To the extent that an enrollment management enterprise represents a team effort among specialized units with standardized procedures (e.g., admissions, financial aid, and advising),

most aspects of structure related to specialization and standardization are evident in the composition of the work group. The level to which authority is centralized is also evident based on the committee, coordinator, matrix, or division models that house the enrollment management effort. However, two of the supporting elements from Pugh, Hickson, and Hinings' (1969) taxonomy, the formalization of operations and line control of decision making, are not addressed in the existing enrollment management models. Prior studies on enrollment management have suggested that these structural elements impact the decision processes and, consequently, the outcomes, of an enrollment management system (Bontrager, 2004a; Schulz & Lucido, 2009).

In summary, although the centralization of authority and the structuring of activities are captured in the literature on enrollment management, the impacts of these elements have not been explored. Additionally, other critical elements of structure have been neglected. Those elements related to line control of workflow, notably formalization and production level decision making, have not been the subject of enrollment management research. Without greater understanding of these aspects of enrollment management structure, determining effective methods for managing the enrollment management team will remain elusive.

To expand the research into the operational aspects of enrollment management, two gaps in the literature must be addressed. Initially, a reframing of enrollment management structure is needed to address a broader range of research questions, notably questions pertaining to the strategic coordination of production-level units and the impact of decision-making practices on the holistic management of these units. One avenue for such research is provided through studies of organizational behavior that focus on teams. With most institutions of all types now engaged in the management of their enrollments, survey instruments have become a primary source of information supporting studies of managers' perceptions, attitudes and practices.

These instruments can be used to collect information regarding structural elements supporting a new framework for analysis.

       To further researchers' understandings of managing these teams, a working definition for decision-making that is applicable to enrollment management must be developed. Research on organizational management provides some guidance into definitions of decision making that pertain to project or production-based interactions among institutional units. The use of qualitative and quantitative methods, notably interviews and survey tools applied among decision participants, could support the development of this definition.

Chapter III

METHODS

This chapter outlines the overall research design for the project and the research methodologies applied to each of the research questions addressed in this study.

The purpose of this study was to explore the use of participative decision-making practices in enrollment management and to see if these practices are influenced by other elements of organizational structure. In this study, I presented a framework for understanding the connections between enrollment management systems, notably the structures that support these systems, and the decision-making processes within an institution. Research into these facets of the enrollment management enterprise was undertaken to advance enrollment managers' understandings of operating these systems in the cohesive, effective manner the profession demands.

The framework for this study was built on theories of decision participation in work environments that capture both operational and structural elements of work teams and the organizations that support them. This approach combined the organizational taxonomy developed by Pugh, Hickson, and Hinings (1969) with the models introduced by Kemerer, Baldridge, and Green (1982). Additionally, it incorporated the theoretical advances of enrollment management scholars, such as Hossler (1986) and Bontrager (2004a), within the context of the profession as captured in the research by Schulz and Lucido (2009, 2011 a, b, c). The methodologies for measuring decision participation were anchored in theories developed by Sashkin (1986) and were informed by the more recent work of Bolman and Deal (2008) on team configurations and Bess and Dee (2008) regarding organizational structure and function.

An ancillary goal of the study was to develop a new approach for researching the enrollment management enterprise—an approach that facilitates the application of organizational theories to this aspect of higher education management through the exploration of the structures of enrollment management in the context of enrollment management processes and activities. As a result, the measures employed in this study were developed specifically to advance an understanding of the enrollment management effort as an amalgamated work organization comprised of multiple independently functioning units. The aim of the research was to provide a broad range of input, from each of the units known to sustain enrollment management, informing the results of this study.

The primary instrument for data collection was a survey that was administered to mid-level college administrators from units known to support enrollment management efforts—specifically, directors and managers from the offices of admissions, advising, financial aid, institutional research, and the registrar.

Research Design

In developing this study, a sequential exploratory model was employed in which qualitative data informed a quantitative study (Creswell, 2009). The qualitative approach was used in the first phase of exploration because a core characteristic of qualitative methodology is the ability to adapt data collection as new-found understandings emerge (Charmaz, 2006; LeCompte & Schensul, 1999). Beginning with semi-structured interviews conducted between 2012 and 2013 with 45 senior managers involved in enrollment management, the qualitative study explored the changes that occurred within institutions of higher education in tandem with the integration of an enrollment management effort. The results of this research raised questions

regarding decision participation by mid-level managers. These questions regarding decision participation are at the core of this survey research:

Research Question 1: To what extent do mid-level college administrators engaged in enrollment management perceive themselves to be participating in the decision-making processes of their institutions?

Research Question 2: Is there a relationship between structural elements of the enrollment management effort—specifically, centralization of authority, participant interaction and formalization— and decision participation by mid-level administrators?

This second phase of research explored the decision activities of mid-level college administrators in tandem with structural elements common to work organizations. A survey instrument was developed to collect information regarding whether those administrators formally engaged in enrollment management perceived themselves to be participating in the decision-making processes of their institution. The study also explored whether this perception was impacted by the structure of the enrollment management effort. More specifically, the survey instrument captured information related to three aspects of the respondent's circumstances: (a) engagement in enrollment management, (b) participation in decision making, and (c) characteristics of the respondent's institution including the authority, formalization, and participant interaction present in that enrollment management effort.

Population and Sample

The sampling frame for this survey study initially represented the same population of institutions as the sampling frame applied to the earlier interview research. Specifically, the sample of senior managers used in the qualitative study was drawn from those colleges and

universities, accredited by the Middle States Commission on Higher Education and the New England Association of Schools and Colleges, which enrolled between 5,000 to 15,000 undergraduates. These institutions ranged from the most highly selective private institutions to open enrollment community colleges. The interview study found that nearly 70% of senior enrollment managers discussed their efforts to establish decision participation processes centered around the inclusion of mid-level managers. This study found that these efforts were prevalent among all types of institutions: public or private, 2-year or 4-year, selective or open enrollment. Furthermore, the study found that, for 25% of the participants, these efforts took the majority of the managers work time.

Given these findings, the same 130 institutions provided the core population of mid-level managers that received the survey instrument in this second phase of exploratory research. The strategy for expanding the study population was to survey mid-level managers from similar institutions in two states, specifically Ohio and Virginia, both contiguous to the regional core. A total of 680 individuals, approximately five from each institution were asked to participate, specifically the directors of admissions, financial aid, student advising, institutional research and the registrar's office. The institutions were identified though their accreditation agency websites. The mid-level managers were identified through their institutional websites.

Population Parameters

There were several considerations that guided the selection of the population that supported the interview research conducted in 2012-13. Whenever possible, the interviews were conducted in person; therefore proximity to the principal investigator's work and school activities was the primary factor in the decision to limit the population to colleges and universities accredited by NEASC and Middle States. Additionally, only those managers from

colleges and universities with undergraduate enrollments that ranged from 5,000 to 15,000 students were included in the population. The decision to exclude institutions with enrollments of less than 5,000 and institutions with more than 15,000 undergraduates was made because the size of a student population could dictate the choices available to an institution regarding their enrollment management effort. For example, smaller institutions might not have the resources available to develop a stand-alone division and larger institutions might utilize a program-based enrollment management effort rather than an institution-wide approach. The study sought to identify practices selected when, apart from unpredictable constraints, a full range of choices was available. Consequently, only those managers employed at mid-size institutions were included in the study. The interview study also excluded enrollment management at the graduate level because graduate programs typically conduct program-based recruitment of students and this study aimed to understand changes that occurred at the institutional level. Lastly, enrollment management practices are unique to each college or university based on the individual characteristics of the institution and its response to its environment. As a consequence, there was no way to develop a representative sample from any group of institutions. Therefore, managers from all 150 mid-size institutions were included in the sample.

Sample

A total of 680 mid-level administrators from 150 institutions were sent a link to the survey. They included directors of admissions, advising, financial aid, institutional research, and records or registration from the 130 original colleges and universities, supplemented by an additional 20 institutions that were identified when the survey administration was expanded. The entire population was surveyed.

The following states were represented in the sample frame: Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, Virginia and Washington, DC.   The survey responses were collected anonymously; therefore, it cannot be confirmed that institutions from each of the states were included. However, through the use of two separate survey links, it is known that institutions from both accrediting agencies were represented in the results. To maintain the highest possible levels of anonymity for each respondent, all responses from both links were combined prior to any review, cleaning, or screening of the data.

The overall population of 680 mid-level directors produced 197 completed surveys for a response rate of 29%. The initial 130 institutions produced 152 surveys; the additional 20 institutions produced 45 surveys. From the completed surveys, 14 surveys were excluded from the study, leaving a total of 183 surveys. Thirteen individuals were removed because they identified themselves as senior managers who reported to the president of the college. One other respondent was removed because this person answered only three survey items

The respondents to the survey reported institutional characteristics that closely reflected the institutional composition of the studied geographic region. The characteristics reported to the Integrated Postsecondary Education Data System (IPEDS) by mid-size institutions in the region, as compared to the survey results, were as follows: public institutions - 70% IPEDS versus 72% survey, private institutions - 28% versus 27%, and for profit institutions - 2% versus. 1%; 2-year institutions were 40% versus 40% and 4-year institutions were 60% versus 60% (NCES, 2015d). Functional representation was less evenly distributed. Based on the approximately 150 surveys sent to each of the five functional areas— admissions, financial aid, institutional research, registrar and student advising— the highest rates of response were generated by admissions

(25%) and institutional research (29%). Financial Aid (17%), registration (15%) and student advising (15%) made up the second tier. The Director of Admissions and Financial Aid position was a combined function at about 20% of the colleges and universities represented in the sampling frame. Additionally, there were respondents (18%) who selected an alternative functional category; specifically, these respondents were evenly distributed between the categories of enrollment management and other. Overall the work area breakdown for the 183 respondents was admission/marketing (20%), enrollment management (8%), financial aid (14%), institutional research (23%) records or registration (13%), student advising (12%) and other (10%). (see Tables 2 and 3.)

Data Collection

The data were collected from mid-level managers working in those units of colleges and universities which, as indicated by the literature, commonly participate in enrollment management efforts. The overall aim of the data collection was to gain a broad perspective on the engagement of mid-level managers in enrollment management and their participation in decision-making processes. The instrument used to collect the data was a survey that was administered through a link sent in an email to each of the managers. The managers, along with their email contact information, were identified through individual office listings on the websites of their institutions. Specifically, the survey was sent to individuals listed as directors of admissions, advising, financial aid, institutional research, or as the registrar. The request to participate was sent twice to all identified mid-level managers. Emails were re-sent a third time if the person was on vacation or leave. For individuals who had retired or taken new positions, the alternative contact was utilized when provided. Of the emails sent, there were only five email addresses that returned without redress options.

Survey Instrument

The survey instrument included a total of 37 items and was designed to collect information that supported the research questions. This included items intended to measure (a) the respondent's engagement in enrollment management (independent variable), (b) the respondent's participation in decision making (dependent variable), and (c) three potential mediating factors related to the institution's enrollment management effort, specifically levels of (a) authority, (b) formalization, and (c) participant interactions with institutional units. For all but one of these items (authority), a scale was developed using multiple survey items. Additionally, the survey instrument collected data on respondent demographics and institutional characteristics. A copy of the survey is provided in Appendix A.

Reliability and validity of the survey instrument. When conducting research using a survey instrument, the conclusions drawn from the data rely on the validity and the reliability of the survey items that populate the variables used in the study. Survey items have validity if they fully measure the attitudes or attributes (e.g. decision participation) they were intended to measure (Stangor, 2006). The measures (survey items) used in a survey instrument are considered to have reliability if they consistently produce the same results under multiple applications, essentially multiple administrations of the survey. Additionally, items that comprise a scale should be internally consistent, producing similar results for related items (Pallant, 2010). For this project, which is using a previously untested tool, tests demonstrating reliability and validity were critical to the value of the conclusions drawn.

Validity. The validity of the survey instrument was tested through a pilot survey administered to a total of 20 mid-level administrators, 5 each from one public community college, one public 4-year college, one private 4-year college and one for-profit institution. To

determine face and content validity, feedback was solicited from the administrators to determine if any questions were confusing, misunderstood or if any measures were incomplete. A comparison of answers among similar survey items was used to evaluate construct validity. Construct validity was likewise tested after full administration of the survey.

Reliability. Reliability of the survey instrument while in pilot was tested by manually comparing the responses to survey items against similar or related survey items. Due to the small number of items (<10) that comprised the scales in the survey, it was determined that Cronbach's alpha might not serve as an adequate test of reliability (Tang & Cui, 2013). Therefore, after full administration of the survey, I tested for reliability using mean inter-item correlation values. As recommended by Clark and Watson (1995 p. 316)—and in accord with research conducted by Briggs and Cheek (1986) and Green (1978)— I sought values that ranged from.15 to .50. All scales developed from the survey responses and used in the analysis fell within acceptable values after being tested using mean inter-item correlation. Results of these tests are discussed in the Data Analysis section of Chapter III.

One item (Question 7) from the survey was removed from the analysis due to the low level of response to this item. Although there were no missing values to this item, nearly half of the survey respondents (46%) replied that they were "*not sure*" what resources had been assigned to support enrollment management. I determined that the dearth of affirmative responses would undermine the value of any findings.

Variables

I developed five variables for analysis in this study. A copy of the Variable Coding Guide is provided in Appendix B.

Engagement in Enrollment Management

The independent variable, respondents' engagement in enrollment management, was identified based on a respondent indicating, in Question 20, that s/he is (a) formally supportive of Enrollment Management efforts:

- as the director of my work area,

- as a member of an Enrollment Management Division,

- as a member of a Formal Committee for enrollment management,

- as an advisor or consultant (not a member) of a Formal Committee,

- as a member of an enrollment management Work Group/Team,

- as a participant to informal discussions about enrollment, or

- not involved in enrollment management.

and, in Question 24, (b) actively involved in enrollment management activities:

- follow instructions about enrollment management goals and policies,

- identify problems related to enrollment management efforts,

- produce data related to enrollment management activities and outcomes,

- report to senior leadership about enrollment management activities,

- solve problems related to enrollment management activities,

- make decisions about enrollment management goals and policies,

- coordinate enrollment management activities, or

- n/a or not sure.

The responses to Question 20 were used to divide the survey participants into two groups, those with formal engagement in enrollment management (Group A) and those with informal or no engagement in enrollment management (Group B). In addition, the survey respondents assigned

to Group A were further determined to be actively engaged in enrollment management activities from their responses to Question 24.

Participation in Decision Making

The dependent variable, respondent's participation in decision making, was measured by the response to Question 12, the level to which s/he exerts control over the work product and, additionally, the responses to Questions 15 through 19, whether s/he is involved with:

- setting goals,

- solving problems,

- facilitating change,

- creating policies or decision options, or with

- strategic planning for the institution.

One point was awarded for each decision activity for which the respondent reported involvement, with one additional point awarded for a response that indicated that s/he exerted control over their work product. A scale or participation score that ranged from 0-6 was developed from responses to these survey items. This scale was used to identify respondents' levels of decision participation.

Institutional Characteristics

Characteristics of the enrollment management effort at each respondent's institution were identified based on the respondent indicating various elements of authority, formalization and participant interaction. These institutional characteristics were explored as mediating variables that might impact decision participation among those respondents engaged in enrollment management.

Authority. The survey item that captured leadership, Question 6, was used to measure levels of centralization of authority. Although only this one dichotomously-coded item was used to reflect centralized authority, the responses to Question 23—regarding the functions of the enrollment management work group or team—were reviewed to confirm that decision-making activities were associated with the indicated authority. Results from the responses to Question 6 were used to produce three definitions for centralized authority. In Round 1, centralized authority was limited to those environments characterized by an enrollment management division. In Round 2, centralized authority was limited to enrollment management efforts led by a senior manager in academic affairs or student services. In Round 3, the definition of centralized authority was expanded to include the enrollment management division plus those enrollment management efforts led by a senior manager in academic affairs or student services.

Formalization. Aspects of formalization were combined to form a composite variable which included the length of time an enrollment management effort was in place, the existence of written goals and plans, and the level and type of leadership assigned to enrollment management. A fourth element originally slated for inclusion, the types of resources assigned to the enrollment management effort, was excluded from the analysis due to a high level of "*not sure*" responses (46%). Therefore, the scale developed to reflect varied levels of formalization consisted of Questions 4 through 6 with potential scores ranging from 0 to 9. For each element of the scale, a point value ranging from 1 to 3 points was assigned based on the extent to which the item had been formalized. The most formalized items (e.g. a written plan) received 3 points, while the least formalized items (e.g. a general effort with no goals) received 1 point. A 0 was awarded if the respondent indicated there was no item supporting the element (e.g. no plan or goals).

Participant interaction. The level of participant interaction was measured by the responses to Questions 8 through 11, which asked about the frequency with which the respondent interacted with various sectors of the institution, including academic and instructional staff, student services, and administration. The most frequent interaction (i.e. daily) received 4 points, while the least frequent interaction (i.e. less than monthly) received 1 point. A 0 was awarded if the respondent indicated there was no interaction. A scale or interaction score that ranged from 0 to16 was developed from responses to the survey items.

Data Analysis

For this exploratory study, which used a new approach to analyzing the enrollment management enterprise, I determined to keep the project smaller, with the same regional scope as the prior qualitative research. From the 680 surveys sent to mid-level administrators, a total of 183 respondents provided data that was used in the analysis of the survey results. Sample sizes were tested and this response was determined sufficient to analyze the results of the survey with adequate precision.

Data Cleaning and Screening

After the initial review and removal of 14 surveys, the remaining 183 surveys were screened for work and institutional characteristics that might skew the results. For example, was the length of time a respondent was in a position or the level of selectivity of the institution associated with the dependent variable, decision participation, or the independent variable, engagement in enrollment management? Were respondent work areas associated with decision making or active engagement in enrollment management? A set of respondent profiles was developed to assess relationships between respondent characteristics and the variables under study. The Tables 2 and 3 show the demographic and work characteristics for the respondents

and their institutions while Tables 4 and 5 provide details about the respondents' engagement in enrollment management and decision participation.

The analysis of the profiles showed that incidence rates for engagement in enrollment management (see Table 4) and incidence rates for decision participation (see Table 5) were similar across the categories for related work and institutional characteristics. For time in position all segments reported 50% engagement in enrollment management; for decision participation these segments ranged from 58 to 65%. Results for time with institution ranged from 49% to 58% for engagement in enrollment management and 57 to 60% for decision participation.

For several institutional characteristics, the results were also closely aligned. By degree levels, engagement in enrollment management was reported by about 50% of all respondents and decision participation was reported by about 60% of all respondents. By recruitment region, respondents reported engagement in enrollment management that ranged from 57% to 62% and decision participation with the same range 57% to 62%. Respondents from public institutions reported higher levels of engagement in enrollment management than did respondents from private (54% vs. 41%) and higher levels of decision participation (62% vs. 54%).

Results by institutional selectivity produced a broader range of outcomes for engagement in enrollment management. Specifically, engagement in enrollment management was reported by 40% of the respondents who worked for highly selective institutions, 49% for those working for open enrollment institutions, and 53% for those working for selective institutions; decision participation reported by respondents working for these institutions was 67%, 58% and 65% respectively. It is interesting to note that the percentage of respondents engaged in enrollment management was lower for highly selective institutions, yet decision participation was reported

at higher levels whereas respondents from open enrollment institutions were more likely to be engaged in enrollment management, but less likely to report decision participation. In contrast, respondents from selective institutions reported both higher levels of engagement in enrollment management and higher levels of decision participation.

Engagement in enrollment management varied widely among the work areas reported by respondents, ranging from 30% for institutional research to 85% for enrollment management. Decision participation hovered near 50% for admissions (47%), financial aid (52%), and student advising (50%). Higher rates of decision participation were reported by institutional research (65%) and registration (69%). The highest levels of decision participation were reported among those respondents who selected the alternative functional categories of enrollment management (71%) and other (75%). Although some patterns appeared which showed promise for the research, there was no evidence that these relationships would compromise the analysis of the survey results.

Analytical Tools

Relative risk was selected as the primary tool for analysis, given that it was a cohort study and that the rate of exposure to enrollment management among the participants was expected to be high (McNutt, Wu, Xue & Haffner, 2003; Viera, 2008). Based on standard a priori analytical practices for sample size calculations (Creswell, 2013), exposure to enrollment management was estimated to be 50% in advance of the study. Analysis of the surveys found 50% as the actual rate of exposure to engagement in enrollment management.

In a cohort study aimed to gauge relative risk, the researcher measures the likelihood of contracting a condition by comparing the proportion of those exposed who contracted the condition with the proportion of the unexposed who contracted the condition. In the context of

this study: Are mid-level administrators exposed to engagement in enrollment management more or less likely to contract the condition decision participation than those similarly situated mid-level managers who had not been exposed to engagement in enrollment management? Relative risk additionally accommodates mediating factors in the environment, such as those introduced in this study: the centralization of authority, formalization of the enrollment management efforts and interactions by the survey respondents with various units of their institution.

Reliability and Validity of the Measures Employed in the Study

This study tested four hypotheses related to the two research questions of this study. The measures for the independent, dependent, and mediating variables used in the study were developed initially as scales and then recoded dichotomously. Reliability was tested for each of the scales using mean inter-item correlation. The mean inter-item correlations for each scale fell between .15 and .50 (Clark & Watson, 1995) as follows: engagement (r=.452), decision participation (r=.325), formalization (r=.229), and interaction (r=.291). Although Cronbach's alpha was not directly used to measure reliability due to the small number of items in each scale, the scales were adjusted based on contributions to Cronbach's alpha. For engagement in enrollment management, it was determined that "*follow instructions about enrollment management goals and policies*" should be removed because this element was a poor fit for the scale: the response to this item suppressed Cronbach's alpha. The scale that was originally designed to capture centralization of authority failed to measure the construct; consequently it was determined that the response to one survey item, Question 6, regarding the leadership of the enrollment management effort, should be used with the qualification that enrollment management activities were associated with that leadership (Question 23).

Research Questions and Hypotheses

Hypotheses were developed for each of the research questions. For the first research question, a hypothesis was developed to test relationships between the dependent variable and the independent variable. This relationship was tested further in the context of the three mediating variables, as noted in a second research question. Therefore, the analysis of the second research question consisted of three separate hypotheses.

Research Question 1: To what extent do mid-level college administrators engaged in enrollment management perceive themselves to be participating in the decision-making processes of their institutions?

$H_{0E:}$ engagement in enrollment management has no impact on decision participation by mid-level college administrators.

Research Question 2: Is there a relationship between structural elements of the enrollment management effort – specifically, centralization of authority, formalization and participant interaction - and decision participation by mid-level college administrators?

H_A: Centralization of authority within the enrollment management effort has no impact on decision participation among mid-level college administrators.

H_F: Level of formalization of the enrollment management effort has no impact on decision participation among mid-level college administrators.

H_I: Level of interaction among participants of the enrollment management effort has no impact on decision participation among mid-level college administrators.

Samples Testing

For Research Question 1, an independent samples t-test was conducted for the development of decision participation by those respondents actively engaged in enrollment

management (Group A, n = 92) and those with little to no engagement in enrollment

management (Group B, n = 91). Respondents to the survey indicated that engagement in

enrollment management was accompanied by higher levels of decision participation (see Figure

1). The independent samples t-test indicated that the difference between the Group A ($\bar{x}$ = 4.24,

σ = 1.79) and Group B ($\bar{x}$ = 3.37, σ = 1.90) was statistically significant (p = .002). Because the

Group A response data were not normally distributed a Mann-Whitney U test was performed.

This test indicated that the mean difference was significant (p = .001). Using the following

calculation, required sample size = $(1.96 * \sigma / ME)^2$ where σ = 1.84 and ME = .267, the

required sample size was found to be 182 respondents.   Therefore, the sample (n = 183) was

determined adequate to analyze the results of the survey with adequate precision.

For Research Question 2, the required sample sizes were calculated, within the context of

subset data, and filtered for each of the mediating variables. For the calculation of required

sample size, an assumed relative risk of 2.0 was used with a confidence level of .95 and power of

.80. The sample size requirements for the mediating subsets were tested using a calculator

provided by the AusVet Animal Health Services through their project that was funded by the

Australian Biosecurity Cooperative Research Centre (Sergeant, 2015). This calculator captures

expected incidence of a condition in the unexposed. Known incidence rates based on actual

survey responses were captured for survey participants who not been exposed to active

engagement in enrollment management, specifically Group B respondents, who had contracted

the condition of decision participation. The analytical technique applied in this study was relative

risk: the comparison of an event happening in Group A versus Group B based on exposure to an

element in the environment of Group A. This method accommodated the analysis of the small

sample sizes produced by the subsets for mediating variables. With 1 exception, all sample sizes

were determined adequate to support the analysis. In Round 3 of the analysis for decentralized authority, the precision of the relative risk analysis was compromised due to a very small sample size for Group A ($n = 8$). Incidence rates along with the required and actual sample sizes for each of the subsets are reported in Table 6.

In addition to an analysis of the sample size requirements, crosstabs were generated for each of the mediating variables: authority (see Table 7), formalization (see Table 8) and interaction (see Table 9). Differences in decision participation were reported by respondents actively engaged in formal enrollment management as compared to respondents with informal or no engagement in enrollment management. This held true for all environments explored in the study.

Limitations of the Study

The survey was distributed to all directors of admissions, financial aid, institutional research, registration and student advising employed by the colleges and universities listed in the Middle States and NEASC membership rosters that met the enrollment characteristic of 5,000 to 15,000 undergraduates. Consequently, the results of this study cannot be applied to institutions of higher education that do not meet these parameters. The survey was administered through a link sent by email to director email addresses collected from the websites of the member institutions. Although this approach was expected to provide broad participation in the survey, this participation was impacted by the recency of the data posted on the institutional websites. Additionally, bias (i.e. under-coverage) in the data could result from the schedules of some institutions dependent on their semester cycle (e.g. colleges with three 15-week semesters) and the activities of these functional units at the time the survey was administered. Participation in

the study was voluntary, so selection bias might impact the data generated from the survey instrument.

As the first exploratory study of its type, analysis of the data from the study could not be set into the context of prior studies. Consequently, there were no reference standards by which to set probabilities for participation in engagement in enrollment management or decision participation. Similarly, the likelihood of the mediating environmental conditions being present in a college or university was unknown with regard to authority, formalization or interaction. In this manner, the absence of prior research constrained some aspects of analysis. As a consequence, although findings could be made based on observed incidence rates among respondents to the survey, the incidence rates for the general population of mid-level college administrators remain unknown.

Chapter 4

RESULTS

The results from the survey provided information on the current state of enrollment management efforts for the institutions captured in the study along with data developed to support the analysis of the relationship between engagement in enrollment management and decision participation. Although the responses from the survey were anonymous, the response rate of 29% supports the descriptive statistics which indicated that the information collected produced a broad based response representing the geographic region captured by the study, primarily colleges and universities accredited by the Middle States Commission on Higher Education and the New England Association of Colleges and Universities.

Descriptive Statistics

Respondents

Respondents to the survey were primarily White females with 30 to 60 years of age, who were employed full time at public, state system, 4-year institutions with more than 5 years working at their current institution and more than 5 years in their current position. Overall, most respondents identified themselves as White, Non-Hispanic (83%), female (62%). With regard to age, 41% of respondents identified themselves as 46 to 60 years of age (41%) and 39% of respondents identified themselves as 30 to 45 years of age (39%). A smaller percentage reported 61 or more years of age (14%), while only 9 respondents reported 29 or fewer years of age (5%). Nearly all respondents worked full time (98%). Two-thirds of respondents (67%) reported more than 5 years at their current institution and nearly half reported they had held their current position for more than five years (49%). The distribution of respondents across the targeted

work areas was as follows: admission/marketing (20%), enrollment management (8%), financial

aid) (14%), institutional research (23%) records or registration (13%), student advising (12%)

and other (10%).

Institutions

Respondents reported institutional degree levels as 4-years (60%) or 2-years (40%), and

reported affiliations as public (72%) or private (28%). Their institutions had various missions,

and respondent selections were distributed as follows: state system (66%); served populations

including Black/Hispanic-serving and religious-affiliated institutions (9%) or other (25%). When

respondents described the selectivity levels of their institutions, their responses were distributed

as: open enrollment (51%), selective (41%) and highly selective (8%) When categorizing the

recruitment region of their institution, respondents listed: in-state (74%), regional (11%),

national (11%) and on-line (4%). Most institutions had more than 4 mid-level positions from

among the work areas contacted. The overall average for number of contacts per institution was

4.53 (680 emails/150 institutions).

Enrollment Management Efforts

Reported leadership of the enrollment management unit was distributed as follows:

enrollment division director (60% of respondents), senior manager in student services (15%),

senior manager in academic affairs (8%), formal committee (7%), coordinator (5%), and no

formal leadership (5%). There were no missing values. More than one-third of all respondents

indicated that their institution had a written plan (37%), while a similar number of respondents

indicated that their institution had a set of goals but no written plan (39%). The remaining

respondents reported a general enrollment effort, but no set goals (20%) or no enrollment plan

(4%). The number of years for enrollment management efforts was distributed among the

respondents as follows: 10 years or more (33%), 6 to 9 years (20%), 2 to 5 years (29%), less than 2 years (10%), no organized enrollment effort (8%).

These descriptive statistics are provided by headcounts in Table 2 and by percentages in Table 3.

Findings for Research Question 1

This survey study was developed as the second phase of an exploratory study of changes that occurred for American institutions of higher education that adopted the practice of enrollment management. From a series of interviews conducted from 2012-13 with senior level managers leading enrollment management efforts, I was able to identify that these senior managers were introducing mid-level managers into the decision processes at their institutions. I decided to collect information from mid-level managers regarding their engagement in enrollment management—identified as the independent variable—and the mid-level managers' participation in the decision-making processes—identified as the dependent variable of this study. The first research question and the associated hypothesis were developed to explore this idea.

Research Question 1: To what extent do mid-level college administrators engaged in enrollment management perceive themselves to be participating in the decision-making processes of their institutions?

$H_{0E:}$ engagement in enrollment management has no impact on decision participation by mid-level college administrators.

Engagement in Enrollment Management

The independent variable, engagement in enrollment management, was measured through survey items 20 and 24 and this information was used to place respondents in one of two groups.

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Group A (n = 92) consisted of those respondents who were formally engaged and active in enrollment management, and Group B (n = 91) that consisted of those respondents who were not formally engaged and active in enrollment management. All survey participants were assigned to Group A or B (no missing values). It was found that the average number of enrollment management activities engaged in by Group A respondents ($\bar{X}$ = 4.43) was more than double that of Group B respondents ($\bar{X}$ = 1.95).

Decision Participation

The dependent variable, decision participation, was measured through survey items 15 through 19 and item 12. Participation was scored for all 183 respondents (no missing values). The range of scores was 0 to 6 points. The mean score ($\bar{X}$ = 3.81 and the median (Mdn=4.0) were used to generate two groups. Respondents scoring 4 or more (n = 109) were coded as having higher levels of decision participation and those scoring less than 4 (n = 74) were coded as having lower levels of decision participation. These scores were skewed to the higher end of the range (see Figure 2). The mode of the results was at 6 points, the maximum number of points on the scale; approximately 25% of the respondents received this score. An independent samples t-test demonstrated that the difference between Group A ($\bar{X}$ = 4.24, σ = 1.79) and Group B ($\bar{X}$ = 3.37, σ = 1.90) was statistically significant (p = .002). Because Group A response data were not normally distributed, a Mann-Whitney U test was performed; this test also indicated the mean difference was significant (p = .001).

This exploratory study found that 71% of Group A respondents contracted decision participation while the incidence among Group B respondents was 48%. In terms of relative risk, mid-level administrators engaged in formal enrollment management efforts were 63% more likely to participate in decision making at their institution (RR = 1.634) than those mid-level

managers with informal or no engagement in enrollment management. The relative risk of

decision participation for Group B (RR = .636) was 36% lower (1 - .636). Note that as relative

risk values move farther from 1, risk increases; as relative risk values move closer to 1, risk

decreases. A relative risk value of 1 indicates that risk is equal for both groups. Using a z score

of 1.96 and a confidence level of 95%, the resulting confidence interval for relative risk for

Group A was 1.166 to 2.292 and for Group B was .477 to .846. This indicates that the higher

level of relative risk found for Group A is statistically significant, because the confidence

interval does not include the value 1. Additionally, results of Chi square tests indicated this

finding was statistically significant (r = .002; Fishers Exact = .003). For the purpose of

analyzing the results of the survey, notably when making situational comparisons using the

mediating variables mentioned in research question 2, these incidence rates and levels of relative

risk were considered the standard level for each group.

As a result of these analyses, the null hypotheses developed for Research Question 1 was

rejected. Survey responses suggest that there is a positive relationship between engagement in

enrollment management and decision participation among mid-level managers. Additionally the

data confirms the claim of senior level enrollment managers, developed through the interview

study conducted in 2012-13, that these mid-level managers are participating in decision making.

Findings for Research Question 2

To gain greater understanding of the institutional factors that facilitated or suppressed

decision participation, notably those factors related to the enrollment management effort, the

second research question was developed, along with three hypotheses regarding potential

mediating variables.

Research Question 2: Is there a relationship between structural elements of the enrollment management effort— specifically, centralization of authority, formalization and participant interaction—and decision participation by mid-level college administrators?

H_A: Centralization of authority within the enrollment management effort has no impact on decision participation among mid-level college administrators.

H_F: Level of formalization of the enrollment management effort has no impact on decision participation among mid-level college administrators.

H_I: Level of interaction among participants of the enrollment management effort has no impact on decision participation among mid-level college administrators.

Findings for the Authority Hypotheses

The scale originally developed to measure centralization of authority was found not to measure the construct. The original indicator, Question 21, regarding the number of stakeholders for enrollment management had a negative relationship with centralization of leadership. Centralized enrollment management efforts had higher numbers of reported stakeholders while less centralized efforts had fewer stakeholders. For efforts led by senior managers of academic affairs or student services, the average number of stakeholders reported by respondents was 4.78. For efforts led by enrollment management division heads, the average number of stakeholders reported by respondents was 4.63. For efforts led by coordinators and committees, the average number of stakeholders reported by respondents was 4.05. For those respondents reporting no enrollment management efforts, the average number of stakeholders reported was 1.36 stakeholders. The counted list of stakeholders included a total of ten options: (a) directors of various work areas, (b) deans/VPs/directors responsible for enrollment management, (c) formal committees for enrollment management, (d) institutional research or other data units, (e)

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instructional faculty or staff, (f) the president of the college, (g) the senior management team or president's cabinet, (h) a board of trustees or system office or (i) other. The tenth option, not sure, was not calculated in the count of stakeholders.

Without a secondary survey result to support the measure for authority, the analysis of authority structures was conducted using three scenarios: Round 1, Round 2, and Round 3.

Centralized authority. During Round 1, I reviewed decision participation within enrollment management efforts that were led by an enrollment management division (n = 110). Respondents actively engaged (Group A, *n* = 62) in enrollment management efforts led by an enrollment management division declined to 35% more likely (*RR* = 1.345) to be involved in decision making than those not engaged. For Group B respondents working at institutions with a division structure (*n* = 48), risk of decision participation increased to 28% less likely (*RR* = .720).   Although the difference in decision participation between groups was not shown to be statistically significant for respondents working in environments led by an enrollment management division, this may be because the difference between the groups decreased when authority was centralized within a division.

During Round 2, I reviewed decision participation where the enrollment management effort was led by senior managers in academic affairs or by senior managers in student services. For respondents working in these environments (*n* = 41), those engaged in enrollment management (Group A, *n* = 22) had a 24% greater risk (*RR* = 1.236) for participation in decision making for their institution than those not engaged in enrollment management (Group B, *n* = 19, *RR* = .793). It is important to note that the senior manager scenario showed an even greater decline in risk for Group A and a greater increase for Group B. In other words, the differences between the groups became smaller with a senior manager leading the enrollment management

team. The differences in relative risk between Group A and Group B were not statistically significant. This may be due to both the decline in differences and the small expected sample (<7) for some of the cells.

During Round 3, I reviewed decision participation where the enrollment management effort was led by an enrollment management division or by senior managers in academic affairs or by senior managers in student services. For respondents working in these environments ($n = 151$): those engaged in enrollment management (Group A, $n = 84$) had a 32% greater risk ($RR = 1.315$) for participation in decision making for their institution than Group B ($n = 67$, $RR = .727$) respondents. This difference was not shown to be statistically significant, perhaps in part because the differences between groups were smaller under centralized leadership.

In all three centralized scenarios, participants in Group A reported a large decrease from the standard level of relative risk for decision participation when the leadership of the enrollment management effort was more centralized. In contrast, participants in Group B reported a sizable increase from the standard level of relative risk for decision participation when authority was centralized. On average, for members of Group A, the risk for decision participation declined from 65% more likely to only 30% more likely. The risk for members of Group B increased from 36% less likely to only 25% less likely. The difference between the groups went from being larger and statistically significant before controlling for the authority structure to a smaller difference that was not demonstrated to be statistically significant when centralized authority was taken into account.

Decision participation incidence rates for Group A and Group B provide valuable insight regarding the overall results for respondents. Group A respondents reported little change in incidence rates in centralized environments. Specifically in Rounds 1, 2, and 3, the Group A

rates were 69%, 68%, and 69% respectively as compared to the Group A standard rate of 71%.

For Group B respondents, incidence rates rose 6-10 percentage points, or an average 16%, in

centralized environments. Specifically in Rounds 1, 2, and 3, the Group B rates were 54%, 58%,

and 55% respectively as compared to the Group B standard rate of 48%.

In short, although the differences between groups were not shown to be statistically

significant, incidence rates demonstrated that the differences between Group A and Group B

were reduced in the centralized environment. This could mean that enrollment management

efforts with centralized leadership provide a leveling influence on decision participation,

eliminating differences between the groups.

Decentralized authority. For those respondents working in decentralized authority

environments, in the Round 1 analysis during which all leadership structures other than an

enrollment management division were considered to be decentralized ($n = 73$), the Group A

respondents ($n = 30$) were at more than twice the risk ($RR = 2.269$) for decision participation

than were the Group B respondents ($n = 43$, $RR = .594$). However, as reported in Round 1 for

centralized authority, the absence (or presence) of an enrollment management division was not

shown to have any statistically significant association with the differences in decision

participation for Groups A and B.

For Round 2, all enrollment management efforts not led by senior managers in academic

affairs or student services ($n = 142$) were considered decentralized. The Group A respondents (n

$= 70$) were at a 78% greater risk ($RR = 1.777$) for decision participation than the Group B

respondents ($n = 72$, $RR = .601$). The difference between groups A and B was determined to be

statistically significant as indicated by Chi square test results ($r = .002$; Fishers Exact $= .002$)

Additionally, the 95% confidence interval was 1.195 to 2.643 for Group A and .436 to .830 for Group B.

For Round 3 in decentralized environments, specifically all respondents who did not report an enrollment management effort led by a division head or senior manager, the survey data generated results indicating that relative risk for decision participation for Group A ($n = 8$) was 9 times the risk of Group B ($n = 24$). However, the sample represented by this subset ($n = 32$) was too small to support further analysis of the results, notably several cells had expected counts of fewer than 5 respondents.

In all three decentralized scenarios, the participants in Group A reported an increase from the standard level of relative risk for decision participation when the leadership of the enrollment management effort was less centralized. However, based on incidence rates (see Table 6), it appears this difference arose from lower decision participation among Group B respondents rather than increased participation among Group A respondents. Specifically, Group A respondents reported incidence levels of 73%, 71%, and 88% in Rounds 1, 2, and 3 while Group B reported rates of 42%, 46%, and 30% respectively. It was only in the Round 2 decentralized authority that the difference between groups was indicated to be statistically significant. However, it should be noted that the results for Round 2 mirrored the overall standard results. Specifically, incidence rates were little changed for the groups when the decentralized authority environment was given consideration. Members of Group A had a standard incidence rate of 71% and reported a situational incidence rate of 71% for Round 2 decentralized. Members of Group B had a standard incidence rate of 48% and reported a situational incidence rate of 46% for Round 2 decentralized. Consequently, although relative risk was increased for Group A under this scenario ($RR = 1.777$ vs. $RR = 1.634$), and despite this outcome generating a

statistically significant result, it was unclear whether lack of leadership by a senior manager has any substantial impact decision participation for Groups A and B. Note, the only real change in Round 2 decentralized was a decline of 2 percentage points in the incidence rate for Group B respondents.

Within group differences. For both groups, most respondents worked in an enrollment management environment led by an enrollment management division. This represented 67% of Group A respondents and 53% of Group B respondents or 60% of all survey respondents. As to enrollment management efforts led by senior managers, this environment was represented by 24% of Group A respondents and 21% of Group B respondents or 22% of all survey respondents. When combined, as provided in the Round 3 analysis, approximately 90% of Group A and 75% of Group B respondents or 82% of all survey respondents worked in a centralized work environment.

For Group A, incidence rates indicated that there was little difference in decision participation whether the enrollment management environment was centralized or decentralized. The standard incidence rate for the group before consideration of mediating factors was 71%. Under centralized authority, the incidence rate for Group A ranged from 68 to 69%. Under decentralized authority the incidence rate ranged from 71-73%, with the exception of Round 3 results of 88% which represented only 8 respondents. When converted to relative risk statistics, these small differences within Group A were not shown to be statistically significant.

For Group B, incidence rates indicated that there was a difference in decision participation when the enrollment management environment was centralized or decentralized. The standard incidence rate for the group before consideration of mediating factors was 48%. Under centralized authority, the incidence rate for Group B ranged from 54 to 58%. Under

decentralized authority the incidence rate ranged from 42 to 46 %, with the exception of Round 3, which represented 24 respondents or 30%. The within group differences were found to be statistically significant only for Round 3. Group B respondents working for an institution with a centralized enrollment management effort ($n = 67$) were 32% more likely to participate in decision making (RR=1.317) than Group B respondents working for an institution with a decentralized environment ($n = 24$, $RR = .44$). These results were statistically significant ($r = .028$; Fishers Exact $= .034$) with relative risk falling within the 95% confidence interval of 1.025 to 1.693 for Group B centralized and .202 to .958 for Group B decentralized.

In summary, there is evidence that centralization of authority may be a factor that impacts differences in decision participation. Although decision participation was little changed for Group A under the varied levels of centralization, there were sizable differences in decision participation rates reported for Group B under all centralized scenarios when compared with the Group B standard rates. These differences increased when compared to the Group B decision participation rates identified in a decentralized environment. Whereas Group A rates had declined nominally under centralized authority, Group B respondents had significantly higher levels of decision participation when the enrollment management effort was centralized, even though these respondents were not engaged in enrollment management activities.

As a result of these analyses, the null hypotheses (H_A) developed for the mediating variable authority was rejected.

Findings for the Formalization Hypotheses

Formalization of the enrollment management effort at a respondent's institution was initially scored based on a set of items from Questions 4, 5 and 6, relating to the overall enrollment management effort. The range of possible scores was 0 to 9 points. The overall

score for each respondent was transformed into a dichotomous variable based on the mean score of 5.97 and the median score of 6. Respondents scoring 6 or more on the scale ($n = 115$, $\bar{x} = 7.29$) were considered to be working in a formalized environment while respondents scoring less than 6 ($n = 68$, $\bar{x} = 3.29$) were considered to be working in a non-formalized enrollment management environment. As indicated by the values for n, the scores were skewed to the higher end of the range (see Figure 3). The mode of the results was at 7 points; this represented approximately 19% of all respondents.

 Formalized environment. Group A respondents working in formalized enrollment management environments ($n = 65$) reported a decrease in their relative risk which declined from standard levels to 51% ($RR = 1.511$). For the Group B respondents working in formalized environments ($n = 50$) the relative risk for decision participation decreased slightly ($RR = .628$). In other words, the risk for decision participation among mid-level managers with informal or no engagement in enrollment management changed from 36% less likely to 38% less likely than the risk for Group A. These resulting differences were found to be statistically significant ($r = .028$; Fishers Exact $= .045$). Additionally, tests demonstrated 95% confidence intervals of 1.004 to 2.276 for Group A and .421 to .938 for Group B.

 Non-formalized environment. Alternatively, decision participation was near standard levels for Group A respondents ($n = 27$) when the enrollment management effort was not formalized, with those engaged in enrollment management 63% more likely ($RR = 1.636$) to be involved in decision making than those not engaged in enrollment management. However, the risk for decision participation among mid-level managers with informal or no engagement in enrollment management (Group B: $n = 41$, $RR = .720$) rose from 36% less likely to 28% less

likely than the risk for Group A, a 33% increase in relative risk. However, these differences in relative risk were not demonstrated to be statistically significant.

Although relative risk of decision participation was higher for Group A in a less formalized enrollment management environment as compared to a more formalized environment, this outcome was most impacted by the increased participation by Group B in centralized environments. The increased participation by Group B in centralized environments reduced the differences between groups, depressing the relative risk calculation for Group A. From the baseline incidence rates experienced among survey participants (Group A = 71%, Group B = 48%): incidence rates for decision participation actually increased for both groups (Group A = 75%, Group B = 56%) in the formalized environment and declined for both groups in the less formalized environment (Group A = 59%, Group B = 39%). The increase in decision participation for Group B was greater in the formalized environment; specifically Group B participation rose 8 percentage points or 16% versus the 4 percentage point or 6% increase for Group A. In the less formalized environment, incidence rates were much lower for both groups, Group A declined 12 percentage points or 17% while Group B declined 9 percentage points or 19%.

Within group differences. For both groups, most respondents worked in formalized enrollment management environment. This represented 71% of Group A respondents and 55% of Group B respondents or 63% of all survey respondents. As to non-formalized enrollment management efforts, this environment represented 29% of Group A respondents and 45% of Group B respondents or 37% of all survey respondents.

For Group A, the incidence rates indicated that there was a difference in decision participation whether the enrollment management environment was formalized or non-

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formalized. The standard incidence rate for the group before consideration of mediating factors was 71%. Under a formalized effort, the incidence rate rose slightly for Group A to 75%. Under a non-formalized effort the incidence rate dropped to 59%. The relative risk among the Group A respondents was .927 formalized and 2.908 non-formalized. However these within group differences in relative risk for Group A were not demonstrated to be statistically significant.

For Group B, incidence rates indicated that there was a difference in decision participation when the enrollment management environment was formalized or non-formalized. The standard incidence rate for the group before consideration of mediating factors was 48%. Under a formalized effort, the incidence rate for Group B rose to 56%. Under a non-formalized effort the incidence rate dropped to 39%. The relative risk among the Group B respondents was .684 formalized and 1.360 non-formalized. However the within group differences in relative risk for Group B were not demonstrated to be statistically significant

In summary, formalization levels had a significant association with decision participation for both Group A and Group B. Statistically significant differences in relative risk were found between Group A and Group B for respondents reporting higher levels of formalization in their institutions enrollment management effort. Notably, the data generated by the survey indicate that higher levels of decision participation occur among Group B participants when the enrollment management efforts are formalized, even though these respondents are not engaged in enrollment management. Using incidence rates, survey results indicate that higher levels of formalization increased decision participation for both groups and lower levels or non-formalization depressed decision participation for both groups; however, these variations - both the increases and the decreases in risk - were greater for Group B.

As a result of these analyses, the null hypotheses (H$_F$) developed for the mediating variable formalization was rejected.

Findings for the Interaction Hypotheses

Respondents' interaction with various units at their institution was initially scored based on a set of questions relating to interaction with academic affairs, instructional faculty, student services and administration. Although the range of possible scores for the interaction scale were 0 to 16, results for all respondents ranged from 0 to 12 points. These scores were transformed into a dichotomous variable based on the mean score of 8.70 and the median score of 9. Those survey respondents scoring 9 or more on the scale ($n = 108$, $\bar{x} = 10.46$) were considered to be interacting more often while the respondents scoring less than 9 on the scale ($n = 75$, $\bar{x} = 6.16$) were considered to be interacting less often. As indicated by the values for n, the scores were skewed to the higher end of the range (see Figure 4). The mode of the results was 9 points; this represented approximately 17% of all respondents. The overall shape of the distribution was centered at the mode, truncated at 12 points with a secondary peak at 6 points in the lower end tail.

Higher interaction levels. For individuals experiencing higher levels of interaction, the difference in decision participation between Group A and Group B was large. Group A ($n = 54$) was shown to be more than twice as likely ($RR = 2.299$) as Group B respondents ($n = 54$, $RR = .507$) to participate in decision making when overall interaction was high. Chi square test results demonstrated a statistically significant difference in decision participation levels based on higher levels of interaction ($r < .001$; Fishers Exact $= .001$). The 95% confidence interval for relative risk was 1.347 to 3.926.

Lower interaction levels. For survey respondents reporting lower interaction levels, those respondents with formal engagement in enrollment management (Group A, $n = 38$) were shown to be only slightly more likely ($RR = 1.14$) to be decision participants than those informally engaged (Group B: $n = 37$, $RR = .875$). The difference between groups in environments characterized by lower interaction levels was not demonstrated to be statistically significant. This may be because the differences grew smaller in the lower interaction environment.

For respondents engaged in enrollment management, Group A, higher levels of decision participation were reported in conjunction with higher levels of interaction and lower levels of decision participation were reported in conjunction with lower levels of interaction whereas Group B respondents reported the opposite (see Table 6). Incidence rates demonstrate that interaction levels were associated with bigger differences within Group A than were found within Group B. More specifically, Group A respondents reported a 9 percentage point or 13% increase from baseline decision participation rates under higher interaction levels whereas Group B decision participation rates were little changed (46% vs. 48%). Group A respondents reported a 12 percentage point or 17% decrease from baseline decision participation rates under higher interaction levels whereas Group B decision participation rates were little changed (51% vs. 48%).

Within group differences. For both groups, most respondents worked in environment characterized by higher interaction levels. This represented 59% of Group A respondents and 59% of Group B respondents or 59% of all survey respondents. As to environments characterized by lower interaction, this represented 41% of Group A respondents and 41% of Group B respondents or 41% of all survey respondents.

For Group A, incidence rates indicated that there was a difference in decision participation whether the environment was characterized by higher levels or lower levels of interaction. The standard incidence rate for the group before consideration of mediating factors was 71%. Under a higher interaction environment, the incidence rate for Group A rose to 80% ($RR = 1.624$). In a lower interaction environment the incidence rate dropped to 58% ($RR = .571$). These within group differences for Group A were found to be statistically significant ($r = .024$; Fishers Exact = .036). The 95% confidence intervals ranged from 1.08 to 2.643 for Group A for respondents with high interaction and .360 to .906 for Group A respondents with low interaction.

For Group B, incidence rates indicated that there was a difference in decision participation when the respondents work environment was characterized by higher levels or lower levels of interaction. The standard incidence rate for the group before consideration of mediating factors was 48%. Under a higher interaction environment, the incidence rate for Group B declined slightly to 46%. Under a lower interaction environment the incidence rate rose to 51%. However these within group differences for Group B were not demonstrated to be statistically significant.

In summary, interaction levels had a significant association with decision participation for both Group A and Group B. Statistically significant differences in relative risk were reported between Group A and Group B when respondents reported high interaction levels. Additionally, the differences within Group A were statistically significant when comparing risk of decision participation in high and low interaction environments. Using incidence rates, the survey results indicate that the level of interaction had a greater impact on Group A with higher levels of interaction associated with a 13% increase in decision participation and lower levels of interaction associated with an 18% decrease in decision participation. In contrast, Group B

respondents reported the opposite, a small decrease in decision participation when interaction levels were high and a similarly small increase in decision participation when interaction levels were low.

As a result of these analyses, the null hypotheses (H_I) developed for the mediating variable formalization was rejected.

Summary Statement on Findings

The relative risk analysis conducted for Research Question 1 suggests that there is a relationship between engagement in enrollment management by mid-level college administrators and participation by those managers in the decision-making practices of their institution. Furthermore, the survey results regarding this relationship were altered when response data for each of the mediating variables was introduced into the analysis. There are indications, therefore, that the levels of centralization, formalization and interaction, as addressed in Research Question 2, are impacting on the relationship between the independent variable, engagement in enrollment management, and the dependent variable, decision participation.

Chapter V

CONCLUSIONS AND IMPLICATIONS

Enrollment management in American higher education has been evolving since its inception more than 40 years ago (Coomes, 2000; Hossler & Kalsbeek, 2013). Responsive to factors in both the external and the internal environment of an institution, enrollment management became a critical strategy for driving institutional change (Hundrieser, 2012). As a consequence, the individuals responsible for leading enrollment management teams became change agents for their institutions (Black, 2001).

The need for effective leadership of the enrollment management enterprise took enrollment management from a policy and practice to a profession (Henderson, 2001; Schulz & Lucido, 2011a). The demands of that profession have created a need for advanced scholarly research which informs the operation of these systems (Schulz & Lucido, 2011b, c). Integrating current research on existing enrollment management models (Bontrager, 2004a, b; Hossler,1986; Kemerer, Baldridge & Green, 1982) with theories on organizational structure borrowed from the field of organizational management (Pugh, Hickson, & Hinings,1969; Sashkin,1986), this study sought to advance our understanding of the structures that support the operation of enrollment management systems.

The primary assumption of this study was that enrollment management efforts, in American institutions of higher education, are shaped by strategies unique to each institution (Dolence, 1996; Hossler, 1986). Consequently, the shape of the enrollment management effort is anchored in the decision-making processes by which the institution identifies and pursues its enrollment goals (Bontrager, 2004a, Gayle, Tewarie, & White, 2011, Kalsbeek, 2007). Underlying the hypotheses tested in this study was a secondary assumption that these decision

processes inform and reflect the structures that support the enrollment management effort (Bolman & Deal, 2008; Morris, Greenwood, & Fairclough, 2010). More specifically, decision processes inform and reflect organizational elements such as those highlighted in this study - the centralization of authority, the level of formalization and the level of interaction among participants to the enrollment management effort.

Overall the study found that, among the survey respondents, those mid-level managers who were formally engaged in enrollment management were more likely to participate in the decision making at their institutions than mid-level managers who were not formally engaged in enrollment management. The distinction sought by Helsabeck (1973) appears to have been captured in these results. Specifically, participation in decision processes is not the same as making decisions. The managers in this study indicated they are actively involved in making decisions: setting goals, solving problems, facilitating change, creating policies and decision options. Many participated in strategic planning for their institution.

As reported in the 2013-14 interview study, evidence from the survey suggests that institutions and senior level enrollment managers are effectively integrating mid-level administrators into active participation in the decision processes of America's colleges and universities, certainly for those institutions that were the focus of this study and possibly for the industry as a whole. In that enrollment management professionals have indicated a holistic approach to enrollment management is the most effective path to student success (Schulz & Lucido, 2011a), practitioners should be further encouraged by these survey results which indicate participation at the operational or line-level regarding control of work product, along with high levels of interaction among the separate institutional units, specifically academic affairs, student services, administration and instructional faculty.

This study further supports practitioners in that the research exposed additional structural considerations impacting the strength of enrollment management teams. Specifically, the mediating variables explored in the study were found to be impacting on decision participation, not only among the mid-level managers engaged in enrollment management but rather all mid-level managers with potential for engagement.

Previous research, notably by Bontrager (2004a) and Henderson (2005), explored the assumption that the authority structure of enrollment management impacts the effectiveness of an enrollment management system. However, this research had not explored the nature of those impacts. In the words of Henderson, "we were looking for whether the institution was reflecting enrollment management when we should have been looking to ensure that enrollment management reflected the institution" (pp. 4-5). Based on the results of this survey, some of these impacts are now known. The survey results show that decision participation, among those mid-level managers engaged in enrollment management, was suppressed by the presence of centralized authority in the form of a senior manager or an enrollment management division. Even though engaged respondents in centralized environments reported a greater number of stakeholders to the process, their participation in decision making was lower in the more centralized environment. Alternatively, those mid-level managers who were not formally engaged saw greater levels of decision participation in the centralized environment. From a practical perspective, institutions with centralized authority structures, which seek to develop participative practices, may need to develop new tools for capturing the input of the various specialized units that make up their enrollment management enterprise.

A second mediating element, the formalization of the enrollment management enterprise —as measured through length of time in place, the development of a written plan or set goals and

the assignment of leadership to a senior level manager— was reported to have improved the prospects of decision participation by mid-level managers who were not formally engaged in enrollment management. As suggested by the work of Schulz and Lucido (2009), the drive for resources and legitimacy required by the enrollment management effort may promote a trend towards formalization and centralization. The rise in decision participation incidence rates for those not formally engaged indicates that formalized enrollment management efforts impact decision participation by the campus community. However, the survey results also indicated that formalization of the enrollment management enterprise was not accompanied by a change in the decision participation rates of mid-level managers who were formally engaged in enrollment management, such as those serving on a formal enrollment management committee. Although the data generated by the survey did not show a strong correlation between formal engagement and formalization, common sense suggests a larger study might capture such a relationship. Furthermore, the survey did not generate the hoped-for response data regarding the acquisition of resources to support enrollment management. If direct reports on resource allocations had been integrated with the other elements of formalization, greater clarity regarding the impacts of formalization may have been gained.

A higher level of interaction with others in various units of the campus—as measured by the frequency of that interaction—was reported in tandem with a higher level of decision participation by mid-level managers who were formally engaged in enrollment management, but not by those who had only informal or no engagement in enrollment management. It is not clear from this study if interaction is a product, symptom or causal factor in perceived levels of decision participation by mid-level managers. Recent studies have shown that enrollment managers are seeking skills in managing these interactions. Notably, Schulz and Lucido (2011a)

identified that enrollment managers seek to improve their ability to manage personnel relations, institutional politics and working with groups comprised of varied stakeholders. By all counts, interactions among mid-level administrators are impacting on enrollment management processes and, therefore, have potential for impacting enrollment management outcomes.

These observations lend support to the reports by senior enrollment managers that indicated increased decision participation by mid-level managers. However, when considering results from this study, it is important to recall, unlike a medical study that relies on the objective diagnosis of a condition, this survey instrument captured the perceptions of the respondents. Senior level enrollment managers who actively integrate mid-level managers into decision processes may need to highlight that intention if they wish to impact the perceptions and understanding of decision participants.

This study had two goals. The first goal was to explore claims that higher levels of decision participation occur as a result of engagement in enrollment management. These claims appear to have been confirmed and further research would permit a stronger case to be made supporting those claims. The second goal was to develop a new methodology for analyzing the structure of the enrollment management enterprise, notably because enrollment management has become a common practice among American institutions of higher education, but also because the enterprise serves as a primary change agent within the institution and the industry. This methodology introduced new factors that the survey results suggest may impact the operation of the enrollment management enterprise and the leadership of the units that make up the enrollment management team.

Future research could explore the variety of respondent, work and institutional characteristics that were captured here, notably the impacts of institutional selectivity which

suggested lower levels of engagement among more highly selective institutions, yet high levels of decision participation for that same group.   Elements of decision participation could be more broadly investigated, including the area of facilitating change and what specific activities that term represents. Further information could be collected on the mediating variables including elements of authority, formalization and a more specific understanding of the range of interactions that occur.   Research regarding resource acquisition and deployment would shed additional light on the management and operation of enrollment management systems.

The results of this study suggest that researchers can learn more about American higher education enrollment management efforts through expansion of the models used to support this research. Future studies may build on the factors introduced here or may identify new elements which impact the enrollment management environment. The insights developed from this research can be used to address some of the critical questions which prior models left unanswered. Expansion of the models, to include the operational structure supporting the enrollment management effort, will move the profession's development beyond the tools and techniques for managing student enrollments, shedding light on practices for leading effective enrollment management teams.

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Table 1

Enrollment Management Article Counts by Publication and Topic

Date Published	Admissions	Advising & Transfer	Budget	Data	Financial Aid & Affordability	Industry & Global Trends	Marketing	Public Policy & Access	Retention & Graduation	Management
Enrollment Management Journal (2010-11)										
2011										
Winter		2			1			1	2	1
Fall	4				1			2	1	1
Summer		2		1				2	1	
Spring	1	2						1	1	
2010										
Winter	4	1						1	1	
Fall	3		1					1	1	
Summer	1	1			1	1		1	1	
Spring	2	1			1			2	1	
The Enrollment Management Review (2007-09)										
2009										
Summer				1	3	1	1			
Spring				1					3	
Winter	1		2		1	1	1			
2008										
Fall	1	2	1	1	1			1		
Summer	1					1	1	3	1	2
Spring							6			
Winter	1					4	1			
2007										
Fall		1	1		1	1	1	1		
Summer	2			1		1				2
Spring										1
Winter						1	3			

Table 2

Respondent Profile by Headcount (n = 183)*

Respondent Demographics	#	Respondent Work Statistics	#	Institutional Characteristics	#
Gender	#	Work Area	#	Degree Level	#
Male	64	Admissions/Marketing	38	Two Year	73
Female	114	Enrollment Management	14	Four Year	110
		Financial Aid	25		
Employment		Institutional Research	43	Type	
Full Time	179	Instructional Faculty	2	Public	131
Part Time	2	Other	16	Private	52
		Records	23		
Ethnicity		Student Advising	22	Affiliation	
Hispanic	6			State System	118
Non-Hispanic	168	Time at Institution		Served Population	16
		Less than 3 years	35	Other	45
Race		3 to 5 years	36		
Asian	2	More than 5 years	123	Selectivity	
Black	20			Open Enrollment	93
Other	2	Time in Position		Selective	75
White	152	Less than 3 years	52	Highly Selective	15
		3 to 5 years	40		
Years of Age		More than 5 years	90	Recruitment	
29 or fewer	9			In-state	136
30 to 45	72			National	20
46 to 60	75			On-Line	7
61 or more	26			Regional	21

Note: Total sample is represented (n = 183); however, some participants chose not to respond to some items.

Table 3

Respondent Profile as a Percentage of All Responding to the Survey*

Respondent Demographics		Respondent Work Statistics		Institutional Characteristics	
Gender	%	Work Area	%	Degree Level	%
Male	36%	Admissions/Marketing	20%	Two Year	40%
Female	64%	Enrollment Management	8%	Four Year	60%
		Financial Aid	14%		
Employment		Institutional Research	23%	Type	
Full Time	99%	Instructional Faculty	1%	Public	72%
Part Time	1%	Other	9%	Private	28%
		Records	13%		
Ethnicity		Student Advising	12%	Affiliation	
Hispanic	3%			State System	66%
Non-Hispanic	97%	Time at Institution		Served Population	9%
		Less than 3 years	18%	Other	25%
Race		3 to 5 years	19%		
Asian	1%	More than 5 years	63%	Selectivity	
Black	11%			Open Enrollment	51%
Other	1%	Time in Position		Selective	41%
White	86%	Less than 3 years	29%	Highly Selective	8%
		3 to 5 years	22%		
Years of Age		More than 5 years	49%	Recruitment	
29 or fewer	5%			In-state	74%
30 to 45	40%			National	11%
46 to 60	41%			On-Line	4%
61 or more	14%			Regional	11%
Note: Percents may not sum to 100% due to rounding.					

Table 4					
Engagement in Enrollment Management by Respondent Characteristics Reported as a Percentage of All Respondents Sharing that Characteristic					
Respondent Demographics		Respondent Work Statistics		Institutional Characteristics	
Gender	%	Work Area	%	Degree Level	%
Male	60%	Admissions/Marketing	71%	Two Year	51%
Female	44%	Enrollment Management	85%	Four Year	48%
		Financial Aid	52%		
Employment		Institutional Research	30%	Type	
Full Time	51%	Instructional Faculty	0%	Public	54%
Part Time	0%	Other	25%	Private	41%
		Records	57%		
Ethnicity		Student Advising	46%	Affiliation	
Hispanic	33%			State System	53%
Non-Hispanic	52%	Time at Institution		Served Population	55%
		Less than 3 years	50%	Other	40%
Race		3 to 5 years	58%		
Asian	0%	More than 5 years	49%	Selectivity	
Black	60%			Open Enrollment	49%
Other	0%	Time in Position		Selective	53%
White	51%	Less than 3 years	50%	Highly Selective	40%
		3 to 5 years	50%		
Years of Age		More than 5 years	50%	Recruitment	
29 or fewer	56%			In-state	59%
30 to 45	50%			National	60%
46 to 60	56%			On-Line	57%
61 or more	35%			Regional	62%
Note: Percents may not sum to 100% due to rounding.					

Table 5

Decision Participation by Respondent Characteristics Reported as a Percentage of All Respondents Sharing that Characteristic

Respondent Demographics		Respondent Work Statistics		Institutional Characteristics	
Gender	%	Work Area	%	Degree Level	%
Male	67%	Admissions/Marketing	47%	Two Year	60%
Female	55%	Enrollment Management	71%	Four Year	59%
		Financial Aid	52%		
Employment		Institutional Research	65%	Type	
Full Time	51%	Instructional Faculty	50%	Public	62%
Part Time	50%	Other	75%	Private	54%
		Records	69%		
Ethnicity		Student Advising	50%	Affiliation	
Hispanic	66%			State System	52%
Non-Hispanic	61%	Time at Institution		Served Population	57%
		Less than 3 years	59%	Other	51%
Race		3 to 5 years	57%		
Asian	100%	More than 5 years	60%	Selectivity	
Black	55%			Open Enrollment	58%
Other	0%	Time in Position		Selective	65%
White	62%	Less than 3 years	65%	Highly Selective	67%
		3 to 5 years	58%		
Years of Age		More than 5 years	58%	Recruitment	
29 or fewer	44%			In-state	60%
30 to 45	55%			National	60%
46 to 60	66%			On-Line	57%
61 or more	58%			Regional	62%

Note: Percents may not sum to 100% due to rounding.

Table 6

Required Sample Sizes for Standard and Subset Samples by Mediating Variable

Variable & Variable Category	Group A or B	EM Engaged	Decision Participant	Required sample size	Actual sample size	Incidence Level	Qualification Met
Standard sample							
Baseline	A	Y	Y	10	92	71%	Y
	B	N	Y	10	91	48%	Y
Authority – Round 1			`				
Centralized	A	Y	Y	5	62	69%	Y
	B	N	Y	5	48	54%	Y
Decentralized	A	Y	Y	17	30	73%	Y
	B	N	Y	17	43	42%	Y
Authority – Round 2							
Centralized	A	Y	Y	2	22	68%	Y
	B	N	Y	2	19	58%	Y
Decentralized	A	Y	Y	12	70	71%	Y
	B	N	Y	12	72	46%	Y
Authority – Round 3							
Centralized	A	Y	Y	4	84	69%	Y
	B	N	Y	4	67	55%	Y
Decentralized	A	Y	Y	40	8	88%	N
	B	N	Y	40	24	30%	N
Formalized							
Formal	A	Y	Y	3	65	75%	Y
	B	N	Y	3	50	56%	Y
Informal	A	Y	Y	22	27	59%	Y
	B	N	Y	22	41	39%	Y
Interaction							
High	A	Y	Y	12	54	80%	Y
	B	N	Y	12	54	46%	Y
Low	A	Y	Y	7	38	58%	Y
	B	N	Y	7	37	51%	Y

Note 1. Calculated using Epitools epidemiological calculators by Sergeant (2015) available at http://epitools.ausvet.com.au.

Note 2. Standard Sample refers to the results for the sample before mediating variables were introduced.

	Centralized Authority			Decentralized Authority		
Table 7						
Crosstabs Analyses: Results for Engagement in Enrollment Management & Decision Participation by Mediating Variable: Authority						
Mediating Variable	Centralized Authority			Decentralized Authority		
	Engagement in Enrollment Management (EM)		Decision Making (DM)	Engagement in Enrollment Management (EM)		Decision Making (DM)
Decision Making Level	EM Engaged	Not EM Engaged	Total DM	EM Engaged	Not EM Engaged	Total DM
Round1 - EM Division						
High DM count	43	26	69	22	18	40
% High DM	62.3%	37.7%	100.0%	55.0%	45.0%	100.0%
Low DM count	19	22	41	8	25	33
% Low DM	46.3%	53.7%	100.0%	242%	75.8%	100.0%
Total EM count	62	48	110	30	43	73
% within EM	56.4%	43.6%	100.0%	41.1%	59.9%	100.0%
Round Two - Senior Management						
High DM count	15	11	26	50	33	83
% High DM	57.7%	42.3%	100.0%	62.3%	37.7%	100.0%
Low DM count	7	8	15	20	39	59
% Low DM	46.7%	53.3%	100.0%	46.3%	53.7%	100.0%
Total EM count	22	19	41	70	72	142
% within EM	46.3%	53.7%	100.0%	49.3%	50.7%	100.0%
Round 3 - EM Division & Senior Management						
High DM count	58	37	95	7	7	14
% High DM	61.1%	38.9%	100.0%	50.0%	50.0%	100.0%
Low DM count	26	30	56	1	17	18
% Low DM	53.6%	46.4%	100.0%	94.4%	5.6%	100.0%
Total EM count	67	84	151	24	8	32
% within EM	44.3%	55.7%	100.0%	75.0%	25.0%	100.0%

Table 8

Crosstabs Analyses: Engagement in Enrollment Management & Decision Participation by Mediating Variable: Formalization

Mediating Variable	FORMALIZATION Formalized Environment			FORMALIZATION Non-Formalized Environment		
	Engagement in Enrollment Management (EM)		Decision Making (DM)	Engagement in Enrollment Management (EM)		Decision Making (DM)
Engagement Level	EM Engaged	Not EM Engaged	Total DM	EM Engaged	Not EM Engaged	Total DM
Decision Making Level						
High DM count	49	28	77	16	16	32
% High DM	63.6%	36.4%	100%	50.0%	50.0%	100%
Low DM Count	16	22	38	11	25	36
% Low DM	42.1%	57.9%	100%	30.6%	69.4%	100%
Total EM count	65	50	115	27	41	68
% within EM	56.5%	43.5%	100%	39.7%	60.3%	100%

Table 9

Crosstabs Analyses: Engagement in Enrollment Management & Decision Participation by Mediating Variable: Interaction

Mediating Variable	Interaction High Levels of Interaction			Interaction Low Levels of Interaction		
	Engagement in Enrollment Management (EM)		Decision Making (DM)	Engagement in Enrollment Management (EM)		Decision Making (DM)
Engagement Level	EM Engaged	Not EM Engaged	Total DM	EM Engaged	Not EM Engaged	Total DM
Decision Making Level						
High DM count	43	25	68	22	19	41
% High DM	63.2%	34.0%	100.0%	53.7%	46.3%	100.0%
Low DM Count	11	29	40	16	18	34
% Low DM	27.5%	72.5%	100.0%	47.1%	52.9%	100.0%
Total EM count	54	54	108	38	37	75
% within EM	50.0%	50.0%	100.0%	50.7%	49.3%	100.0%

Figure 1

Population Pyramid for Engagement and Decision Scores
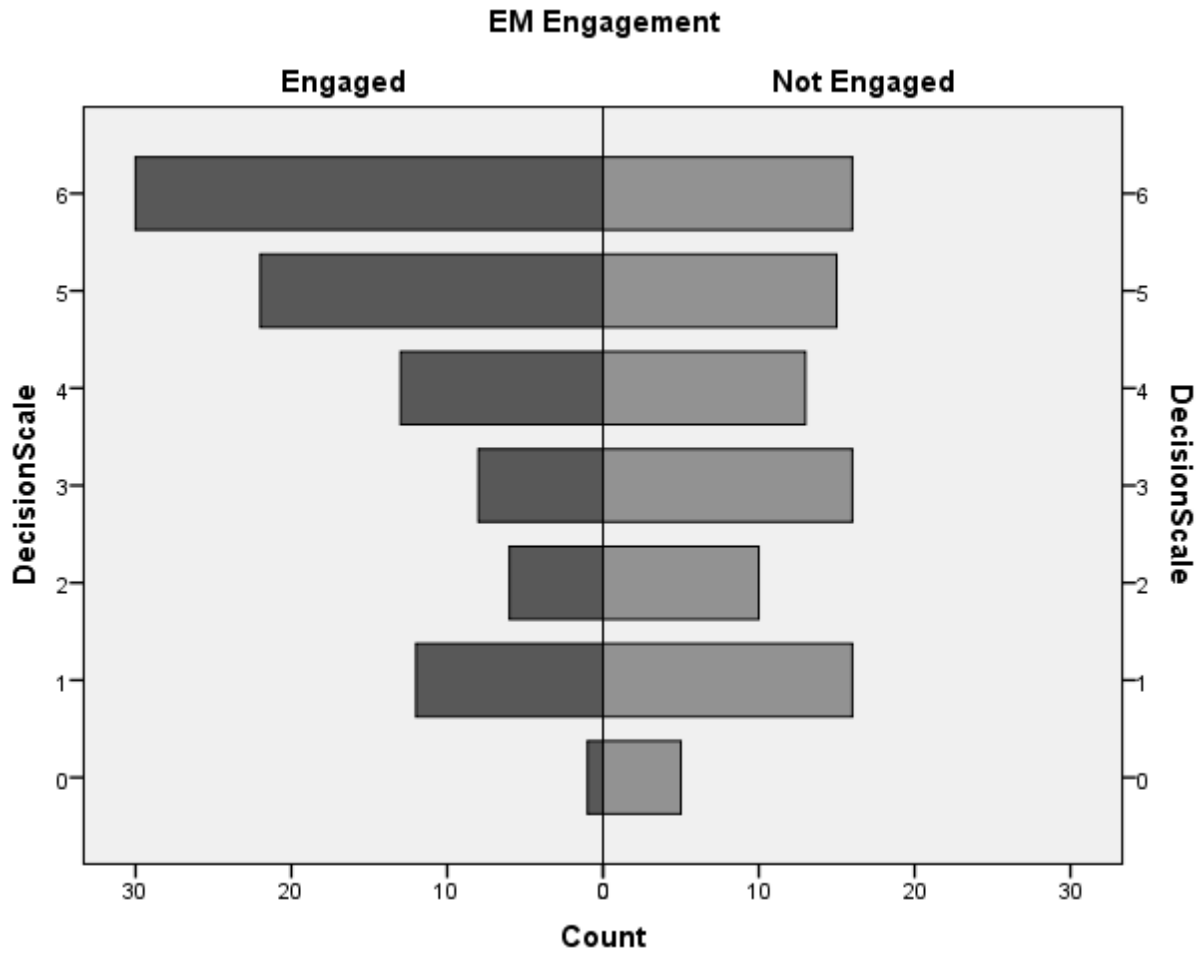
Figure 2

Histogram of Respondents' Decision Participation Scores

Mean = 3.81
Std. Dev. = 1.89
N = 183
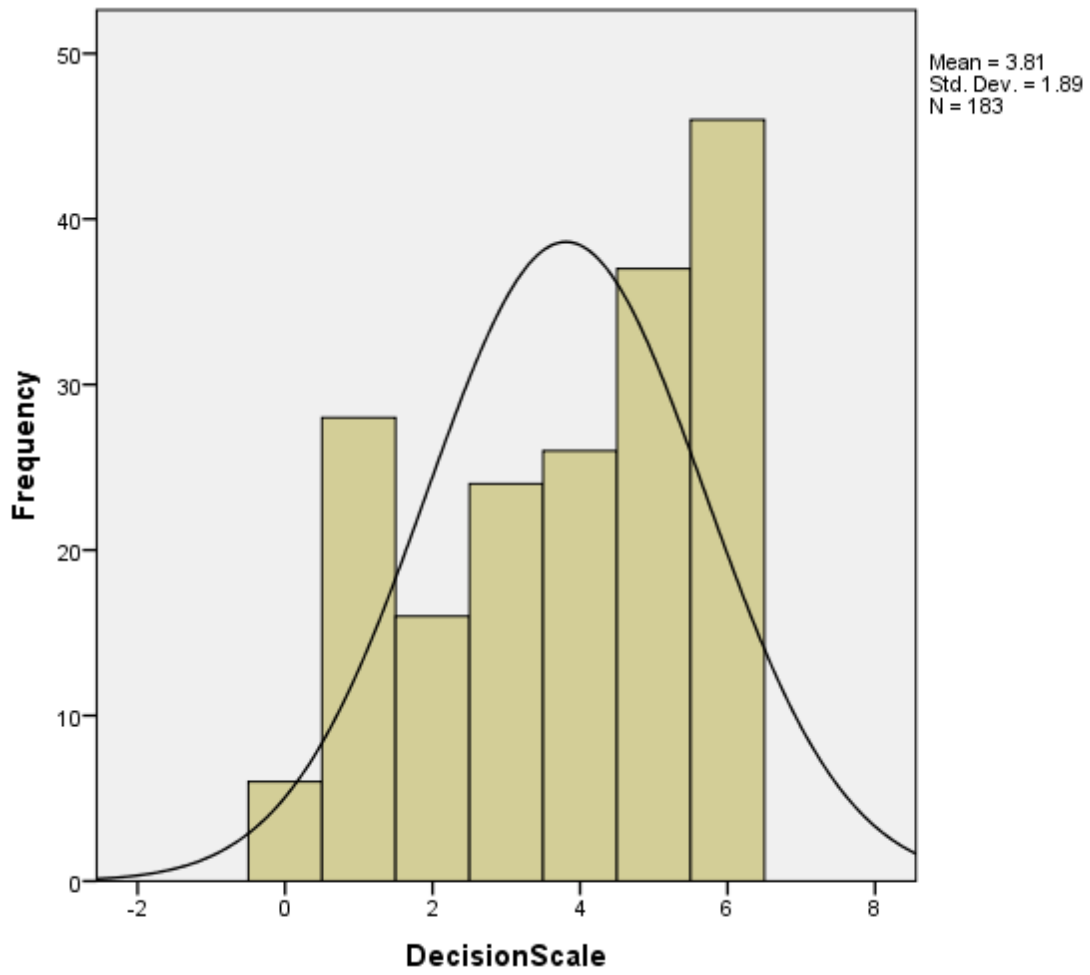
Figure 3

Histogram of Respondents' Formalization Scores
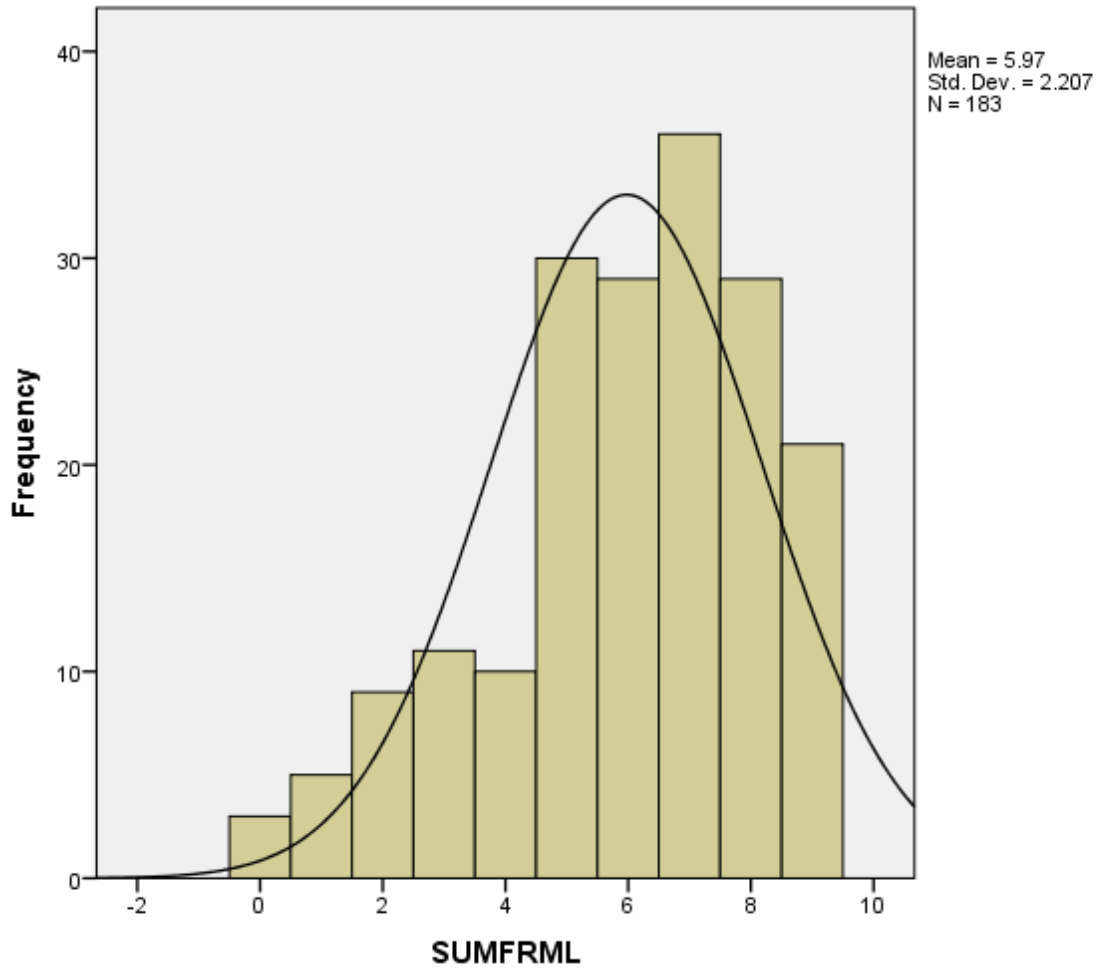
Figure 4

Histogram of Respondents' Interaction Scores
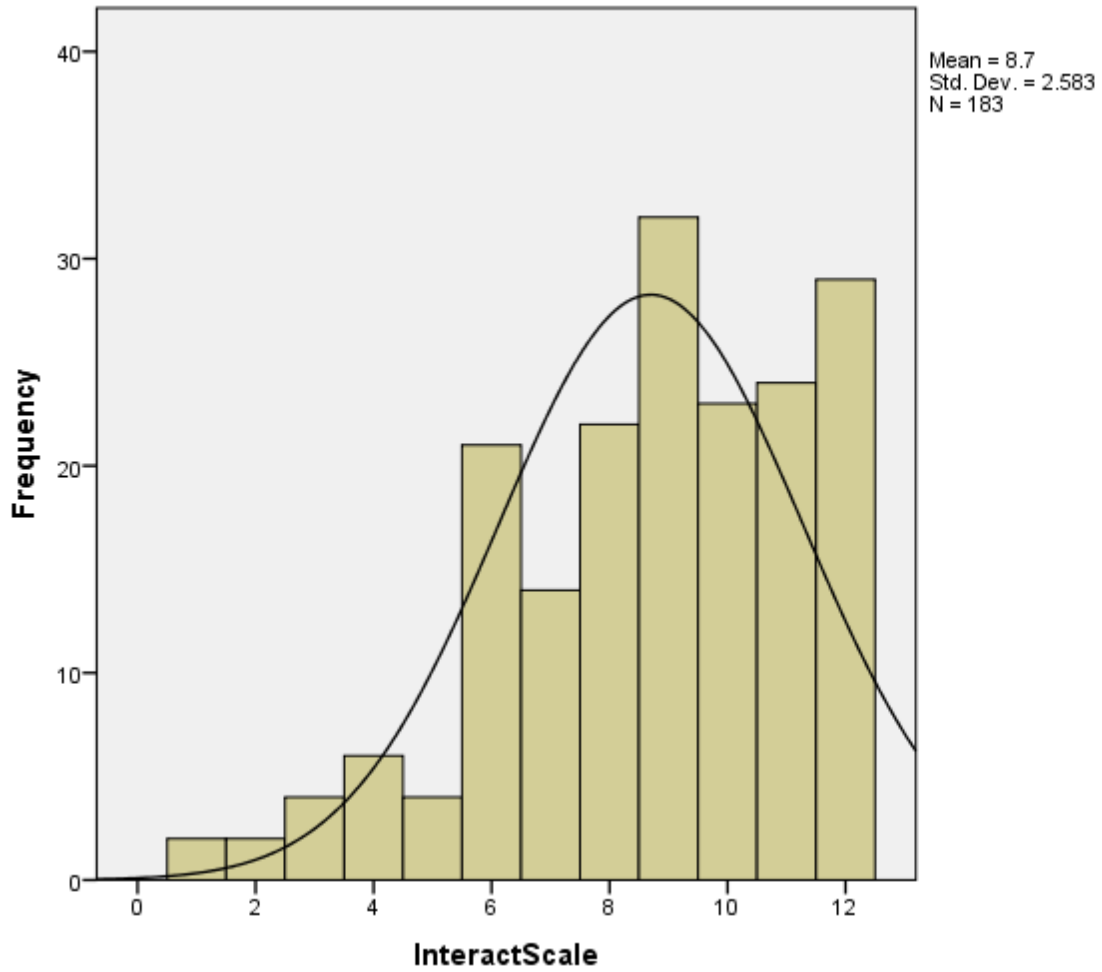
Appendix A

Survey Instrument

Thank you for your participation in this survey. The survey should take about 10 minutes to complete. You can track your progress through the survey using the bar which appears…

For the following set of questions please select the <u>ONE</u> answer that best describes the situation at your current institution.

1. My primary work assignment is in the area of:

- o Admissions or Marketing

- o Financial Aid

- o Records or Registration

- o Enrollment Management

- o Student Advising

- o Institutional Research

- o Instructional Faculty/Staff

- o Other

2. My current position is:

- o Senior management (i.e. Dean or VP)

- o Administrative director or manager

- o Administrative staff member

- o Academic director, manager or faculty

- o Other

3. My direct supervisor is:

- o President of the College

- o Senior management (i.e. Dean or VP)

- o Director or manager

- o Other

4. My institution has had an organized Enrollment Management effort for:

- 10 years or more

- 6 to 9 years

- 2 to 5 years

- Less than 2 years

- No organized enrollment management effort

- Not sure how long

5. My institution's Enrollment Management Plan can best be described as follows:

- A formal written plan

- A set of enrollment goals with no written plan

- A general enrollment effort with no set goals

- No enrollment management plan

- Not sure

6. Enrollment Management at my institution is led by:

- Enrollment Management Division director/dean/vp

- Senior manager in Academic Affairs

- Senior manager in Student Services

- Formal committee appointed by the President

- A designated coordinator or other individual

- No formal leadership

- Not sure

7. The resources that support Enrollment Management represent:

- New funds, new staff or technical support dedicated to enrollment management

- Funds, staff or technical support redirected from other units

- Both new and redirected funds, staff or technical support

o N/A or Not sure

8. My work connects me to ACADEMIC UNITS with the following frequency:

   o Daily

   o Weekly

   o Monthly

   o Less often than monthly

   o No connection

9. My work connects me to INSTRUCTIONAL FACULTY/STAFF with the following frequency:

   o Daily

   o Weekly

   o Monthly

   o Less often than monthly

   o No connection

10. My work connects me to STUDENT SERVICES UNITS with the following frequency:

    o Daily

    o Weekly

    o Monthly

    o Less often than monthly

    o No connection

11. My work connects me to ADMINISTRATIVE UNITS with the following frequency:

    o Daily

    o Weekly

    o Monthly

    o Less often than monthly

o   No connection

12. Over the past three years, the amount of control I exercise over my work product has:

   o   Increased

   o   Decreased

   o   Remained the same

   o   No control exercised

13. Over the past three years, the amount of information/data I receive about other work units has:

   o   Increased

   o   Decreased

   o   Remained the same

   o   No information received

14. Over the past three years, the amount of information/data I provide to other work units has:

   o   Increased

   o   Decreased

   o   Remained the same

   o   No information provided

15. In my current position, I am directly involved in SETTING GOALS for:

   o   Both the institution and my work area

   o   The institution only

   o   My work area only

   o   Not involved

16. In my current position, I am directly involved in SOLVING PROBLEMS for:

   o   Both the institution and my work area

   o   The institution only

   o   My work area only

o Not involved

17. In my current position, I am directly involved in FACILITATING CHANGE for:

    o Both the institution and my work area

    o The institution only

    o My work area only

    o Not involved

18. In my current position, I am directly involved in CREATING POLICIES or DECISION OPTIONS for:

    o Both the institution and my work area

    o The institution only

    o My work area only

    o Not involved

19. In my current position, I am directly involved in STRATEGIC PLANNING for:

    o Both the institution and my work area

    o The institution only

    o My work area only

    o Not involved

For the next six questions, please SELECT ALL that apply:

20. I support Enrollment Management efforts at my institution:

    o As the director of my work area

    o As a member of an Enrollment Management Division

    o As a member of a Formal Committee for enrollment management

    o As an advisor or consultant (not a member) of a Formal Committee

    o As a member of an enrollment management Work Group/Team

    o As a participant to informal discussions about enrollment

o Not involved in enrollment management

21. The following stakeholders participate in setting Enrollment Goals for my institution:

   o Directors of various work areas

   o Dean/VP or Director responsible for enrollment management

   o A Formal Committee for enrollment management

   o Enrollment management Work Group/Team

   o Institutional Research or other data unit

   o Instructional Faculty/Staff

   o President of the College

   o Senior management team/President's Cabinet

   o Board of Trustees/System Office

   o Other

   o N/A or Not sure who participates

22. The Work Group for enrollment management includes the following units:

   Admissions or Marketing

   o Financial Aid

   o Records or Registration

   o Enrollment Management

   o Student Advising

   o Institutional Research

   o Instructional Faculty/Staff

   o Other

   o N/A or Not sure who participates

23. The function of the Work Group is to:

- o Follow instructions about enrollment management goals and policies

- o Identify problems related to enrollment management efforts

- o Produce data related to enrollment management activities and outcomes

- o Report to senior leadership about enrollment management activities

- o Solve problems related to enrollment management activities

- o Make decisions about enrollment management goals and policies

- o Coordinate enrollment management activities

- o N/A or Not Sure

24. My participation in Enrollment Management activities includes:

- o Follow instructions about enrollment management goals and policies

- o Identify problems related to enrollment management efforts

- o Produce data related to enrollment management activities and outcomes

- o Report to senior leadership about enrollment management activities

- o Solve problems related to enrollment management activities

- o Make decisions about enrollment management goals and policies

- o Coordinate enrollment management activities

- o N/A or Not Sure

25. The development of Enrollment Management at my institution has involved changes in reporting relationships for personnel in the following areas:

- o Admissions or Marketing

- o Financial Aid

- o Records or Registration

- o Student Advising

- o Student Instruction

o Institutional Research

o Other

o N/A or Not sure who participates

26-31. The characteristics of my institution are as follows:

26. Degree-level: o Two year   o Four year   o Four year w large grad student population

27. Type of institution: o Public   o Private, non profit   o Private, for profit

28. Undergraduate enrollment: o Less than 5,000   o 5000 to 15,000   o More than 15,000

29. Selectivity: o Highly selective o Selective   o Open enrollment

30. My institution is characterized as:

   o Part of a State System   o Religious Affiliated   o Historically Black/Hispanic Serving   o Other

31. Most student enrollments are: o On-line o In-state   o Regional, Multi-state   o National

30-37.   The characteristics that best describe me are:

30. Employment :   o Full Time   o Part Time

31. Gender: o Male   o Female

32. Ethnicity: o Hispanic   o Non-Hispanic

33. Race: o Asian   o Black   o White   o Other

34. Age :   29 or fewer years   30 to 45 years   46 to 60 years   61 or more years

35. Level of education:

  o Bachelors   o Bachelors w additional credential o Masters   o Doctorate   o Other

36. I have worked in my current position for: o Less than 3 yrs   o 3 to 5 yrs   o More than 5 yrs

37. I have worked for my current institution: o Less than 3 yrs   o 3 to 5 yrs   o More than 5 yrs

Thank you for your participation in this survey!

Appendix B

Variable Coding Guide

Independent Variable

Engagement in enrollment management is coded dichotomously as formally engaged (1) or not formally engaged (0). To be classified as engaged in enrollment management, a respondent meets two criteria: a) association with enrollment management through a formal structure (Question 20) and b) active engagement in enrollment management (Question 24). Qualifying responses are shown in bold face type.

Question 20
I support Enrollment Management efforts at my institution:
- As the director of my work area
- **As a member of an Enrollment Management Division**
- **As a member of a Formal Committee for enrollment management**
- As an advisor or consultant (not a member) of a Formal Committee
- As a member of an enrollment management Work Group/Team
- As a participant to informal discussions about enrollment
- Not involved in enrollment management

Question 24
My participation in Enrollment Management activities includes:
- Follow instructions about enrollment management goals and policies
- **Identify problems related to enrollment management efforts**
- **Produce data related to enrollment management activities and outcomes**
- **Report to senior leadership about enrollment management activities**
- **Solve problems related to enrollment management activities**
- **Make decisions about enrollment management goals and policies**
- **Coordinate enrollment management activities**
- N/A or Not Sure

Dependent Variable

Participation in decision making is coded dichotomously as high (1) or low/no (0) based on a respondent's level of participation. To be classified as participating a respondent meets one criteria: scoring at or above both the mean and the median on the decision participation scale. The decision participation scale, which ranges from 0 to 5 points, is comprised of responses to five survey items, Question 12 and Questions 15-19. One or no points are awarded for each question, as shown below.

Question 12   Point score

Over the past three years the amount of control I exercise over my work product has:
- Increased   1
- Decreased   0
- Remained the same   1
- No control exercised   0

Questions 15-19   Point score

Q 15. In my current position, I am directly involved in SETTING GOALS* for:
- Both the institution and my work area   1
- The institution only   1
- My work area only   0
- Not involved   0

*Q 16 SOLVING PROBLEMS; Q17 FACILITATING CHANGE; Q 18 CREATING POLICIES
OR DECISION OPTIONS; Q19 STRATEGIC PLANNING

Mediating Variables

Authority

Centralized authority is coded dichotomously as centralized (1) or decentralized (0). The response options shown in bold face type represented centralized authority. All other responses were coded as decentralized.

Question 6

Enrollment Management at my institution is led by:
- **Enrollment Management Division director/dean/vp**
- **Senior manager in Academic Affairs**
- **Senior manager in Student Services**
- Formal committee appointed by the President
- A designated coordinator or other individual
- No formal leadership
- Not sure

Formalization

Formalization was coded dichotomously as higher levels of formalization (1) or lower levels of formalization (0). A scale was developed using Question 4-6 and the point structure shown below and Respondents were placed into two groups based on the median and the mean of the scores on the scale which could range from 0 to 9 points.

Question 4   **Point Score**

My institution has had an organized Enrollment Management effort for:
- 10 years or more   3
- 6 to 9 years   2
- 2 to 5 years   1
- Less than 2 years   0
- No organized enrollment management effort   0
- Not sure how long   na

Question 5.

My institution's Enrollment Management Plan can best be described as follows:
- A formal written plan   3
- A set of enrollment goals with no written plan   2
- A general enrollment effort with no set goals   1
- No enrollment management plan   0
- Not sure   na

Question 6.

Enrollment Management at my institution is led by:
- Enrollment Management Division director/dean/vp   3
- Senior manager in Academic Affairs   3
- Senior manager in Student Services   3
- Formal committee appointed by the President   2
- A designated coordinator or other individual   1
- No formal leadership   0
- Not sure   na

Interaction

Participant interaction is coded dichotomously as higher levels of interaction (1) or lower levels of interaction (0). To be classified as highly interactive a respondent meets one criteria: scoring at or above both the mean and the median on the interaction scale. The interaction scale, which ranges from 0 to 16 points, is comprised of responses to four survey items, Questions 8 -11. Point values, ranging from 0 to 4 points are awarded for each question, as shown below

Question 8   **Point Score**

Q8. My work connects me to ACADEMIC UNITS* with the following frequency:
- Daily   4
- Weekly   3
- Monthly   2
- Less often than monthly   1
- No connection   0

*Q9 INSTRUCTIONAL FACULTY/STAFF; Q10 STUDENT SERVICES UNITS; Q11 ADMINISTRATIVE UNITS