

College and University Journal

VOLUME 87 NO 14

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Editor's Note

David Kalsbeek, DePaul University, returns with Part II of his reflections on Strategic Enrollment Management (SEM) strategies and structures. In this issue he defines four orientations to SEM, uses each orientation as a lens to analyze an enrollment management challenge, and looks at four additional SEM orientations to compare and contrast how each could be used to frame a SEM issue.

Is gender a predictor of success in beginning college mathematics courses? C. Van Nelson, Ball State University, and Krystina K. Leganza, University of Indianapolis, examine this question in a study conducted at a mid-size state university and a private liberal arts college with students enrolled in non-remedial college freshman mathematics classes.

Approximately 50 percent of students entering graduate school will complete degree requirements, so what are the best predictors of success in graduate school? Joan L. Anderson, Washington State University, uses two statistical models—multiple regression and artificial neural networking—to compare statistical techniques and determine which combination of admissions criteria best predict success in graduate school.

Thomas LoBasso, Daytona Beach Community College, examines how enrollment management models have developed at community colleges in Florida, demonstrating that even within one state the enrollment management organization can be shaped in a variety of ways.

Many of us have our favorite film genres including action-adventure films, horror movies, or “chick flicks,” but Patricia Somers, University of Texas at Austin, Kristy Tucciarone, St. Louis Community College—Meramec, Jan Austin, University of Arkansas at Little Rock, Barbara Keene, University of Missouri—St. Louis, Gwen Deloach Packnett, University of Missouri—St. Louis, and Laura Stoll, University of Missouri—Rolla have been viewing the college choice film genre to determine how closely films about college choice and the admissions process compare to research theory about college choice.

Brad Burch interviews Jim Black, who is a well-known speaker, writer, practitioner, and consultant in enrollment management. Jim shares his wisdom about enrollment management, leadership, emerging technologies, customer service, and future trends.

In the Forum section, Travis Reindl, American Association of State Colleges and Universities (AASCU) presents two pol-

icy analyses. The first discusses trends in higher education staffing; the second shows the need to address achievement gaps in the areas of math and science.

Don Bunis stresses the importance of the “human element” in developing the potential in every employee.

Olin L. Adams III and David M. Shannon, Auburn University, describe the escalating costs of higher education, the pressure to control costs, and strategies for cost control.

Daryl E. Chubin and Shirley M. Malcom, American Association for the Advancement of Science, describe the new backlash on campus that has resulted in the weakening of diversity initiatives and offer proactive measures that enrollment managers can take to reverse this trend.

Kennesaw State University has developed a High School Guidance Counselor Service Center, which allows guidance counselors real-time information on all applicants from their high school. Joe F. Head and Thomas M. Hughes share the development of this service.

Robert Legutko, DeSales University, surveyed a group of students admitted under an alternate admission option at a private four-year commuter institution to determine if there were differences in the cumulative grade point averages, retention, or graduation rates of regularly-admitted students and alternate admission option students.

Bill Paver, EDGE Project Director, and Dale Gough, AACRAO International Education Services (IES) describe the Electronic Database for Global Education (EDGE), a new Web-based resource for international education credential evaluators.

Mary Baxton, California State University, Northridge, writes about the Bologna Process and the challenges faced by institutions trying to find a fair way to evaluate the three-year undergraduate degree.

Barbara Lauren, AACRAO, reviews *Critical Issues for Student Affairs: Challenges and Opportunities*, written by Arthur Sandeen and Margaret J. Barr. Paul Marthers, Reed College, reviews *Aiding Students, Buying Students: Financial Aid in America* by Rupert Wilkinson.





Some Reflections on SEM Structures and Strategies

(Part Two)

This article is the second in a series of pre-conference papers prepared for participants at AACRAO's Fifteenth Annual Strategic Enrollment Management Conference (SEM XV), held November 13–16, 2005 in Chicago, Illinois.

by David H. Kalsbeek

Exploring the Heuristic Value of the Four Orientations: Applications to a Particular Enrollment Management Problem

The first of this three-part series of reflections began with the story of a meeting of (fictional) Alpha University officers and trustees discussing enrollment management. In that vignette, the perceptions, preoccupations, and preferences voiced by each participant reflected one of what were subsequently described as four broad orientations to Strategic Enrollment Management (SEM), each framing how SEM is conceived, defined, organized, implemented, and evaluated. These four orientations to enrollment management (EM) are:

- The Student-Focused Orientation
- The Administrative Orientation
- The Academic Orientation
- The Market-Centered Orientation

In this second article, we begin by asking: Is it possible to apply these four broad orientations to a specific enrollment-related challenge? Does this four-fold construct have heuristic utility, whereby each orientation frames our understanding of issues, challenges, opportunities, and strategies that otherwise might not surface? Does each of the alternative orientations challenge assumptions and spark new insights about how to address a particular EM challenge or opportunity? If, as has been suggested, each orientation focuses attention on some areas while diffusing focus on others, can a particular enrollment issue be conceptualized and assessed more comprehensively by deliberately comparing and contrasting how each of these four orientations would address that issue?

Let us revisit the president's cabinet meeting. This time the problem presented to the leadership of Alpha University involves how to develop an institutional response to improving student persistence and graduation rates—in other words, to address *retention*.

Many institutions find it difficult to define, refine, and focus their retention strategy, as is often the case with outcomes conceived and described as “campus-wide responsibilities” (as retention so often is). Can a preferred institutional approach to retention strategy be developed by systematically and sequentially viewing retention through each of the four filters or orientations outlined in Part One?

STUDENT-FOCUSED

A student-focused approach to retention is common at American colleges and universities; many of the tactical approaches to improving student retention reflect this orientation. Such an approach often starts with the individual student's profile—that is, by defining the ‘at-risk’ student, and recognizing that early identification of a dropout-prone student often allows for early intervention. Attrition is seen to be a function of the students' personal characteristics that put them ‘at-risk.’ These may include their level of academic preparedness, financial status, some demographic attribute, or their career goals. Tinto's early models of student attrition focus on the congruence of the individual student (background, aspirations, expectations, etc.) with the institutional environment, particularly its academic and social climate. When there is not sufficient fit or integration between the person and the environment, attrition is the outcome. The unique profile of the student thus is the starting point in the equation.

The student-centered orientation to SEM defines retention and attrition in terms of the individual student's personal experiences, choices, and “fit,” and seeks to improve retention on a student-by-student basis. This is seen in student advocacy programs, personalized advising, and targeted outreach to students demonstrating attrition-prone behaviors (*e.g.*, missing classes, dropping classes, failing courses, defaulting on payment plans, etc.). The retention focus is on the profile of the *person*.

ADMINISTRATIVE

Another approach to the retention challenge is to repair any core *processes* that contribute to attrition and to develop processes that encourage student persistence. The focus is not on individual students deemed “at risk” but rather on processes—specifically, creating opportunities for retention intervention through the on-going routine processes of student enrollment. Creation of a one-stop service center is a typical retention intervention reflecting an administrative orientation. It is designed not only to streamline certain processes for all students (and to create efficiencies for the institution), but also to create opportunities for effective retention intervention through the integration of processes and services.

For example, when registration, billing, and financial aid functions are housed at a single location, a student withdrawing for financial reasons from all his courses can be identified immediately and assisted by financial counselors in ways not possible when the registrar and aid functions and/or personnel are not in close physical proximity. The overarching premise of an administrative orientation to retention is that improving the processes that underlie every student’s experience removes barriers that may cause some students to drop out while improving students’ satisfaction.

ACADEMIC

The academic perspective on EM defines retention as *academic progress*. Cliff Adelman’s research has called attention to the often-overlooked fact that most retention studies focus on measuring *persistence* over time rather than *progress* toward degree. Adelman calls upon EM leaders to recognize that students who persist into a second year but who fail to make satisfactory progress toward a degree have gained little and in fact may have lost a great deal in opportunity costs, aid eligibility, and so on. Nevertheless, such students are counted by most institutions as a retention success, because the traditional retention metric is term-by-term persistence, not progress. If the academic goal is degree completion, then an academic orientation to retention focuses attention primarily on ensuring students’ academic progress. Strategies include broad educational planning that integrates students’ academic, career, and financial plans into a comprehensive, sequential path to graduation. An academic orientation thus supports the development of specific programs and interventions that facilitate all students’ pursuit of a degree.

Supplemental instruction (SI) is another example of a retention-focused tactic for ensuring students’ academic progress; the objective is to improve students’ grades in ‘high-risk’ courses. There is a non-trivial distinction between focusing on ‘high-risk’ courses versus ‘at-risk’ students, as in the student-focused orientation. An academic orientation focused on degree completion also would investigate curricular and course scheduling alternatives that would facilitate students’ optimal progress, to include developing solutions for students proceeding at a pace inadequate for timely degree completion.

MARKET-CENTERED

Finally, a market-centered approach to retention strategy offers a very different (and two-fold) perspective. First, it orients institutional attention to the inherent predictability of retention and graduation rates as a function of the institution’s market *profile* and market *position*. If, as is the case, an institution’s retention and graduation rates can be predicted precisely by factors related to its enrollment and academic and financial profile, then any discussion of retention strategy must be framed within the boundaries of the institution’s market position and profile. Robert Zemsky, for example, captures in a convenient shorthand the dramatic differences between institutions which, in his scheme, range from national, prestigious *medallion institutions* to local, accessible, *convenience institutions*. Retention and graduation rates are seen as institutional attributes rather than as an achievement; they are both a function and a reflection of the institution’s academic, financial, and enrollment profile; as such, they are highly predictable.

Every EM leader can recount discussions with board members, presidents, deans, and faculty about how their institution’s retention and graduation rates fail to compare favorably with another institution’s, even as they fail to account for wide-ranging differences in student and institutional profile that, in effect, determine those retention rates. Alexander Astin has pointed out that the key to assessing an institution’s retention success is not its simple rates of persistence and completion, but rather the “value-added” performance in achieving success rates above what would be predicted for that institution given its market profile. Astin’s view reflects a market-centered orientation.

Second, the market-centered perspective provides insight into the *brand promise*. In both the student-focused and administrative orientations, the focus tends to be on improving retention by increasing each individual student’s satisfaction. A market-centered orientation identifies the gap between the brand promise and the student experience as the key to retention. A market-centered perspective affirms that students enroll with a sense of the institution’s brand promise—that their enrollment is a function of their assessment, however accurate or sophisticated, of how that brand promise meshes with their own goals, values, and aspiration. Understanding, clarifying, differentiating, and ultimately delivering that brand promise together constitute the marketing agenda. Even as Tinto suggests that retention is the outcome of an alignment of student expectations and aspirations with the academic and social environment of an institution, so a market-centered perspective focuses on how the reality of student experience aligns with the institution’s brand. The student/environment “fit” described in Tinto’s theory thus can be understood as realizing the institution’s brand promise.

SUMMARY

Using each of these four orientations to frame an institution's retention strategy brings alternative issues and insights to the surface, defines the nature of the challenge in distinct ways, and provokes thinking about a range of possible responses and solutions; therein lies their heuristic value. A student-centered perspective may focus on interventions designed to support the individual *person* who is at risk of attrition. An administrative orientation focuses more on improving and integrating the general *processes* that often hinder student persistence. An academic orientation focuses on academic *progress* rather than persistence, developing systemic solutions that support student learning and timely degree completion. Finally, a market-centered orientation starts with the reality that the institution's *profile* is predictive of retention and graduation rates; any strategy for improving those rates must begin with an understanding of how they relate to and reflect certain core, elemental attributes of the institution. A market-centered orientation also shifts the retention dialogue to one of ensuring that each student's experience is consonant with the institution's brand and so realizes the brand *promise*.

Exploring the Heuristic Value of the Four Orientations: Further Comparisons and Contrasts

Part One of this series offered a brief description and comparison of each of these four basic orientations to SEM. It was suggested earlier in the text that each orientation may be defined and differentiated further by exploring the distinctive ways in which each addresses and illuminates a particular issue. Retention strategy thus was used to help clarify and contrast the various orientations to SEM.

In the section that follows, four additional elements of any EM effort are used to compare and contrast the four orientations:

- What are the intended outcomes of an EM strategy?
- How does EM view the student?
- What functions should be in the EM organizational structure?
- What is the EM research agenda?

WHAT ARE THE INTENDED OUTCOMES OF AN EM STRATEGY?

One defining characteristic of EM is that it is inherently goal-oriented. A hallmark of EM's evolution is the ever-broadening range of goals and objectives it is expected to achieve and balance. Does each of the four orientations frame the primary outcomes of successful EM differently? Does each define and delineate outcomes according to its unique emphases and priorities?

Student-focused

Twenty years ago, the primary outcome of a student-focused strategy might have been student satisfaction. Assessed

through surveys, that satisfaction ultimately would be reflected in measures such as higher retention rates and greater institutional affinity of alumni. Yet even as the processes encompassed by and integrated within the administrative orientation to SEM have broadened over the years, so the elements of the student experience addressed through a student-focused orientation have broadened. For example, student outcomes now include the "quality of student engagement in learning." The emergence of the National Survey of Student Engagement (NSSE) for assessing the nature of the student experience is evidence of the value educators find in better understanding students' behaviors and activities as well as the quality and quantity of student experiences. Student *engagement* (from initial contact through recruitment and admissions, orientation, career and academic planning, extracurricular involvement, and persistence to degree) and student satisfaction are the essential outcomes of a student-focused orientation to SEM.

Administrative

An administrative orientation is the most *internally-focused* of the four SEM orientations. It is concerned primarily with the processes and functions managed by the institution to effect enrollment goals. Even regarding those processes that deal with external audiences (*e.g.*, student recruitment, marketing communications), an administrative orientation focuses attention on the institution's management and integration of those processes and on achieving optimal returns on investment in those activities. Consequently, the primary outcomes valued by this orientation are the *efficiencies* and *effectiveness* of the university's enrollment-related processes; primary focus accordingly will be given to return on investment (ROI) measures, performance ratios, Key Performance Indicators (KPIs), and process metrics.

Academic

For this orientation, the intended outcome of EM is *enriching* the academic experiences of faculty and students alike, through shaping the overall student profile, the level of student preparedness, the degree of student progress, and the outcomes of student learning. More broadly, an academic orientation to SEM defines its outcomes in terms of enriching the educational contributions of higher learning to a community, region, industry, profession, or society. Unlike administrative and student-centered approaches, an academic orientation focuses on a broadly defined 'greater good' and the outcomes of EM are framed in terms of very broad academic aspirations. The focus of an academic orientation is not solely on the enrichment of student learning; rather, it extends to include the enrichment of the academic environment and academic programs—in short, the entire academic experience—through enrollment strategies that shape the profile, the process, and the product of the academic programs of an institution or a system.

Market-centered

In this orientation, the overarching purposes of EM strategy are realized in terms of institutional market position. The most *externally-focused* of the four SEM orientations, the outcomes are similarly externally oriented, and include, among other things, market position, market share, market presence, and perceived market value. This orientation affirms that traditional definitions of EM's goals (e.g., selectivity, access, diversity, quality, net revenue, etc.) are not so much goals in themselves as they are the reflection of the institution's competitive market position and profile. EM goals and outcomes are linked primarily to *elevating* and *enhancing* the institution's market position and leveraging its brand.

HOW DOES EM VIEW THE STUDENT?

It seems odd to explicitly consider alternative views of the student, given that EM is fundamentally about the enrollment of students. But much of the prevailing critique of contemporary higher education implies that the emergence of EM is one indication of how educators have lost their focus on students. Because each orientation approaches SEM from a distinctly different point of view, there is value in considering how their fundamental biases and preferences frame in distinct ways the basic role of the student in the EM strategy.

Student-focused

Embracing students in all of their individuality is the defining feature of the student-focused orientation. The student is not defined merely through her enrollment transactions, nor solely in terms of her academic learning outcomes. Rather, the student is considered holistically, as having a complex, particular, uniquely individual range of personal needs, characteristics, aspirations, qualities, etc. Hence the concern with a wide range of services, all in response to students' highly individualized needs.

Administrative

Because the primary focus in this orientation is on managing the processes of student enrollment, students are likely to be defined as the customers to be served and supported by its various processes. If EM is viewed, as Maguire suggested in the earliest definition of EM, as managing students' movement to, through, and out of the institution, then the student is defined via those processes and transitions—for example, as information seekers, campus visitors, admission applicants, placement testers, course registrants, book purchasers, grade recipients, need-based aid recipients, bill recipients, accounts receivable, transcript requestors, loan defaulters, degree audits, etc.

Academic

The academic orientation focuses primarily on the student as a learner—as a student—rather than as a consumer or as a recipient of services. Attention to student services focuses on those that support the learning process. Everything is sec-

ondary to academic success, student learning, and enriching the academic experience for all who study and teach at the institution. As a result, the student is the beneficiary of the academic product and learning process.

An alternate perspective suggested by the academic orientation is that the student is not the beneficiary but in fact is himself the product of the educational process. Unlike administrative and student-centered perspectives, the academic orientation shifts attention to educational outcomes provided for the benefit of specific industries and employers, local communities, regions, states, and society at large. Academic institutions create knowledge and provide an educated citizenry and workforce for an increasingly knowledge-based economy. In such a perspective, the educated student is the product of the enrollment management process.

Market-centered

In traditional marketing efforts, students are often defined as consumers, confronting various options as to how to meet their needs for higher education and career advancement, and being the target of a barrage of institutional marketing tactics. But a market-centered approach brings a broader perspective, with the student as a representative of an audience or a market segment that the institution seeks to reach, penetrate, and influence. In that sense, as Zemsky's typology clearly outlines, the attributes of the collective student body constitute the defining metrics of market position. Measures of the quality, diversity, affluence, characteristics, and success of an institution's students are the industry shorthand for institutional quality and prestige.

More broadly still, the student is the embodiment of the brand, with the distinct qualities, aspirations, values, and outcomes of students and alumni constituting the institution's brand manifest. The student's choice as to where to enroll reflects the perceived values and promise of the brand; the collective profile of the student population further defines the brand and positions it in the market.

WHAT FUNCTIONS SHOULD BE IN THE EM ORGANIZATIONAL STRUCTURE?

This series of reflection papers was prepared in response to a question about alternative approaches to organizing for SEM. While there is no uniformly adopted organizational model for SEM, the differences that exist between and among structural models are illustrative of distinctive orientations to SEM; conversely, fundamental orientations may lead to preferences for certain organizational structures.

Student-focused

When EM focuses on the student experience, the structures that result seek to build organizations that integrate all the institution does in the care and support of the individual. The range of traditional EM functions that would be part of such an agenda—admissions, financial aid and registrar—would be aligned with a wide array of student services; the goal would

be an integration of the student experience rather than an integration of enrollment processes *per se*. The functions in a student-centered structure likely would include student orientation, advising, financial planning and counseling, health services, counseling services, career development, campus ministry, residence life, student organizations, and campus activities.

This orientation focuses in a highly individualized way on the idiosyncratic needs of students and highly particularized student groups. While an administrative orientation is concerned with organizing the enrollment processes (registration, billing) for all students, a student-centered orientation tends to organize in a way that differentiates services by student characteristics. The structure of the organization may be distinguished by an array of special services developed for international students, minority students, commuter students, adult students, disabled students, athletes, freshmen, transfer students, and so on.

Many institutions have successfully developed an EM structure and strategy that reflects a student-centered orientation. For example, Northeastern University has merged traditional divisions of student affairs and enrollment management into a strategically integrated and student-centered SEM effort.

Administrative

In the administrative orientation, SEM seeks to develop structures and strategies that achieve greater integration and intentionality in the processes that directly shape an institution's enrollment. The overarching purpose is to deliver optimal efficiencies and effectiveness—for the student as well as for the institution. Toward that end, the functional alignments characteristic of an administrative orientation to an EM organization naturally include processes related to recruitment and admissions, financial aid and bursar functions, campus bookstores, course registration, interinstitutional transfer, registrar functions (such as grading, verification, and transcripts), ID centers, one-stop service centers, international student services, classroom management, and course assignment systems. The management focus is on achieving optimal levels of integration—on overcoming traditional administrative “silos” that partition and segregate processes and departments that should be organized as a more seamless whole.

Many institutional examples of EM structures reflect this administrative orientation. For years, Boston College's innovations in bringing together previously fragmented functions and processes have been heralded as a best practice model of organizing for EM through administrative integration. As noted earlier in this paper, the emergence of one-stop service models exemplifies an administrative orientation to SEM focused on integrating traditional structures and functions in order to realize institutional benefits in efficiency and effectiveness in enrollment processes as well as to improve student service.

Academic

Several distinct elements of an EM organizational structure would characterize an academic orientation.

- *Academic Support:* An academic orientation elevates attention to various learning support functions as integral parts of the EM effort. Functions such as tutoring services, writing and math labs, supplemental instruction programs, bridge programs for academically under-prepared students, and honors programs for advanced students all can be part of the EM organization; typically such functions are closely aligned with faculty and academic departments.

- *Academic Transitions:* Ensuring smooth academic and educational transitions from admission to matriculation leads to the inclusion of student orientation programs in the EM agenda; organizationally such programs are typically integrated with admissions. Course placement processes also are included to ensure appropriate matching of students' academic preparation with the level of challenge of their coursework; testing and assessment functions become important parts of the admissions and orientation process. The EM organization would include functions for managing those course articulations that undergird the student transfer process between colleges and universities. Traditional registrar functions thus expand beyond service delivery and records management to include academic policy development, review, and oversight.

One core function that emerges as an essential EM strategy when viewed through an academic orientation is advising. Traditionally conceived, academic advising is tied primarily to the process of ensuring that students' course enrollments meet the institution's degree requirements as well as the students' goals, objectives, and needs. SEM framed by an academic orientation broadens this concept of advising to include, among other things, career advising. The emergence of “financial literacy” as an important learning goal and its integration with academic advising introduces the concept of student financial planning that is integral to a broadly-defined approach to educational planning. Aligning advising with EM turns attention to academic program or curriculum planning, using data on student enrollment trends and demand to optimize course offerings and scheduling to meet student needs.

- *Academic Program Development:* At many institutions, developing new academic programs is a faculty-centered process that engages the enrollment management team only tangentially, if at all. The 2003 American Marketing Association Symposium on Marketing in Higher Education featured a workshop on how EM discipline and expertise can be brought to bear on academic program development in order to ensure the program's optimal success (*e.g.*, sufficient market demand, competitiveness, brand relevance, appropriate pricing, enrollment volume sufficient for financial viability, academic distinctiveness, etc.). That workshop highlighted approaches at Tulane and DePaul for ensuring the active, regular, even routinized involvement of EM in the planning, development,

and implementation of new curricula. These processes exemplify an academic orientation to SEM.

- *Curricular and Co-curricular Integration:* The EM agenda can extend to include the deliberate integration of traditional classroom instruction or curricula with so-called *co-curricular learning*. The development and management of residential learning communities at a growing number of institutions exemplify how an academic orientation to an enrollment management challenge (e.g., high attrition or underutilized housing capacity) can lead to structural and strategic innovations in pursuit of a more holistic learning experience. Experiential learning opportunities (such as traditional internship and co-op programs) and service-learning programs are examples of EM initiatives that broaden the concept of student learning by marrying academic programs and out-of-class experiences.

Market-centered

Virtually all EM efforts have a marketing component (typically geared to student recruitment) that includes publications, direct mail, advertising, and Web development. A market-centered SEM perspective highlights the broader and natural linkages between traditional EM functions and various university activities such as university communications,

media and public relations, university-wide advertising, and alumni relations. The types of alignments sought in an organizational structure with a market-centered orientation are designed to ensure a consistency of marketing strategy, marketing message, and brand integration, all in service of how the institution presents itself to all external constituencies.

But the consistency and integration of a brand strategy are not to be realized only through communications. A university “lives its brand” in large part through the types of experiences it ensures its students have. A market-centered EM organization certainly could embrace a wide range of functions typically associated with student affairs, but it would align them in such a way to ensure that the student experience was congruent with the institution’s brand promise and market position.

Organizational structures for market-centered SEM would include functions directly related to pricing and product development. Traditional EM organizations typically shape net revenue and net price to students through extensive and complex financial aid strategies, though they sometimes have little influence over tuition pricing decisions. Likewise, while many EM organizations are responsible for achieving enrollment goals in specific academic programs, they have little influence over how academic programs are designed, differentiated, and delivered. A market-centered SEM effort is integrally

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involved in pricing decisions, in the development of new academic programs, and in the assessment and continuous improvement of existing programs.

Of the four orientations to SEM described in this paper, none is more naturally and necessarily aligned with strategic planning and institutional research than the market-centered orientation. The scope of the planning and research agenda is broadest within a market-centered orientation and suggests a structural alignment of EM with institutional planning and research.

Consider DePaul University, which has embraced a market-centered approach to EM. The university's Division of Enrollment Management begins its statement of purpose as follows: "The mission of the division is to improve the market position and prominence of the university...." Its organizational structure includes university marketing functions such as media relations, university communications, university marketing strategy, and market research.

WHAT IS THE EM RESEARCH AGENDA?

Other hallmarks of EM are the primacy of research in guiding strategy, the importance of data-based decision-making, and the critical role of analysis and evaluation in the planning and implementation of EM efforts. All research is guided by the core assumptions and biases—predispositions, even—of those who pose the questions, frame the hypotheses, and design the analyses. Is it possible that each of these four broad orientations could formulate an EM research agenda reflecting its unique character?

Student-focused

The EM research agenda is focused on individual students: their backgrounds, needs, expectations, abilities, experiences, and satisfaction. Measured outcomes might include developmental measures, career outcomes, student satisfaction, and student engagement. This orientation leads to a research agenda dominated by student-centered methodologies. For example:

- *Surveys* intended to gather information from individual students, including:
 - ▶ Assessments of entire student populations, such as the national CIRP survey of American college freshmen.
 - ▶ Surveys using sampling techniques that allow generalized conclusions for an entire student population to be made by surveying a randomly selected subset of individual students.
 - ▶ Surveys of targeted populations of students (such as residence hall populations, program participants, adult students, minority students, etc.) designed to compare one group's responses with other targeted groups or the student population as a whole.

Administrative

The research agenda characteristic of this orientation to SEM seeks to understand the quality, effectiveness, and interrelatedness of various enrollment processes. Examples include:

- *Student satisfaction surveys* designed to identify opportunities for process improvements in registration, billing, or advising to include, for example, comparative studies of the effectiveness of in-person versus online services, or alternative service delivery models. This could include the emerging area of "usability studies" of students' use of Internet services and Web-delivered functions.
- *Retention studies* focused on understanding, developing, and improving enrollment-related processes in order to achieve streamlined, seamless integration.
- Admissions analyses known as *predictive modeling* and *geodemographic targeting* that are designed to improve the efficiency and effectiveness of student recruitment activities.
- *Financial aid leveraging analysis* typically is undertaken in order to optimize university resources and gain the most efficient and effective enrollment impact for the investment in financial aid. The concept of analyzing "tuition discount" is grounded in assumptions about optimizing enrollment outcomes and achieving efficiency in using resources.
- *Focus groups* are methods for exploring and discovering issues in a format less quantifiable than survey methods. Whereas surveys presume a certain level of understanding of an issue in order for the researcher to frame the questions, focus groups are designed to elicit student experiences, opinions, and perceptions in students' *own words*. Focus groups thereby facilitate understanding the student reality in students' terms; they are a common methodology highly reflective of the student-focused orientation. Similarly, one-on-one student interviews as a research method certainly reflect the preoccupation of this orientation with the needs of the individual.
- *Ethnographic methodologies* dig deep into the student culture, exploring the student reality in more direct ways than other research methods. A Margaret Mead of the student experience, Rebekah Nathan's (her pseudonym) controversial qualitative research into the student experience (*My Freshman Year: What a Professor Learned by Becoming a Student*) recently brought this method of inquiry to the attention of a wide audience. Perhaps the best known example is Michael Moffatt's *Coming of Age in New Jersey: College and American Culture*.

Academic

The EM research agenda may be focused in large part on student learning outcomes. As Pat Hutchins outlined years ago in her provocative paper *Behind Outcomes*, it is impossible to understand, much less improve, student learning outcomes without first fully exploring and understanding a number of basic, foundational questions related to the factors that contribute to those learning outcomes. The nine questions she outlined as critical for such inquiry are listed below. In a 1999 presentation at the annual American Association for Higher Education (AAHE) Forum, I suggested that these questions constitute an EM research agenda and that they illustrate how EM is tied inextricably to student learning outcomes. In that

sense, Hutchins's nine questions reflect an academic orientation to EM research.

- What do we know about students who enter our institution?
- How are course-taking patterns related to outcomes?
- How do students experience the institution?
- What is the student's contribution to learning?
- What do students learn over time in a program of study?
- How do out-of-class experiences contribute to learning?
- What are students able to do with what they know?
- What patterns characterize students' movement through the institution?
- What judgments can students make about their learning?

An academic orientation also would focus research on identifying predictors of academic success and determining the validity of admissions criteria in ensuring student preparedness to meet an institution's academic demands. It would include assessing the quality of the teaching/learning process as well as other dimensions of the student experience through use of the National Survey of Student Engagement (NSSE), for example.

EM practiced with an academic orientation seeks to ensure the viability and vitality of academic programs; consequently it focuses its research agenda on trends related to the demand for academic programs. It includes deliberate and ongoing analysis of enrollment patterns by academic discipline. It includes analysis of each program's student profile as well as the pipeline of students moving to, through, and out of each program. It also assesses trends that shape interest in and outcomes of specific academic programs as well as emerging educational needs in the local region or in particular professions or industries.

Market-centered

The primary research agenda in this orientation to SEM is the full range of market research. Examples include:

- *Institutional analysis* focused on the competitive market position of the institution and its academic programs, to include comprehensive monitoring of competitor overlap, competitor mix, and market share.
- *Tuition pricing studies* as a reflection and function of the institution's competitive position. Because the price point particular students are able and willing to pay for particular programs is a function of market position, financial aid leveraging research is part of an assessment of market realities, not just a means of optimizing institutional resources.
- *Predictive modeling*, described above as exemplifying analyses designed to optimize resource allocations and efficiencies, is also an example of an analytic approach grounded in market realities. In this orientation, the core

outcome of predictive modeling is not the streamlining of direct mail and communications strategies but rather the understanding of the breadth and depth of the institution's reach, the power of its identity, and its position among certain market segments.

- A market-centered orientation also includes a comprehensive approach to *brand research*. This includes understanding what attributes key constituencies, stakeholders, or audiences most clearly associate with the institution. It also includes what promises students believe the institution makes through its brand identity and assessments of the gaps between the brand promise and the actual student experience.
- A market-centered perspective will broaden EM's research agenda to include assessments of market *and* economic trends that shape the institution's future. Demographic analyses and projections will be a prominent part of the research program, as will economic, workforce, and industry trends that affect the institution, its academic offerings, and the outcomes of its graduates.

Conclusion

This second article of the three-part series has sought to further define, delineate, and differentiate four broad orientations to SEM by illustrating how each frames SEM according to particular preferences, priorities, and predispositions. Considering each orientation independently helps cultivate appreciation for the natural variety apparent in EM practice.

Part Two also has suggested that there may be value in an approach wherein a particular EM issue or topic (*e.g.*, retention, research, organizational alignments) is evaluated through the distinct perspective of each orientation. Because each orientation represents a different set of core assumptions and presumptions about the nature of EM, the result of a review of an issue from multiple perspectives is likely to be a more robust and complete understanding of that issue. If, for example, I hold a market-centered perspective on SEM, I stand to gain greater insight into alternative approaches to retention strategy if I deliberately explore questions of retention through the lens of other orientations. Only by doing so can I hope to escape the limiting constraints of my own natural predisposition. Such a process can generate valuable insights and new understandings of the concept and practice of SEM.

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Is Gender a Predictor of Success in College Mathematics Courses?

Gender was investigated along with other academic variables as predictors of success in entry-level freshman courses from liberal arts mathematics through calculus. The female students were more successful than the male students in all the courses, but gender became less significant as the sophistication level of the course increased.

C. Van Nelson and Krystina K. Leganza

Study Objective

The objective of this study was to determine whether or not gender is a predictor of success in a beginning college theoretical calculus course, a beginning college applied calculus course, and a liberal arts mathematics course. Calculus is not only important for students who major in mathematics, but is important requisite knowledge for students who major in one of the physical sciences, computer science, or a social science such as economics. In many institutions, students must successfully complete a liberal arts mathematics course in order to graduate if their major requires no other mathematics courses. However, success in calculus may require a different mathematical aptitude than success in a liberal arts mathematics course. In fact, the aptitude to succeed in theoretical calculus may differ from the aptitude necessary to understand the concepts in an applied calculus course. While many studies have been done to determine whether or not a difference exists between males and females in mathematical ability (Hyde, Fennema, and Lamon 1990), with some studies concluding that males perform better in mathematics than females, and other studies showing that females sometimes do better than males (Alkhateeb 2001), these studies compare male subjects with female subjects on a particular test of general mathematical understanding and ability. However, there may be several different types of mathematical ability just as there are different branches of mathematics. Logical reasoning, symbol manipulation, computational ability, and the ability to see spatial relationships are different components of mathematical ability. Furthermore, successful completion of a mathematics course may be more important to a student's future than a measure of his/her mathematical ability. The attitude of female students towards mathematics may even be a determining factor as to whether or not a female student enrolls in mathematics courses at the college level (Nosek, Banaji, and Greenwald 2002).

In this study three models were built initially: 1) a model for students who were enrolled in a beginning theoretical calculus course; 2) a model for students in an applied calculus course; and 3) a model for students enrolled in a liberal arts mathematics course. The variables used to predict success in these courses include the SAT mathematics and verbal scores, high school grade point average (GPA), high school class percentile rank, type of higher education institution (public university or private liberal arts college), and gender.

Related Literature

Many researchers have studied the relationship between gender and success in mathematics. Dorner and Hutton (2002) concluded that the SAT mathematics test alone is biased against female students. In their study of student success in college algebra, business calculus, pre-calculus, and calculus over a five-year period, predictors in addition to the SAT mathematics test were a local mathematics placement test, and past highest math course and grade. Their findings indicated that when male students are compared with female students with equivalent SAT mathematics, the local mathematics placement test, and the past highest mathematics course and grade, the female students earned a higher grade in the above named mathematics courses than did their male counterparts. These researchers recognized that a limitation in the study was that neither high school GPA nor high school class rank was utilized.

A study by House (1995) investigated predictors of success in a beginning college chemistry course. This researcher created a predictive model for all students and then separate models for male and female students. In this study, grades for beginning college chemistry students were dichotomized, with A, B, and C grades representing successful completion, and D and F grades representing unsatisfactory class performance. The logistic regression model was applied to the

entire sample, and then applied separately to male students and female students. The only variable that showed predictability in the overall sample was the student's self-rating of mathematical ability. This variable was also a predictor in the separate models for males and females. Only in the model for male students did any other predictor variables enter the equation. These variables included self-rating of overall academic ability, self-rating of drive to achieve, and expectation to graduate with honors. Neither the ACT composite scores nor the years of high school mathematics completed predicted a significant portion of the variance, and hence did not enter into the equation.

A study by Turner and Lindsay (2003) that examined gender differences in success in organic chemistry concluded, "It is reasonable to expect that gender-related differences in factors related to achievement would diminish as students advance through the college science curriculum. However, this investigation has demonstrated that substantial gender differences in cognitive and non-cognitive factors related to achievement may be found at this level of college science courses" (p. 567). Moreover, the non-cognitive factors in this study were only predictive for males.

A study by Nelson and Neff (1990) utilized a logistic regression model to predict success of students in the first college computer science course. Success in the course was defined as earning a grade of C or above, while grades lower than a C defined non-success. The predictor variables included the SAT verbal and mathematics scores, high school GPA, high school class percentile rank, instructor, success in beginning calculus, and gender. The only significant predictors were success in beginning calculus, high school class percentile rank, and gender.

A large meta-analysis study by Hyde, Fennema, and Lamon (1990) indicated that there is little support for the global assumption that males excel in mathematical ability. In fact, these researchers conclude that "...a general statement about gender differences is misleading because it masks the complexity of the pattern. For example, females are superior in computation, there are no gender differences in the understanding of mathematical concepts, and gender differences favoring males in problem solving do not emerge until the high school years" (p.151). This supports the notion that there are different mathematical abilities and that mathematical ability should not be considered collectively as one skill.

It is possible that cultural differences between males and females contribute to the stereotype that males are better in mathematics than females. Nosek, Banaji, and Greenwald (2002) concluded from their research that female college students demonstrated negative attitudes towards mathematics and science relative to their attitudes toward arts and languages.

The research lends credibility to the authors' contention that successful completion of a course in a specific discipline is an important measure of ability in that area. The study by House (1995) used success in a beginning chemistry course as a measure of ability in chemistry. The study by Nelson and Neff

(1990) used the same criterion in computer science. In this latter study, the instructor was not a predictor of the student's success in the course. In both of these studies, success was defined as the student earning a grade of C or above, while non-success was defined as the student receiving a grade below C. The meta-analysis of many studies on gender differences in mathematics by Hyde, Fennema, and Lamon (1990) suggests that a blanket statement that one gender is superior to the other in mathematical ability should not be made. It seems to these authors that achievement in a specific course is really the important issue.

Perspectives and Theoretical Framework

The hypothesis tested in this study is that gender is not a predictor of successful completion of a specific mathematics course. Since the literature is not in accord with which gender may be more successful, the alternative hypothesis is two sided: there is a difference among genders in completion of a specific mathematics course.

The dependent variable in this study was either success or non-success in three different freshman mathematics courses. The researchers defined success as completion of the course with a grade of C or higher, and non-success as receiving a C- or lower grade. These criteria have been used in others studies (Nelson and Neff 1990; Walker and Plata 2000). In the study by Nelson and Neff cited above, success in a beginning computer science course was predicted from SAT scores, success in the first calculus course, high school GPA, high school class percentile rank, gender of the student, and which one of five instructors was assigned to the section of the course in which the student was enrolled. The final variables remaining in the regression equation, in order of the amount of variance predicted were: 1) success in the first calculus course, 2) high school class percentile rank, and 3) gender of the student. This research indicated that the instructor is not a critical factor in determining whether or not a student is successful in a class, and supports the assumption that there is agreement among instructors as to what constitutes satisfactory performance (grades of A, B, or C) and what defines unsatisfactory performance (grades of D or F).

Most of the time, the student has no choice of instructor; the student is assigned to a section that meets his/her schedule. Students usually do their best to succeed in a course despite the grading practices of the instructor. In many institutions, a grade of C or higher must be earned in a mathematics course if the course is a prerequisite, and also for the student to be permitted to enroll in a subsequent mathematics course.

The predictor variables in the research presented in this paper include the SAT mathematics and verbal scores, high school grade point average, high school class percentile rank, gender, and institution type (public university or private liberal arts college). The SAT scores and measures of high school performance are variables commonly included to determine whether or not the student should be admitted to a college or

university. The SAT mathematics scores are also often used to determine which mathematics course a student should take.

Research Methods and Procedures

Three different mathematics courses were examined: 1) a liberal arts mathematics course; 2) the first course in an applied calculus sequence; and 3) the first course in a theoretical calculus sequence. These three courses are considered to be non-remedial college freshman classes. The data obtained for students who had taken these courses included the grade earned in the course, the Scholastic Aptitude Verbal and Quantitative test scores (SATV and SATM), the size of the high school from which the student graduated, the rank of the student in his/her graduating class, the high school grade point average (HSGPA), and the gender of the student. For the liberal arts mathematics course and the theoretical calculus course, data were obtained from two institutions (INST): 1) a mid-size state university and 2) a private liberal arts college. The high school class percentile rank (%RANK) was calculated from the student's rank in his/her high school class and the size of the graduating class by using the following formula:

$$\text{Percentile rank} = 100 - (\text{class_rank}/\text{class_size}) * 100$$

The success of the students in each course was predicted using a maximum likelihood backstep logistic regression with the predictor variables of high school GPA, SAT verbal score, SAT mathematics score, high school class percentile rank, the type of institution where the student was enrolled (except for the applied calculus course), and gender. If, for a particular course gender was not eliminated as a predictor in the final regression equation, then one logistic regression model was run for male students and a second logistic regression model was run for female students. The coefficients between the model for males and females for the particular course were compared.

Data Source

Student records were obtained for a five-year period beginning with the Fall semester of 1998 and ending with the Spring semester of 2003. The records were obtained for the students enrolled in the liberal arts mathematics course and the beginning theoretical calculus course at two institutions: 1) a Midwestern public university with an enrollment of 18,500, of which approximately 16,000 are full-time undergraduate students; and 2) a Midwestern private liberal arts college with an enrollment of 4,000, of which 2,000 are full-time undergraduate students. Records for students in the beginning applied calculus course were only available at the public university, since the private institution does not offer this course. Table 1 (on page 14) displays the number of records obtained for each course at each institution broken down by the number of males and the number of females. Later tables may not have the same totals because some records were incomplete and could not be used in the analysis.

Results

RESULTS FOR THE LIBERAL ARTS MATHEMATICS COURSE

The logistic regression analysis for the liberal arts mathematics course produced the equation displayed in Table 2 (on page 14). All of the variables used to predict success remained in the final equation and were significant beyond the 0.05 level. Of the 6,240 students for whom complete records were available for the liberal arts mathematics course, 4,547, or 72.9 percent, were successful in the course, while 1,693, or 27.1 percent, were not successful. The model correctly predicted 4,236 of the 4,547 would be successful for an accuracy rate of 93.2 percent. Of the 1,693 students who were unsuccessful in the course, the model predicted that 376, or 22.2 percent, would not be successful. The logistic regression model, therefore, was more accurate in predicting the success of the students who actually were successful than in predicting non-success among the students who were unsuccessful. These results are summarized under "All Students" in Table 3 (on page 14).

Since gender was a significant predictor in the equation for the liberal arts mathematics course, one model was derived for male students and another model for female students. Table 4 (on page 14) presents both models, with coefficients, standard errors, and significance in the equations.

The classification results for the equation for males and females are presented in Table 3 (on page 14). Of the male students, 69.4 percent were successful in the course, while 30.6 percent were not successful. The model was 92.1 percent accurate in predicting the male students who would be successful, but only 22.9 percent in predicting those who would not succeed. For the female students, 75.4 percent successfully completed the course, while 24.6 percent were not successful.

It may be observed from the coefficients in Table 4 (on page 14) that the variables that are really different between males and females are the high school grade point average (HSGPA) and the SAT scores. These means differ by two standard errors between the male and female students. Table 5 (on page 15) displays the means on these variables for both the public and private institution. For the public institution, the means for the SATM for male students was greater than that of the female students overall and for the successful and unsuccessful males in the course. In the private institution, the overall mean of the SATM was slightly higher overall for the female students as opposed to the male students due to the higher number of successful female students. However, as can be observed from Table 5, the mean SATM for the male students who were not successful was ten points higher than that of the unsuccessful female students. For successful students, the mean for the male students exceeded the mean for female students by only four points.

For the SATV scores at the public institution, the overall mean for the male students was three points higher than that of the female students. This same approximate difference

Table 1: Number of Records by Course and Institution

	Males	Females	Total
Liberal Arts Mathematics			
Public Institution	2168	3161	5329
Private Institution	282	629	911
Applied Calculus			
Public Institution	639	328	967
Private Institution	—	—	—
Theoretical Calculus			
Public Institution	234	158	392
Private Institution	267	386	653

Table 2: Logistic Regression Coefficients for Liberal Arts Mathematics

Variable	B	S. E.	Wald	df	Significance
HSGPA	1.188	0.116	104.12	1	0.000
SATV	-0.002	0.000	21.88	1	0.000
SATM	0.007	0.001	150.45	1	0.000
GENDER	-0.163	0.066	6.12	1	0.013
INST	-0.505	0.095	28.38	1	0.000
% RANK	0.009	0.003	10.85	1	0.001
Constant	-4.610	0.284	264.24	1	0.000

Table 3: Classification Table for Liberal Arts

Observed	Predicted		% Correct
	No Success	Success	
Males			
No Success	174	585	22.9
Success	133	1588	92.1
<i>Overall Accuracy</i>			70.7
Females			
No Success	198	736	21.2
Success	164	2692	94.3
<i>Overall Accuracy</i>			76.3
All Students			
No Success	376	1317	22.2
Success	311	4236	93.2
<i>Overall Accuracy</i>			73.9

Table 4: Logistic Regression Coefficients for Male and Female Models

Variable	Males			Females		
	B	S. E.	Sig	B	S. E.	Sig
HSGPA	0.922	0.177	0.000	1.367	0.155	0.000
SATV	-0.001	0.001	0.083	-0.003	0.001	0.000
SATM	0.006	0.001	0.000	0.008	0.001	0.000
INST	-0.472	0.154	0.002	-0.510	0.121	0.000
% RANK	0.012	0.004	0.003	0.007	0.004	0.050

between male and female students held true for students who successfully completed the course. However, there was almost an eight-point difference in favor of the male students for those students who were not successful in completing the course. However, at the private institution, the difference was

greater in favor of the female students. Both the SATM and SATV scores were lower at the private institution.

The results for the high school grade point average (HSGPA) indicated that the female students entered the institutions with a higher grade point average than their male classmates. The difference between male and female students held for both the successful students and the unsuccessful students in the liberal arts mathematics course.

When the overall success in the liberal arts mathematics class is examined, the female students were more likely to complete the class successfully than their male counterparts. This result is displayed in Table 6 (on page 15). The result was a chi-squared value of 35.1, with one degree of freedom. This value is highly significant. The proportion of females successfully completing the course was higher than would be expected from the overall population, while the proportion of males that completed the course was lower than expected. Since SAT scores or high school GPA were not available in some of the student records, the numbers reported in Table 6 are slightly higher than the number of records that could be used in the logistic regression models.

RESULTS FOR APPLIED CALCULUS

The applied calculus course was only offered at the public university. Therefore the type of institution is not a factor. The coefficients resulting from the application of the logistic regression equation are noted in Table 7 (on page 16).

The variables that are significant predictors are high school GPA, the SAT mathematics score, and gender. The application of this equation resulted in the classification shown under "All Students" in Table 8 (on page 16). Of the 967 students for whom complete records were available, 57.2 percent were successful in the course,

while 42.8 percent were not able to complete the course successfully with a grade of C or higher. The model correctly predicted the students who completed the course successfully 81.2 percent of the time. The model was better than for the liberal arts mathematics course at predicting students who would not be successful. This model was accurate 63.8 percent of the time at predicting no success. Overall, the model had 73.7 percent accuracy in predicting success or no success from the variables of high school GPA, the SAT mathematics score, and gender.

Since gender was significant in predicting success, a regression model was derived for male students and another regression model was derived for female students. These models are shown in Table 9 (on page 16). While the models are different, the B coefficients for the model for male students are within two standard errors of the coefficients for female students. However, as can be seen in Table 8, the classification was more accurate for males than for females in predicting no success in completing the course, but the model was more accurate for predicting success in the course for female students.

An examination of the means for both males and females on the SAT mathematics score and the high school GPA as presented in Table 10 (on page 16) for the applied calculus course shows a pattern similar to that of the liberal arts mathematics course. The male students have higher SATM scores, while the female students have the higher HSGPA scores.

In comparing the success of male students to female students, a chi-squared contingency table was constructed. This result is displayed in Table 11 (on page 17). The chi-squared value for this result is equal to 64.95 with one degree of freedom. This result is highly significant. For the applied calculus course, the female students did significantly better than this population as a whole, while the males did not do as well as the whole population.

Table 5: Means Predictor Variables for Liberal Arts Mathematics

Success	Gender	Public Institution		Private Institution	
		Mean	Std. Deviation	Mean	Std. Deviation
SATM					
No	Male	493.843	68.8444	439.010	72.4501
	Female	460.373	68.7070	429.929	64.1547
	Total	475.723	70.7435	433.734	67.7569
Yes	Male	529.608	72.4009	501.623	72.2203
	Female	505.779	69.5720	497.465	76.6986
	Total	515.063	71.6283	498.619	75.4529
Total	Male	518.721	73.1976	479.966	78.0981
	Female	494.520	72.0681	482.622	79.1873
	Total	504.402	73.4944	481.787	78.8142
SATV					
No	Male	502.603	76.9754	466.436	66.8069
	Female	494.784	71.7748	472.000	78.3481
	Total	498.370	74.2837	469.668	73.6369
Yes	Male	522.881	76.2402	493.508	80.2348
	Female	519.935	75.3730	505.895	80.2997
	Total	521.083	75.7168	502.456	80.4151
Total	Male	516.709	77.0161	484.144	76.8335
	Female	513.698	75.2746	498.446	81.0404
	Total	514.927	75.9984	493.950	79.9771
HSGPA					
No	Male	2.6893	0.38061	2.2450	0.42591
	Female	2.8011	0.40063	2.5310	0.46903
	Total	2.7498	0.39540	2.4112	0.47221
Yes	Male	2.9765	0.46812	2.6548	0.55273
	Female	3.1751	0.46717	3.0656	0.56652
	Total	3.0977	0.47742	2.9516	0.59169
Total	Male	2.8891	0.46253	2.5131	0.54766
	Female	3.0824	0.47956	2.9481	0.58946
	Total	3.0034	0.48210	2.8114	0.61075

Table 6: Comparison of Success by Gender in Liberal Arts Mathematics

	Males	Females	Total
No Success			
Observed	827.0	997.0	1824
Predicted	721.2	1102.8	1824
Success			
Observed	1850.0	3096.0	4946
Predicted	1955.8	2990.2	4946
Total	2677.0	4093.0	6770

RESULTS FOR THEORETICAL CALCULUS

The results of the logistic regression equation when applied to the theoretical calculus course are presented in Table 12 (on page 17). The variables that remained in the logistic regression equation, after applying the backstep processes, included high school GPA, the SAT mathematics score, and the type of institution. Gender did not have enough predictive power to remain in the equation.

Table 7: Logistic Regression Coefficients for Applied Calculus

Variable	B	S. E.	Wald	df	Significance
HSGPA	2.099	0.184	130.113	1	0.000
SATM	0.006	0.001	19.267	1	0.000
GENDER	-0.521	0.175	8.865	1	0.003
Constant	-9.833	0.917	115.084	1	0.000

Table 8: Classification Table for Applied Calculus

Observed	Predicted		Correct (%)
	No Success	Success	
All Students			
No Success	264	150	63.8
Success	104	449	81.2
Overall Accuracy			73.7
Males			
No Success	232	92	71.6
Success	81	234	74.3
Overall Accuracy			72.9
Females			
No Success	33	57	36.7
Success	22	216	90.8
Overall Accuracy			75.9

Table 9: Logistic Regression Coefficients for Male and Female Models

Variable	Males			Females		
	B	S. E.	Sig	B	S. E.	Sig
HSGPA	2.152	0.217	0.000	1.947	0.350	0.000
SATM	0.006	0.002	0.001	0.008	0.003	0.002
Constant	-10.104	1.100	0.000	-10.267	1.640	0.000

Table 10: Means of Significant Predictors for Applied Calculus

Success	Gender	Mean	Std. Deviation
SATM			
No	Male	570.868	57.8654
	Female	552.400	56.7845
	Total	566.827	58.0740
Yes	Male	603.555	59.4840
	Female	592.618	55.4120
	Total	598.712	57.9261
Total	Male	586.956	60.8637
	Female	581.893	58.4825
	Total	585.195	60.0673
HSGPA			
No	Male	2.9384	0.44161
	Female	3.2333	0.39325
	Total	3.0043	0.44810
Yes	Male	3.4093	0.44346
	Female	3.6319	0.36669
	Total	3.5101	0.42493
Total	Male	3.1710	0.50106
	Female	3.5272	0.41261
	Total	3.2980	0.50121

The resulting classification is presented in Table 13 (on page 17). Of the 1,045 students for which complete records were available, 72.2 percent successfully completed the course, while 27.8 percent were not able to complete the course with a grade of C or above. The model was 91.8 percent accurate in predicting successful completion of the course. It was, however, only 47.6 percent accurate in predicting that the student would not be successful in completing a theoretical calculus class. Overall, the model was almost 80 percent accurate in its prediction of success.

A comparison of the numbers of males that did or did not complete the course successfully as opposed to the number of females that did or did not complete the course successfully is displayed in Table 14 (on page 17). Since there were missing data for 147 students on one or more of the predictor variables, this table includes 147 more students than were processed in the logistic regression. The resulting chi-squared value is 19.14 with one degree of freedom. This value is significant beyond the 0.01 level. Again, more females successfully completed the course than were expected, while fewer males than expected successfully completed the calculus class. When males are compared with females at the public institution, the resulting chi-squared value is 1.05 with one degree of freedom. This value is not significant. However, the same comparison at the private college produced a chi-squared value of 11.93 with one degree of freedom, which is significant beyond the 0.01 level.

Since both the SAT mathematics score and the high school GPA were predictors of success in calculus, the means of these variables were calculated. These are displayed in Table 15 (on page 18). It is interesting to note from this

table that while the male students had higher SAT mathematics scores in all categories, the female students had higher high school GPA values in all categories.

When institutions were compared for the theoretical calculus course, the average SAT mathematics score for the public university was 608.2, while the private university SAT mathematics mean was 575.6. The average high school GPA for the public university was 3.40, while the value for the private college was 3.36. Yet, the success rate was better in the private university. This result is displayed in Table 16 (on page 18). The chi-squared value for this comparison was 49.75 with one degree of freedom. This is significant beyond the 0.01 level. More students in the private university successfully completed the calculus course, while fewer students in the public university were successful.

Summary and Conclusions

This study indicates that as the sophistication level of the course increases, gender becomes less important as a predictor for success. Gender was a significant predictor of success in the liberal arts mathematics course; it was less significant as a predictor in the applied calculus course. In theoretical calculus, which is the most mathematically sophisticated of the three courses, the coefficient for gender was eliminated from the final logistic regression equation. However, contrary to what seems to be the popular belief, the female students in this study performed better in all the beginning mathematics classes. Even in the theoretical calculus class, where gender was not a significant predictor, the females still were more successful in completing the course.

It is particularly noteworthy that the females outperformed the males in terms of successful completion when the females in each of the courses considered had lower average SAT

Table 11: Comparison of Success by Gender in Applied Calculus

	Males	Females	Total
No Success			
Observed	314	174	488
Predicted	379	109	488
Success			
Observed	435	241	676
Predicted	370	306	676
Total	749	415	1164

Table 12: Logistic Regression Coefficients for Theoretical Calculus

Variable	B	S. E.	Wald	df	Significance
HSGPA	1.875	0.171	120.903	1	0.000
SATM	0.005	0.001	17.652	1	0.000
INST	-1.560	0.175	79.286	1	0.000
Constant	-7.623	0.773	97.299	1	0.000

Table 13: Classification Table for Theoretical Calculus (All Students)

Observed	Predicted		% Correct
	No Success	Success	
No Success	138	152	47.6
Success	62	693	91.8
<i>Overall Accuracy</i>			79.5

Table 14: Comparison of Success by Gender in Theoretical Calculus

	Males	Females	Total
All Students			
No Success			
Observed	197	142	339
Predicted	163	176	339
Success			
Observed	376	477	853
Predicted	410	443	853
Total	573	619	1192
Public Institution			
No Success			
Observed	113	66	179
Predicted	108	71	179
Success			
Observed	155	111	266
Predicted	160	106	266
Total	268	177	445
Private Institution			
No Success			
Observed	84	75	159
Predicted	65	94	159
Success			
Observed	221	366	587
Predicted	240	347	587
Total	305	441	746

mathematics scores. For each of the classes, the average high school GPA was higher for the female students than for the male students.

One could argue that the research presented in this study supports the conclusion by Dorner and Hutton (2002), that the SAT mathematics test has a gender bias. This would suggest that the SAT mathematics score, if it used as part of placing a student in the appropriate mathematics class, be treated differently for different genders. As the present study suggests, different weighting of SAT scores should be given to female students as opposed to male students.

It is very possible, however, that non-cognitive variables affect achievement in mathematics courses as much or even more than academic factors. One finding in this study suggests that students at the private liberal arts institution were more successful in the courses than students in the larger public university, even though the average SAT mathematics scores and the high school GPA were higher for the students at the larger public institution. It is possible that the drive to succeed among private school students and the environment of a private liberal arts college has an impact on success. An investigation of non-cognitive variables that affect mastery of mathematical skills would seem to be in order.

Since mathematics is important to so many disciplines, even disciplines that are not considered as sciences, it is imperative that we develop mathematical skills in more students regardless of the gender. Female students need to be encouraged to take mathematics courses because as this study showed, they can successfully complete the courses. Male students who have the potential to succeed in mathematics courses need to be persuaded to develop mathematical skills.

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Table 15: Means of Significant Predictors for Theoretical Calculus

Success	Gender	SATM		HSGPA	
		Mean	Std. Deviation	Mean	Std. Deviation
Public Institution					
No	Male	595.000	64.7657	3.0362	0.42769
	Female	580.635	68.5300	3.3842	0.37079
	Total	589.829	66.3106	3.1645	0.44006
Yes	Male	628.658	58.4444	3.4711	0.39932
	Female	609.623	58.6828	3.6915	0.29982
	Total	620.745	59.1794	3.5631	0.37660
Private Institution					
No	Male	542.817	64.1690	2.7115	0.57947
	Female	521.905	73.9192	3.0499	0.49481
	Total	532.985	69.4558	2.8711	0.56548
Yes	Male	596.158	67.4281	3.2990	0.53506
	Female	582.448	65.2584	3.6028	0.40186
	Total	587.621	66.3571	3.4884	0.47993
Grand Totals					
	Male	597.609	68.2582	3.2082	0.54897
	Female	578.824	69.6912	3.5254	0.44141

Table 16: Comparison of Success by Institution in Theoretical Calculus

	Public	Private	Total
No Success			
Observed	180.0	159.0	339
Predicted	126.8	212.2	330
Success			
Observed	266.0	587.0	853
Predicted	319.2	533.8	853
Total	446.0	746.0	1192

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Note: We would like this paper dedicated to the memory of our colleague and friend, Thomas A. Bilger, February 24, 1943–July 26, 2005

P

redicting Final GPA of Graduate School Students: Comparing Artificial Neural Networking and Simultaneous Multiple Regression

Data from graduate student applications at a large Western university were used to determine which factors were the best predictors of success in graduate school, as defined by cumulative graduate grade point average. Two statistical models were employed and compared: artificial neural networking and simultaneous multiple regression. Both models yielded similar results, indicating that the combination of the following factors could predict 10–12 percent of the variance in graduate grade point average: college to which the student was applying, marital status, gender, GRE verbal and analytical scores, and residency region of students.

J Joan L. Anderson

According to Peter Syverson, vice president for research and information services for the Council of Graduate Schools (CGS) in Washington, D.C. (personal communication, February 9, 2001), on the average, approximately 50 percent of students entering graduate school will actually complete the requirements and graduate. This number varies by university, college, and department. Students in the hard sciences, such as biology and chemistry, have higher completion rates than students in disciplines such as the humanities and social sciences. Syverson attributed this difference to issues of support for students in varying disciplines. In addition, master's students tend to have a higher completion rate (70 percent) than Ph.D. students (50 percent). Although there is little empirical data, Syverson said that these figures are based on the experience of deans. Data found on the University of California, San Diego Web site indicated that the percentage of graduate students finishing their degrees within ten years varied from 48 percent in the social sciences to 75 percent in the health sciences.

Determining which students applying to graduate school will be most successful is an arduous task at best. An even more difficult task is determining what characteristics of applying students can be used to predict success. Are we asking the right questions, looking at the right statistics, and using the correct procedures?

This research was designed to study the potential for the use of artificial neural network (ANN) techniques in the admissions decision-making process. A similar study, conducted by Gorr, Nagin, and Szczypula (1994) used ANN technology to predict graduate student grade point average (GPA). The study focused primarily on the methodology and not so much on the variables that best predict success in graduate school. Other studies have focused on the predictor variables but have utilized traditional statistical methods such as

regression. Dawes (1971) called for more research concerning the determination of graduate success, stating that decisions made through the use of computers are more systematic, economical, and human than decisions based on intuition.

Artificial neural networking (ANN) is a predictive statistical model that uses historical data and complicated algorithms in large databases to find relationships and trends, previously unknown to the researcher, to promote decision support (Foley and Russell 1998). Through the use of mathematical algorithms, the software accesses historical data and through a training process, learns to make predictions on new data sets based on the lessons learned from the training set. There is potential for a decrease in the amount of time spent on admissions decisions by implementing the use of ANN technology. Sadler and Hammerman (1999) stated that finding ways to save time without compromising the process is a reasonable goal.

Several studies have been performed to improve the selection of graduate students. As stated earlier, only one of these studies utilized ANN technology (Gorr, Nagin, and Szczypula 1994). In addition, different methodologies have been utilized to facilitate this process. The results of these studies are inconsistent (see Table 1 on page 20). Further research is needed in the area of determining which types of models can accurately predict graduate student success. The purpose of this study is to use both simultaneous multiple regression and artificial neural networking to determine which combination of admissions criteria best predicts success in graduate school for the master's students at a large Western university, and to compare statistical techniques in this prediction process.

Graham (1991) studied the correlation of graduate school of business entrance criteria with success in an MBA program. Success was operationally defined as graduate GPA. Enright and Gitomer (1989) conducted a study that attempted to

Table 1: Summarization of Research Articles Studying Graduate Admissions and Success

Author(s) and Publication Year	Dependent Variable(s)	Significant Independent Variables(s)	Sample & Size	Statistical Analysis
Nelson & Nelson (1995)	▶ Master's Degree Completion	▶ 9 hour GPA ▶ Quantitative GRE ▶ Analytical GRE ▶ Admission (probationary or not)	▶ 1,533 students, ▶ mixed disciplines	▶ Logistic Regression
Gorr, Nagin & Szczypula (1994)	▶ Graduate GPA ▶ Accuracy of Decision Making	▶ GPAs from prerequisites ▶ Total GPA ▶ Residency	▶ 224 students at North Dakota State ▶ Bachelors of Science	▶ Artificial Neural Nets ▶ Linear Regression ▶ Stepwise-polynomial
Fiedler <i>et al.</i> (1993)	▶ Academic & Career Success	▶ Transfer status ▶ Undergraduate GPA	▶ 84 dept. chairs	▶ Regression ▶ Descriptive Statistics
King <i>et al.</i> (1993)	▶ (No further def. Provided) ▶ Graduate GPA	▶ English Proficiency Test Score ▶ Quantitative GRE	▶ Educational admin. ▶ Potential admittees	▶ Survey Data ▶ Regression
Morrow (1993)	▶ Graduate GPA	▶ Analytical GRE ▶ Quantitative GRE	▶ In a recent class ▶ 171 students	▶ Stepwise Multiple
Zwick (1993)	▶ First-year GPA ▶ Final GPA	▶ Verbal GRE ▶ Undergraduate GPA ▶ Verbal GMAT	▶ W. Carolina University ▶ 5,000 MBA students	▶ Regression ▶ Bayes Regression Models
Hall & Bailey (1992)	▶ First year GPA	▶ Quantitative GMAT ▶ MCAT ▶ Undergraduate science GPA	▶ 420 medical students ▶ Dartmouth	▶ Pearson Correlation
Graham (1991)	▶ Graduate GPA	▶ College selectivity ▶ GMAT ▶ Undergraduate GPA	▶ 100 MBA students	▶ Multiple Regression
Fisher & Resnick (1990)	▶ First-year GPA	▶ Total GMAT	▶ 530 MBA students	▶ Multiple Regression
Paolollo (1982)	▶ Graduate GPA	▶ Undergraduate GPA ▶ Junior/Senior GPA ▶ GMAT	▶ 220 MBA students	▶ Step-wise Linear Regression
Youngblood & Martin (1982)	▶ Graduate GPA	▶ Full/Part-time Attendance ▶ GMAT	▶ 406 MBA students	▶ Step-wise Regression
Kirnan & Geisinger (1981)	▶ Master's Comp. Exam	▶ Undergraduate GPA ▶ All three GRE scores	▶ 114 students	▶ Step-wise Multiple
Brown & Weaver (1979)	▶ Graduate GPA	▶ MAT ▶ Undergraduate GPA ▶ Verbal GRE	▶ A New York Univ. ▶ 129 Students ▶ Indiana U./journalism	▶ Regression
Jenkins (1972)	▶ Degree Completion ▶ Admission Status (prob/reg)	▶ Graduate GPA ▶ Undergraduate GPA	▶ 107 students	▶ Discriminate Analysis ▶ Chi-square
Dawes (1971)	▶ Accuracy of decision making	▶ Quantitative models are better than clinical judgment	▶ CSU Voc. Ed. ▶ 111 students ▶ U of Oregon/Psych.	▶ Multiple Regression ▶ Clinical Judgment

identify the characteristics of a successful graduate student. This study contrasted with Graham (1991), who studied competencies that should be evident at the time of matriculation, such as GPA and GRE scores. Lipschutz (1993) stated that institutions needed to try harder to identify the characteristics that are germane to success.

Confronting the practices and procedures that define policies at the graduate school level may constitute a manageable series of small wins. One of the most challenging issues is the admissions process.

There are volumes of literature about admissions at the graduate level (Association of American Universities 1998; Berg 1993; Borchert 1994). Again, the results of these studies are inconsistent. Hackman and Price (1995) conducted a survey of all Ph.D. programs nationwide offering degrees in

educational administration or educational leadership and found strong similarities between institutions with respect to admissions criteria. In contrast, Clark and Palattella (1997), in their book written as a guide to new graduate students, stated that the admissions process and means of evaluation differ across universities, departments, and among faculty. These studies all focused on the admissions process and made recommendations for change based on the strengths and weaknesses within the studied program. There was little attention paid to the issues of success or failure of graduate students such as graduate grade point average or whether a student graduated or did not graduate.

However, there are several studies linking success in graduate school to the admissions process. Gorr, Nagin, and Szczypula (1994) conducted the most notable study. They

compared an index used by the admission committee to predict graduate GPA with the predictability of artificial neural networks, linear, and stepwise polynomial regression. Researchers sampled graduate students in a professional school. Results indicated that none of the empirical models were superior in prediction to the currently utilized admissions committee model for selecting graduate students for admission. Fiedler, Foldes, Matranga, and Peltier (1993-94) conducted a study of 84 chairpersons of educational administration departments accredited by the National Council for Accreditation of Teacher Education (NCATE) and found that 48 percent were not satisfied with the effectiveness of their admissions criteria related to determining success in graduate school. The Council of Graduate Schools stated that correlating students' admissions credentials with the determination of success or failure is an important factor in determining the success of an institution's admissions process (Borchert 1994). Other studies have examined the prediction of academic success in graduate school through the use of undergraduate data such as GPA, type of undergraduate degree earned, and academic caliber of students' undergraduate colleges, concluding that GPA was a predictor of success in graduate school (Graham 1991; Hall and Bailey 1992). Still other studies utilized admissions data to predict graduate school grades and test scores (Fisher and Resnick 1990; Gorr, Nagin, and Szczypula 1994; Nelson and Nelson 1995; Zwick 1993). These studies determined that GPA and standardized test scores such as the GRE were predictive in determining graduate school grades.

Methodologies for the previously-mentioned studies include qualitative methods such as interviews and focus groups (Enright and Gitomer 1989) and quantitative methods such as multiple regression techniques (Graham 1991). Very few studies in the educational field have used artificial neural networks as a methodology. Among the few studies are Everson (1994), who used artificial neural networks as an approach to classifying students as proficient in algebra. Everson concluded that ANN technology could accurately classify these students into the appropriate algebra class based on historical data. Song and Chissom (1993) concluded in their study that the artificial neural network was powerful in predicting university student enrollment.

Studies have been performed to improve the selection process of graduate students. In addition, different methodologies have been utilized to facilitate this process. The results of these studies are inconsistent. Further research is needed in the area of graduate student success and in determining which types of models can accurately predict those students who are most likely to succeed. Sadler and Hammerman (1999) conducted a five-year study of graduate admissions and concluded that maintaining or improving the quality of admissions decision-making may be achieved by recognizing and using historical patterns. More research is needed incorporating the use of sophisticated, computerized, predictive models on

historical graduate admissions data to determine which admissions criteria are predictors of graduate school success.

This study will address the following research questions:

- Is there a combination of admissions variables that predicts graduate grade point average better than any one variable alone and if so, what is that combination?
- Do artificial neural networks perform better than simultaneous multiple regression in identifying predictive variables that lead to success in graduate school as defined by graduate grade point average?

Method

An *ex post facto* study of graduate student admissions data from one large Western university was conducted to determine the specific variables that were predictive of success in graduate school. Success was defined by graduate grade point average (GPA) at the time the degree was awarded. An artificial neural network (ANN) computer program, Statistica, was utilized to analyze the data. ANN technology is one form of data mining that utilizes archival data to extract a decision rule from a sample of data to apply to new data. SPSS was also utilized to run descriptive statistics and multiple regressions.

PARTICIPANTS AND SITE

The original sample was composed of 5,206 students who entered the university's graduate school between Fall 1990 and Spring 1994. Due to the nature of artificial neural networks, a large sample size is preferable to maximize the predictive capability of the model. Weiss and Kulikowski (1991) stated that a sufficiently large training set would provide accurate performance measures. The sample was not a random selection of students, but rather all graduate students who entered the university graduate school.

DATA ACQUISITION AND PROCEDURE

Data were obtained from the main university database. Based on a review of literature and an examination of the variables available, the following decisions were made concerning which variables to use in the study. The college and department attended by the student reported similar information. To reduce the number of variable levels, the attended college was used. There also appeared to be a high level of multicollinearity between citizenship, college, and ethnicity. In addition, the variable ethnicity was only 84 percent complete, so ethnicity was eliminated. Undergraduate GPA and credits were also eliminated due to the amount of missing data. Citizenship country was recoded to citizenship continent, resulting in six levels, and residency state was recoded to residency region, resulting in six regions. Graduate GPA was selected as the outcome variable. Table 2 reports the final list of variables used in the study.

The original sample size of 5,206 was reduced to 3,097 cases (or students). Eliminated were Ph.D. students, non-degree

Table 2: Variables, Levels, and Percent of Complete Data

Variable	Level of Measurement	# of Levels	Mean	Complete (%)
Independent				
College	Nominal	8		100
Gender	Nominal	2		100
Marital Status	Nominal	2		98
Age at Entry	Interval		31	99
Citizenship Continent	Nominal	6		99
Residency Region	Nominal	6		100
GRE Analytical	Interval		566	86
GRE Verbal	Interval		510	86
GRE Quantitative	Interval		589	86
Dependent				
GRAD GPA	Interval		3.7	99

seeking (post-doctoral students), and MBA students due to the cohort nature of the program.

DATA ANALYSIS USING ARTIFICIAL NEURAL NETWORKS

Descriptive statistics and frequencies were run to further define the sample. Next, Statistica was utilized to develop a predictive model. The Statistica program has the ability to randomly divide the sample into three subsets: a larger group to train the network, one to test the network, and one to verify the test. To ensure accurate testing, Weiss and Kulikowski (1991) recommend using this verification technique on large to medium sample sizes. ANN technology has the ability to “learn” from a training sample. Learning is defined as “choosing or adapting parameters within the model structure that work best on the sample at hand and other samples like them” (Weiss and Kulikowski 1991, p. 4). Put another way, the input weights that are modified as a series of input instances (epochs) are repeatedly passed through the network. Each input unit or independent variable is assigned a weighted value. For example, a GRE analytical score could be assigned a weight of 0.3693, GRE quantitative score a weight of 0.6700, and GRE verbal score a weight of 0.2163. This means that the network is placing more importance on the GRE quantitative score than the other two, and more importance on GRE analytical than GRE verbal for this single epoch of the network. These weights will change as each epoch passes through the network as it works through the process of training. The weights of all the input variables are summed and a net weight is calculated. The net weight is passed through an activation function where inputs are converted to a single output value. The activation function has two parts: the combination function and the transfer function. In the combination function, inputs are combined into a single output. The most common choice of combination functions is the weighted sum. Berry and Linoff (1997) state that the standard weighted sum works well in most situations

and also works well when ANNs are used in practice. In the weighted sum, each unit is multiplied by its weight and the products are added together. In keeping with our previous example, if the GRE analytical score was 350 and the weight was 0.3693, its contribution to the weighted sum would be 129.255. The other two GRE scores would be treated similarly and the three products would be added together.

The product of the weighted sum is transformed into a working or transfer output. The weighted sum of the inputs is computed and transformed by a transfer function. The transfer function calculates the value of the output from the result of the combination function.

Although there are several types of transfer functions, Berry and Linoff (1997) identify three typical functions that are commonly used: the linear, the sigmoid, and hyperbolic tangent functions. The linear function has little added value to ANNs. It is simply mimicking linear regression or fitting the best line to a bunch of data points. The choice between the other transfer functions depends on the nature of the data. If the dependent variable or output is nominal, a transfer function resulting in values between 0 and 1 is preferred and a sigmoid function is the best choice. If the output is continuous, then a transfer function scaling outputs between -1 and 1 is preferred and the use of a hyperbolic tangent will yield better results (VanEyden 1996). Statistica, the neural network software utilized in this research, supports two types of transfer functions—scaled and nominal. The process of converting weighted sums to output values through the use of transfer functions is not apparent in the training results. This is where ANNs get their reputation as being “black box” prediction methods and the means by which the model obtains a minimum error difficult to interpret.

The difference between the current output and the desired output is calculated. The resulting value is the current error. The resulting error value will determine the adjustment to the inputs weights in order to adjust the network functionality to converge closer to the desired output value.

There are numerous algorithms that can be applied to ANNs that allow the network to manipulate the error and learn. The back propagation algorithm was chosen because it is the most common and easiest to understand (Cabena *et al.* 1997). In essence, the information obtained is “back propagated” to the previous layer. The current error equals the back-propagated value. Using the back propagated error value, the weights of the inputs are modified. The network runs another epoch and the process repeats. This is continued until the error achieved is minimized. An error of 0, or no error, is problematic. This means that the network has memorized the

data, and the prediction process when running the network on new data is eliminated.

Several ANN models are available in Statistica. The Multilayer Perceptron (MLP) model was chosen for analysis for several reasons. First, an MLP is capable of modeling most real-world problems, sufficiently and adequately. Second, in performing multiple preliminary pilot tests on the data sets, the MLP consistently outperformed other network types such as the Radial Basis Function and linear models for predictability. A decrease in prediction error and a higher percent in the variability of GPAs could be accounted for. Third, in an interview with Rajiv Menta, CEO of Synergistics, Inc. and neural networking expert (personal communication 2000), MLP networks are a good choice for this type of research problem.

MODEL COMPARISON

The same variables used by ANN were related to the dependent variable of graduate GPA to validate their predictive capabilities and to further determine the accuracy of ANN. A similar process was documented by Gorr, Nagin, and Szczypula (1994) and Zhang, Patuwo, and Hu (1997), in which neural network predictive capabilities were compared to regression results to determine which model best predicted a particular outcome variable such as grades in graduate school. These results were mixed. Zhang, Patuwo, and Hu (1997) found that ANNs were superior to multiple regression techniques. Gorr, Nagin, and Szczypula (1994) determined that ANNs have no better predictive power than other traditional statistical techniques. This study was performed to shed some additional light on this controversy.

Results

DESCRIPTIVE STATISTICS

SPSS was used to gather descriptive statistics. Results of the nominal variables are reported in Table 3 including the n and percentage. Table 4 reports the n, mean, standard deviation, and skewness of the interval level variables.

- **Demographics.** The gender split was fairly even with 52 percent male and 48 percent female. Marital status was also fairly even with 44 percent married and 55 percent single. The data did not contain numbers for divorced students.
- **College.** The College of Applied Human Sciences held the highest number of students with 28 percent, followed by Liberal Arts with 19 percent, Engineering with 17 percent, and Natural Resources with 11 percent.

- **Citizenship and Residency.** Based on the location of the university, the majority (54 percent) of the students were in-state residents at the time they applied to graduate school. The database was not updated if a student's residency status changed while attending graduate school. The majority of the students (89 percent) were residents

Table 3: Descriptive Statistics of Nominal Variables for Graduate Students (n=3,097)

Variable	%
Gender	
Female	48
Male	52
Marital Status	
Single	55
Married	44
College	
Applied Human Sciences	28
Natural Sciences	7
Natural Resources	11
Vet Med	5
Business	8
Engineering	17
Liberal Arts	19
Agriculture	5
Citizenship Continent	
North America	89
South American	1
Europe	1
Asia	6
Africa	0.5
Middle East	1
Residency Region	
Colorado	54
West	11
Midwest	9
Northeast	6
South	5
International	14

Table 4: Descriptive Statistics of Interval Variables for Graduate Students

Variable	n	M	SD	Skewness
Independent Variables				
Age at Entry	3096	30.80	7.70	0.91
GRE Verbal	2650	511.00	110.40	-0.11
GRE Quantitative	2650	579.00	125.30	-0.25
GRE Analytical	2635	563.00	118.00	-0.31
Dependent Variables				
GPA	3078	3.69	0.33	-3.13

of North America (United States and Canada). Six percent of the students came from Asia, while the other four regions were represented at 1 percent or less. The mean age of the students in the database was 31. The graduate GPA was 3.69, but this measure was highly skewed with more than half having a 3.80 or above. The GRE scores were above national averages, with a 511 for verbal, 579 for quantitative, and 563 for analytical.

RESEARCH QUESTION #1

Is there a combination of admissions variables that predicts graduate GPA better than any one variable alone and if so, what is that combination?

- **Multiple Regression Results.** Simultaneous multiple regression was performed on the combination of variables outlined previously. Table 5 reports the correlations and Table 6 reports the results of the multiple regression. It is important to note the direction of the correlation for nominal variables in these tables. A negative correlation indicates that the level within the nominal variable with the lowest code number has a higher GPA.
- **Correlation Results.** As reported earlier, Table 5 indicates that there is a significant positive relationship between GPA and North American continent, college of Applied Human Sciences, GRE verbal, and GRE analytical at the $p < 0.01$ level. There are significant negative relationships with gender and marital status, indicating that females and married students have higher GPAs. These variables may be significant predictors in the regression model. It is also interesting to note that continent, region, and college are all significantly related at the $p < 0.01$ level. Thus, these

variables report somewhat similar or overlapping information; this is known as multicollinearity.

- **Simultaneous Regression Results.** According to Table 6 (on page 25) the $F(33,58)$ is statistically significant, indicating that one or more of the independent variables is a significant predictor of GPA. The combination of region, gender, marital status, college, GRE verbal scores, and GRE analytical scores can predict GPA. College is the most significant predictor ($\beta = 0.208, p < .001$). Gender and marital status are both significant predictors, however, female gender ($\beta = -0.127, p < .001$) is a slightly better predictor than married marital status ($\beta = -0.110, p < .001$). Region other than the state where the studied university is located is also a significant predictor ($\beta = -0.049, p = 0.015$), as are GRE verbal ($\beta = 0.096, p < .001$) and GRE analytical ($\beta = 0.113, p < .001$) scores. Although the regression model indicates that there is predictability in this combination of variables, the percentage of variance that can be predicted by these variables is relatively small (Adjusted $R^2 = 0.102$). This combination of variables can predict 10 percent of the variance in GPA. The effect size is medium ($R = 0.324$), meaning there is a moderate relationship between the combination of college attended, gender, marital status, residency region, the GRE verbal, and the GRE quantitative scores with GPA.

In summary, the multiple regression model indicates that students from the College of Applied Human Sciences, who are not residents of the state being studied, are married females, and have higher GRE verbal and analytical scores have higher GPAs.

Table 5: Correlation for Admissions Variables for Master's Students

Variable	Graduate GPA	N. America or Other Continent	Colorado or Other Region	Age At Entry	Gender	Marital Status	College of AHS or Other College	GRE Verbal	GRE Quantitative	GRE Analytical
Graduate GPA	1.000	0.124 ²	0.026	-0.010	-0.165 ²	-0.089 ²	0.196 ²	0.138 ²	0.006	0.140 ²
North America or Other Continent		1.000	0.324 ²	-0.047 ²	-0.125 ²	0.042	0.106 ²	0.420 ²	-0.166 ²	0.241 ²
Colorado or Other Region			1.000	0.056 ²	-0.114 ²	-0.125 ²	0.165 ²	0.086 ²	-0.190 ²	-0.042 ¹
Age at Entry				1.000	-0.005	-0.044 ¹	-0.005	-0.006	-0.007	-0.053 ²
Gender (males higher)					1.000	-0.082 ²	-0.287 ²	0.010	0.332 ²	0.032
Marital Status (singles higher)						1.000	-0.043 ¹	0.024	0.030	0.072 ²
College of AHS or Other College							1.000	0.194 ²	-0.348 ²	-0.205 ²
GRE Verbal Score								1.000	0.330 ²	0.578 ²
GRE Quantitative Score									1.000	0.596 ²
GRE Analytical Score										1.000

¹ $p < 0.05$

² $p < 0.01$

Table 6: Multiple Regression Results**

Variable	B	Std. Error	β	p
North America or Other Continent	0.0433	0.024	0.042	0.075
Colorado or Other Region	-0.0303	0.012	-0.049	0.015
Age at Entry	0.0002	0.001	-0.005	0.775
Gender	-0.0783	0.013	-0.127	<0.001
Marital Status	-0.0683	0.012	-0.110	<0.001
Applied Human Sciences or Other College	0.1400	0.014	0.208	<0.001
GRE Verbal Score	0.0003	<0.001	0.096	<0.001
GRE Quantitative Score	0.0001	<0.001	0.022	0.429
GRE Analytical Score	0.0003	<0.001	0.113	<0.001
Constant	3.8500	<0.001	-	-

* Note: R=0.324, R²=0.102, F=33.58, p<0.001

Table 7: Artificial Neural Network Results**

	Test 1	Test 2	Test 3	Test 4	Test 5
R	0.296	0.334	0.249	0.310	0.327
R ²	0.088	0.112	0.062	0.096	0.107

* Input Variables: GRE Verbal Score, GRE Quantitative Score, GRE Analytical Score, College, Gender, Marital Status, Residency Region, Citizenship Continent, Age at Entry

Table 8: Comparing Artificial Neural Networking to Simultaneous Multiple Regression

	Best ANN	Regression
Predictor Variables (In order)	College Marital Status Gender GRE Analytical GRE Verbal Region Age Continent	College Gender GRE Analytical Marital Status GRE Verbal Region
R	0.334	0.324
R ²	0.122	0.105

Artificial Neural Network Results

All available independent (input) variables were used to run five multi-layer perceptron (MLP) neural networks to determine predictive models for GPA. Table 8 reports these results. Indicators of network performance were reported as a multiple correlation (R), and by mathematically squaring R, an R² was obtained. Correlation is defined by Statsoft as a multiple R. These numbers are most closely related to the R and R² statistic reported in simultaneous regression. An adjusted R² was available in the regression output; however, no adjusted R² was provided by the ANN output.

■ **ANN Results.** As seen in Table 7, the second ANN test produced the best multiple R results of the five test runs. The significant predictor variables reported by this network included college, gender, marital status, GRE analytical, and GRE verbal scores. College was the first to load and determined to be the best predictor of GPA, or it can be said that the performance of the network would deteriorate

the most if college was not included as a predictor variable. The next variables to load were marital status and then gender. GRE analytical loaded before GRE verbal, followed by region, age, and citizenship continent. The multiple correlation was R=0.334 and the R² was 0.11. This indicates that 11 percent of the variance in GPA at the master's level can be predicted by a combination of college, gender, marital status, GRE analytical, and GRE verbal scores.

RESEARCH QUESTION #2

Do artificial neural networks perform better than traditional statistical techniques in predicting success in graduate school as defined by graduate grade point average?

■ **Comparing Models.** As Table 8 reports, the ANN and simultaneous regression models performed in a similar manner. They both loaded the same variable first—college. The next three variables to load for each model were the same, but they loaded in different order. The ANN model loaded marital status, gender, and GRE analytical scores in that order. The regression model loaded gender, GRE analytical scores, and marital status, in that order. Both models loaded GRE verbal scores and region as the fifth and sixth variables to have predictive value. The ANN model added age and citizenship continent as the seventh and eighth predictive variables.

In comparing the R and R² statistics, there are also similarities. The adjusted R² was not used for comparison purposes because there was no adjusted R² statistic available in the ANN output. There was only 0.01 difference between the multiple Rs of the models with the best ANN model being slightly higher (R=0.334). Similarly, the R² statistics only yielded a difference of 0.017 with the best ANN model being slightly higher at R²=0.112. There is a 1.7 percent difference in the predictive ability of these models and the predictive variables are very similar. It is also important to note that of the five ANN models run, two of the models indicated better predictability of GPA, while three of the models indicated lower predictability.

Discussion

VARIABLE AND MODEL DISCUSSION

College loaded as the first significant predictor of GPA for both models. The fact that no other studies cited college as a

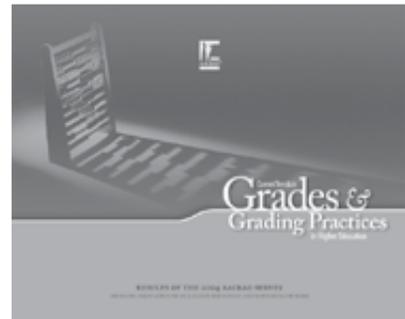


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predictor of GPA was most likely due to their focus on admissions within a particular college, rather than university-wide as this study did. Gender loaded in the top three in both models. This is consistent with Paolillo (1982), who found gender to be significantly related to GPA when the two variables were correlated ($r=0.14$, $p=0.05$). However, Graham (1991) found no statistical significance between gender and GPA for master's students using a stepwise regression model. Marital status was also found to be a significant predictor of GPA in both models. Both Paolillo and Graham found no statistically significant predictability of marital status on GPA for master's students. GRE analytical and verbal scores were found to be significant predictors of GPA in both models. Morrow (1993) found GRE analytical scores to have the highest correlation to GPA of all three GRE scores ($r=0.57$, $p=0.01$). In addition, Morrow found a significant correlation ($r=0.42$, $p=0.01$) between GRE verbal scores and GPA. Nelson and Nelson's 1995 study found GRE analytical scores but not GRE verbal scores to be statistically related to master's degree completion for probationary students ($p=0.03$), and determined the inverse as related to degree completion for regularly admitted students. Brown and Weaver (1979) determined that the GRE verbal score was a clear predictor of graduate grades for 129 journalism students at Indiana University (no statistical results were provided). Kirnan and Geisinger (1981) determined that there was a significant relationship ($r=0.43$, $p<0.001$) between GRE verbal scores and grades on a master's comprehensive examination.

Residency region had predictive value in both models; however, it was one of the last variables to load in each, indicating that the predictive value was weak. Gorr, Nagin, and Szczypula (1994) included residency as a predictor variable in determining GPA for North Dakota State bachelor of science students and found no statistical significance. It is possible that if international students were not included as a level in the residency region variable, similar results to the Gorr, Nagin, and Szczypula study would have been found.

Age and continent were considered significant predictor variables in the ANN model but not the regression model. Fisher and Resnick (1990), Graham (1991), and Paolillo (1982) included age as a potential predictor of GPA for master's students and found no predictive value. Citizenship continent was not included as a predictor variable in the existing literature. Neither model found predictive value with GRE quantitative scores. However, predictive value in the GRE quantitative score was found in several other studies. King, Bruce, and Gilligan (1993) reported that the GRE quantitative score had better predictive value of GPA than either of the other GRE scores (verbal and analytical) for students in the Harvard Government Department. Morrow (1993) found GRE quantitative scores to be significantly correlated to GPA ($r=0.40$, $p=0.01$); however, it was the weakest correlation of all three GRE scores. Kirnan and Geisinger (1981) found a correlation ($r=0.27$, $p<0.001$) between GRE quantitative scores and a master's comprehensive examination. Nelson and Nelson's

(1995) logistic regression model found statistical significance between GRE quantitative scores and master's degree completion for probationary students ($p=0.01$), but no significance for those students admitted regularly. Brown and Weaver (1979) determined that GRE quantitative scores had predictive value for GPA only for journalism students entering with no previous professional experience. The predictive value of GRE quantitative scores is inconclusive.

MODEL COMPARISON

Referring back to Table 8, which compares the simultaneous regression model and the ANN model, there are strong similarities in variables determined to be predictors of GPA and the squared multiple correlations. It can be concluded that the regression model and the ANN model perform similarly with this research question, with the ANN perhaps having a higher sensitivity to variables with weaker predictive power than the regression model. Regression could account for 11 percent of the variance in GPA and ANNs could account for 12 percent. These results are consistent with the only other study found in the field of educational research where ANN technology was compared to traditional statistical methods (Gorr, Nagin, and Szczypula 1994). It was determined that ANNs performed no better than traditional methods in determining GPA. Studies in other fields, however, did determine ANNs to outperform traditional statistical methods (Chance, MacLin, and Lykins 1993; Everson 1994; Lykins and Chance 1992; MacLin, Chance, and Lykins 1993). In a review of literature by Zhang, Patuwo, and Hu (1997), which compared ANN technology to traditional statistical methods across multiple types of research projects, results were mixed. Of the eleven reviewed studies, three studies found ANNs to be inferior to regression; three studies found similar results to this study and concluded them to be no different; and five studies reported ANNs to be superior to traditional statistical methods.

LIMITATIONS OF THE STUDY

The design of the proposed study was restricted to the students and admission data that were previously collected by the university, giving the researcher no control over the data, how it was entered into the university database, and how well it was maintained. Creating and maintaining an accurate historical database is paramount for analysis of the admissions process.

The statistical packages—Statistica and SPSS—were utilized for the data analysis. Several other statistical packages are available.

This study focused on only one university's graduate students and may not be generalized to other institutions. Conducting a nationwide study would be problematic. Different colleges within different universities have varying admissions criteria and standards, which would make comparison difficult.

RECOMMENDATIONS FOR FUTURE PRACTICE AND RESEARCH

Practice

Caution needs to be taken in applying ANN technology in admissions decision making. Everson (1994) concluded that further research in the way neural networking computing can be used in conjunction with traditional statistical methods might improve our ability to accurately assess appropriate educational experiences for students. However, this researcher feels that further analysis and understanding of ANN technology is warranted before accurate practical application can be validated.

ANNs require larger data sets than traditional methods. When these large data sets are used in both ANNs and traditional methods, statistical significance is found but there may be little or no practical significance.

The use of different types of traditional statistical methods for assessing which admissions variables are accurate predictors of graduate student success may yield different results. Identifying different outcome variables, such as whether or not a student completes the degree, the use of logistic regression, or discriminate analysis may also lead to different conclusions.

Monitoring and assessing admissions policies and criteria need to be ongoing processes. Accurate and complete historical databases should be developed and maintained in such a manner to facilitate analysis.

Finally, there are ethical issues that need to be addressed. The use of variables such as ethnicity and age may or may not provide helpful information in regards to what makes a successful graduate student. Regardless of their informative value, basing admissions decisions on either of these factors is illegal. As researchers, is it ethical to include these variables in studies when no practical action can be taken based on the outcomes?

Future Research

Other outcome variables to define graduate student success should be studied. Brown and Weaver (1979) and Nelson and Nelson (1995) used the outcome variable of degree completion as a determinant of graduate student success. Fiedler, Foldes, Matranga, and Peltier (1993–94) looked at career success as a determinant of graduate student success. Tracking degree completion and employment of students after graduation may provide valuable insight into what type of admissions criteria are the best predictors of long term success.

The use of college as a predictor variable could be problematic. In fact, it is not an admissions criterion. Different colleges have different admissions criteria and standards. It is difficult and perhaps not accurate to compare students across colleges. There are two proposed solutions to this. First, standardization of GPA across colleges might reduce the effect that the variable college places on the other predictors. Another solution, and perhaps a better one, is to look at colleges on an individual basis. Nelson and Nelson (1995) stud-

ied admissions criteria across eight different colleges and concluded that predictors of graduate student success depended on the major area of study.

A final consideration for admissions committees and future researchers in the area of graduate admissions is that the studied admissions variables taken together were able to accurately predict 12 percent of the variance in GPA. This leaves abundant room for additional assessments of a student's potential success or failure. Such assessments may include more qualitative requirements such as letters of recommendation, writing samples, interviews, portfolios, and prior professional experience. Other research has determined predictability from other sources of data such as interviews and portfolios (Clark and Palattella 1997; Hall and Bailey 1992). What is needed is the development of quantitative models or procedures to objectively measure or evaluate these types of admissions requirements.

Conclusion

Admissions is a complex issue. Even though we study admissions variables in an attempt to predict the success of graduate students, the final decision as to whether a student is admitted or not will always involve human judgment. This study was able to determine certain variables that could predict 10–12 percent of the variance in GPA, and perhaps there are other variables that could improve that number. Gorr, Nagin, and Szczypula (1994) and King, Bruce, and Gilligan (1993) concluded that human judgment was equal to or better in selecting successful graduate students than statistical models. When humans judge humans, some clues can be obtained from the numbers, but determining which students are admitted to graduate school is not solely a numbers game. This research supports these findings, in concluding that quantitative data can offer some level of help in determining which graduate students will be successful. This help, however, is small and offers little practical significance in our ability to predict individual student success.

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n Evaluation of Enrollment Management Models of the 28 Florida Community Colleges

The purpose of this study was to determine the extent to which enrollment management models have been successfully implemented within the 28 Florida community colleges. The study also sought to determine when enrollment management structures began and whether expected benefits were achieved.

Analysis of the data collected in this study indicated the following five major findings. First, enrollment management concepts and practices have been implemented at some level within the 23 Florida community colleges surveyed. Second, enrollment management models reported were determined to be relatively new in comparison to four-year institutions. Third, some enrollment management divisions appeared to have key enrollment offices displaced. Fourth, increasing enrollment was the strongest reason for implementing the enrollment structure and subsequently was the strongest benefit realized. The fifth finding was that moving key enrollment offices such as financial aid into the enrollment management organizations would be an improvement to existing models.

By Thomas LoBasso

From the period of 1950 through the early 1970s, colleges and universities experienced unprecedented enrollment growth. Total college enrollment in 1950 increased by 78 percent from 1940, and by 1970, college enrollments reached over 8 million students, an increase of 120 percent from 1960 (Coomes 2000). Coomes credited the passing of the G.I. Bill in 1944 and the Higher Education Act of 1965 for much of the increase in college enrollments during this time period. The Vietnam War also supported the steady growth as young men enrolled in colleges in hopes of a deferment from the war (Corcoran 1989). However, the decline in the birth rate during the 1960s and early 1970s reduced the number of high school graduates eligible to attend the country's colleges and universities (Penn 1999). This decline would impact enrollment during much of the 1980s and into the 1990s (Simpson 1997). Projections of enrollment shortages, the expansion of financial aid, and the increasing empirical research on the college choice process fostered the development of enrollment management during the mid-to-late 1970s (Coomes 2000; Hossler 1984). After decades of increasing enrollments, college officials began to see the need to address the issues of enrollment and enrollment management.

Enrollment management is a term that has been around for approximately 30 years. It is only since the early 1980s that enrollment management has grown in importance to institutions. Hossler and Bean (1990) referenced a college president who in 1986, compared the emergence of enrollment management as a major administrative function in colleges and universities to that of fund raising and development. Huddleston (2000) asserted that:

Concern for larger and more profitable enrollments in private colleges served as the impetus to develop an operational unit that would increase the integration, efficiency, and

effectiveness of key operations; improve tactics and strategies of those areas to strengthen articulation with prospective students; and following enrollment, enhance the retention of those new students (p.66).

The enrollment management concept was eventually adopted by many four-year public colleges and universities.

There are a number of definitions in the literature regarding enrollment management. As practitioners began to understand the comprehensiveness of enrollment management, their definitions reflected their growth. Dennis (1998) stated, "I realize that I have modified what I used to think of as enrollment management, or managing the enrollment of the entering class, to a more fluid and global concept, involving the entire campus community" (p.7). Hossler and Bean (1990) defined enrollment management with the following: "...we believe enrollment management is an organizational concept and systematic set of activities designed to enable educational institutions to exert more influence over their student enrollments" (p.5). Functionally, Penn (1999) suggested, "The professional enrollment managers can, by using information databases and a combination of theory and practice, provide academic deans, the president, and fiscal officers with information about programs, the quality of students, demographic trends for graduates and potential students, attrition, and image" (p.4). Huddleston (2000) suggested, "Optimally, an institution's enrollment is comprehensively developed and based on a strategic, integrative plan that includes the identification, attraction, selection, encouragement, registration, retention, and graduation of targeted student segments" (p.65). Dolence (1996) stated, "Simply defined, strategic enrollment management is: 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" (p.16).

These definitions of enrollment management demonstrate a holistic approach to influencing enrollment. The enrollment management model connects both the physical activity of enrollment, as well as the mission of the administrative units that were once independent functions with independent ideals. Dolence (1996) sums up the breadth of strategic enrollment management (SEM) with the following: "There is a simple SEM rule—any factor that influences a student's decision to attend or to continue enrolling is fair game for enrollment management" (p.16). The common thread that is identifiable with this concept is the holistic and synergetic mindset that an entire institution possesses with the management of its enrollments (Beal 1996).

Significance of the Study

The core purpose of enrollment management is to maximize enrollments in the most efficient and effective manner. As state funding continues to decrease, the enrollment management model will play a larger role in institutions' ability to maximize their resources. The answers to the research questions could provide valuable information to college officials and enrollment professionals regarding the evolution of enrollment management models in the Florida community college system. Further, the study will provide information on Florida's community colleges' enrollment organizational structures and the level in which the chief enrollment officers perceive them to be successful.

Purpose of the Study

The purpose of this study is to investigate how enrollment management models have been implemented and how they are viewed in terms of success and shortcomings in the 28 Florida community colleges. The desired outcome of the study is to obtain information on the extent to which the 28 Florida community colleges have adopted an enrollment management model, as well as the assets and challenges associated with the models. The study will also provide information on whether the models achieved their intended purposes. The majority of the literature on enrollment management is based on four-year colleges and universities. The intent of the study is to add to the emerging literature on enrollment management for community colleges.

Methodology

POPULATION AND DATA COLLECTION PROCEDURES

The population of the study consisted of the chief enrollment officer for each of the 28 Florida Community Colleges. A total of 82 percent of the targeted respondents participated in the survey (n=23). Except for one, all of these individuals reported directly to the president of each college. Participation in the Enrollment Management Organizational Survey was

voluntary. A qualification telephone call to each community college took place to identify an enrollment organization. The telephone call also served to identify the chief enrollment officer who would be contacted at a later date to complete the survey. Once an enrollment organization and a chief enrollment officer had been identified, a telephone call to the chief enrollment officer took place to arrange a date and time for the telephone survey. The majority of the interviews were conducted during November and December 2004. Three surveys were completed by e-mail rather than by telephone.

INSTRUMENTATION

In order to collect the necessary data for this study, the researcher used a modified version of the questionnaire used by Huddleston and Rumbough's (1997) study, which evaluated enrollment management models of public and private four-year colleges and universities. A pilot test of the instrument was conducted with several employees at Daytona Beach Community College who were familiar with enrollment management terminology. All questionnaires were completed and no difficulties were reported.

Items on the questionnaire addressed the membership of the enrollment organizations and the major divisions to which they report. Other items asked to identify what benefits or detriments were expected with the configuration of the model and whether they were realized. The questionnaire also addressed whether the enrollment structure had or had not met expectations, as well as the respondents' overall satisfaction. Open-ended questions addressed the most significant improvement realized as well as whether the respondent felt his or her model could be improved, and if so, how. An opportunity for additional comments was also provided. A 5-point Likert scale was used to determine expectations of the reconfiguration of the enrollment organization and the degree to which expected benefits or detriment were met. A 5-point Likert scale was also used to measure the respondents' overall satisfaction with their respective enrollment management models. A 3-point Likert scale was used to establish the degree to which the enrollment models met the respondents' expectations.

The Impetus for Enrollment Management

The majority of the literature available on enrollment management is based on four-year colleges and universities. It is only in recent years that community colleges have considered enrollment management concepts and practices. Student enrollment accounts for the majority of the revenue generated by most colleges and universities. In the state of Florida, whether revenue is earned in the form of a full-time equivalent formula, student headcount, or tuition paid by students, enrollment is the economic engine of the university and community college system. In the 2004–2005 budget year, the revenue projected to be received by the Florida Community College System was broken down as follows: 30 percent from student fees, 7 percent from the Florida Lottery, and 63 percent

from general revenue (Legislative Summary Financial Affairs Briefing Package 2004–2005).

The realization that inadequate enrollment would equate to financial instability, coupled with reports predicting the decline of high school graduates, signaled the advent of enrollment management during the early 1970s. Breneman (2003) described a study conducted in 1971 that demonstrated the financial climate. “Indeed, in *The New Depression in Higher Education*, a prominent study in 1971 for the Carnegie Commission on Higher Education, Earl F. Cheit reported that, of the 41 institutions he had visited, most were in financial trouble or headed that way” (p. B7). These types of reports during the 1970s caused concern in many colleges and universities that they were not prepared to actively recruit college-bound students. Thus, recruitment activities began to occur during this time (Hossler and Bean 1990).

Enrollment management has continued to evolve into a concept and practice to help institutions sustain viability in the marketplace. Dennis (1998) stated, “Since 1980, over 900 colleges and universities have closed their doors or merged with other institutions” (p.2). Dennis reported that in a 1997 survey conducted by the American Council on Education (ACE), 62 percent of the respondents indicated that enrollment challenges would be one of the most important issues facing their institutions. If colleges and universities are to increase productivity, improve student service, strengthen quality, and

effectively compete, a comprehensive approach to enrollment management is paramount (Huddleston and Rumbough 1997). Further, student enrollments affect institution image, character, and quality. For these reasons, enrollment management plays a key role in an institution’s strategic planning.

Enrollment Management Organizations

There are many different enrollment management models that are effective in practice, and there is no one right model that should be followed. Institutions should create models based on the unique circumstances and the strengths of individuals within the organization (Hossler 1990). Huddleston (2001) asserted, “The reporting areas for these organizational models vary. The enrollment organization may be an important part of academic affairs, student affairs, or the president’s portfolio” (p.125).

Early configurations of enrollment management typically consisted of moving the admissions and financial aid functions under one administrator’s direction to address recruitment issues. This was the beginning of admissions offices’ transition from their traditional role as “gatekeeper” to one of marketing admissions. Henderson (2001) stated that the integration of these two areas “...actually proved to be one of the earliest precursors of what we now refer to as enrollment management” (p.5). Reorganizing the admissions and financial aid offices began a trend of bringing other enrollment

Table 1: Enrollment Management Models, Characteristics, Assets, and Liabilities

Model	Characteristics	Assets	Liabilities
Enrollment Management Committee	Membership from the administration of enrollment departments and faculty. The committee addresses recruitment and retention issues.	Educates a large number of people. Builds support for enrollment management activities. Is inexpensive to assemble.	Has little influence over institutional policy. Multiple reporting lines make implementation of ideas difficult.
Enrollment Management Coordinator	An individual designated to coordinate efforts that influence recruitment and retention efforts. Some or all of the key enrollment departments do not report directly to this individual.	The identification of a person responsible for the coordination of enrollment management activities. Educates a large number of people and is less costly than a centralized model.	Does not have the formal authority to make decisions. Enrollment management issues are not discussed by top administrators.
Enrollment Management Matrix	A senior administrator who is responsible for enrollment, but, who does not have all the key enrollment departments (e.g., admissions, records and registration, financial aid, orientation, and advising) in their reporting lines.	Brings enrollment management responsibilities to a senior level administrator and related issues are discussed among the senior team.	The senior person may not have the time and expertise to be effective. Turf issues may arise when other senior members do not agree on goals and strategies.
Enrollment Management Division	An administrative division directed by a senior administrator whose enrollment organization encompasses the key enrollment departments (e.g., admissions, records and registration, financial aid, orientation, and academic advising) in their reporting line.	Brings all essential departments under one senior administrator. Enrollment management strategies can be easily implemented.	Difficult to create and is costly to implement.

services-related areas under one administrative unit. These other units could include: registrar, bursar, orientation, academic advising, career services, retention, institutional research, and marketing (Hossler and Bean 1990). Penn (2001), along with many other writers, argued that there is no ideal enrollment management model or system. However, she suggested that, “Interrelationships between certain offices and functions in any institution—such as admissions and financial aid; admissions, orientation and advising; market research and research on student attrition—seem to directly impact student enrollment” (p. 21).

Hossler (1990) expanded on the four enrollment management models first introduced by Kemerer, Baldrige, and Green in 1982. Hossler described these models as basic frameworks colleges and universities can use if they are interested in implementing an enrollment management system. These enrollment models may also serve as stages institutions may go through as they embrace this new paradigm.

Table 1 (on page 33) illustrates the characteristics, assets, and liabilities associated with the various types of enrollment management models as described by Hossler (1990).

Enrollment Management Models Defined

In order to associate enrollment management models with the colleges surveyed, the researcher operationally defined the models to include a minimum membership for each model.

- **Enrollment Management Committee:** A group of college personnel representatives of the offices that influence enrollment (*e.g.*, admissions, records and registration, financial aid, orientation, and advising) and faculty.
- **Enrollment Coordinator:** An individual designated to coordinate efforts that influence enrollment activities (recruitment and retention). This individual is not responsible for some or all of the key enrollment departments.
- **Enrollment Management Matrix:** A senior administrator who is responsible for enrollment, but, who does not have all the key enrollment offices (*e.g.*, admissions, records and registration, financial aid, orientation, and advising) in his/her reporting line.
- **Enrollment Management Division:** An administrative division directed by a senior administrator whose organizational structure encompasses the key enrollment departments or functions (*e.g.*, admissions, records and registration, financial aid, orientation, and advising) in his/her reporting line.

Based on the researcher’s operational definition, the majority of the institutions best associated with the enrollment management division model ($n=15$, 65.2 percent). Although the divisions had key enrollment offices housed under the purview of a senior administrator, the organizational charts demonstrated that some offices were displaced within these divisions. These key enrollment offices were within the same division but were aligned in different areas and sometimes outside units labeled “enrollment management” or “enroll-

Table 2: Summary of Frequencies for Titles of Organizational Models

Organizational Titles	n	%
Enrollment Services	7	30.4
Student Services	5	21.7
Enrollment Management	3	13.0
Enrollment and Student Services	1	4.3
Enrollment Development and Student Success	1	4.3
Student Development and Enrollment Services	1	4.3
Enrollment Services and Testing	1	4.3
Enrollment and Student Success	1	4.3
Post Secondary Transitions	1	4.3
Admissions, Records, and College Transitions	1	4.3
Student Success Services	1	4.3
Total	23	100.0

Table 3: Summary of Frequency for Titles of Professionals Responsible for the Enrollment Management Models

Titles of Professional Responsible	n	%
Director of Enrollment Management	1	4.3
Dean of Enrollment Services	1	4.3
Dean of Student Services	4	17.4
Dean of Student Affairs	1	4.3
Director of Enrollment Services	3	13.0
Coordinator of Enrollment Services	1	4.3
Dean of Enrollment and Student Services	1	4.3
Associate Dean of Enrollment Services	1	4.3
Executive Vice President and Chief Instructional Officer	1	4.3
Vice President of Student Development and Enrollment Services	1	4.3
Vice President of Student Services	2	8.7
Vice President of Student Affairs and Enrollment Management	1	4.3
Vice President of Student Affairs	1	4.3
Vice President of Student Success	1	4.3
Associate Vice President of Enrollment and Student Services	1	4.3
Associate Vice President of Enrollment Development and Student Success	1	4.3
Associate Vice President/Provost of Main Campus	1	4.3
Total	23	100.0

ment services.” The literature is consistent with the identification of the key offices that play an important role in enrollment management. Conversely, in the literature, it was also clear that the design of enrollment management models may vary and that there is no ideal configuration. Many of the divisions in this study could be considered a matrix within a division. Even with these “matrix within a division” cases, the chief enrollment officers had all the key offices under their purview to coordinate and implement enrollment

management policies and programs. The implication for the models that have displaced enrollment offices is that efficiency, coordination, and effectiveness could be further improved if additional consolidation occurred.

The next most frequent model associated with the respondents' enrollment organizations was the matrix model ($n=7$, 30.4 percent). In these cases at least one of the key enrollment offices falls outside the division of the chief enrollment officer. The key department most frequently displaced in these cases was the financial aid office (in six of seven instances). Three of the respondents in this category stated that moving financial aid into their division would improve their model. As described in the literature by Hossler (1990), the implication for institutions in this model is that missing one or more key enrollment offices could make it difficult to implement enrollment management initiatives.

Only one institution was associated with the coordinator model. This institution had recently implemented this position, which had no direct reporting line to enrollment offices. The implications for this institution are that enrollment management policies and practices are difficult to implement. The respondent in this case indicated it takes too long for decisions to be made and to be implemented once they are made.

Though there were no colleges associated with the committee model, 18 (69 percent) of the respondents indicated they had a college-wide committee that addressed recruitment and retention issues.

The respondents were requested to indicate the title of the organizational models at their institutions. The results, contained in Table 2 (on page 34), display titles, frequencies, and percentages reported by respondents. The word "enrollment" appeared in the title of seven of the eleven administrative units reported. This is significant in that the term "enrollment management" signified the advent of the profession for private and public institutions in the mid-1970s. The use of the word enrollment in the Florida Community College System was a signal that units were being developed and enrollment management concepts and practices were moving into this sector.

The respondents were asked to indicate the title of the individuals responsible for the enrollment structure at their institution. Table 3 (on page 34) displays the frequency and averages of titles reported. A total of seventeen different titles are presented, twelve of which include the word "enrollment." Again, the use of the word "enrollment" in an individual's title is significant in that it signals that Florida community

Table 4: Summary of Frequencies of Offices/Functions within the Organizational Models

Offices/Functions	Yes		No	
	n	%	n	%
Recruitment	22	95.7	1	4.3
Admissions	23	100.0	0	0.0
Registrar	23	100.0	0	0.0
Financial Aid	17	73.9	6	26.1
Retention	21	91.3	2	8.7
Orientation	22	95.7	1	4.3
Advising	20	87.0	3	13.0
Academic Support	18	78.3	5	21.7
Career Services	16	69.6	7	30.4
Cooperative Education	11	47.8	12	52.2
Alumni Relations	2	8.7	21	91.3
Marketing	4	17.4	19	82.6
Institutional Research	4	17.4	19	82.6
Bursar	3	13.0	20	87.0
Assessment Services	11	47.8	12	52.2
Disability Services	7	30.4	16	69.6

Table 5: Summary of Frequencies of Time Periods to Which Enrollment Management Structures Were Developed

Time Period	n	%
1956–1960	1	4.3
1961–1965	0	0.0
1966–1970	1	4.3
1971–1975	1	4.3
1976–1980	0	0.0
1981–1985	0	0.0
1986–1990	3	13.0
1991–1995	1	4.3
1996–2000	9	39.1
2001–2005	7	30.4
Total	23	100.0

colleges have recognized the enrollment management profession. Additionally, it indicates that the Florida community colleges are identifying a person to organize enrollment management efforts.

Table 4 represents the respondents' answers as to what offices or functions listed on the questionnaire were within the chief enrollment officers' organizational model. The literature suggests that recruitment, admissions, registrar, financial aid, orientation, retention, and advising are key offices of enrollment management (Claggett and Kerr 1994; Hossler and Bean 1990; Penn 1999). The results of this survey suggest that the Florida community colleges are consistent with existing research. Table 4 provides the frequency and averages of each office or function as indicated by the respondents.

Each respondent was asked to indicate the time frame in which his or her institution began the development of a more comprehensive enrollment structure. Table 5 demonstrates the frequency of time periods and their averages. The literature

Table 6: Summary of Frequencies of Benefits Expected with the Configuration of Current Enrollment Models

Benefits or Detriments	No Effect (%)	Moderate Benefit (%)	Strong Benefit (%)	Did Not Apply (%)
Increase Quality of New Students	13.0	34.8	26.1	26.1
Increase Student Enrollment	4.3	17.4	78.3	0.0
Improve Student Retention	8.7	43.5	47.8	0.0
Increase Graduation Rate	13.0	34.8	52.2	0.0
Increase Student Diversity	13.0	34.8	43.5	8.7
Increase Student Satisfaction	4.3	26.1	69.6	0.0
Improve Academic Support Services	21.7	26.1	39.1	13.0
Strengthen Internal and External Communication of Student Information	4.3	30.4	65.2	0.0
Enhance Marketing Capabilities	13.0	26.1	56.5	4.3
Improve Efficiency of the Units Within the Model	4.3	21.7	73.9	0.0

Table 7: Summary of Frequency of Benefits Produced with the Configuration of Current Enrollment Models*

Benefits or Detriments	n	No Effect (%)	Moderate Benefit (%)	Strong Benefit (%)	Did Not Apply (%)
Increase Quality of New Students	22	17.4	34.8	17.4	26.1
Increase Student Enrollment	23	4.3	39.1	56.5	0.0
Improve Student Retention	22	17.4	47.8	30.4	0.0
Increase Graduation Rate	22	21.7	52.2	21.7	0.0
Increase Student Diversity	23	17.4	39.1	34.8	8.7
Increase Student Satisfaction	23	13.0	47.8	39.1	0.0
Improve Academic Support Services	23	17.4	34.8	34.8	13.0
Strengthen Internal and External Communication of Student Information	23	8.7	39.1	52.2	0.0
Enhance Marketing Capabilities	23	8.7	39.1	47.8	4.3
Improve Efficiency of the Units Within the Model	23	8.7	34.8	56.5	0.0

* Note: Not all respondents completed every survey item

indicated that enrollment management began in the early 1970s with private four-year colleges followed by public four-year colleges (Coomes 2000; Hossler 1984; Huddleston 2000). The two most recent time periods (1996–2000 and 2001–2005) were selected by the majority of respondents as the time period for the development of a more comprehensive enrollment structure. These two time periods represent 16 (69.4 percent) of the 23 respondents and suggest that enrollment management is relatively new at the Florida community colleges surveyed in this research study. This observation may also indicate why there is limited literature on community colleges and enrollment management.

Table 6 demonstrates the percentage of responses for each benefit expected with the configuration of the respondents' current enrollment structure. A total of 78 percent of respondents expected a strong benefit in that enrollment would increase as a result of the configuration of their models. The respondents support the findings in the literature, which suggests that many institutions disproportionately utilize enroll-

ment management efforts toward recruitment versus retention activities (Bean 1990; Dennis 1998; Huddleston and Rumbough 1997).

Table 7 demonstrates the percentage of responses for each benefit produced with the configuration of the respondents' current enrollment structure. Table 7 depicts whether the expectations as demonstrated in Table 6 were actually realized after the implementation of the respondents' current enrollment management model. The top five strongest benefits expected were the same top five strongest benefits produced. However, the strongest benefits produced in every case were lower than expectations.

The respondents were asked a series of open-ended questions regarding their experiences and feelings with their enrollment management models. The responses that follow were organized and classified into categories and themes from the open-ended questions. A synthesis, interpretation, and consolidation of the responses to the open-ended questions are presented.

Ninety-one percent (n=21) of the respondents felt their enrollment structure had met or exceeded expectations, while 8.7 percent (n=2) indicated their enrollment structure did not meet their expectations. Eighty-two percent (n=18) of the respondents felt satisfied or very satisfied with their enrollment structures.

Respondents were asked, based on their enrollment management models, to identify the most significant improvement produced. They were able to identify several improvements. The most significant improvements were categorized as follows: recruitment capabilities resulting in increased enrollment, communication and coordination within enrollment departments, and improved student services. Most responses were skewed toward the impact on new student enrollment. There was little mention of how the models impacted the retention of the current study body.

Respondents overwhelmingly believed that their organizational models could be improved. Ninety-six percent (n=22) of the respondents indicated that their model could be

improved. The areas for improvements indicated by the respondents were both organizational as well as operational and were categorized as the following: adding additional staff to enhance enrollment management practices, creating a one-stop center for enrollment services, moving enrollment offices (*e.g.*, financial aid, recruitment, and assessment services) into their divisions, streamlining internal processes (communications and coordination) and student services, and enhancing recruitment efforts.

Respondents were asked to indicate whether they would recommend their enrollment structure to other community colleges of their size. Forty-four percent ($n=10$) would recommend their structures to other community colleges of similar size. Approximately 52 percent ($n=12$) of the respondents indicated they would recommend their structures, but only with reservations. Only 4.3 percent ($n=1$) indicated they would not recommend their structures to other community colleges of their size. The results support the notion that “one size fits all” doesn’t always work. Often, leaders must augment their organizational structure to fit the strengths of the individuals within their organization.

An opportunity to offer additional comments was provided on the survey. The following is a summary of repeated responses as well as some individual responses. Some of the respondents indicated that “the right leader is important” to the success of enrollment management. It was evident that the person leading the enrollment management efforts had to possess the ability to view their organization holistically and know how to leverage their respective college’s resources towards common goals. Others felt that enrollment managers must balance the reliance on technology services with human services, or be “high tech with high touch.” Many felt that some institutions have shifted or replaced too many services conducted by people with online or automated phone systems. There were a few respondents who felt enrollment management was just beginning to evolve at their institutions. Some respondents felt that a better understanding of enrollment management is needed at their institutions. One respondent indicated that the person responsible for their enrollment structure attended the AACRAO Strategic Enrollment Management (SEM) Conference in November of 2004 to learn more about the concepts and practices. Finally, one respondent stated that the conceptual framework was more important than the structure.

Summary

In summary, the data collected in this study indicated the following five major findings. First, enrollment management concepts and practices have been implemented at some level within the 23 Florida community colleges surveyed. This was evident by the use of the



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word “enrollment” in the organizational titles as well as in the titles of the individuals who were responsible for the models. Second, enrollment management models reported were determined to be relatively new in comparison to four-year institutions. The literature on enrollment management demonstrated that four-year colleges began enrollment management practices in the early-to-mid 1970s. Much of the existing literature on enrollment management has been based on the experiences at four-year institutions. Third, some enrollment management divisions appeared to have key enrollment offices displaced. The key enrollment offices selected in this study were supported throughout the literature. Those offices represented were as follows: admissions, records and registration, financial aid, orientation, and advising. These key enrollment offices were within the same division but were aligned in different areas and sometimes outside units labeled “enrollment management” or “enrollment services.” Fourth, increasing enrollment was the strongest reason for implementing the enrollment structure and subsequently was the strongest benefit realized. The anticipated decline in high school graduates, and the expectation of subsequent declining college enrollments during the 1970s, provided the impetus for the adoption of models of enrollment management. The fifth finding was that moving key enrollment offices such as financial aid into the enrollment management organizations would be an improvement to existing models. As enrollment management concepts are implemented into practice, the realignment of related offices may be necessary to effectively accomplish goals.

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ying to Get In: Cinematic Views of College Choice

Movies are a pervasive cultural influence on the lives of young men and women. One only has to utter the words, “double secret probation” to a college audience to understand the extent of this influence. Yet the large body of research in film does not draw on higher education research. We explore how college choice and adolescent development theory can be used to analyze films about getting into college.

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When college movies are considered, the point of interest becomes how closely the research on college life follows the experience depicted on the silver screen. The purpose of this article is to explore the college choice and admission processes as depicted in popular movies and compare it to the research on college choice.

As one researcher notes, “Films both shape and reflect [values and opinions] sometimes intentionally, sometimes unintentionally” (Hinton 1994, p.5). For example, in the movies *Dead Man on Campus* (1988) and *The Curve* (1988), universities award a 4.0 GPA for the semester to the surviving roommates of students who commit suicide. In a survey, the majority of students on two campuses believed that their university and most others had a similar policy (Reisberg 1998). Thelin and Townsend (1989, p.196) ask, “Is undergraduate life portrayed in this way because things are this way, or is undergraduate life this way because it has been portrayed this way in novels and movies?”

Conceptual Framework

For our conceptual framework, we draw from college choice theory and adolescent development theory. Hossler, Schmit, and Vesper (1998) developed a theory of college choice composed of three stages: predisposition, search, and choice. The relevant stage for this study is choice, since the senior year is the focus of the majority of the films.

The senior year of high school is a time of turning points for students. Some parents, particularly those with low incomes, and/or low educational levels, or those whose children underachieve, actually lower their educational aspirations for their offspring, at least in part due to “sticker shock.” By the 12th grade, students rely on external sources of college information (schools, counselors, teachers, and peers). From Hossler, Schmit, and Vesper (1998), we identified eleven influences (“themes”) that can affect a student’s choice of

college: cost/aid, peers/siblings, parents, type of institution, location, academics, social life, faculty, counselors and teachers, academic preparation, and student background.

We use psychosocial theory to explore identity formation (Cross 1971, 1980; King and Mayhew 2002; Marcia 1967, 1980; Pope 1998; Smart, Ethington, and McLaughlin undated; Stage 1991), self-esteem (Bachman and O’Malley 1977; Smart, Ethington, and McLaughlin undated) and moral development theories (King and Mayhew 2002; Kohlberg 1969, 1971, 1976; Perry and Terenzini 1970). We also utilize developmental theory to explore the process of separation from parents (Chickering 1969).

Methods

For this study, we used two overarching research questions:

- How do college movies depict the college choice and admission process?
- How does the celluloid choice and admission process compare to college choice research?

DATA SOURCES

This paper reviews college movies produced commercially from 1988 to 2004, focusing on the images presented about the college application process. To identify movies that depict college admissions, we did several computer searches using the Internet Movie Database (<http://www.imdb.com>). Using key word searches, we browsed movie descriptions using the terms “college,” “student” and “admissions.” From this search, we identified eight movies: *Drumline* (2002), *Orange County* (2002), *Getting In* (1988), *How I got into College* (1989), *Rudy* (1993), *The Loser* (2000), *PCU* (1994), and *Perfect Score* (2004).

ANALYSIS

We used our theoretical framework to guide the development of a preliminary coding scheme, choosing the eleven

themes based on the research of Hossler, Schmit, and Vesper (1998) and six developmental tasks. The eleven starting themes were: cost/aid, peers/siblings, parents, type of institution, location, academics, social life, faculty, counselors and teachers, academic preparation, and student background. Each movie was viewed and extensive notes were taken. Each movie was reviewed and analyzed by at least two researchers; our entire group compiled the final analysis and discussion.

The title of this article, *Dying to Get In*, is derived from the plot of the campy *Getting In* (1994), in which someone is killing the students on the wait list at Johns Hopkins Medical School. Plot summaries of all of the movies are online at www.imdb.com.

Results

We discuss the salient findings from college choice and developmental themes.

COST OF ATTENDING COLLEGE

The cost of attending college is a theme in several of these movies; and there are differences by socio-economic status. In one film, a wealthy student tries to “buy” his way into the college of his choice. *Orange County*’s Shaun has convinced his self-centered and estranged father to contribute money to Stanford in an effort to be admitted. The father is appalled that his son wants to be a writer and risk poverty, but later offers a major gift to Stanford to cover the cost of a building that Shaun’s brother, Lance, burned to the ground trying to get Shaun admitted to Stanford.

On the other end of the economic scale are Dora and Paul (*The Loser*), Rudy, and Vera (*How I got into College*) who must get scholarships, work their way through, and, if necessary, defer their dreams while waiting to earn money for college. Rudy and Paul take jobs that provide housing as well as wages, without which they would be on the street. Dora is virtually homeless and befriends a homeless woman. This is clearly not a scene from the typical college movie!

These students are from poor or working-class families, and cannot attend college without financial assistance. Raised by families suspicious of loans, such assistance is in the form of working almost full-time while attending school. For the few with scholarships, there is tremendous pressure to keep the scholarship at all costs. For these poor and working-class students, the choice is not where to attend college but whether to attend any college.

INFLUENCE OF PEERS/SIBLINGS

All of the movies show the pervasive influence of peers in college choice. For Marlon (*How I got into College*), the choice is easy. He will follow Jessica, his secret love, to any college. Likewise, Mattie (*Perfect Score*) wants to follow his girlfriend to the University of Maryland. Yet his idea of the “right school” changes when he meets and bonds with Francesca during their attempt to steal the SAT.

Lawrence (*PCU*), the “pre-frosh” visiting Port Chester University, easily bonds with peers during his stay. A rather naïve high school senior in his preppy khakis and navy blazer, Lawrence is introduced to the diverse campus by his escort Droz. Lawrence’s eventual ability to bring together students for a night of fun earns him acceptance, a tidy feat for a pre-frosh. Perhaps this acceptance, or more likely, at least some level of comfort with the environment, is why so many colleges have these weekend visits for high school students.

In *Orange County*, Shaun’s decision to pursue his college choice is influenced by others. Shaun’s brother, Lance, never attended college. Living at home well into his late twenties, abusing drugs, and warding off his suspicious probation officer make Lance a shining example for Shaun of what happens to those who choose not to attend college. His surfer buddies underscore Shaun’s more than adequate academic preparation for his college of choice in much the same way as does Lance. Their lack of focus on a goal of any sort provides a direct contrast to Shaun’s determination that he must leave *Orange County* to gain the life he seeks.

In the movie *Rudy*, Pete—a childhood friend—is the only person who shares Rudy’s dream of attending college. At age 22, with both working in the steel mills of Chicago, Pete gives Rudy a Notre Dame jacket, and says, “You were born to wear that jacket.” Shortly thereafter, Pete is killed in a mill accident. In a living memorial to Pete, Rudy takes the \$1,000 he has saved for college and boards the bus for South Bend.

INFLUENCE OF PARENTS

College choice theory indicates that parents do have a substantial influence on where their children attend college. In our movies, parents both positively and negatively influenced college choice.

In an opening scene of *Rudy*, a young Rudy sits at the dinner table with his family. Rudy informs his family of his desire to attend Notre Dame and play football. His family laughs. Not only do they ridicule his attempts to play football, they indicate that a college degree simply isn’t necessary when there are “good” jobs available in the local steel mill.

In Rudy’s neighborhood, college is not something that most young people are encouraged to consider. Indeed, when Rudy is boarding the bus to South Bend, his father makes one last attempt to discourage him. Dad tells Rudy the story of how his own father came to America to make a good life. In a couple of years, he asserts, Rudy will make more than he. The message to Rudy is clear: don’t throw away your “good life” with a solid job for some ill-conceived dream of a college degree and football.

By contrast, Jessica (*How I got into College*) is the epitome of the perfect senior; she excels in everything. Her parents want her to attend the University of Michigan, a family tradition, but, Jessica wants to attend Ramsey, a highly selective private college in Pennsylvania. After much disagreement, Jessica’s parents eventually relent and let her make her own decision.

Getting In demonstrates the most aggressive attempt by parents to influence a student's choice of college. Gabe is a three-generation legacy to Johns Hopkins Medical School. Higgs family members are expected to uphold tradition and meet social obligations. But Gabe completely blows the MCAT exam (maybe he should have hooked up with the larcenous sextet in *Perfect Score*) and is afraid to tell his family that he is waitlisted for Hopkins. In the end, his parents let Gabe make his own choice, perhaps relieved that their son wasn't really the murderer.

SOCIAL LIFE

Oliver (*How I got into College*) is friend and confidant to Marlon. He chooses not to "play the college game" but to "see the world" after high school. Oliver represents social life in the context of this film. He is the fun loving anti-academic who supports his friends in their quest, all the while maintaining his individualism and personal goals. The viewer does not get much insight into the depth of Oliver's character; however, he is the only student in this film not suffering from insecurity and anxiety about his future.

Clearly, social life has a big influence on the choice of college. Virtually all of the characters had visited the college before their decision to attend and sampled the social life. From Shaun having fun at a fraternity party to Lawrence putting together the "party to save The Pit [the local fraternity]," all but the very poorest of the applicants could visit campus.

Counselors and teachers do play a role in our characters' choice of college. In the case of Shaun, counselor Charlotte Cobb has a perverse effect on his application to Stanford. Charlotte sends slacker Bob Buegler's transcript rather than Shaun Brumder's. She assures Shaun that he will gain admittance to his school of choice, labeling him a "shoo-in." Instead, Shaun is rejected, and sets out on his quest to enter Stanford. Shaun's English teacher is equally blasé about Shaun's academic aspirations; he prefers to teach Shakespeare's plays from a base grounded in "teenpic" movies of the day. In addition, Shaun's teacher prefers the attractive young women in the classroom and calls on them frequently while ignoring Shaun's raised hand.

Vera (*How I got into College*) is a studious young lady who works at McDonald's while keeping up her grades. Her widowed mother expects her to stay home and attend community college while working full time. A Ramsey College recruiter happens onto her in the high school library. Vera's first reaction to being recruited by Ramsey is to laugh. Only later does she take the idea seriously. Vera approaches her mother, who reminds her of her station in life. Vera continues to pursue Ramsey while an admissions counselor champions her cause. In spite of Vera's marginal SATs, the admissions counselor believes that Vera is the type of student that Ramsey should be supporting—a hard worker who is more than a score and who will make a difference in the world. In the end, Vera is accepted at Ramsey.

A priest at Rudy's high school reinforces the messages from his family about college. As Rudy boards the bus for a college visit to Notre Dame, the priest bars him, saying, "Not everyone is meant to go to college." Rudy turns back.

In *How I got into College*, Marlon's counselors play an important role in his application process. His high school counselor encourages Marlon to apply to colleges in Michigan's Upper Peninsula. His outside consultants are happy to take his money as they encourage him to be decisive in his answers as he retakes the SAT. With nothing outstanding about Marlon either in or outside of school, they encourage him to separate himself from the rest through marketing, positioning, and packaging. Marlon follows the "suicide" strategy where he only applies to one college.

ACADEMIC PREPARATION

The movies have little information on the characters' academic preparation for college because the students spend so little time in the classroom. Instead, they are shown interacting with peers, siblings, and friends on the college campuses.

STUDENT BACKGROUND

The differences in student background are evident in concerns about paying for college (Rudy, Vera, and Dora) and meeting parental/societal expectations (Gabe, Jessica, and Francesca). These stories are discussed earlier in the article.

The *Perfect Score* illustrates how individuals with various backgrounds approach the college choice process. In the movie the six individuals were brought together to fight the same opponent, the SAT exam. As the movie progressed they discovered their true desires and faced their real opponent, their own self worth. Each of the characters saw the SAT exam as preventing them from entering their chosen college. For Kyle, architecture at Cornell was his goal. He was going to be a good architect, but the SAT exam caused him doubts. Mattie chose the University of Maryland solely to be with his girlfriend. Anna has prepared academically to attend the prestigious Brown University, her parents' dream, and realized that she must no longer live their dreams, but rather create her own. If he met the minimum score on the SAT, Desmond would be given a full scholarship to play basketball for St. John's University.

Developmental Theory

In addition to college choice theory, the movies also demonstrate developmental stages and crisis in late adolescence.

IDENTITY/AUTONOMY

For some, the college search sets off an identity crisis. This is illustrated in *How I got into College*. Jessica is academically prepared for any selective school; however, when she goes to Ramsey for her interview, she discovers that almost every candidate is like her and excels at everything. This demoralizes her and she "blows" the interview, leaving in tears and questioning whether she can compete at any college.

How I got into College portrays the college selection process as a psychologically grueling exercise in growing up. It demonstrates the dance between student and college: hope, despair, fear, breaking away, elation and disappointment are all evident within this humorous film. In the end, the relationship of student to school is like a marriage—both parties must want each other and believe that it will work. What the film neglects to depict is the hard work that goes into maintaining the relationship for the next four years or more—that is, being able to live with one’s decision.

SELF-ESTEEM

Rejection is the common fear held by the students characterized in this film. As Marlon talks about committing “suicide” by applying to a single school, he rationalizes that at least he is subject to a single rejection. Psychosocial themes resonate throughout the film. Marlon’s social maturity (or lack thereof) is the cause of his indifference toward college. Yet, Marlon is the only character able to see college for what it is. While other students hang their self-esteem on a college’s acceptance, Marlon espouses sage wisdom as he states, “Trying things out is what happens at college,” and “College is like a federal protection and relocation program for teenagers.”

By contrast, Shaun of *Orange County* is convinced that he will succeed and has only to gain admission after every authority figure in his life has bungled his chances to be

admitted to his college of choice. Shaun sets out to make things right and perseveres despite the mistakes of others. His high school counselor sent someone else’s high school transcript with his application to Stanford; his mother wants him to stay close to home; his father wants him to become a rich businessman; and his brother burns down the Stanford admissions building. Yet, Shaun has no doubt that he can get in to Stanford.

SEPARATION FROM PARENTS

Parental approval is a theme often threaded through the “college flick” genre. Developmentally, the college student is breaking away from home and parents to begin life as a young adult. The college student is on his/her own for the first time and takes risks and chances outside the scrutiny of parental units. Breaking away from parents appears to be a resolution that is often seen in movies about young adults. In these stories, the conflict does not end until the child separates from the parents, and chooses his/her own path, rather than that the parents envision. In this story, Higgs marries a girl from outside his class system, and goes on to study botany instead of medicine.

Getting In reinforces the work of London (1996), who finds that attending the “right” college is important to the parents of students from upper-income families. This film also focuses on relational issues of students with parents and



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peers. The protagonist is caught between doing what is expected and doing what he truly desires. He resolves the dilemma, separating himself from his parents and becoming more socially mature. Facing the rejection from both a college and a girl, attaining autonomy, building relationships, and deciding what to do with the rest of one's life are all part of the process.

Hossler, Schmit and Vesper (1998) conclude that parental encouragement is the key element in high school students' aspirations to attend college. Although the scenario in *Getting In* focuses on medical school admissions, parental expectation is the key theme throughout this film. Higgs appears more concerned about disappointing his parents than medical school itself. The issue of parental approval pushes Higgs out of character to lie, steal, and cheat his way into a program in which he has no real interest.

First-generation college students often face overwhelming odds (Somers, Woodhouse, and Cofer 2004). Vera, Dora, Paul, and Rudy illustrate how different life is for first-generation college students. London's (1996) interviews of first-generation college students suggested that the separation drama that is played out in all families in late adolescence is different for first-generation families:

...college-educated parents also bind, delegate, and expel their children. However, when separation and struggles occur in such families, they are, I suspect, less likely played out around whether to go to college (unless the child decides not to go) than around where to go to college, choice of academic major, grades, life-style, personal appearance or some other idiosyncratic matter (London 1996, p.167).

The stories of Rudy and Dora demonstrate London's assertion that the major concern for a student whose parents did not attend college is not *which* college to attend, but *whether* to attend.

MORAL DEVELOPMENT

Ethical and moral development are issues in three of the films. In *Getting In*, two students try to manipulate the medical school wait list for their own ends. Gabe tries to bribe those on the list ahead of him while Rupert murders them. Gabe does come to a better understanding of the ethics of the situation, more as a result of his feelings for a fellow female applicant than any moral awakening. Rupert, on the other hand, is simply crazy and incapable of rational thought.

Shaun's (*Orange County*) moral development is best described as, well, fluid. While Shaun clearly sees the faults in the adults around him, he has yet to identify his own failings and those of his friends. Further, Shaun will go to no end to gain admission to Stanford, even if he must take advantage of a drugged admissions dean or a guilt-ridden father to do so.

Perfect Score deals in more depth with the ethical issues involved in stealing the SAT. After successfully stealing the test, the group members realize that it is not the SAT exam

that is preventing their dreams, but rather themselves. Rather than using the stolen answers, they fend for themselves. They learn to live with their strengths and limits, rather than using subterfuge to get ahead.

Discussion

A key question suggested by the results is concerned with how closely the celluloid depictions of college choice and student development theory match the research findings.

While all elements of the Hossler, Schmit, and Vesper (1998) framework were represented, some were all but ignored in the movies. This is in part because movies rely much more heavily on social interaction. Here, the intellectual elements of college choice (academics, type of institution, etc.) are less important. In real life, however, location, type of institution, and academic programs are very important in college choice. Some students seek the developmental emphasis and wider array of technical and academic programs at two-year colleges. Other students choose a college based on extremes in location—very close to home or far enough away to “escape” their parents. Likewise, students seek out particular programs or faculty with expertise in certain areas when searching for a college in real life. The reel version of college choice lacks this complexity that is an indicator of both the richness of the higher education sector and the needs of a diverse student population.

Most college movies are comedies. Our admissions movies focus on the comedic elements of searching for a college—from burning down the admissions office to giving drugs to the admissions director to breaking into the college testing service. It would follow that more serious elements—classes, studying, and writing papers, for example, don't contain enough comedic elements to rate “screen time.”

With the emphasis on social life, the influence of peers and siblings in our movies is quite apparent. While not all students have loopy siblings like Jack Black (*Orange County*) and friends like Jeremy Piven (*PCU*), peers do have a solid influence on college choice. In real life students do choose to follow a “true love” to college. The right social “fit” of a campus, as our pre-frosh Lawrence found, is important in both college choice and persistence. The influence of contemporaries is especially crucial for first-generation college students whose families simply do not possess enough “college knowledge” to help the student with the search process.

We were surprised by the extent of the parental influence—both positive and negative—in the films. In real as well as celluloid life, parents of students from first-generation or poor families have a chilling effect on college attendance and persistence. In affluent families, the pressures are different. The social and economic pressures of getting into the “right” school or the “best” major (medicine, architecture, law, etc.) are enormous and pervasive.

Only the poor and first-generation students in our movies showed concern about college affordability. In real life, we would suggest that cost and financial aid are important issues to most students and their families. Our films tended to

ignore the widespread concerns about cost, affordability, and financial aid.

Reel life does a good job of presenting the crises of early adulthood—the conflicts with parents, the separation anxieties, and the rebellion against authority. This is no surprise. Since a young James Dean took to the screen in the 1950s, the drama of growing up has been played out in countless films.

A major task of late adolescence is to gain autonomy. In reel life, this is represented by the anti-authoritarianism of *Animal House* and the rebellion of students against the “Suck Ass Test” in *Perfect Score*. Our movies illustrated the messy process of how students haltingly rebel against their parents and authority on their way to becoming functioning adults.

Reel life does miss the mark in showing how the atypical student—the learning disabled individual, the single mother, the older returning student, the minority student, and the poor student—deals with college choice. The stories of these students are often ignored, as perhaps they are found to be either too trivial or too painful for inclusion in a comedy. Instead, the movies focus on the exuberance of being a pre-frosh on a campus visit, getting into medical school, or getting a perfect score on the SAT.

Summary

This article explores how the college choice and admission processes are depicted in college movies. We find that while overdrawn comedically and dramatically, the movies do represent important elements of these processes. Reel life, however, ignores the situation of the atypical students in favor of appealing to a mass audience of young people.

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An Interview with Jim Black

Jim Black is president of SEM WORKS, one of the leading higher education consulting firms in the area of enrollment management. Dr. Black has delivered keynote addresses and conducted training workshops for business leaders and educators worldwide. His areas of expertise include leadership, organizational change, customer service, strategic enrollment management, marketing, recruitment, and retention. He has served as a consultant for AACRAO, the National Association of Student Personnel Administrators, more than 150 colleges and universities, as well as companies such as Microsoft and SAS. He is the 2005 recipient of the AACRAO Distinguished Service Award.

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 Brad Burch

How did you decide to go into the field of higher education and what would you say have been some of your best accomplishments in higher education?

I started out as a high school English teacher; while I was doing that I coached football, track, and was the student government advisor. And as the student government advisor I found that I really enjoyed working with student activities and with students in terms of helping them organize things. So my initial plan was to go into student activities at the college level. Consequently, I went to graduate school while I was still teaching, and decided I needed to have a graduate assistantship to pay for tuition. I only knew one person on the campus at the University of South Carolina. That person happened to be in admissions, just by chance. So I sought her out, and she got me a graduate assistantship. I found out that I really liked admissions and I never pursued student activities.

I got my first job in higher education after completing my master's degree. There just happened to be an opportunity in admissions at Newberry College, a private, Lutheran institution in South Carolina. I started there as assistant director of admissions. At a small college, you have to wear many hats; I got to do a lot of different things right out of the gates just as a first-year admissions person. I found that I was pretty good at multi-tasking, so that led me on to try some other things.

I went to Mars Hill College after that, near Asheville, as their director of admissions and then was promoted to associate dean of admissions and financial aid. I started there as director of admissions at the age of 28. So I hardly knew what I was doing. I found my way as I went along. I had a great mentor there, a man by the name of Richard Hoffman. He took me under his wing; he was one of those people who

had worn just about every hat at the institution, everything from being the dean of the college, to librarian, to running the admissions operation, to interim president. He'd done it all. He shepherded me through those first couple of years. It was good that I had him there. After three years, I left Mars Hill and went to Winthrop University as dean of enrollment management and from there to The University of North Carolina at Greensboro (UNCG).

Some of my accomplishments? Well, it probably depends on who you ask. Most of the people I work for look at enrollment numbers as accomplishments in terms of increasing the headcount or FTE (Full Time Equivalent), improving SAT averages, or things of that nature. But to me, the really big accomplishments have been about changing culture and getting people on board with a common direction—a common purpose, a common mindset, and that usually revolved around helping students. And I guess that goes back to my roots of always wanting to work with and empower students.

You founded the National Small College Conference on Student Retention, co-founded the National Small College Admissions Conference, and the National Small College Enrollment Conference. You also served as the director of AACRAO's Strategic Enrollment Management Conference. Can you summarize what it has been like to start up and then facilitate those conferences? What were some of the highlights or outstanding presentations from those years?

I enjoy creating things, usually things that haven't been done before and that's why we started with the small college conferences. There were really no conferences out there targeting small institutions. My partner on the small college conferences,

Neil Clark, and I had been to a conference and were trying to figure out how we were going to apply what we had just learned into our small college setting. We decided there was a need for a conference addressing the unique needs of small colleges. So that's why we launched the first conference, and it's been a great experience in terms of networking, building relationships, and learning from some of the best people in the profession. You get a sense of how different people do things and that there's not just one way to accomplish enrollment objectives. So often we get tied up in trying to find a formula, the silver bullet, you know, the one thing that will fix everything—and that's typically not the way it works.

Of the presentations that I've seen through the years, one in particular stands out. It was a closing presentation by David Kalsbeek of DePaul University at an AACRAO SEM Conference. I find all of his presentations to be pretty thought-provoking because he thinks out of the box in relation to the enrollment management profession.

There have certainly been other presenters that have affected my thinking, for example Dick Whiteside and Stan Henderson. People who have been in the trenches awhile affect my thinking. They've seen a lot of different things and bring unique perspectives to the table and, quite frankly, push the envelope. They try to push the profession and their own institutions to a different level. Seeing *how* they do that has been really fascinating.

When you talk about not just having a formula or silver bullet, can you clarify that?

I can tell you about it from the standpoint of what I see every day as a consultant. Every institution has a unique culture, some of them have unique objectives—I won't say all of them do—but they all have unique cultures. They all have their own barriers to implementation, whether that be IT limitations, budgetary constraints, staffing issues, space, you name it; there are all kinds of things. So they're all unique in that regard. I just don't think any kind of boilerplate solution typically works. They might sound good on paper but for an institution actually to embrace enrollment management as an institution-wide organizing principle, it must become a part of who they are. That means it has to be uniquely *them*. That's why I don't think you can just take a template for what we do—enrollment management, admissions, retention, any of these things—and just lay it down on top of an institution. It doesn't work.

The really smart enrollment leaders that I've observed look at other institutions—they don't have the blinders on—but they're looking to take best of breed or best practices and then mold them and shape them to be their own. And there's nothing wrong with that. I don't think there are that many ideas out there that somebody hasn't tried in some shape or form. But making sure we institutionalize them versus just accepting them as they are is very important. So looking at best practices is a good thing but customizing them makes them work, makes them real.

Different institutions have different enrollment situations, though all need to have some basic enrollment management strategies. Starting with recruitment, what would you say are the basic points that need to be covered in order to have an intentional enrollment management strategy?

First of all, I think it needs to be something that is holistic. What I mean by that is looking at enrollment management from the very first contact as an inquiry on through the person's life as an alum. And that, in fact, is the definition of enrollment management. But it's not necessarily the practice I see out there. It tends to be more front-ended, typically focusing on the marketing and recruitment aspect of enrollment management. Instead enrollment management should be holistic.

It also needs to be something that is not isolated to one office, but is a campus-wide endeavor. There is no admissions or retention office that can achieve its objectives alone. People choose an institution, and choose to stay because of the variety of connections they make—human connections typically. And those are not confined to an office. In fact, the most powerful connections are going to be with faculty and with other students. From a retention standpoint, some of the most powerful connections I've seen come from people who are with the custodial staff—people who are working in the residence halls, who meet people at a very human level and care about them. Fundamentally, enrollment management is all built on relationships. So how you identify relationships, cultivate those relationships, and provide good stewardship of relationships over time makes a huge difference.

Another fundamental concept is that it's not all about enrollment outcomes. To me it's about a longer term view of developing loyalty in the institution. The most powerful recruitment tool any institution is going to have, particularly institutions that draw from a local area, is word-of-mouth. That comes from loyalty; that comes from people having good experiences. The desire to give something back to an institution, whether it's funding, time, or a referral, is based on loyalty. So if we're not constantly building that loyalty base, again, from the first contact we have with them on through their life, we're missing the boat. If it's only about getting people in the door, then that's a very short-term view that will be highly dependent on external factors, such as demographic trends, the number of high school graduates, and the economy. But the institutions that focus on loyalty, and there are not many that do, can sustain themselves through the tough times because they have a base of loyal supporters who will support them through thick and thin, and that's powerful. It's what our institutional reputations are built on; it's the word-of-mouth marketing that we have out there; it's what people are willing to sacrifice for and contribute to. It's all based on that loyalty and trust. Trust that the institution is concerned about the student's best interest.

How do marketing and brand awareness tie into an enrollment management plan?

Branding, to me, has two major components to it. One is the promotional side of it, how we promote the brand. The other is how we deliver on the brand, the promise that's inferred in that brand. The latter one, delivering on the promise, that's about everything that we do. That's how we deliver instruction, how we deliver services, every interaction we have with a student, what I call moments-of-truth that we have with a student. And frankly, if we don't do this well—if we don't deliver on that promise consistently—then all of the promotion in the world won't matter. It falls apart. You've got to have that part in place. I'm afraid that a lot of institutions focus on the promotion part and don't focus on the other side—the delivery of the promise—particularly as it relates to product. By product I mean the academic programs, courses, how they're delivered, and so on. If we neglect the promise and only focus on the promotional part, we perpetuate the myth that if enrollment goes down, it must be the admissions office's or marketing's fault. So that is a short-sighted, very narrow view which typically does not serve the institution well. It could be admissions' or marketing's fault, but usually enrollment declines result from a plethora of factors spanning from how the promotion part is being executed to whether you have the product array that people want. Is it being delivered in a mode that is relevant to people where they are right now? Are you targeting certain audiences? It is that sort of thing that I don't think institutions pay enough attention to. Many institutions also struggle with their brand identity, knowing who they are.

So knowing who you are needs to be decided before you even decide what the brand is going to be?

Absolutely. It's inherent in the promise. So if you don't know who you are in a way that's somewhat distinctive, at least among your competitors, you're floundering, just throwing a lot of information out there seeing what sticks versus having a very focused approach. There are just a handful of institutions who know who they are, and they promote it in a way that's compelling, and they deliver on it consistently throughout everything that they do—the brand identity is pervasive from one end of the campus to the other. And being able to do that isn't contingent upon the type of institution. I've seen this happen at four-year publics, four-year privates, two-year community colleges, and proprietary schools.

Brand identity is contingent upon two things that often don't exist at institutions. First, you need to have institutional focus—clear, very concise, targeted focus. And then secondly, you must have institutional will—the will to make tough decisions, the will to say we're not going to do this because this is not what we're about, the will to make tough decisions in terms of setting budget, staffing, faculty, and curriculum priorities, etc. And if you aren't willing to do that, then even having a clear focus won't matter because it won't be real in day-to-day life.

So this really needs to be focused and not a scattergun approach.

Exactly. The scattergun is what is out there at 99 percent of institutions. Part of it is the pursuit of revenue, student enrollments, and that kind of thing, and that's understandable. But there is a point of diminishing return, so institutions should step back and say: 'Who are we, really?' 'What's the essence of who we are?' 'What's our institutional personality?' 'What's our DNA?' 'What do we do every day?'

Many community colleges are about changing lives. The ones that do that well articulate that to or operationalize it in every aspect of what they do. Okay, we're about 'changing lives,' but what does that mean in the classroom? What does that mean in the registrar's office? What does that mean in the curriculum we're delivering? What does it mean in terms of our job placement efforts? How do we take that concept or construct and apply it to every aspect of our business? That is the really tough thing to do.

As a former University of North Carolina at Greensboro employee, I witnessed your organizational leadership style and feel it had a great deal to do with your success in facilitating enrollment management at that university. What are the keys to effective leadership within a large, bureaucratic organization?

Well, I'm not sure I have a complete handle on that but I'll share with you the things that I've found that have worked. For example, don't focus on the enrollment results but focus on the people who produce them or have the capacity to produce them. There's not a strategy in the world that someone else can't replicate. It's how you execute the strategies that gives you a competitive advantage, and execution is totally dependent upon people. So if you don't have a focus on developing people, your enrollment results, no matter how good they are, will be less than they could have been. Think about what happens every time you lose an employee, the knowledge that walks out the door, and how much time and money it takes to recover that knowledge. By the time you do a search, get a new person in the position, do training—it can be over a year before you're back up to an acceptable performance level. So your ability to retain staff, help them become high performing in every aspect of what they do is a huge factor.

Another antecedent to success is helping staff to see how their piece, whatever that function is, connects with the bigger whole. Understanding the big picture is critical. Otherwise I'm just a person behind a computer cranking out data, or a person answering the phone, or delivering some other kind of service or information versus contributing to where the institution is going as a whole and impacting students' lives. It's a much higher calling and I think one key to leadership is getting people to understand that it is a higher calling. It's not an administrative duty; it's more than a job. When I was at North Shore Community College I think the thing that struck me most there is every single person I talked with talked about their job as being more than a paycheck—it was

a calling that they had. That kind of inspiration, passion if you will, transcends the workplace, transcends what happens in a particular office to the entire institution for every interaction that you have with a student. As a leader, you have to create that type of inspiration and passion. You can't just talk about it. That doesn't work. You have to live it. You have to be a living example of the desired behavior you're trying to create. So to me, leadership is partially about living by example, about inspiring people, about creating a common purpose that people can buy into and gravitate towards.

I guess one last thing I'd say is that I buy into the notion of situational leadership. Covey's premise of seek first to understand and then be understood is very important. In other words, in situations or with individuals you interact with, keep in mind that they are coming from a different place than you. If you just try to impose your will on someone else, that typically doesn't work. So understanding their mantra, understanding their objectives, understanding their barriers and anxiety, I think, is a key to any great leadership, particularly in higher education, where we're all about autonomy. We're about being independent, not interdependent. We're about multiple ways of viewing the world, not a common purpose. So a lot of these things in higher education go contrary to exactly what I've been talking about. That's why it's difficult.

Consider faculty, for example. They're very discipline-focused while we're trying to get them to be very institutional-focused. Why would they want to become good college citizens when often reward structures do not recognize such contributions? So you have to really understand where they're coming from and try to overcome some of those natural tensions that exist. It's not because they're bad people; it's not because the college is a bad organization; it's just the nature of the academy. On one end, we're trying to create common purpose, direction, campus-wide buy-in and on the other end it's all about the individual, their discipline and autonomy and all that. So successful leaders in higher education find the points that connect individual and institutional interests.

UNCG was one of the first enrollment service areas to use chat software to communicate with prospective and current students. Why do you think this was necessary and is successful? What other emerging technologies do you think are important for colleges/schools to use in serving students?

Any technology reaches a point of declining effectiveness. Telephone, telegraph, Internet, Web, chat, e-mail, etc. —I don't think one technology approach can work as the focal point of a sustainable strategy. You have to have a multi-channel kind of approach to touch students where they are. I've been on campuses recently, one campus in particular, where a number of the students live in situations where they don't have electricity in their home. So the possibility of them participating in a Web chat is not an option.

With that in mind, what I like about a Web chat option is the possibility to integrate high tech with high touch. People

who are online looking at information, trying to complete a business transaction, can actually reach out right then and there from their home or from somewhere around the world and touch a person and get a human interaction—even if it's in a virtual sense. So it's the blending of the two. And I'm particularly enamored by authenticated Web chat where you can verify who the user is on the other end, and then you don't have to worry about confidentiality and FERPA-type issues. You can share information that is pertinent to their record and help them more directly. But I do think Web chat is just one of the emerging technologies to being high tech and high touch. I'm also seeing more and more institutions that are getting into blogging and IM messaging. Again, what's the quality control, what's the value added? There are all kinds of things to consider as you select specific technology solutions.

Another emerging technology is online communities where you can communicate with people around affinities and allow them to connect with each other. But how do you control that one out-of-hand person who is not a good member of the online community. So each of these technologies needs to be tempered with good sound risk management. How do you put in some quality control? How do you manage the risks that might occur for the student on the other end? Conversely, if many students are using this kind of technology as their primary source of community, can your institution afford not to engage them where they prefer to interact with others? They might use things like Facebook, for example, or Myspace, which are some of the most popular online communities today among young people—some 60 million users in the U.S. alone just through these two sources. How much do they know about protecting themselves? How much do they know about protecting their identity? I was on a campus recently where a student just offered her ID number and password to me. Did she realize what she was giving me? So, those kinds of issues represent opportunities for us to better educate students on their rights, responsibilities, and how to manage their own risk. To them this world is natural and that puts them at risk. So, we have to be good at adopting technology but also good at how we teach students, too. Institutions should definitely not rely on one technology and not exclude the human touch, but rather drive human interaction using technology. Use technology as a means to implement a strategy, not as an end in itself.

And that's the other thing. I see institutions that are acquiring technology, and they have no strategy behind it; they've just got to have it—it looks good—the institution down the road has it. A real common one is student portals—those are emerging everywhere. In my experience, I've only seen between 25 and 30 percent of the institutions that have them have a really effective portal because they have a strategy for engaging students along with the infrastructure built underneath to support it. Because they are costly, you should never adopt technology solutions casually. Technology implementations take a toll on staff and the institution. When working with an IT organization, I make sure they

require functional users to provide a justification for the need for a particular solution. What are you going to do with it?; What's your strategy?; What are your written objectives?; How are you going to measure the effectiveness of it? All those kinds of issues matter. Don't acquire technology for technology's sake because there's plenty out there to buy.

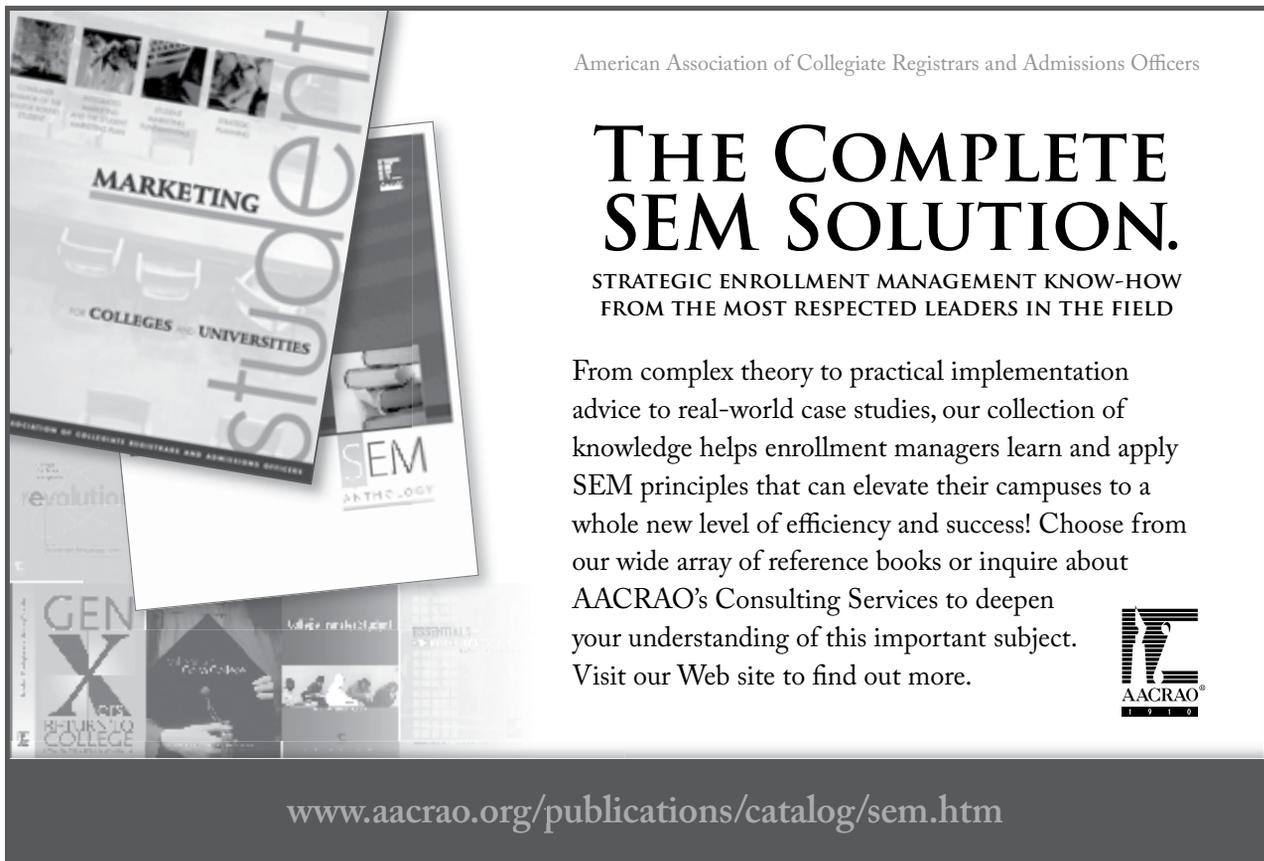
What are a couple of differences between being a consultant and working on a campus as a full-time employee?

I guess there are two major differences. I would say the exciting part of consulting is that every day is a new opportunity, a new situation to evaluate, a new set of solutions to develop. No two institutions are the same. Their cultures are not the same. Their leadership is not the same. The human dynamics are not the same. So, I really enjoy that challenge. On the other hand, the downside is that you don't have relationships at the level that you have working at a single institution. So that part I miss. But I'm still interacting with students a lot through focus groups and that kind of thing, which is something I cherish. So the major differences are the depth of relationships, the ever-changing dynamic of what's happening from one institution to the next. However, there are some things that I observe from institution to institution that are the same. For example, I have yet to be at an institution where the admissions office wasn't being asked to do more,

the demand for centralized IT isn't higher than the supply, or the faculty and staff don't feel over-stretched. That's everywhere, but the degree varies dramatically. Things are usually only relevant to what you know, particularly if you've only been at one institution. You may feel overworked, but there's an institution 300 miles away where they're really stretched. But you know what you know.

What enrollment management trends do you envision occurring over the next five to seven years?

I'll tell you one that I hope occurs. Enrollment management will increasingly become a lens through which the institution can look at more than just the promotional side of what it does; it will also look at the academic product. We need to carefully examine what we offer to meet the demands of the marketplace—that means the students, employers, surrounding communities and service regions and less, quite frankly, of what and where and when in fact we want to teach. It needs to be more about the student on the other end—and I think that's a hard shift for education. I see some evidence of a learner-centered focus starting to emerge, but enrollment management can be a vehicle to accelerate this paradigm shift. Obviously, enrollment management is the only way for it to happen, but regardless of the approach, traditional higher education must adapt to meet the needs of those we



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serve or risk becoming irrelevant in today's world. Think about competition on a global level; the United States is losing its competitive edge every day and will continue to as long as the academy remains introspective. Does that mean we ought to be market-sensitive to the exclusion of everything else? No, we've got a foundation and a mission for who we are. We should be anchored in that, but at the same time taking stock in the environment around us and responding to those needs where we can. That's a huge frontier.

Certainly, the uses of technology on our campuses will evolve in many ways. Enrollment management can shape this evolution, but it's going to happen anyway.

I also hope that the future of enrollment management includes a more comprehensive institutional focus around strategic issues rather than just a focus on the entering class. What are all of the different dimensions of it? What should the profile of the entering class be? How do we shape the composition of the student body? How do we affect retention/graduation rates? What are all of the populations that we serve, from transfers to returning students to corporate clients? We have multiple constituents that we serve and too often enrollment management tends to focus on a narrow slice of our institutional mission.

Enrollment management at many institutions, particularly public institutions, still is at a fairly low level on the food chain, meaning that there are not a lot of vice president-level, cabinet-level positions, and my hope is that will change. Because the demographics are shifting, in many states enrollment efforts are becoming more intense, which is an opportunity to elevate the stature of enrollment management beyond where it is. When I visit an institution and discover that enrollment management is not represented on the dean's council or the president's cabinet, that tells me it's not a strategic part of the institution. That happens way too often and so I think this is an essential next stage for the evolution of enrollment management: to become the centerpiece of the whole institutional strategy. If you look at how a president spends his or her time and how they're judged, most presidents today spend their time on development and also on the legislature attempting to influence state funding and things of that nature. But, at the vast majority of institutions, the bulk of their budget—usually 75 percent, if not higher—comes from student enrollment. So, if I'm a president and I know I need money to fuel my institution, where am I going to focus my time? I'm not going to focus it on the 10 percent out there raising my endowment. I'm going to focus it on the 75 percent where I can really make the most difference. I'm hopeful that we'll see that kind of shift in the thinking of presidents and boards of trustees so they will see it as more of a strategic institutional priority. I'd like to see them invest in it more heavily—not just money—I mean their time and how they position everyone in the institutional organization. But, I don't think that's happened yet, for the most part. Boards are still, to a large degree, hiring presidents who can raise money; yet I think one of the best fund-

raising tools we have is enrollment. So we haven't gotten to that point yet, but I'm hopeful that we will.

Another future opportunity is that as the demographics do shift I think we're going to see things get a lot more competitive. Part of that is not just because of the demographics but because a lot of institutions have built up capacity—residence halls, parking, classroom buildings. When those facilities start to become empty, but the bills for them are still coming in, that's going to exert pressure to raise enrollment. Institutions who haven't invested now, when times are good, in repositioning the institution, branding, loyalty, the kinds of things that we were talking about earlier, they're going to find out that they have a huge problem. Because then they are just like every other institution out there, they'll be scrambling. They're looking for the advertisement or the marketing scheme or the recruitment activity that's going to push them over the edge. But the truth is there is no one thing like that; it's a cumulative effect of a lot of things but they may be too late, and many will discover that others have gotten way out in front, and they'll be playing catch up. This dynamic is going to create a lot of tension, both internal and external, in colleges and universities in the future.

The good part of this impending crisis is it will likely elevate the stature of enrollment management. But, I'm afraid that we'll still continue to see a high turnover rate of enrollment managers. Actually, right now there are way too few really good enrollment managers out there and the demand for highly skilled enrollment managers is only going to grow. And I don't think we currently have in place a good training ground for people who are going to become the next generation of enrollment managers. Most of them come up through the admissions ranks. If you look at the admissions profession, you still have entry-level admissions counselors who are coming in one, two, three years, and they're out. They've had enough, and they're burned out. They've traveled twelve to thirteen weeks in the fall, and five or six weeks in the spring, and the position is designed for burnout. So we're not growing our own. That means we're going to have people going into those roles that really don't have the background. And enrollment management is much more of a science than the art it used to be. Tomorrow's enrollment manager better have some skill sets when they come to the table or the individual will be eaten alive. Those skill sets are things like analytical skills, communication skills, and political skills. They will need the ability to see the big picture but also to bring that down to a very narrow implementation kind of focus as well. Enrollment managers should develop the ability to lead people and the ability to understand about technology that matters.

One promising development is the existence of a few more higher education programs that are training people in this profession. That's a good thing, but I don't think at the institutional level that it's been deemed to be a priority yet. So we're going to have a huge need as the dynamics change but very few people in the pipeline to serve that need. That disconnect is going to cause a lot of issues in higher education.

You've written so much and consulted so much. You've run the educational endurance test by completing your doctorate. And at the same time, you managed a full-time job at UNCG, obviously. How have you done so much with your life?

Well, I don't sleep very much (chuckle). I'm serious, I don't sleep very much. Other than that, I think I've always been pretty good at multi-tasking and organizing things. For example, when I was at UNCG, I would always get criticized when people would come into my office and see that my desk was clean. That was because I was dysfunctional when things were scattered all about. I had to have a clean desk in order to function properly. So I've been pretty good about being able to organize that way, determine priorities, focus on the things that matter first and not get too tied up in the things that are not urgent or important. That's served me well. And I've also learned how to use time well. I've learned how to use time effectively in the sense that I can do a task right up to the minute of transitioning to the next task. It can be a downfall too because the flip side of that is you don't take enough time for yourself. And one thing I've learned through the years is that you have to take enough time for yourself. You have to replenish, rejuvenate yourself. Even the most energetic manager in the world will start to wear down and dilute their effectiveness if they neglect their health and well-being.

That's just how I view the world. There's never an end to things that you can do. But what are the really important things in life? And I don't mean just in the business world, but personally having some balance in life. Make sure that you balance the personal and the professional and the spiritual and the physical—every dimension of your life. And I'd be the first to confess there are times when I'm better at balance and times when I'm not. So it does come and go but that's what I strive for. I find that I'm more effective when I do have that balance and less effective when I don't.

One more thing: Is there anything else you can add about customer service?

In higher education, we sort of shy away from the word 'customer' because we don't believe the customer is always right. That's really not what I espouse. I'm really talking about something much more developmental—in other words, meeting the student where they are and helping them to get to where they need to go. It does not mean they're always right. It's about teaching them responsibility for the freedoms that they have and how to develop some skill sets, learning behaviors and interactions with the world that will help them long after they leave us. So the person at the front line of the registrar's office, let's say, their job is to complete a business transaction. But that's also a teachable moment—that's an opportunity to help that person in front of them learn a skill or navigate a part of the college's bureaucracy. Why do you not circumvent the chain of command and go directly to the president's or chancellor's office? I think it is our responsibility to teach them things of that nature. If they

are always right, I think we're teaching them something that is not good. They will find out in the real world that they are not always right. In the same breath, let me also say we're not just about the institution being right. We need to give the student an opportunity to prove his or her case. If we find out that the institution has made a mistake, then we have to make it right. That may mean fixing something financial or getting them in the class that they were canceled out of, or it may mean going back to a staff member and correcting wrong information. We, the service side of the house, have an obligation to help them navigate our institutions as simply and seamlessly as possible. The challenging part should be found inside, and not outside, the classroom.

One time I made a presentation on customer service and somebody stood up and asked, 'Why do we want to make it this easy on them? Isn't college about challenging them?' Yes, but let's not challenge them on how to complete a form or a process. Let's challenge them with academics. We need to act more like a business and be invisible, as seamless as possible.

The other part of it is that we ought to be treating *every single person* who walks into our offices with dignity and respect. We need to meet them where they are, find out what their needs are, and offer them our assistance. It's not about us—it's about them. The sooner we figure that out, the more successful we are going to be at our jobs because our success is highly dependent on them. Think about the last really powerful experience when you felt you had been successful at your job, and I'll bet there was a student involved. Someone made you feel like you had done something of significance. They are the genesis of our success and I think we sometimes lose sight of that. 'We've got to get these tasks done—will you stop interrupting me?' versus what really does matter.

And I guess the last thing I'd say about customer service is in my experience, there are really three critical parts to it: attitudes and behavior; systems or processes; and technology (major in our world today). One or two without the other will not work. The best-intentioned, friendliest staff can still produce unhappy/dissatisfied students if the process, policy, or technology are ineffective. So you've got to have all three working together. More and more students never set foot on a campus, or they're attending multiple campuses at one time. They are not the traditional student who comes in, lives in a residence hall, and goes nowhere else. Those are becoming a minority in the world of higher education. The majority of people are those who are patching things together to make them fit their life. That's a different kind of service model than the traditional service model, and we need to be responsive to all student needs.

ABOUT THE AUTHOR

Dr. Brad Burch earned a B.B.A. in accounting, M.Div. in campus ministry, and Ph.D. in higher education. He is currently serving as the Registrar at Guilford Technical Community College. Burch has also presented at several educational conferences, authored educational book reviews, authored a book chapter in *Gen Xers Return to College*, and published 100+ faith-related articles.



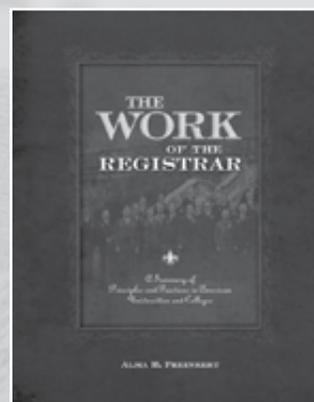
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More Than a Body Count: Trends in Higher Education Staffing

by Travis Reindl

Among all industries, higher education is easily one of the most human resource-intensive. Indeed, it is a common rule of thumb that 75 to 80 percent of the average American college or university's resources are committed to staffing and related expenses. Accordingly, campus leaders and policy-makers alike closely watch data on current and historical employment levels in higher education. This is particularly true in light of rising tuition and questions about the value added by the college experience.

Data recently released by the National Center for Education Statistics (NCES) provide a mix of expected and unexpected "headlines" about staffing at the nation's institutions of higher learning. Taken together, they suggest that charges of growing administrative bloat may be more smoke than fire, that significant disparities exist in faculty compensation, and that the for-profit sector is moving quickly to increase its presence in the enterprise. Key findings include:

- **The share of total employment represented by faculty and other instructional personnel continues to grow.** From 1993 to 2003, faculty/instructors as a percentage of all staff rose from 43 percent to 46 percent. Additionally, more than half of the staffing growth between 2003 and 2004 fell in the area of instruction. By contrast, the share of total staff consumed by executive/administrative positions changed little over the ten-year period (5.5 percent in 1993 to 5.8 percent in 2003), while the share represented by non-professional staff continued its long-term decline (35 percent in 1993 to 29 percent in 2003). (See Figure 1.)
- **The for-profit sector is in the midst of a dramatic growth spurt.** Consistent with recent accounts of physical expansion and strengthened political clout, staffing at proprietary institutions is ramping up in a big way. From 2003 to 2004, private for-profit institutions added nearly 61,000 people to their payrolls, an increase of 64 percent. By

comparison, total growth registered 4.4 percent, public institutions posted a 2.7 percent gain, and private not-for-profits reported a 2.3 percent rise. Put another way, nearly half of the one-year growth (2003 to 2004) in college and university employment came from the for-profit sector. (See Figure 2, on page 54.)

- **Faculty salary gaps are pronounced between genders and sectors.** Among full-time faculty at public four-year institutions in Fall 2004, male faculty members made nearly \$14,000 per year more than their female counterparts—a gap mirrored in private not-for-profits but not private for-profits (where the differential was negligible). While private not-for-profits continue to best publics in average faculty pay (\$67,465 vs. \$62,404), the big gap is between the not-for-profits and the for-profits, with the latter posting

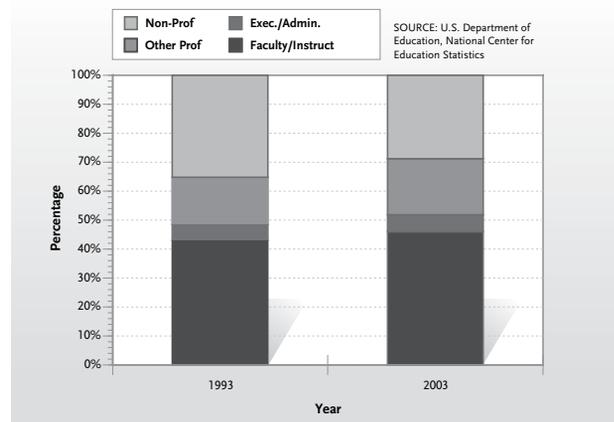


FIGURE 1: COMPOSITION OF STAFFING, U.S. COLLEGES AND UNIVERSITIES, 1993 AND 2003

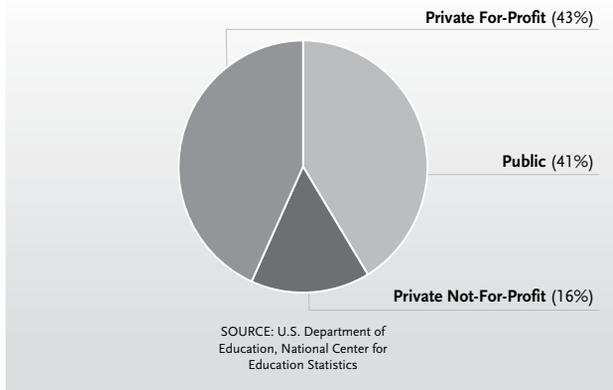


FIGURE 2: SHARE OF STAFFING GROWTH BY SECTOR, U.S. COLLEGES AND UNIVERSITIES, 2003 TO 2004

average faculty salaries approximately half those of the former (\$34,408).

The data above depict an industry that continues to grow and evolve, both within and across sectors. Analysts and decisionmakers can and should look to these numbers for clues about future directions for the enterprise, as well as for reminders about persistent challenges. These figures also make it abundantly clear that even as the Information Age continues to unfold, higher education is—and will remain—a people-driven endeavor.

ABOUT THE AUTHOR

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Math, Science, and the Competitiveness Agenda: Getting It Right

by Travis Reindl

The issue of boosting the nation’s human capital, particularly in the areas of science and mathematics, presents a classic “good news, bad news” scenario for policymakers, educators, and other stakeholders. The good news is that the need to expand capacity in these areas is squarely on the public agenda—leaders from President Bush to Bill Gates are now talking the language of competitiveness. So what’s the bad news? As in other areas of public policy, there is a danger that the “bandwagon effect” will bring a host of new programs and spending demands before a coherent, comprehensive, and coordinated competitiveness strategy is developed.

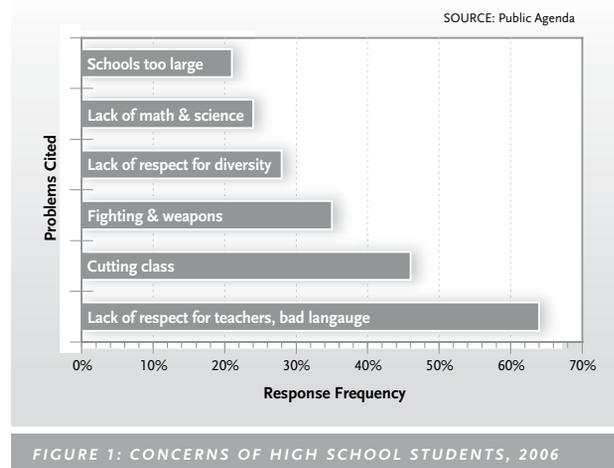
What are the hallmarks of such a strategy? First, it must address the entire educational pipeline, from pre-kindergarten to post-doctoral studies. Second, it must recognize the importance of both native production and importation of math/science talent. While the U.S. is perhaps overly reliant on the importation of such talent at present, the simple fact remains that the nation will not be producing enough of its own professionals in these areas in the near term. Third, local, state, and federal programs and initiatives, as well as those from the private sector, must be coordinated to maximize investment and avoid unnecessary and counterproductive duplication of effort. Public and private sector leaders should commit to these principles as the foundation of any major initiative.

At the same time, elected officials and education and business leaders must also take into account particular realities that could affect the success of any initiative. These include:

- **Public Attitudes.** Despite domestic and international data showing persistent math and science achievement gaps for the United States, especially at the high school level, parents and students by and large don’t perceive a problem in these subjects. A new survey by Public Agenda powerfully illustrates this, revealing that more than half (57 per-

cent) of the parents surveyed believe that their children take enough math and science. Additionally, the percentage of adults citing a lack of science and math in their local schools as a serious problem dropped from 52 percent in 1994 to 32 percent in 2006.

Student sentiment tracks similarly, with survey respondents ranking “not enough science and math” near the bottom on a list of key school-related concerns. (See Figure 1.) Perhaps more troubling is that nearly half (45 percent) of student respondents indicated that they would be “really unhappy” if they ended up in a job or career requiring a lot of math or science. These data clearly suggest that agenda setters have a major sales job to do with the general public about the current state of math and science education and the desirability of these subjects as a professional pursuit.



■ **The Teaching of Math and Science.** Put simply, math and science education needs to be seriously improved. A shortage of qualified teachers, particularly at the secondary level, is leaving students underprepared at a critical stage in their educational development. The National Science Foundation reports that in academic year 1999, 9 percent of high school students in math classes, 10 percent of students in biology/life science classes, and 16 percent of students in physical science classes were taught by instructors teaching out of field (*i.e.*, without qualification/certification to teach that subject). Given that statistic, it seems ironic that the President has called for the elimination of the federal Teacher Quality Enhancement Grants in his Fiscal Year 2007 budget proposal.

■ **International Exchange Focused Around Math and Science.** It has become increasingly clear that other nations (especially those in the Pacific Rim) enjoy a significant comparative advantage in science and mathematics, both in student performance and production of professionals. As such, it is important to preserve and strengthen links with these nations through streamlined visa control and border security policy, as well as through targeted, intentional outreach

between u.s. and foreign institutions. Recent data from the Institute for International Education's *Open Doors* report reveal, however, that the nation continues to slip in attracting foreign students, which will likely exacerbate domestic production of science and math professionals.

University presidents, corporate CEOs, and politicians are to be commended for recognizing the need for and assuming leadership of a still nascent competitiveness agenda, especially given competing economic and policy priorities. Boosting competitiveness, though, requires more than bold statements and a program or two. It calls for a multi-faceted strategy that encompasses a broad range of stakeholders and addresses social, academic, and economic dimensions. The stakes are high, and time is short. What remains to be seen is whether our leaders create solutions for problems or solutions in search of problems.

ABOUT THE AUTHOR

Travis Reindl is Director of State Policy Analysis and Assistant to the President at the American Association of State Colleges and Universities.



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Achieving Organizational Objectives: The Human Element

by Don Bunis

My, how technology has changed life inside admissions and records offices over the years! Admissions applications that used to be processed by hand now arrive via the Web and are downloaded directly into the student database. Correspondence with applicants and students flies over the Internet. It's amazing how much faster we can register students now that their course requests come in electronically. But beware—with technology absorbing so much of the workload that staff used to spend most of their time toiling over, we may be in danger of marginalizing our people as we increasingly pin our hopes on technological “solutions” for achieving our organizational objectives.

Many of us find it easier to manage the computer applications we employ than the human beings these applications are meant to assist. Computer systems may be tricky and difficult to implement, but once the applications are up and running, you can pretty much rely on them to do their work consistently, day in and day out.

Employees, on the other hand, are unpredictable: they have good days and bad days. Some go into slumps and may be out-of-sorts for hours, days, or weeks, depending on how life is going for them, how their health is, how their families are doing, etc. Technology is immune to all that. If a machine malfunctions, it can be reset by a technician. People problems are much more difficult to deal with, and they require the personal attention of the manager.

Even when they're having a good day, staff members require our attention. If they are doing good work, they need to be shown appreciation, even if they don't appear at the office door demanding it. If they are having problems, they require attention of a different sort. For example, someone who is unhappy with a working condition or who is having a dispute with a co-worker may fail to do her work and may even act out in ways that disrupts the work of others. Dealing

with “perceived slights and petty grievances” can sap a great deal of a manager's time and patience, distracting him from mission-critical activities and just about anything else he wanted to accomplish that day.

If you stop and think about it, we expect our staff members to function within normal limits of good behavior and work performance *at all times*. After all, that's what we pay them to do. But when they fall victim to “...the heart-ache and the thousand natural shocks that flesh is heir to” (from Shakespeare's *Hamlet*), we may come to resent the imposition of their problems on our time, as if they have morphed into alien beings invading our neat and orderly world. Why can't they just do their work and leave us alone to do ours?

But step back for a moment and put all this in perspective. At the end of the day, it doesn't matter how much technology you have working for you. It's the people working for you—your fellow human beings—who need and deserve your thoughtful attention on a regular basis. If we can accept the fact that administrative systems require periodic maintenance to keep them running correctly, then it should be easy to accept that the people who work with us also require care and feeding on a regular basis. Providing staff members with the direction, training, and feedback they need to facilitate their work are essential elements of maintaining organizational health and effectiveness. Attending to these needs is a normal managerial function; it should not be viewed as interrupting the manager's daily work.

I once had a boss who quipped, “All our plans would work so much better if people didn't get involved and screw them up.” The guy had a great sense of humor; his seemingly cynical remark is packed with valuable wisdom. The real message is that we must count on people to implement plans. And people are, well, only human. If we fail to account for this fact in our planning, then we're probably going to be disappointed.

Each person in the organization will perceive the plan through her own eyes. No two people may perceive every aspect of a plan in the same way, from its objectives to its implementation details. Each person also makes an individual judgment as to whether the outcome of the plan is likely to pose a threat or to be of benefit.

These individual differences naturally will affect the extent to which any given person is ready, willing, and able to perform in accordance with the expectations of the manager. That's the human element. One should never assume that everyone involved in implementing a plan will support it wholeheartedly, or will understand what is to be done as intended, or will have the knowledge and skills necessary to achieve the desired result.

In the end, it is the manager who has to sort out the differences and lead everyone along the correct path. Yes, it takes a commitment of time, as well as lots of two-way communication, teaching, coaching, motivating, stroking, and cajoling, to end up where you want to be. It won't happen by itself. But if, as the manager, you don't see to it, then nobody will.

The point is that if you care about outcomes, you need to focus on inputs. This should not be interpreted as a call to micromanage every project. Rather, it means that you would be well-advised to assess how well-equipped the members of your staff are to implement the plan. Then do whatever is

needed to get them off to the right start. A well-trained, highly motivated staff can achieve great things. If you focus on building "skills and wills," the results you intend are far more likely to be achieved *without* your having to manage every detail.

In reflecting on my own 32-year career in higher education administration, I find that nothing I did was more crucial to the success of the student records offices I led than dealing proactively with the needs of staff to ensure they had whatever they needed to perform their jobs to a high standard. This meant listening to what staff members had to say about their needs and then conducting appropriate staff development activities, sometimes for the entire staff but more often for individual staff members. The more these staff members developed, the better prepared they were to succeed, the happier they were in their work, and the more they contributed to the success of the office.

Following are some important lessons I've learned about how paying attention to the human factor can contribute immeasurably to the achievement of organizational objectives.

Building Skills

It is tempting to think of "training" simply as a knowledge transfer process intended to build the capacity of a new staff member to perform specific work duties. From the staff

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member's perspective, however, training is a process that involves learning a lot of information and determining how to apply it. While some self-confident folks look forward to training, many new employees find the process intimidating because they are afraid of failing. (In fact, they may have failed at it elsewhere and so are justifiably concerned about their ability to succeed this time.)

That is why, when dealing with the human factor in a training situation, it is a good idea to try to understand the staff member's point of view, not just your own. Ultimately, it's what the new employee learns that will most influence how well he will perform. Depending on the situation, you may decide to change your approach to training the individual so that you can build his confidence as well as his skills.

Imagine that you've spent a great deal of time developing a comprehensive training manual that you distribute to all new employees. The manual includes copies of forms, policies, written procedures—everything you think every employee should have. But have you considered—or even identified—the preferred learning style of the particular new employee to whom you've just handed the manual? Does she learn best by reading text, or by looking at diagrams and charts, or by hands-on application? Does she understand work processes inductively or deductively? Is she an independent learner or an interactive learner? Do expect individual differences among staff members; some will do just fine with the manual, while others will find it more or less unsuitable to their learning needs.

Far more than simply absorbing new information, true learning takes place when a person works with the information in practical ways. Training thus is an ongoing process with long-term consequences; it is not a one-time occurrence. It therefore pays to determine how a person learns best and then to do your best to accommodate that learning style whenever something new is to be learned. Everyone benefits from your going the extra mile, because doing so helps ensure a successful outcome.

Building Wills

Even when staff members know their jobs well, there is no guarantee that they will perform them well. In addition to skill, good performance requires *will*. The degree to which individual employees are committed to achieving excellence in their work will vary from person to person—maybe even from day to day. You have to believe that when someone starts a new job, he has every intention of succeeding at it. At that point he will have the will. But then what happens?

I like to think that each new staff member begins his employment with a spark of potential energy that can be fanned into a flame that will produce a bright light. On the other hand, that spark can smolder and die if it is ignored or not tended properly. As a manager and as a leader, try to imagine yourself as a tender of flames. It is vitally important to learn what fuels someone's flame and to make sure that conditions are right for the spark to ignite.

To continue the metaphor, each person on your team needs fuel (meaningful work) and oxygen (freedom to be who she is in the work environment) if her flame is to burn to its full potential. Remember, though, that one size does *not* fit all. What is meaningful work for one person may not be meaningful to a colleague. So the amount of freedom that is good for one person may prove too much or too little for someone else. If you try to treat everyone alike and/or if you assume that what ignites your flame also ignites hers, chances are good that you'll end up with a lot of smoke and not much light.

Conclusion

As administrators in institutions devoted to developing the potential of students who come seeking knowledge, we must constantly ask ourselves how we can better serve that mission. One important way is to develop the potential of every person on our team to perform at the highest levels. While there is much "administrivia" in our daily lives to distract us from this developmental mission, we must continue to remind ourselves that the key to achieving organizational objectives is to be found in what our people do. Nothing is more important than the "human element!"

ABOUT THE AUTHOR

Don Bunis is the leader of AACRAO's Management Dynamics Online course and the author of "Managing the Registrar's Office" in AACRAO's publication *The Registrar's Guide: Evolving Best Practices in Records and Registration*. His career as University Registrar at American University in Washington, D.C., and at SUNY Albany spans 32 years.

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Cost Control: The Imperative for Higher Education

by Olin L. Adams III and David M. Shannon

College costs have escalated for reasons rooted primarily in organizational culture and market forces. Institutions of higher education often have defined quality in terms of resources acquired rather than results achieved (Guskin 1994; Lovett 2005). Colleges and universities have survived profligacy through monopolistic competition, achieving sufficient differentiation from other institutions by way of geographic location and varying programs (Bowen 1980). But with rapidly improving technologies, the ability to deliver academic programs at a distance from the physical campus is eroding the product differentiation so long enjoyed by traditional colleges and universities.

Pressures to Control Costs

As the gap between schools lessens, the pressure on institutions to control costs has never been greater. Tuition at four-year public institutions during the 2003-04 academic year increased at the highest rate in three decades—an average of 14 percent more than the prior year (Farelle 2003). State appropriations to public colleges and universities fell 2.1 percent from the 2002-03 fiscal year to the 2003-04 fiscal year—the first decline in eleven years (Hebel 2004). Colleges and universities, particularly private institutions, are only now recovering from the loss of endowment in 2002. The National Association of College and University Business Officers (NACUBO) study of endowment for that year showed that institutions of higher education lost 6 percent on their investments, marking the first time investments had declined for two consecutive years since 1974 (Lyons 2003). Like other employers, colleges and universities struggle with the escalating cost of health care for employees. Health insurance premiums rose 13.9 percent in 2003, which was the third consecutive year of double-digit increases (Basinger 2003).

Barriers to Cost Control

Institutions of higher education confront many barriers to cost control. Perhaps the most basic impediment is poor cost information. Progress was made in the 1970s as a result of the work done by the National Center for Higher Education Management Systems (NCHEMS), but the cost systems proposed by NCHEMS were largely abandoned in the 1980s (Turk 1992). Even now, internal management reports focus on salaries, travel, and research costs, and generally ignore such indirect costs as facilities and administration. Day (1993) notes that there is “no general consensus on costing methodology in higher education” (p.13).

Strategies for Cost Control

We suggest various strategies for cost control, arranged within the context of administration, instruction, and athletics.

ADMINISTRATIVE COSTS

Outsource functions that are not core competencies, especially vending, dining, and bookstore operations.

Outsourcing is common within the business sector, but its adoption by colleges and universities is less documented. Dining operations and bookstore operations were generally the first functions outsourced by schools (Nicklin 1994), because the institutions lacked the special expertise necessary to perform these functions (Abramson 1994). Large public institutions usually operated their own food service, but in recent years, a trend toward the outsourcing of dining operations has been observed among these institutions. This decision has been driven primarily by financial reasons. For example, contractors often provide capital to assist in renovating dining facilities; such projects are otherwise often deferred by institutions (King 1997).

Outsourcing has not only helped colleges and universities save money, but also allowed them to generate revenue. Clemson University and the University of Georgia have outsourced their bookstore operations. Like other institutions, they have found that contractors tend to be far more skilled than institution staff in the marketing of merchandise (Gose 2005; Mercer 1995).

Streamline the decision process.

Colleges and universities often have borrowed from the faculty the collegial model for decision making and installed a consensus management approach to administration. This administrative style has brought inefficiency to the decision-making process and has obscured responsibility within that process. Zemsky and Massy (1990) compared higher education administration to a “lattice that has grown, much like a crystalline structure, to incorporate ever more elaborate and intricate linkages within itself” (p.37). Administrative positions frequently have been created to solve specific problems, but the positions remain after the problems are solved.

To address the problems of consensus management and centralized decision making, some institutions have adopted *responsibility center management* (RCM). RCM is predicated on a devolution of budgetary authority from the central administration to individual academic units. These units are called responsibility centers. With greater fiscal autonomy and flexibility, each center assumes the burden of cost control and self-sufficiency. Decision making is thus vested in administrators proximal to the issues and information. RCM has been implemented at Indiana University Purdue University Indianapolis (Stocum and Rooney 1997), the University of New Hampshire (Leitzel, Corvey, and Hiley 2004), the University of California at Los Angeles, the University of Michigan, the University of Pennsylvania, and the University of Southern California (Wilms, Teruya, and Walpole 1997), as well as within the athletic department at Georgia Institute of Technology (Strupeck, Milani, and Murphy 1993). A variant of RCM, *contribution margin budgeting* was adopted by the Iowa Valley Community College District in order to avoid bankruptcy. Contribution margin budgeting differentiates between direct and indirect costs and thus facilitates cost control (Tambrino 2001).

Limit legal and regulatory exposure.

Administrative costs have risen due to external pressures such as federal regulation and the micromanagement of institutions by state agencies and governing boards. Despite these factors, higher education enjoys autonomy greater than other societal institutions. The experiences of K-12 education are instructive. An alphabet soup of accrediting agencies dots the landscape of K-12 education. The National Council for Accreditation of Teacher Education (NCATE) has the strongest influence on teacher education programs, and the Interstate School Leaders Licensure Consortium (ISLLC) is perhaps the primary arbiter of school administrator preparation. Yet other interest groups advance their causes, and each

state tends to have greater input into its elementary and secondary systems than its postsecondary institutions.

Engage in consortial activity, which can reap savings in areas such as insurance.

Private colleges in Oregon and Florida have formed insurance consortia, in which each state association of independent colleges practices self-insurance. This approach has formidable startup costs, but yields savings in administrative costs (June 2003; Pulley 2006). The Indiana University system has utilized an insurance cooperative to provide economy of scale in medical malpractice, property, general liability, vehicle, and directors’ insurance (June 2006).

INSTRUCTIONAL COSTS

Recognize the relationship between cost and price, and address rising tuition internally before tuition increases are further attacked externally.

Higher education can learn from the experience of health care providers (Langfitt 1990). The cost and price structure in health care organizations has endured great scrutiny. In response to public criticism of rising health care costs and in order to standardize the reimbursement process, the identification of *diagnosis related groups* has been established in the last 25 years. These groups, roughly 500 in number, set parameters for cost and reimbursement according to the nature of the patient’s illness.

For higher education, a comparable system might not be far away. Until just recently, the nexus between cost and price in higher education instruction was ill defined. Cost exceeded price, *i.e.*, tuition, with the difference covered by some subvention such as state appropriation or philanthropy. Below the surface lay the mysteries of vast cost differences between programs requiring extensive technology and instrumentation and those with low cost instruction (Dempsey 1997). Tuition tended to be rather uniform across programs, but breaks in that pattern have been observed with technology fees being charged to students, and more recently, the beginning of differential tuition among programs.

Not only is there sentiment for greater transparency between cost and price, public attention to price trends has been mounting. As tuition increases peaked in 2003, U.S. Representative Howard P. McKeon (R-Calif.) introduced legislation that would have penalized institutions for tuition increases in excess of twice the federal inflation rate. Although the bill did not pass, a new wave of large tuition increases might not escape Congressional action.

Beneath these overarching principles of understanding the cost of programs and addressing internally the increase in prices, several supporting approaches are offered.

Limit undersubscribed classes.

It has not been uncommon for large universities to operate undergraduate programs in a pyramidal structure. Accordingly,

entry-level courses are taught in very large sections, while upper-level course enrollments sometimes fall to single digits. As with administrative costs, consortial activity can yield savings in instructional costs. Multiple colleges can host a class, which would be undersubscribed if held by an individual institution.

Smaller enrollment in certain majors or concentration areas is sometimes unavoidable, but consistently lower enrollments in a discipline speak to another issue in American higher education: the notion that each institution should offer a wide variety of undergraduate majors. This approach contrasts with the European system, in which institutions maintain different curricular foci, carving out one or two areas of specialization (Holttta 1998). The influence of a central ministry of education—not present in the American system—often compels this selective excellence. In the absence of macro, or national control, state governing boards might move their institutions closer to this model and away from the ambitious philosophy that has prevailed in many American public universities. Action by individual institutions and a spirit of cooperation, rather than competition, among the institutions of a state, could eliminate the need for state action and help to achieve cost control.

Leverage technology (distance learning does not always equal lower quality).

Efforts to deliver instruction through distance modes inevitably meet with criticism from faculty, who question the quality of teaching and learning. Although these questions reflect good intentions and a recognition of the evidence supporting a traditional learning community, concerns over the quality of distance education also might be a projection of faculty preferences. If student learning is the goal of instruction, then faculty should accept that students' learning, future employment, and lives are connected to technology like never before. The learning communities of the future are likely to be in cyberspace, notwithstanding the romantic vision of the professorate.

The physical campus is an ideal, but an extensive physical campus might be an expensive reality for some institutions in the future. The first foothold for distance education has been in graduate study of business and of education, as mature adults have pursued advanced degrees in a convenient manner. How far the dominoes fall toward undergraduate education, until now conducted largely on residential campuses, is difficult to predict. However, perceptions of quality are subject to change and the cost savings of distance education are unlikely to change.

Limit remediation.

Total quality management calls for reduction of defects in the product (Webley and Cartwright 1996). At first blush, it seems heartless to apply this management principle to instruction. However, the costs of remediation in American higher education are substantial. Conley (2005) asserted that

a better alignment of high school with college should position students to succeed in higher education. In light of this, perhaps remediation can be reconceptualized. Preparatory education may be viewed as a kind of preventive medicine, while the pedagogical treatment of remediation can still be provided for those students who need it.

Justify research.

The University of Phoenix reaps savings from zero commitment to research. The faculty of the University is characterized as professional, rather than academic. Members of the faculty are generally practitioners, whose presence creates networking opportunities for their students. Faculty efforts are focused on teaching and advising. The university neither expects nor supports faculty research (Raphael and Tobias 1997). It is not suggested that institutions adopt the Phoenix model, but rather learn from it. Without question, teaching and research are inextricably related, especially at research institutions with extensive doctoral study. However, universities should review rigorously time consumed by research, internal spending on research, and the relationship to research productivity.

ATHLETIC COSTS

Justify the competitive level of the institution.

Very few universities break even, let alone make a profit on athletics. While basketball yields a positive margin for many NCAA Division I institutions, it is far more difficult to achieve financial success in football. Football carries high fixed costs, such as a stadium, coaching staff, and scholarships. Consequently, a high volume of attendance and donations is necessary to break even or to make a profit.

Compliance with Title IX has proved especially problematic. Most institutions have sought the safe harbor of *substantial proportionality*, which requires that the level of athletic participation by women closely approximates the percentage of female enrollment. Accordingly, the most common institutional response has been to drop men's teams that do not generate revenue (Suggs 2003) and to maximize revenue from football and men's basketball. By contrast, a few wealthy athletic programs have purchased gender equity by expanding programs for women, an alternative path to compliance.

As noted above, Georgia Tech implemented *responsibility center management* in its athletic program. Athletic department officials insisted that this profit center approach to each sport was not initiated to stigmatize sports that lost money, but to ascertain the subsidies needed for certain sports and to encourage entrepreneurial behavior among coaches (Strupeck, Milani, and Murphy 1993). The University of Virginia stratified and prioritized its athletic programs into four tiers. The first tier, comprised of football and men's and women's basketball, is expected to compete for national championships. A second tier, including lacrosse, receives nearly as much institutional support. All women's teams not in the first two tiers constitute tier three, while the fourth tier includes all

remaining men's teams (Suggs 2001). Notwithstanding these sound management practices, the mentality of many institutions is that of an arms race. Taking cognizance of this, the NCAA in January 2005 formed a panel of college presidents to address the rising costs of intercollegiate athletics. To control costs, institutions should evaluate critically their competitive level and when necessary, drop into a lower division.

Conclusion

American higher education always has struggled to find a balance between its ideals and reality. Zemsky, Wegner and Massy (2005) recently revisited the wisdom of Clark Kerr, who "described the tension between the acropolis, with its focus on values and mission, and the agora, the Greek word for marketplace" (p.B6). Kerr emphasized the power of the market:

The cherished academic view that higher education started out on the acropolis and was desecrated by descent into the agora led by ungodly commercial interests and scheming public officials and venal academic leaders is just not true. If anything, higher education started in the agora, the market, at the bottom of the hill and ascended to the acropolis at the top of the hill.... (p.B6).

Trow (1988) asserted it is precisely the attention to the market that has enabled American institutions of higher education to provide greater opportunity for students than can be found in any other nation. American colleges and universities will meet the need for cost control and will continue to offer access to higher education unparalleled in the world.

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The New Backlash on Campus

by Daryl E. Chubin and Shirley M. Malcom

The university campus today is the site of much backlash. High-visibility legal actions, faculty biases, decentralization, and other factors have all contributed to a collective shunning of diversity initiatives at American universities. Underrepresentation—by race/ethnicity, sex, and disability—among students and faculty in science, technology, engineering, and mathematics (STEM) disciplines exceeds that for the campus as a whole.

STEM is the “canary in the coal mine.” So while federal and private R&D funding brings millions to campus, it also attracts foreign citizens and sustains the stranglehold by white males in tenured faculty and campus leadership (chairs, deans, and administrative) positions. With a K-12 student population that is increasingly minority, this disparity between the future composition of the undergraduates and the composition of the rest of the campus should be alarming indeed. Instead of a diverse culture top-to-bottom, the campus will become a have vs. have-not community stratified by means, color, and sex.

The dimensions of this backlash are exquisitely captured in a recent letter (Slaughter 2006) to the *Chicago Sun-Times*:

As many predicted after the 2003 U.S. Supreme Court decisions on the University of Michigan admissions cases, the ambiguities in those decisions and the absence of definitive guidance from the U.S. Departments of Education and Justice have encouraged activist groups to challenge universities on the use of race in the conduct of admissions, financial aid, and academic support programs. Some colleges and universities have capitulated in the face of threats of legal action and intimidation. Many have voluntarily scrapped programs designed to serve underrepresented minority students for fear that they would become targets. Worse still, the federal government is complicit in this activity by challenging minority focused scholarship and support programs at

several institutions and threatening to withhold federal funding for research and education....

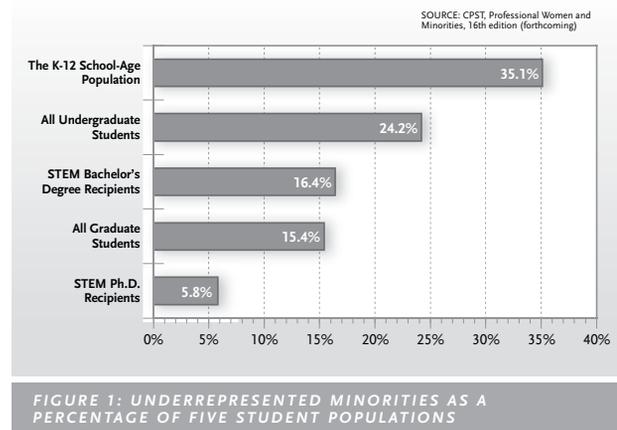
It is disappointing that many universities have not stood their ground and, instead, have succumbed to risk-averse legal advice that suggests that it is better to switch than to fight.

It is worse than “disappointing;” it is scandalous. The backlash comes in many forms, each of which should be anathema to enrollment managers and registrars—not to mention presidents, provosts, and general counsels. Higher education is not “standing its ground”—despite the legal sanction and moral authority to do so (AAAS-NACME 2004). Instead, we are witnessing a backlash in recruitment, admissions, need-based financial aid, retention, and faculty recruitment and advancement. In undergraduate admissions alone, one estimate by an anti-affirmative action organization is that over 100 colleges “have voluntarily abandoned race restrictions [as a criterion], and only a handful have refused to do so” (Schmidt 2006). If the U.S. campus is not in the grips of a campaign to undo 40 years of civil rights, then the dilution of educational opportunity is a striking coincidence.

The evidence is especially alarming in science and engineering (which is experiencing its own backlash on campuses as the “favored child” in federal R&D funding). The President’s American Competitiveness Initiative and the array of congressional legislation it has triggered (see PACE Act, available at http://innovateamerica.org/pdf/PACE2Pager_section_by_section.pdf), while well-intentioned, will only fan the flames of envy on campus by targeting science and engineering students for increased federal support. By itself, this is unlikely to induce many more U.S. citizens to pursue science careers (in research or teaching at any level) or change faculty behavior that supports student progress toward the baccalaureate.

As one science student, a Packard Foundation Graduate Scholar commenting on the lack of comparable pressures

experienced by his non-minority colleagues, puts it: “It’s not fun being a trailblazer in 2005 because there are certain things we should not have to deal with. When you already have the responsibility and expectation of classwork, nobody wants to carry the burden of the entire race and deal with issues that should have been resolved a long time ago” (Chubin 2005). Without efforts to diversify in various ways, no meaningful critical mass will grow campus-wide and every visible admission or appointment will be seen as “tokenism.” This is the poisonous climate bred by intimidation. Resulting inequities will ripple through the workforce as employers seek diversity and must find it outside the United States.



Data from several sources characterize the “canary’s” dire condition (see Figure 1). According to the Engineering Workforce Commission (EWC), minority freshman enrollments and baccalaureate degrees awarded in engineering are down from the turn of the century. African American and Hispanic completion of baccalaureates in STEM disciplines is 20 percent less than for White students (Anderson and Kim 2006). Attrition is disproportionately high among African American, Hispanic American, and Native American students at every degree milestone on the path to the Ph.D. (see Table 1). Diversity virtually vanishes in the STEM faculty as candidates diminish for reasons unrelated to capability or interest (Chubin 2005). Rensselaer Polytechnic Institute (RPI) President Shirley Ann Jackson (2004) calls this an indicator of the “quiet crisis,” *i.e.*, an “underrepresented majority” of

women and persons of color that increasingly characterizes the U.S. population—but not in science and engineering.

Summarizing over fifteen years of empirical literature, Summers and Hrabowski (2006, p. 1870) link the lack of persistence among minority students in STEM to “academic and cultural isolation, motivation, and performance vulnerability in the face of low expectations, peers who are not supportive of academic success, and discrimination, whether perceived or actual. These factors can have a stronger effect at institutions with predominantly majority populations.”

STEM professionals appear to be their own worst enemy. Yet the responsibility for reversing the trends outlined above should ultimately reside with the *institution*, not with individual faculty, departments, or college units. If decentralization has exacerbated the problem, then re-centralization of authority must be part of the remedy. Who should act in the name of “diversity” to combat the backlash? The possibilities extend from the adoption of tools and practices, to the strengthening of programs, and ultimately the exercise of campus leadership. Some examples that derive in part from the work of the AAAS Capacity Center (www.aaascapacity.org) are illuminating.

- “Holistic admissions,” while costly and time-consuming, considers *potential* as well as academic preparation in admission decisions. Overcoming daunting life circumstances and contributing to one’s community should augment standardized test scores, high school grade point average, and “activity packing/résumé stacking.” Applications Quest, a software program developed for college admissions offices, enables universities to holistically consider race and ethnicity without violating recent Supreme Court rulings on affirmative action. This tool quantifies and allows for a weighting of each factor (Gilbert 2006).
- A growing number of institutions are eliminating the ability to pay tuition and fees as grounds for declining student applications—at both the graduate and undergraduate levels (*e.g.*, Hebel 2006; Lipka 2006; Martinez and Klopott 2005). Combining merit- and needs-based financial aid is a no-brainer. Yes, it requires discriminating judgment and incentives for rewarding performance, but loan forgiveness can be combined with a scholarship/fellowship to increase the likelihood that the degree recipient won’t abandon the science and engineering workforce—before or after degree completion—due to a crushing debt burden.

Table 1: Degrees Awarded to Underrepresented Minorities in STEM Fields by Level, 2004

Level	African American, non-Hispanic		Hispanic		Native American	
	n	%	n	%	n	%
Bachelor’s	38,328	8.4	33,290	7.3	3,216	0.7
Master’s	7,455	6.3	5,073	4.3	535	0.5
Doctorates	746	2.8	715	2.7	61	0.2

* Source: CPST, data derived from National Science Foundation, WebCASPAR Database

- Comprehensive programs that incorporate a “bridge” experience prior to matriculation, then out-of-class peer and faculty mentor support once enrolled, pay handsome dividends in the persistence of STEM students in the majors (especially in public universities). The University of Maryland, Baltimore County (UMBC) Meyerhoff Program is perhaps the best-documented at the undergraduate level, but there are others worth adapting to campus conditions (BEST 2004). None is race-exclusive and all demonstrate the components of diversity support and STEM student success that the entire campus could emulate, e.g., LSU’s LA-STEM Program (www.lsu.edu/lastem/).
- Innovations in structuring faculty searches (Smith 2004) and reducing the mystery surrounding promotion and tenure review (see Georgia Tech ADEPT, www.adept.gatech.edu) illustrate that both a measure of fairness and transparency, monitored at the highest levels of university administration, can yield a quality faculty that is diverse, relative to the current composition of a department or college. An indicator of faculty diversity is needed, patterned on annual survey data reported by the American

What Enrollment Managers Can Do to Stop Backlash

- ▶ Heighten sensitivity to cultural diversity and multiculturalism in all decisionmaking within the campus bureaucracy
- ▶ Improve outreach to grow the pool of qualified candidates who compete for admission
- ▶ Revise application form to include statements on challenges faced, personal circumstances, and career aspirations to better gauge student potential and determination to succeed
- ▶ Harness technology such as Applications Quest to facilitate holistic admissions and the consideration of race/ethnicity among other criteria
- ▶ Collect and use data to monitor composition of campus community participants
- ▶ Collaborate with diversity offices on peer campuses to refine procedures and practices
- ▶ Consult with faculty champions of diversity about talent-spotting to enhance recruitment and retention
- ▶ Engage the President/Chancellor, Provost, Deans, and General Counsel in ways to promote the educational value of diversity on campus and its measurement

Association for Engineering Education (www.asee.org/about/publications/connections). This is a kind of accountability that any institution can embrace. Like other policies, it is a matter of observance and enforcement of basic campus values.

Through work with academic clients of the Capacity Center, we have learned that decisive responses to campus backlash demand leadership. Exemplary behavior must be modeled. Research and data-based grounds for procedures



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and practices clarify campus culture and help build community. Leaders must use their bully pulpit to promote discussions of diversity as a value instead of responses to threatened litigation. Courage and conviction are antidotes to backlash. Leaders are expected to connect their personal beliefs and principles to campus structures that govern rewards for those who personify and advance the institutional mission, a mission—like it or not—increasingly defined (and underwritten) by excellence in science and engineering (see sidebar). Diversity should not be an addendum, but rather a condition of and prerequisite for excellence.

At this time of assault on what has historically made U.S. colleges and universities bastions of opportunity, quality, and social consciousness, those who regulate the machinery of student admissions, financial aid, and career development must act to stifle backslashing. Promoting the equality of opportunity and merit-based participation is the American way—the best way for institutions of higher education to demonstrate the educational value of diversity.

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Developing a High School Counselor Web Service Center: Providing Guidance Counselors Electronic Access to Applicant Records and Other Vital Services

by Joe F. Head and Thomas M. Hughes

College and university admissions officers strive to cultivate their relationships with high school guidance personnel. Strategically, guidance offices are the official point of contact for collegiate admissions and serve as the portal for recruitment literature distributions, counseling appointments, and as the primary credential collections source to support the application process. The relationship between admissions officers and guidance counselors is extremely valuable for both colleges and high schools. As it is often seasonal in its nature, trust and communication are necessary to maintain a professional rapport and provide a successful, seamless transition from high school to college.

One of the realities of counseling today's college-bound applicant is "real-time" status reports and follow-up interpretations to decisions and conditions of entry. Students have become accustomed to instant reply and 24x7 service, and colleges have begun to embrace many of these expectations by offering students robust "online" services. The Office of Admissions at Kennesaw State University (KSU) has taken this concept in a new direction and developed a secure Web tool to empower high school guidance counselors with real-time information on all applicants from their respective high school. This feature greatly improves the counselor's ability to more accurately advise students and parents of the student's admission standing.

High School Guidance Counselor Service Center

For several years, Kennesaw State has been developing an operational philosophy designed to deliver 24x7 "transactional" Web technologies/services to prospects, applicants, and enrolled students. This strategy permits applicants and enrolled students password-protected access to their records. This self-help service provides up-to-date student record

information such as SAT and ACT scores, transcripts, placement testing requirements, and the status of the admission decision.

Now in its 4th year of operation at Kennesaw State University, the High School Guidance Counselor Service Center (HSGCSC) operates on the same operational philosophy for guidance counselors as it does for applicants and admitted students. High school guidance counselors not only have authorized access that is 24x7, but also have access from anywhere an Internet connection is maintained. Initially, the HSGCSC provided admissions status check access, with few other links to additional Web resources. This admissions status check log-in enables high school counselors to provide a high quality counseling service for their students at a level not previously possible through traditional advising methods. This initial purpose, however, quickly gave way to a broader objective. As the KSU Admissions Office reached to enhance its professional relationship with guidance counselors, the HSGCSC expanded by offering other vital sources of information through the mediums of transactional Web technology and professional development options.

The purpose of this article is to share the development of the HSGCSC from the initial, basic concept to the present model of expanded services.

Premium Membership Services

The Premium Membership Services Web page of the HSGCSC provides informational Web links that can be found on other Web pages without the password-protected login. General informational hotlinks are for various Web pages—online applications, undergraduate and graduate admissions standards, financial aid, campus maps, Virtual Advisor, Freshman Admissions Predictor, the KSU honors program, and the Georgia High School Directory

Three Web links mentioned deserve special attention: the Georgia High School Directory, Virtual Advisor, and Freshman Admissions Predictor (FAP). For 20 years, KSU has published a highly popular hard copy of the Georgia High School Guidance Counselor Directory. A Web link to an electronic copy initiated four years ago has made it available to all counselors. The Virtual Advisor is a vendor product from Academic Engine and provides custom answers to basic enrollment questions such as: “Can I apply online?” “Do you have housing?” “Do you honor AP credit?” “What are the fees?” “When is registration?” As new questions emerge, new answers are programmed into this interactive service. Found to be extremely useful, a link for the Admissions Virtual Advisor was placed on the KSU main Web page and currently averages over 10,000 questions each month. The Freshman Admissions Predictor provides an unofficial decision when one enters test scores, grade point average and College Preparatory Curriculum (CPC) requisites. In addition, the expanded success of this 90-second interactive Web service caught the attention of The Georgia Board of Regents (BOR).

The BOR adopted the KSU FAP, with modifications, for the entire University System of Georgia. By using the Georgia Easy Web site of the Board of Regents, prospects may use this advisory service to determine admission probability at 31 of 34 institutions in its system. This version of the FAP was posted to the BOR Web site in January 2005.

The Premium Membership Services Web page (see Figure 1) also provides two special interest counseling links—Counseling Resources and Staff Development Units (SDU) Workshop. Counseling Resources provides a hotlink to the Georgia School Counseling Institute Web page, as well as to Web sites maintained by the Board of Regents of the University System of Georgia. The SDU Workshop link—hosted by KSU Admissions—provides a schedule and registration forms for this annual meeting (counselors receive Department of Education credit necessary for re-certification). Lastly, a phone list of unpublished numbers is available as a premium membership service.

The primary interactive Web service for high school guidance counselors provides two separate lists of prospects and enrolled students. In order for high school counselors to gain access to student records for their high school, they must request membership, either online or with a hard copy form. The information required includes name, phone number, e-mail address, high school name, and CEEB code. High school guidance counselors understand that the Family Educational Rights and Privacy Act (FERPA) of 1974, as amended, mandates privacy for student records. To promote support for confidentiality

policy, a statement of privacy responsibilities policy is a prominent link on the main Web page of the HSGCSC.

Once a guidance counselor’s identity is confirmed, a login name and password is issued to the counselor. This authorizes membership that keys applicants and enrolled students for a specific high school. After logging in, guidance counselors can view lists of applicants for future semesters or students who actually enrolled for the previous twelve months.

Figure 2 is a truncated report for illustrative purposes. When a high school counselor clicks on a student’s name, current records of vital information and documentation are displayed. Of course, caution is necessary when accessing these files. Information, particularly an adverse admissions decision, is especially sensitive.

Premier Membership Services versus Basic Services

During a major revision of the Web site, a decision was made to offer two levels of service. Those guidance counselors wanting only general information Web links are provided basic service without any requirement for membership registration. However, those guidance counselors wanting to access student records or use the other features must request membership and register. Premium features are limited to registered members only. These features include: applicant status check monitoring, a list of confidential office telephone numbers, a Web form enabling letters of reference for admissions to be submitted, High School Directory update form, and enrolled aggregate high school student summary information. Membership is valid for one year and expires

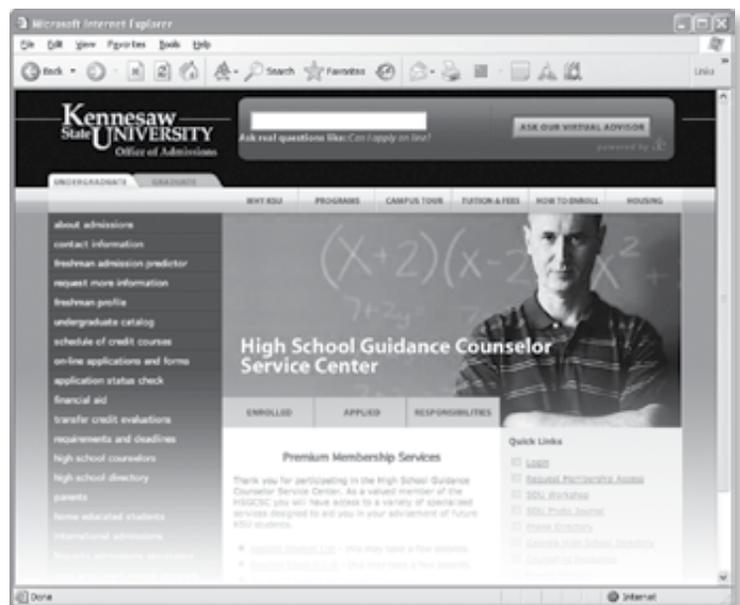


FIGURE 1: HIGH SCHOOL GUIDANCE SERVICE CENTER PREMIUM MEMBERSHIP SERVICES WEB PAGE

each fall. Renewal is required to manage career changes, school transfers, retirements, and security.

Marketing the HSGCSC

As of summer 2006, the Office of Admissions has not vigorously promoted the HSGCSC. The annual SDU workshop held at KSU, however, does provide an opportunity to publicize it. Sponsored by the Office of Admissions, over 90 high school counselors attend this workshop each year. In addition, guidance counselors in KSU's primary marketing area (seven counties) receive broadcast e-mails inviting them to consider full membership. KSU admissions counselors also spread the word during their rotational high school visits.

Participation by High School Counselors

The HSGCSC Web page is equipped with a "behind the scenes" usage counter. These reports reveal that participation by high school counselors is low. The HSGCSC has over 89 registered members, but high usage is found in a few high schools within the primary service area. Although three of the top feeder high schools in the primary service area are frequent users, fifteen of the top twenty feeder schools are non-users. High usage is also found at a number of secondary feeder high schools and private high schools. Low usage is perhaps due to the preference of high school counselors to conduct business the old fashion way. The old guard of counselors is still prevalent and perhaps the Web-savvy culture of many counselors is not yet at a functional level for these electronic tools. The recent upgrade of the Web site and services seeks to promote a higher level of participation by making certain features more user-friendly. With a goal to enlist more fre-

quent users among the top feeder high schools, admissions officers will be more focused on demonstrating the HSGCSC during high school visits.

The HSGCSC is an upscale 24x7 high-tech/high-touch counseling tool offered by KSU Admissions to guidance counselors who want to use cutting-edge support. Feedback from high school counselors indicates this service is useful in different situations. On one hand, it enhances the management of a high volume of applications at a public high school. Sprayberry High School (outside Atlanta) has 1,877 students and 420 seniors. Ann Carlson, Senior Guidance Counselor at Sprayberry states, "The High School Guidance Counselor Service Center is an excellent resource for an up-to-date status on our seniors. It allows us to follow up with the application process and the eventual outcome with 100 percent accuracy. We cannot manage the numbers of our Kennesaw applicants without this resource." In addition, reports of applicants with checklists of completed and unfulfilled documentation enable a high school counseling office to determine if transcripts or test scores are missing.

At the same time, this service strengthens the "high-touch" method of counseling. This high-touch attention is the hallmark of private or small schools. High school counselors who provide one-on-one personal service now have a powerful tool. Susan Pridemore, Guidance Counselor at Fellowship High School, a private school in Roswell, Georgia (Atlanta suburb) states: "The High School Guidance Counselor Service Center has been so helpful to me at Fellowship Christian High School. I work very closely with each student individually and this gives me the opportunity to see specific details about each student's status. Some are

overwhelmed with the entire application process and are comforted to know that I can give them such accurate and up to date information from this site." Fellowship High School has 202 students, of which 42 are seniors.

Impact Upon Data Entry

Although the HSGCSC provides 24x7 service, there can be a drawback to this instant access to information. If data entry operations are not up to speed, counselors and students alike will wonder why a transcript or test score sent last week has not been entered. Even in the most efficient offices, these situations occur. It is therefore necessary to plan, educate, and create timelines for document data entry.

Final Thoughts and Conclusions

The High School Guidance Counselor Service Centers is a 24x7 interactive Web service that may be ahead of its time. Many counselors are reluctant to develop the basic computer/internet skills to use it. However, guidance counselors

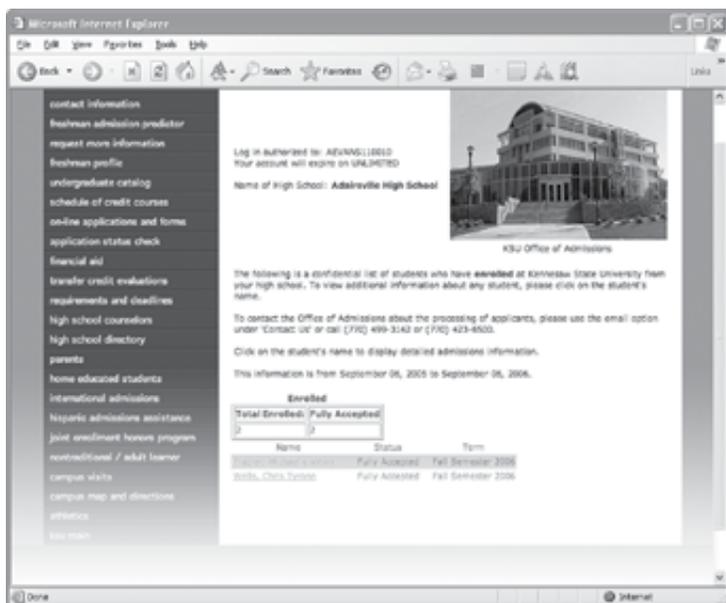


FIGURE 2: INTERACTIVE HIGH SCHOOL LIST HOT LINKS TO APPLICATION STATUS CHECKS

who use this tool are significantly ahead of their peers and much better equipped to provide a higher level of counseling service. This tool has the greatest benefit/value to counselors from high schools with large counseling loads. We hope that more high schools and their guidance offices will take advantage of this innovative tool in the future.

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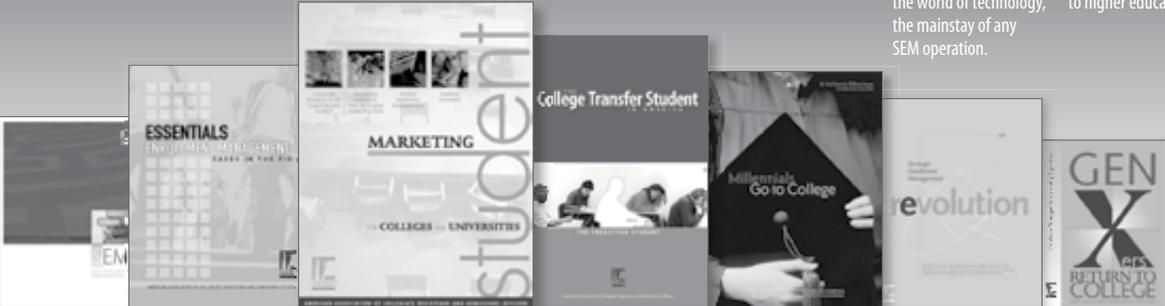
American Association of Collegiate Registrars and Admissions Officers

THE COMPLETE SEM SOLUTION.

STRATEGIC ENROLLMENT MANAGEMENT KNOW-HOW FROM THE MOST RESPECTED LEADERS IN THE FIELD



<p>THE SEM ANTHOLOGY A compilation of 29 articles, originally appearing in AACRAO's <i>SEM Monthly</i>, chronicling enrollment management concepts, challenges, and successes at campuses nationwide.</p>	<p>ESSENTIALS OF ENROLLMENT MANAGEMENT: CASES IN THE FIELD Experts reveal the evolution of enrollment strategies implemented at their institutions, the results, and the lessons learned.</p>	<p>STUDENT MARKETING FOR COLLEGES AND UNIVERSITIES Marketing techniques within the context of student marketing—from basic to advanced.</p>	<p>THE COLLEGE TRANSFER STUDENT IN AMERICA: THE FORGOTTEN STUDENT Translates research into practical advice on attracting, retaining, and guiding transfer students.</p>	<p>MILLENNIALS GO TO COLLEGE Identifies the seven core traits of "Millennials", providing valuable insight into the needs and desires of higher education's newest generation of students.</p>	<p>THE STRATEGIC ENROLLMENT MANAGEMENT REVOLUTION Defines the theories behind enrollment management, considers their practical application, examines the architectural design of a SEM enterprise and explores the world of technology, the mainstay of any SEM operation.</p>	<p>GEN XERS RETURN TO COLLEGE: ENROLLMENT STRATEGIES FOR A MATURING POPULATION Examines the critical issues facing colleges and universities as students from "Generation X" return to higher education.</p>
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An Analysis of One College's Admission Option for Underprepared Freshmen

by Robert S. Legutko

Historically, American higher education has never enjoyed an entering population of students well-prepared for the demands of postsecondary institutions (Carter-Wells 1989). Although it may be obvious that students who have had prior academic success, strong motivation, and emotional stability also have a greater chance of success in college (Upcraft, Gardner, and Associates 1989), American higher education is enrolling an unprecedented number of underprepared students with serious deficiencies in basic learning skills (Astin 1985). According to the Carnegie Foundation (as cited in Nemko 1990), college and university professors rated three-quarters of their students as lacking in basic skills, and stated that while graduation rates at most colleges average 40 percent, graduation rates are between just 5 percent and 20 percent for underprepared students.

Background Information

The college where this study took place was a private, urban, coeducational, religiously-affiliated, four-year commuter college in the mid-Atlantic region of the United States. At this college, an alternate admission option (AAO) has been available to high school seniors who applied for full-time admission but have deficiencies in their high school achievement in one or more (but not all) academic areas. The Admissions Office does not utilize clearly specified criteria to identify its AAO students, and instead utilizes its admissions counselors to recommend AAO students based upon their judgment of an applicant's potential for success, while considering his or her academic deficiencies. (For example, an AAO student may have had a low combined score on the SAT but a sufficient high school grade point average [and vice-versa], or poor grades in high school English and social studies but high grades in math and science.)

The objective of the alternate admission option is to assist students in strengthening basic skills and in developing proper study habits so that they may be prepared to enroll on a full-time basis. All alternate admission option students enroll in one course during the summer and four courses during the fall semester and must maintain a minimum grade point average of 2.0 without earning a failing grade in any course. This abbreviated schedule of coursework is the primary intervention (treatment) for the experimental (AAO) group in this study. It should be noted that there is no specific mention in the catalog about special advising services or remedial courses for alternate admission option students, though it is known that these students meet once a week in the fall as a group as part of the college's formal freshman orientation course, and have one of the professional academic advisors as the course instructor. In general, these students also may or may not be enrolled in either of the college's two remedial courses (business math or English composition) because they may show academic competence in either or both of these areas, but weaknesses in other areas that necessitated alternate admission.

Statement of the Problem

The alternate admission option had not been formally evaluated for success or effectiveness since inception in 1983. As a result, it was unclear whether or not the alternate admission option had enabled these students to perform at or near the level of their regularly-admitted peers over the duration of their academic careers.

Purpose and Need for the Study

The purpose of this study was to examine the success of an alternate admission option for academically underprepared

students. This study compared relevant enrollment, academic, and graduation data at various critical points in the academic careers of alternate admission option students with data from students who entered the college through regular admission.

The need for this study was to evaluate the success of the alternate admission option for the purposes of its continuance, modification, and/or termination. If admitting underprepared students under the auspices of an alternate admission option was not meeting the needs of these students, its continuance might be viewed as an unnecessary exercise in futility for all parties concerned.

Research Questions

The following questions guided the research:

- 1 What was the difference in retention rate of regularly-admitted and alternate admission option students at various critical points in their academic careers at the college in this study?
- 2 What were the differences in cumulative grade point average of regularly-admitted and alternate admission option graduates at the college in this study?
- 3 What was the difference in the graduation rate of regularly-admitted and alternate admission option students at the college in this study?

Design

The quantitative research design implemented in this study was a static-group comparison, with the regularly-admitted (REG) students serving as the control group, and the alternate admission option (AAO) students serving as the treatment group. A qualitative component was added to enhance the interpretation of the findings and to ascertain whether or not student opinions supported the data extrapolated from the academic transcripts. To obtain qualitative data, a questionnaire was mailed to each AAO student who graduated from the college.

This study, which was a program evaluation over time, encompassed an eleven-year span from 1983 through 1993. A five-year delimiter was imposed to allow students sufficient time to graduate. The final year studied—1993—was derived by counting backwards at the delimiter from the fall 1998 semester (the semester in which all quantitative data were gathered).

The AAO group was relatively small in number as compared to the college's freshman enrollment, with its largest year at 39 students. The REG group was comprised of a random sample of fifteen students in each year studied. (The number fifteen was selected for the size of the REG group as a representative number near the midpoint of the highest and lowest number of students in the AAO group for the eleven-year span of this study.) The AAO group was compared to the REG group by year to manage for possible year effect. The treatment was determined to be effective if it produced results similar to the control, or specifically in this case, if the AAO group did not radically differ from the REG group in retention rate, cumulative grade point average, and gradua-

tion rate. Except for the intentional difference in participants' high school academic achievement/ability, the students in the AAO and REG groups were similar in profile in areas such as age, gender, and socioeconomic status.

INTERNAL VALIDITY

Selection, morality, and selection-maturation interaction are possible threats to internal validity in a static-group comparison (Campbell and Stanley 1963). An attempt was made to control for selection by choosing the control group at random in each of the years studied. Mortality was not a threat because it was one of the variables being observed (in both retention rate and graduation rate). For selection-maturation interaction, the differential assignment of students in the treatment and control groups was the reason for conducting this study. In other words, by applying the treatment to the lower-achieving admission (experimental) group, it might be anticipated that the experimental group should resemble, or achieve similarly to, the regular-achieving admission (control) group over time.

EXTERNAL VALIDITY

Campbell and Stanley (1963) observed that the external threat to a static-group comparison is the interaction of selection and treatment. Since the intent of this study was not to generalize but to understand a situation in a particular institution, the interaction of selection and treatment was not a validity factor. Borg, Gall, and Gall (1993, p.303) stated that research findings are "externally valid to the degree that their results can be generalized to persons, settings, and times different from those involved in the research." No generalizations should be made from this study for populations that are demographically different from the participants involved. The situation and population identified in this current study are not necessarily representative of other higher education institutions.

Participants

The participants from the college utilized in this study were traditional-aged, first-time freshman students admitted in the fall semesters from 1983 to 1993. In this study, students ranged in age from seventeen to nineteen years old, and were in their first semester of college. There were a total 52 men (31.5 percent) and 113 women (68.5 percent) in the REG group, and 40 men (19.2 percent) and 168 women (80.8 percent) in the AAO group. The breakdown by gender of both groups combined was 24.6 percent male and 75.4 percent female. Statistics on race or ethnicity of participants were not available, though the students were assumed to be primarily Caucasian, based upon demographic observations.

Instrumentation and Variables Studied

The variables studied in the quantitative analyses were retention rate, cumulative grade point average, and graduation rate. A questionnaire was sent to all 92 AAO students in this study who graduated from the college within five years from

date of admittance. The questionnaire was piloted on five AAO students who graduated after 1998 to minimize item ambiguity and strengthen response clarity.

RELIABILITY

In this study, reliability of the quantitative data rests, to some extent, upon the accuracy of the data recorded originally by the college's registrar office staff, the input of the data into the statistical software packages, and the appropriateness of the statistical measures used to analyze the data. Reliability of the questionnaire is based on the ability to yield the same results if used by a different researcher on different occasions (Heinrich-Hertz-Institute for Communication Technology 2000). Thus, reliability of the questionnaire data depends upon the truthfulness of the subjects' responses to each question, and also on the interpretation and accurate reporting of student responses.

VALIDITY OF THE QUESTIONNAIRE

With respect to the questionnaire, validity rests upon the degree to which it measured what it was designed to measure (Heinrich-Hertz-Institute for Communication Technology 2000). Since responses to the questionnaire were intended to support or refute the quantitative findings through qualitative means, validity will rely upon how the items related specifically to the research study.

Procedures

A list of AAO students was compiled from information at the college. Using a random number generator, fifteen students were selected at random from each year's list of REG students. Transcripts were obtained for all 208 AAO and 165 REG students. Data were extrapolated by hand from the transcripts and entered into a data file.

A questionnaire, cover letter, and pre-addressed and stamped return envelope were sent to the last known addresses of each AAO student admitted from 1983 to 1993

who graduated from the college within five years of admittance. Valid, current addresses could not be located for 5 of the 92 AAO students who graduated from the college. A total of 42 of the 87 deliverable questionnaires were returned by the due date, yielding a 48.3 percent response rate.

Analysis of Retention Between Groups

To answer research question 1: "What was the difference in retention rate of regularly-admitted and alternate admission option students at various critical points in their collegiate careers at the college in this study?" a between-group comparison was calculated based upon numbers and percentages of students by group and by year of admittance. Fisher's Exact Test, which calculates an exact probability value if the margin between the data in a two-by-two table is very uneven or if there is a small value (less than five) in one of the cells (Simple Interactive Statistical Analysis 2000), was used to determine statistically significant differences between groups for each year. The between-groups analysis was a comparison of retention rates of REG and AAO students by year at critical points in their collegiate careers. This analysis helped determine if there were statistically significant differences between groups for the number of students who persisted at the college during certain time intervals. The critical points for analyses between groups were: (1) completion of the freshman year; (2) beginning of the sophomore year; (3) completion of the sophomore year; and (4) beginning of the junior year. This information is displayed in Table 1.

COMPLETED FRESHMAN YEAR

A higher percentage of REG group students completed their freshman year than did AAO group students in eight of the eleven years of this study. Only for 1989 was the difference between groups statistically significant at the $p < 0.05$ level. REG students who completed their freshman year were retained at a rate of 85 percent or higher in ten of the eleven years of this study, and AAO students who completed their

Table 1: Between Groups Analysis of Retention Rates by Year

Year	Completed Freshman Year				Began Sophomore Year				Completed Sophomore Year				Began Junior Year			
	REG		AAO		REG		AAO		REG		AAO		REG		AAO	
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)
1983	15/15	100.0	30/32	93.8	13/15	86.7	26/32	81.3	12/15	80.0	25/32	78.1	7/15	46.7	21/32	65.6
1984	15/15	100.0	31/35	88.6	13/15	86.7	26/35	74.3	13/15	86.7	21/35	60.0	12/15	80.0	18/35	51.4
1985	15/15	100.0	35/39	89.7	14/15	93.3	31/39	79.5	14/15	93.3	31/39	79.5	12/15	80.0	30/39	76.9
1986	12/15	80.0	27/31	87.1	9/15	60.0	22/31	71.0	8/15	53.3	19/31	61.3	8/15	53.3	17/31	54.8
1987	14/15	93.3	18/19	94.7	10/15	66.7	18/19	94.7	9/15	60.0	15/19	79.0	7/15	46.7	12/19	63.2
1988	14/15	93.3	13/14	92.9	13/15	86.7	13/14	92.9	11/15	73.3	12/14	85.7	10/15	66.7	10/14	71.4
1989	15/15 ¹	100.0	3/7 ¹	42.9	14/15 ¹	93.3	3/7 ¹	42.9	13/15 ¹	86.7	2/7 ¹	28.6	11/15	73.3	2/7	28.6
1990	14/15	93.3	9/10	90.0	11/15	73.3	7/10	70.0	11/15	73.3	7/10	70.0	9/15	60.0	7/10	70.0
1991	15/15	100.0	9/10	90.0	11/15	73.3	8/10	80.0	10/15	66.7	8/10	80.0	8/15	53.3	7/10	70.0
1992	15/15	100.0	3/3	100.0	13/15	86.7	3/3	100.0	12/15	80.0	3/3	100.0	10/15	66.7	2/3	66.7
1993	14/15	93.3	7/8	87.5	13/15	86.7	6/8	75.0	13/15	86.7	6/8	75.0	12/15	80.0	6/8	75.0

¹ $p < 0.05$ based on Fisher's Exact Test

freshman year were also retained at a rate of 85 percent or higher in ten of the eleven study years.

BEGAN SOPHOMORE YEAR

Although a higher percentage of REG students completed their freshman year in 1988 and 1991, and both groups completed their freshman year in 1992 at a 100 percent rate, there were higher percentages of AAO students in those three years who returned to begin the sophomore year. The year 1989 was the only admission year showing a statistically significant difference between groups.

COMPLETED SOPHOMORE YEAR

The year 1989 was again found to be the only year that showed a statistically significant difference between groups. With the exception of 1989, at least 60 percent of the students were retained in both REG and AAO groups at the end of the sophomore year for each of the years studied.

BEGAN JUNIOR YEAR

Although the percentage of students retained at the end of their sophomore year in 1983, 1986, and 1990 was higher for the REG group, a greater percentage of AAO students in those years began the junior year, and the percentage for both REG and AAO students was equal in 1992. Except for 1989, the AAO group had a retention rate each year over 50 percent, while the REG group retention rate fell below 50 percent in two of the years studied, 1983 and 1987.

Analysis of Graduates' Final Cumulative GPA

Research question 2: "What were the differences in cumulative grade point average of regularly-admitted and alternate admission option graduates at the college in this study?" sought comparisons between REG and AAO students who graduated within five years of admittance. For each year, the continuous data were examined for group differences using a *t*-test for independent samples. Cumulative grade point averages were compared by group and by year for students who graduated within five years of admittance. For REG and AAO graduates, 1983, 1984, and 1991 revealed statistically significant differences. This information is displayed in Table 2.

Analysis of Graduation Rate Between Groups

Percentage distributions were calculated to answer research question 3: "What was the difference in the graduation rate of regularly-admitted and alternate admission option students at the college in this study?" For each year, Fisher's Exact Test was used to determine statistically significant differences between groups of students graduating within five years of admittance to the college.

Table 3 (on the following page) illustrates differences in graduation rates by year for REG and AAO students. Statistical significance was found between groups for two years: 1984, where the difference in graduation rate between REG and AAO graduates was 40 percent, and 1989, where there were no AAO

Table 2: Basic Statistics for Graduates' Cumulative Grade Point Average

Year	Statistic	Group		p
		REG	AAO	
1983 ¹	M	3.131	2.761	0.003
	SD	0.300	0.209	–
	n	8	13	–
1984 ²	M	3.290	2.747	0.000
	SD	0.390	0.213	–
	n	12	14	–
1985	M	2.940	2.741	0.110
	SD	0.369	0.266	–
	n	9	20	–
1986	M	3.166	2.889	0.084
	SD	0.407	0.254	–
	n	7	12	–
1987	M	2.991	2.881	0.633
	SD	0.418	0.470	–
	n	7	9	–
1988	M	3.077	2.835	0.122
	SD	0.341	0.272	–
	n	10	8	–
1989 ³	M	3.207	*	*
	SD	0.404	*	–
	n	10	*	–
1990	M	3.144	3.018	0.634
	SD	0.468	0.343	–
	n	11	4	–
1991 ⁴	M	3.265	2.702	0.020
	SD	0.412	0.284	–
	n	6	6	–
1992	M	3.114	3.240	0.586
	SD	0.281	0.190	–
	n	9	2	–
1993	M	3.115	2.836	0.983
	SD	0.376	0.314	–
	n	11	4	–

¹ p < 0.01

² p < 0.001

³ Asterisks indicate calculations could not be performed for the AAO group in 1989 because there were no graduates.

⁴ p < 0.05

graduates. The AAO group had a higher graduation rate than the REG group for three of the years in this study; 1987, 1991, and 1992.

Analysis of Questionnaire

The relevant responses of 42 AAO graduates who returned questionnaires are detailed below.

One goal of the AAO offered at the college in this study was to prepare traditional first-time, full-time freshmen with academic deficiencies in high school to eventually enroll as regular full-time students. Students either completed one summer course and scheduled a reduced load of courses in the fall semester, or had a reduced load of courses in both their first fall and

Table 3: Between Groups Analysis of Retention Rates by Year for Graduates Within Five Years of Admittance

Year	REG		AAO	
	N	%	N	%
1983	8/15	53.3	13/32	40.6
1984 ¹	12/15	80.0	14/35	40.0
1985	9/15	60.0	20/39	51.3
1986	7/15	46.7	12/31	38.7
1987	7/15	46.7	9/19	47.4
1988	10/15	66.7	8/14	57.1
1989 ²	10/15	66.7	0/7	0.0
1990	11/15	73.3	4/10	40.0
1991	6/15	40.0	6/10	60.0
1992	9/15	60.0	2/3	66.7
1993	11/15	73.3	4/8	50.0

¹ p < 0.05

² p < 0.01 based on Fisher's Exact Test.

spring semesters. One respondent initially objected to these restrictions before eventually realizing their benefits:

When I was told I would have to start as an [AAO] student, I wasn't very happy. I felt different than everyone else only being allowed to take a few courses. But looking back on it, the program really did ease me into college life. I feel that I probably would have struggled harder if not for the program.

Two of the college's graduates who began school as AAO students observed that the program not only allowed them to gain admittance to the college, but to also realize the intrinsic rewards of their efforts:

The program allowed me to attend [this college]. Without the program I would not have been accepted. But in order to graduate on time I had to work that much harder than the average student. My degree means that much more for those reasons.

I believe the [AAO] program helped me get into college, and for that I am grateful. By sophomore year, I was a full-time student, and graduated with my peers.... I think the [AAO] is great for potential students who are intelligent, yet struggle in test-taking.

There were also negative responses to the open-ended questionnaire item from some AAO students who graduated from the college. The central theme focused on having to attend at least one college summer session and the extra burdens endured by having to do so. Three responses are transcribed below:

I feel that [AAO] did not help me at all! All it did was put a financial burden on me and my parents because I had to pay for the summer course as well as the fall semester...!

I had to work full-time while in college and the [AAO] program made it even more difficult for me because I had to take so many classes in the summer to get caught up. I hated

having to "prove" myself before I could attend [this college] full-time.

Honestly, I think the [AAO] was a money-making scheme. It forced me to attend summer classes. I could have handled those classes during the regular semester.

At least one respondent who adhered to the same guideline, enrolling in summer course work, viewed the experience from a favorable perspective:

I feel that the [AAO] program helped me prepare for the first fall semester of college life. I viewed the summer session of [AAO] as positive and it inspired me to take summer courses throughout my four years of college.

The intent and success of the AAO program at the college in this study may be most appropriately articulated and realized in the final commentary below:

I will be graduating with my master's in nursing and as a certified pediatric nurse practitioner.... The first year at [this college] gave me a chance to mature.... Yes it took longer but I came to appreciate the hard work it takes to be successful!

Discussion

Since there was only one year (1989) with consistent statistically significant differences between groups, it may be concluded that AAO students compare favorably to REG students in retention rates. In the category of graduates' cumulative grade point average, REG and AAO students had similar grade point averages throughout the years studied after the alternate admission option's first two years of existence.

There were few differences between groups when comparing graduation rate. An examination of the data indicates large differences in favor of the REG group for some years (1983, 1984, 1989, 1990, and 1993), but the AAO group actually graduated a higher percentage of students in three of the eleven years studied (1987, 1991, and 1992). This indicates that AAO students maintained pace, and in some cases outperformed REG students in graduation rate.

Most interesting and important, though, may be the fact that the alternate admission option was successful as an early intervention strategy by the college. The identification of these students and their potential at the onset (with some early academic monitoring), an early induction to college life with the one summer course, and the limited four-course load in the first fall session enabled students to achieve comparably with the regularly-admitted population. Admittedly, the intervention strategy was primarily, but not wholly, just a different way of being admitted to the college by recognizing potential in the students from the onset.

Limitations and Generalizability

The primary limitation of this study pertains to generalizing the findings to other educational settings. This investigation focused upon the success of an alternate admission option for

underprepared students at a specific type of school. As a result, external validity is questionable. Appropriateness of the findings of this study should be determined by the consumer of the research. Other colleges and universities in general can, however, benefit from the findings in this study and utilize the parameters of the alternate admission option—recognizing a weaker high school student’s potential performance, offering one summer course and four fall courses, and providing special academic advisement—as a means of attracting and retaining prospective students that may have previously been overlooked.

This study did not analyze high school grades, SAT or ACT test performance, or high school class rank. Characteristics of successful or unsuccessful students, such as study habits and test-taking skills, were not considered. This study did not take into consideration differences between coursework attempted or completed, or differences in students’ major/concentration. These factors, singly or in combination, may have also had an effect on the outcome variables examined in this study.

Learning disabilities, psychological, cognitive, or other similar factors, conditions, or limitations were also not considered in this study. Any of these factors may have been operative in the present study and should be studied in the future in order to obtain a more accurate picture of the program’s effects.

Recommendations

Suggestions for further research that could provide additional information for the examination of alternate admission option programs at either other colleges or the one used in this study include the following:

- Clearly define the alternate admission option program and its goals, and explain to students why they were given this admission option as a basis for enrollment. The qualitative data in this study showed that some questionnaire respondents, although they graduated from the college, were not satisfied with the alternate admission option, felt as if they were at a disadvantage, or that the option had no effect on their academic success. Stronger information provided at the beginning and throughout the duration of study would stand to benefit both the student and the school.
- Conduct an analysis of students by major and specific courses studied, and an examination of reasons why students retained or changed majors where applicable.
- A recommendation for future research that focuses on investigating why students did not complete the AAO program is also suggested.

Summary

Though there may be differences between regularly-admitted and alternative option students for a number of variables and at a number of periods of time, the most significant point to emphasize in this study is that alternate admission option students were able to complete one important task—graduation.

AAO students performed well enough to graduate with a college degree when given a chance to achieve at the college in this study. The AAO students would have been denied admission to this college and would not have had an opportunity to earn a bachelor’s degree there if not for the choice to enroll as a special admission student.

The alternate admission option for students at the college in this study appears to have achieved its goal: giving those students who would not have otherwise had the chance to attend and graduate from this college the opportunity to do so. Its special population maintained pace with, and compared favorably to, regular students in retention rate, academic performance (cumulative grade point average), and graduation rate. In the end, as symbolized in the matching cap and gown attire at commencement, differences were indistinguishable between regularly-admitted and alternate admission option students.

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The Electronic Database for Global Education (EDGE)

by William J. Paver and Dale Gough

Few would dispute that much has changed in the field of international credential evaluation in the past twenty years. Support for fully staffed international admissions has waned as directors of admission have faced increasing challenges in the areas of recruitment and enrollment management while being faced with budget constraints and increased workloads. Consequently, resources allocated to international admission sections have dwindled even as the amount of work and the number of applicants have grown.

For two years, a group of dedicated professionals from AACRAO's International Education Services has been working to develop an entirely new electronic, Web-based comprehensive system that will assist offices and individuals charged with evaluating foreign credentials. The project, the Electronic Database for Global Education (EDGE), is designed to eventually cover more than 100 countries and all of the major credentials offered within those countries.

The idea for EDGE grew out of the widespread use of country profiles developed over the years by various entities. These abridged profiles, though not comprehensive, historically have proven very useful in evaluating the majority of foreign credentials. The expanded development of Web-based technology now has made it possible to create expanded profiles that are current and considerably more comprehensive in nature.

Features of EDGE

The majority of current published resources in the area of international admission are obsolete. EDGE addresses this issue: new information is added as it becomes available, and veteran international educators review this information for content and accuracy. Each credential is reviewed by three senior international admissions professionals who work together to develop a recommendation as to how the creden-

tial should be evaluated. Clear guidance is provided, and consistent language is employed. Evaluators will be able to search the database by country or credential to locate the information they need.

The EDGE system is designed to answer more than 90 percent of the questions and problems that arise when a foreign credential is being evaluated. The system is comprehensive, and its ability to add new information as it becomes available means that EDGE will facilitate processing of all but the most difficult of foreign files. EDGE is an intuitive and easy to use training tool. With minimal supervision, novice international admissions officers can be trained to use EDGE and evaluate files.

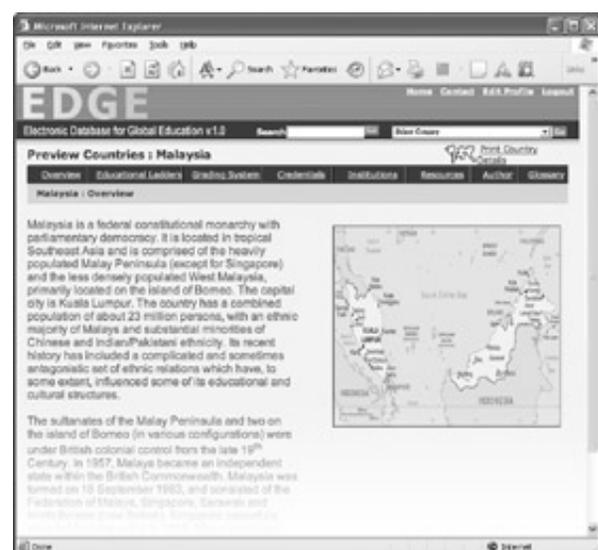


FIGURE 1: MALAYSIA PROFILE

What follows is a breakdown of what is included in EDGE, along with supporting screen shots. Careful review of this section should provide a good approximation of the type of information the system conveys.

EDGE provides an *overview* of the country in question, with particular attention to the development of the education system (see Figure 1, on page 79).

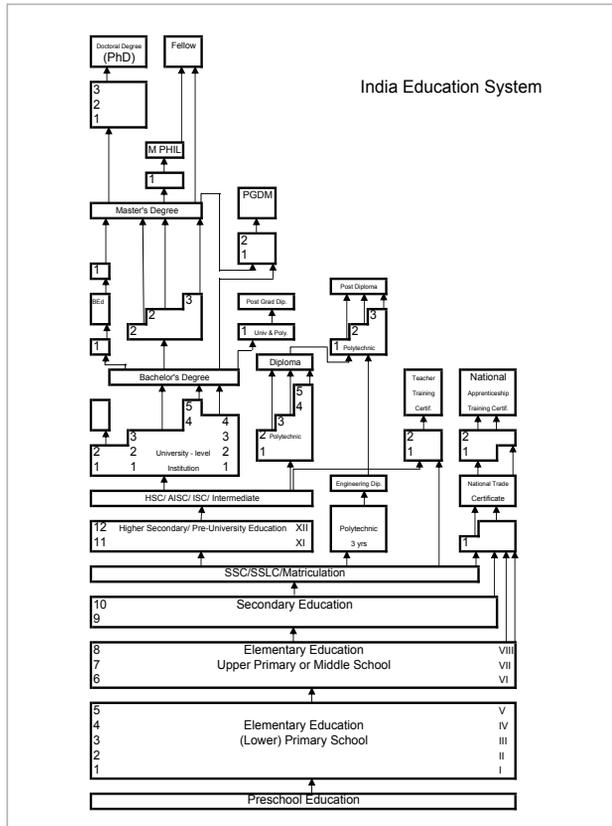


FIGURE 2: EDUCATION LADDER OF INDIA



FIGURE 3. INDIAN CREDENTIALS

The *education ladder*—a graphical representation of the types of credentials offered in chronological order—enables evaluators to visually locate the education level and credential about which they need information. It provides important context for where the credential fits into the country's education structure. (See Figure 2.)

Credentials offered within a country are listed (generally) in chronological order, with all major credentials included and new ones added as they become available (see Figure 3). Note that Figure 3 represents only a partial sample of credentials offered in India and that each is described briefly.

Each credential also has a link that specifies both the level of education for which it is preparatory (*e.g.*, a B.A. in the United States is preparatory to graduate school) and what credential is required for admission (*e.g.*, a high school diploma is required for admission in the United States to a university). This information enables the evaluator to estimate where a student would be placed in his home country. This is particularly helpful when a postsecondary credential offered in-country is vocational in nature and so leads only to employment. (See Figure 4, on page 81.)

Advice from AACRAO credential evaluators enables international admissions officers to evaluate and place applicants at their respective institutions (with the caveat that each institution retains the right to make its own judgments in these matters). (See Figure 5, on page 81.)

The level of accreditation of an institution may be determined in either of two ways: either a comprehensive list of accredited institutions will be provided (with the institutions listed by name), or you will be directed to an approved Web site where credential evaluators will be able to make a judgment as to whether an institution is accredited. This is an essential step in determining eligibility for admission and for the award of transfer credit. (See Figure 6, on page 81.)

Sample documents (transcripts and diplomas) are available in PDF format for evaluators to review. This aids in the detection of fraudulent credentials and gives evaluators a good idea of what to look for (see Figure 7, on page 81). Documents will be made available from the archives at AACRAO and the University of Texas at Austin. As new documents become available and as work on EDGE progresses, additions and corrections will be made systematically.

Grading system scales for each country, along with their suggested U.S. equivalents, are provided in each profile. This makes it possible to determine a student's level of achievement in-country as compared to in the United States, and will greatly aid in making admission decisions. New scales can be added as they develop, and older scales—that is, grading scales that are no longer used but that still may be presented—can be made available. (See Figure 8, on page 82.)

A *glossary* of relevant words and phrases may be included in each profile. This provides evaluators with a context for and definitions of unique terms they may encounter as they evaluate course credentials from individual countries. (See Figure 9, on page 82.)



FIGURE 4: ADMISSIONS CRITERIA



FIGURE 5: CREDENTIAL ADVICE



FIGURE 6: BRITISH COLUMBIA PROFILE



FIGURE 7: FRAUDULENT CREDENTIAL

Each profile lists the *resources* consulted in its construction. In addition to assuring the user that the proper resources have been consulted, such a listing can provide further research links for the evaluator to investigate when confronted by difficult cases. (See Figure 10, on page 82.)

When necessary, the *author(s)* may insert additional notes into the profile. This occurs, for example, when something unique to a country may require further explanation; when guidance is required regarding the award of transfer credit; or when new developments or offerings characterize a country's education system. (See Figure 11, on page 82.)

Summary

EDGE is designed to be a comprehensive program that will enable an organization or institution to evaluate up to 95 percent of the foreign credentials it encounters. EDGE is the single most powerful tool ever created for work of this kind. Unlike much research relied on by today's evaluators, EDGE will be based on recently conducted research and will have the capacity to update its information. AACRAO has incorporated into EDGE its own judgments and experiences on how these credentials should be viewed and offers clear advice to the user; this advice is backed by expert review and

The Bologna Process, Three-year Degrees, and U.S. Graduate Admissions

by Mary Baxton

Since 2003, we have seen an increase in the amount of literature on Bologna degrees. The dialogue has progressed from a basic understanding of the Bologna Process, to skepticism of its implementation, to the present reality that it is happening. The question now being discussed on most university campuses is whether we want to consider these degrees for graduate admission. Much of the discussion has focused on the challenges that now face college and university admissions offices and professional evaluation services in finding a fair and balanced equivalency for three-year degrees.

Background

Originally signed in 1999, the Bologna Declaration is an agreement by ministers of education—now including 45 countries—to create a European Higher Education Area by 2010. Out of this declaration came the Bologna Process, whose goal is the fundamental restructuring of higher education in Europe. Among the most important features is the introduction of three cycles—bachelor, master and doctoral—in lieu of the traditional long program. In addition to the restructuring of degree systems, signatories to Bologna agreed to promote quality assurance systems, remove obstacles to the mobility of students, implement a system of easily readable and comparable degrees, and establish a common credit system.

U.S. Bachelor Degree Features

In the United States, institutions set degree requirements in terms of credits that are typically distributed over a period of four years. Each year is divided into semesters or quarters. Most bachelor's degree programs require the completion of a minimum of 120 semester credits including general education, the major, and electives. General education is more unique to the American system of undergraduate education. Most undergraduates take these courses during their fresh-

man and sophomore years before they begin to concentrate on a major.

Bologna Three-year Bachelor Degree Issues

Given that the evaluation of international degrees in the u.s. is not covered by any national policy, different views have emerged around the issues and it is no surprise that a range of interpretations and decisions has been proposed. The center of the debate is whether or not the three-year bachelor's degree is comparable to a u.s. degree and constitutes adequate preparation for graduate studies at institutions in the United States.

For those who believe the number of years is the most prominent consideration when judging a degree, a three-year degree cannot be compared to the u.s. degree, which requires a minimum of 120 semester credits and is typically completed in four years. They cite that accepting the Bologna first degree as equivalent to its u.s. counterpart for graduate admissions is unfair to domestic students who are required to complete the equivalent of four years of undergraduate study. Meanwhile, others believe that the amount and strength of the major coursework, most often in the same or a related major, is more important to consider for graduate admission.

A November 2005 report by the Council of Graduate Schools (CGS) includes results of a survey to members about the Bologna Process changes and current admission practices regarding three-year degrees. Less than 22 percent reported that their institution-wide policy was to accept only four-year degrees, while 64 percent reported accepting three-year degrees within certain categories.

Conclusion

The Bologna Process is impacting the way in which u.s. admissions offices evaluate European credentials; they are

forced to look at three-year degrees from a broader perspective. Their work is made easier by the abundance of information that is being made available as European nations increase the attractiveness and transparency of their tertiary-level credentials. Furthermore, information is now readily available both online and in hard copy.

The Bologna Process is raising questions and discussions on many American campuses. But the issues have raised as many questions as provided answers. This is a critical year, one in which I believe we will begin to see consideration of policy changes. More analysis and discussion is required, and perhaps a more uniform response among U.S. universities is needed if the United States is to remain competitive in the global graduate education market.

ABOUT THE AUTHOR

Mary Baxton is Associate Director of Admissions and Records at California State University, Northridge. Her role is admissions officer for domestic and international admissions. She is the current Vice President for International Education at AACRAO; author of the country profiles on Japan, Malaysia, Indonesia, and three areas of Canada for the EDGE project (Electronic Database for Global Education); and is an AACRAO Transfer Credit Practices (TCP) reporting officer for the state of California.

Note: A conference on this subject will be held Saturday, November 4, 2006, in Washington, D.C. Tentatively titled *The Impact of Bologna and Three-Year Degrees on U.S. Admissions*, the discussion will focus on three-year degrees from Europe, the United Kingdom, and Australia.

Presented by AACRAO, the conference will be held in partnership with: Peterson's, A Nelnet Company; The German Academic Exchange Service (DAAD); The Australian Department of Education, Science and Training; and The British Council. More information will be available online at www.aacrao.org.



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REGISTRARS AND ADMISSIONS OFFICERS

Critical Issues for Student Affairs: Challenges and Opportunities

BY ARTHUR SANDEEN AND MARGARET J. BARR
JOSSEY-BASS/WILEY BOOKS, 2006; 237PP.

Reviewed by Barbara Lauren

“Since the time of the earliest colonial colleges, there has been an expectation that ‘something’ beyond subject mastery would occur as a result of the higher education experience,” Arthur Sandeen and Margaret Barr declare in their wide-ranging and well-organized new book, *Critical Issues for Student Affairs: Challenges and Opportunities*.

American colleges and universities have always been expected to graduate students who can become citizens, not just specialists or technicians. In this sense, the authors endorse the observation of other commentators: “Student affairs is largely an American higher education invention.”

The authors are well equipped to provide a useful, and usable, overview of this distinctive field. Each has a long career in student services: together they have more than 45 years of experience as vice presidents of student affairs—Sandeen most recently at the University of Florida, and Barr at Northwestern University.

The authors open with a brief but illuminating overview of how the field came to exist. They point out that as higher education became more specialized in the late nineteenth century, the larger universities felt the need to appoint some official who was to interest himself in the welfare and progress of the individual student as a “whole person.” The position of “student affairs dean”—in fact if not in name—was invented by Harvard’s pioneering president Charles Eliot, who in 1890 appointed a young English instructor, LeBaron Russell Briggs, to be the “dean of Harvard College.” Similar appointments at other institutions followed. Such appoint-

ments “represented an effort to retain some of the humane values of the old-time college.”

The duties of these new deans were barely sketched out. Indeed, when Stanley Coulter was appointed dean at Purdue in 1924, he inquired of the governing board what his duties might be and was informed that “they did not know but when I found out to let them know!”

These origins suggest the wide-ranging but amorphous nature of the student affairs field. In eight succinct chapters, Sandeen and Barr survey leading issues for today’s practitioners:

- What is the essence of this type of work?
- What are the advantages and disadvantages of its placement within the organizational structure—in the president’s office versus in the provost’s (or other academic) office?
- What kinds of diversity initiatives are most appropriate for the student affairs office to undertake?
- How can the student affairs office itself attract and retain a diverse staff?
- What are the pros and cons of different funding sources for the student affairs office—student fees or direct institutional support?
- What additional or changed services should the student affairs office provide for distance education or other non-traditional educational settings?
- What is the role of student affairs in assessment?
- And finally, to what extent should student affairs (and by extension, the institution) be responsible for the lives and choices of students?

Each chapter has an introductory overview of topics to be discussed, followed by a well-organized discussion, in which the major topics and the sub-topics are clearly set forth; a

useful set of “Suggestions for Action”; and a concluding Summary, in which the authors emphasize that concerted effort directed toward the topics just discussed is necessary to further the interests of both the students and the institution being served.

One of the many strengths of the book is the candor the authors display about the ambiguous nature of the field, especially in its early years: “Was it part of the faculty, part of the administration, or did it occupy some ambiguous position between the two?” In particular, the authors do not shy away from acknowledging what has been, in many cases, the “low degree of acceptance by faculty and academic administrators” of professionals in student services. The fact that there is neither a clear credentialed path into the field nor a clear career path for advancing in it can make it appear, the authors acknowledge, that the student affairs office is “operating on the periphery.”

In the second chapter, the authors note that reporting to the president may afford the student affairs unit an illusory sense of prestige, since it is the provost who (on most campuses) controls most of the institutional budget. Nevertheless, they sensibly emphasize that “the most important issue for student affairs is not where it is placed on the organizational chart, but how effective its leadership is on the campus.”

One of the most valuable chapters is the third, “How Student Affairs Can Help Students Learn About Diversity.” The authors summarize a generation of change when they state: “The college campus [has become] the primary stage where American society would put its most volatile ideas on trial”—diversity involving a wide variety of opinions, as well as people. In their first “Suggestion for Action” in this regard, the authors advise: “Student affairs professionals should continue to strive to treat students as individuals.” They go on, wisely, to add: “Thinking about students as ‘categories’ and treating them as members of these so-called groups can distort understandings about individuals and, worse, reinforce societal myths about the characteristics of these ‘groups.’ Thinking about diversity in this fashion can result in the continuing fracturing of the campus into competing groups and may actually encourage competition for resources or claims of victimization.”

The follow-up chapter, on recruiting and retaining a diverse staff, is equally illuminating. “Develop and grow potential staff,” they suggest—both from within and from outside. “Sometimes someone who is employed as an administrative assistant, for example, could profit from additional responsibilities to determine if a career choice in student affairs is a viable alternative for [them].” And, keep in touch with promising candidates even if you do not have a position immediately available. “Identify diverse new professionals who have promise and keep in touch with them on an informal basis. Offer to work with them on projects and programs. When a position becomes available, they might be interested in applying because they know you and your institution.”

Perhaps the chapter with the greatest number of fresh suggestions is Chapter Six, on the role of student affairs in

distance learning and other non-traditional settings. The authors discuss both the opportunities and the pitfalls for student affairs personnel who seek to offer—online—such services as academic advising, job placement, and various forms of counseling for students who are rarely if ever on campus. “Student affairs is clearly coming quite late to the distance learning environment,” the authors declare. Determine whether online students are receiving fair value for tuition dollars, they advise, especially if distance education students are paying the same tuition rates as on-campus students. “What general support, in addition to the course they are enrolled in, are they receiving for their tuition dollars?” Although the authors concede that there are many hazards to offering more than the standard core academic services online, they add that failure to at least consider a broad spectrum of services to distance students means that, “as a profession, [we] are not serving an important segment of the enrolled student population.”

Chapter Seven, “What Is the Role of Student Affairs in Assessment?” is a level-headed survey of both the need to pursue an assessment agenda, and some of the pitfalls in doing so. The chapter begins with a fundamental premise: “Assessment in public higher education is no longer simply an ‘add-on.’” Quoting another commentator, the authors summarize the many sources of external pressures to develop assessment tools: “Critics [have] charged that public colleges and universities admitted too many underprepared students, graduated too few of those enrolled, permitted too many to take too long to earn degrees, and allowed too many to finish without the knowledge and skills necessary for productive careers.” In the face of these legitimate concerns, the authors warn that it is not responsible assessment practice either to gloss over the institution’s weaknesses or difficulties, or to embark on an assessment effort which may be merely a “poorly disguised effort to advance a particular agenda on the campus or to gain support for a proposed policy change.” The authors warn that such practices may discredit other, very useful, efforts.

In the final chapter, the authors discuss the two major generalist associations focusing on student affairs [the National Association of Student Personnel Administrators (NASPA) and the American College Personnel Association (ACPA)], as well as what the authors characterize as “a proliferation of specialized associations.” The advent of the specialty associations is, in one way, a strength—they all exist to serve their members’ needs for increasingly specialized services. In other ways, however, it can be a weakness, to the extent that the fragmentation can encourage a focus on single-issue concerns.

Curiously, there is no mention of AACRAO by name, although many AACRAO members work closely with student affairs personnel, and many AACRAO annual meetings have featured speakers—Vincent Tinto, Clifford Adelman, and William Strauss (of Howe and Strauss, *Millennials Rising*)—who are mentioned in this book.

Finally, there is a reference to a 2004 publication by the American Association of Higher Education. AAHE has

recently disbanded, but its efforts in the assessment part of the field are certainly still worth mentioning.

In short, this work offers a broad overview, and many practical and thoughtful suggestions by authors who clearly have paid their dues.

ABOUT THE AUTHOR

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Aiding Students, Buying Students: Financial Aid in America

BY RUPERT WILKINSON
VANDERBILT UNIVERSITY PRESS, 2005; 346 PP.

Reviewed by Paul Marthers

College and university financial assistance in the United States has existed, in one form or another, since the founding of the first institutions of higher learning. At its core, financial help to students, whether it has been in the form of scholarships, loans, and work, has been about access. How and to whom that access has been provided has a complex and multilayered history bound up in notions of merit, obligation, and social justice, involving collisions between mission and market. Yet even in enrollment management circles, that history is elusive and fuzzy, especially the era before entities such as the College Scholarship Service and practices such as need-blind admission. Rupert Wilkinson's *Aiding Students, Buying Students: Financial Aid in America* fills a knowledge gap, explaining, summarizing, and examining the peculiarly American institution that has come to be known as financial aid.

Wilkinson, an emeritus professor of American studies and history at England's University of Sussex, has crafted a book that will interest students of higher education policy, students seeking to understand the history of American colleges and universities, and anyone focused more generally on the history of u.s. institutions. Wilkinson's book should be required reading for admission and financial aid officers, college presidents, lawmakers, and boards of trustees. It is the result of fourteen years of research, including discussions with 475 officials at 133 colleges. Just the illuminating footnotes, extensive bibliography, and detailed glossary of terms could form the basis of a course in American financial aid. For those who choose merely to skim the book or use it simply as a reference, the final chapter, "Reforming the System," is a word-for-word must read. Here Wilkinson proposes policies and reiterates the complex issues shaping how college officials grapple with questions of access and bottom line pressures.

Wilkinson's book is one I read with personal interest, because I am a product of post-World War II spending on higher education, a beneficiary of what was perhaps the apex of the need-based era of financial aid—I entered college in

the late 1970s. Without financial aid from the Vermont Student Assistance Corporation, the federal government, and the colleges I attended, I would not have completed a bachelor's degree and I would not now be a dean of admissions at an elite private college. Like others in and out of higher education, I have had little more than a vague suspicion that the financial aid policies since the 1950s have not always been standard operating procedure at America's colleges and universities.

Aiding Students, Buying Students dispels the numerous myths that inhabit the territory in higher education occupied by financial aid. Chief among those myths is the belief that merit scholarships have only recently re-emerged to crowd out the ubiquitous need-based financial aid. Colleges, according to this belief, were historically driven just by altruistic aims when dispensing funds to worthy students. Such a view is a romanticized distortion of the facts, according to Wilkinson. His book demonstrates persuasively that there has been a longstanding historical tension between scholarship aid for the needy and scholarship aid for the meritorious. With the earliest scholarships, officials at Yale, just to name one example, debated whether to provide gift aid, loans, work-based aid, or some combination of each. The concept of scholarship aid, Wilkinson shows, has never been far removed from American conceptions about worthiness, self-reliance, and dependence. At Stanford, for example, the original policy of free tuition was criticized by Herbert Hoover, himself a beneficiary, for lowering students' "sense of responsibility." Looking back to America's first university, Harvard, Wilkinson finds that a dominant intention behind need-based scholarship assistance was to make college affordable for the children of ministers, a primarily middle class lot. Early Harvard officials, he emphasizes, were not fretting about the under-representation of Boston's working classes in "the Yard."

Readers will recognize that Wilkinson performed a thorough sift of college archives before reaching the conclusion that, despite good intentions, higher education in America, particularly at its upper tiers, has never done an effective job of enrolling students from low-income backgrounds. He cites as a representative example Smith College's efforts in the 1890s to attract students from a wider socioeconomic spectrum. Despite the availability of funds, Smith's application of financial aid failed to enroll more than a rare daughter of a laborer, tradesman, or unskilled worker. Elite colleges like Smith, according to Wilkinson, have always struggled with the thorny challenge of increasing access for students below the upper and middle classes, periodically launching dramatic well-intentioned initiatives to mixed results.

Wilkinson details the founding of the College Scholarship Service (css) as a standardized way to assess financial need. He shows how the efforts of a small number of officials, chief among them financial aid director John Munro of Harvard, and a cadre of elite eastern institutions in the early 1950s established the modern era of financial aid. The css shifted

emphasis toward aiding the needy, using scholarships to provide access rather than just to lure the best students. Wilkinson seems to support the stance that the shift in emphasis to need-based aid was welcome. He also points out that the elite early members of the CSS were primarily drawing well-prepared applicants from the nation's best high schools and had little reason to use merit aid to "buy" talent. What the eastern elites needed—and here Wilkinson suggests that financial aid has always been driven by institutional needs and aspirations—and what need-based aid could help provide, was a national student body, not just a collection of prep school graduates. Harvard, thus, started seeking the children of Wyoming ranchers and Texas well drillers.

Equally illuminating is the case study chapter Wilkinson devotes to Oberlin College. It presents a representative example of how an elite institution made the transition from need-blind to need-aware admissions. In the Oberlin chapter, Wilkinson shows the depth of his understanding of the issues as well as his acute sensitivity to the complicated trade-offs involved in making such an institutional choice. Unlike all too much writing on higher education, Wilkinson gets the story of what happened at Oberlin right. Reading the Oberlin chapter, I recognized the arguments being made and the data being considered when I was an alumni admissions board member there in the 1990s. It was painful to see my alma mater giving substandard aid packages simply in an attempt to afford the ideal of need-blind admissions. A few years later as an Oberlin admissions officer, I was at least comforted to find that need-awareness affected fewer than a dozen applicants annually and those receiving aid had 100 percent of their need met.

As strong as the Oberlin chapter is, I do wish that Wilkinson had more closely examined the College's justifications for the use of merit scholarships. Merits have been controversial among the faculty and student body at Oberlin since their introduction in the early 1990s. Wilkinson could have raised critical questions about Oberlin's tuition discounting practices. What have been the opportunity costs? What have been the benefits? What if Oberlin had eschewed merits to no-need admits for a merit-within-need approach, offering full grant packages to the most stellar needy admits? In doing so, Oberlin would have anticipated the later moves by Princeton, Harvard, and other wealthy institutions toward no loans for the students with the lowest incomes.

On the other hand, Wilkinson deserves credit for the evenhandedness of his discussion of need-blind versus need-aware admissions. It would have been all too easy for him to condemn need-aware institutions and lionize need-blind institutions. Just as he astutely dispels myths about financial aid, Wilkinson shows that need-blind institutions are not

always as virtuous as they seem, especially when such institutions fail to meet full need in all cases, offering aid packages with substantial "gaps." Need-aware colleges are not obvious villains, he argues, offering statistics showing that the three elite liberal arts colleges with the highest percentage of low-income Pell Grant recipients are Mount Holyoke, Oberlin, and Smith. All three practice need-aware admissions.

Wilkinson also argues quite persuasively that extreme selectivity insures a wealthier-than-average student body. The most selective institutions that practice need-blind admissions, according to this view, naturally favor applicants with the best academic preparation and the highest standardized test scores. And where are the majority of such applicants from? They come from affluent zip codes where household incomes are well above the threshold for need-based aid. As a result, the ultra-selective institutions have an imbalance toward full payers built into their admissions process. They can afford need-blind admissions because fewer than 50 percent of their admitted and enrolled students (sometimes even fewer than 40 percent) require financial aid.

Some admissions deans and financial aid directors at ultra-selective institutions might disagree with Wilkinson and point to extensive outreach to students from every socioeconomic class in every corner of the country. A possible retort that Wilkinson did not explore concerns a less obvious reality at elite, private, need-based institutions that do not offer athletic scholarships. Athletics, in the words of Reed's president—himself an Amherst trustee—can serve as a proxy for wealth. Except for football and basketball, most of the sports found at Ivy League and elite Division III colleges are ones populated by former participants in expensive summer sports camps and pay-to-play leagues. Several colleges that can afford need-blind admissions, like Amherst and Williams, also field 35–50 teams, involving 50 percent or more of their students. Is it any surprise that large numbers of the athletic prospects recruited by crew, field hockey, ice hockey, lacrosse, sailing, skiing, squash, tennis, and water polo coaches—recruits who subsequently receive a tie-breaking edge in the admissions review—do not require financial aid?

Regardless of the noted few issues not addressed, Wilkinson's book is arguably the best work ever written about financial aid. In it he shows where American higher education has been and provides sound thinking and thorough analysis to guide the architects of financial aid's future.

ABOUT THE AUTHOR

Paul Marthers is Dean of Admission at Reed College. He has also worked at Oberlin College (OH), Phillips Academy (MA), Boston College (MA), Duke University (NC), Vassar College (NY), and Bennington College (VT).

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