Our Best Minds and Efforts:
Graduate Education at Vanderbilt

Introduction

This task force report is occasioned by several factors. Early in his tenure, Chancellor Gordon Gee made improving graduate education one of his five priorities for Vanderbilt. Soon thereafter a committee worked to advise then Provost Thomas Burish about improved organizational structures for the graduate school. In the fall of 2002, Provost Nick Zeppos and Vice Chancellor for Health Affairs Harry Jacobson examined the state of graduate education and prior recommendations for change and found them incomplete. Their memorandum to faculty called for a comprehensive analysis of graduate education at Vanderbilt and created a task force to provide such an analysis, together with recommendations for changes in graduate education, by January 15, 2003. This report is a response to the Provost and Vice Chancellor’s charge.

Excellence in graduate education is both an engine of research innovation and a source of the kind of reputation that propels further progress in achieving quality throughout a university. Vanderbilt will not achieve its potential as a top university without success in the graduate arena. The task force began its work with an awareness that the “every tub on its own bottom” (ETOB) organizational philosophy that has made for ever stronger undergraduate and professional schools has proven itself maladapted to support excellence in graduate education, particularly in an age when excellent graduate education is not a source of net revenue for schools. The task force, therefore, was attentive in its work to places in the university where excellence in graduate education is already established. In addition, we identified new practices and structures that would improve graduate education more generally.
The phrase “best minds” in the title of our report suggests that faculty and their graduate students should possess some of the best minds in the university. We recognize that through their teaching, research, and mentoring, the faculty bear the ultimate responsibility for excellence in graduate education. Neither a school nor a university as an administrative entity can produce an excellent graduate scholar. Only faculty can make this happen. To this end, each section of this report contains numerous proposals for enhancing and supporting faculty involvement in the training of graduate students. Each section also recommends ways that faculty can be leaders in reorienting the culture of Vanderbilt toward excellence in graduate education and for rewarding faculty efforts on behalf of this long-term project. Thus, given our best minds and efforts, the challenge of graduate excellence is within our reach. If the goal could be more cheaply or easily reached, it already would have been attained. What follows, then, is a detailed analysis of the state of graduate education at Vanderbilt and recommendations to realize dramatic and sustained improvement in graduate education within five to ten years.

The task force consisted of the deans of the five schools graduating significant numbers of Ph.D.s, other faculty suggested by the Faculty Senate, and representatives from the Provost’s office. Interim Dean of the Graduate School William Smith provided invaluable assistance concerning current practices and options, and Jen St. Clair provided administrative assistance. The task force met weekly to consider position papers composed by members of the group. Perhaps the most gratifying aspect of our work was how easily agreements about how to improve graduate education were reached. Although we did not prescribe solutions to all the problems facing graduate education, we did define a number of actions that will, if taken swiftly and boldly, enable each of the schools to realize dramatic improvements in their PhD programs. Thus, strategies of various types are recommended in this report: decentralizing some things; improving evaluation, accountability, and funding; centralizing other functions. All these strategies have the support of the entire task force. We present our findings grateful that we were asked to plot a course for the future of graduate education and hopeful that our
work may aid faculty and graduate students in exciting exchanges of learning and discovery in the years ahead.

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Part One: A Vision for Graduate Education at Vanderbilt

Vanderbilt’s strategic plan sets dramatic transformation as its goal for graduate education. Vanderbilt intends to become one of the few great institutions known for its world-class faculty and the preparation of their successors—the next generation of intellectual leaders. Only a few institutions have a consistent history of producing the very top scholars. Vanderbilt will become one of those rare few, putting itself in the same league as Harvard, Stanford, Caltech, and the University of Chicago in attracting those who will become the passionate scholars society will come to remember.

Differing areas of specialization and strength will distinguish Vanderbilt from other illustrious institutions. Graduate students will come to Vanderbilt for their doctoral training because we are seen as the leader in their particular area of interest. While individual greatness, wherever it occurs, will be supported, we cannot have leading graduate programs in every area. Yet in the selective areas we choose to emphasize—those areas where we already have considerable strength, capacity, and mission alignment—we can be world-class, second to none. By refocusing departments and leveraging the strength of selected programs, facilitated by the establishment of trans-institutional programs, excellence in graduate education across the institution will spread and reach all faculty.

In using the term "intellectual leader," we do not refer just to people who will become recognized faculty members at our peer institutions, although that is certainly an objective. For us, this concept is more inclusive. We include diverse individuals who will become discoverers in science and engineering; decision-makers in government and the policy community; or motivators for social change. These individuals will author the next great novel or the latest revolutionary patent. They will renew our nation's schools or forge the next medical
breakthrough. Their work will be seen as enhancing the human condition globally, and they
will be known as great communicators through their teaching and writings.

Simply raising Vanderbilt graduate education to the level of excellence attained in our
undergraduate and professional programs is not sufficient. Our vision is one where excellence
in graduate education casts a wide halo, so that our professional and undergraduate programs
are also strengthened and elevated. There is little doubt that enhancing graduate education also
will strengthen the undergraduate experience at Vanderbilt. Highly qualified graduate students
could be involved in residential colleges or in the undergraduate research initiative. Some
graduate students teach; the better these graduate students are, the better they will serve to
meet the educational needs of our undergraduates.

There is an urgent need to undertake this effort. Few of the university's graduate programs are
highly ranked; fewer still are in core areas where other top universities excel. Vanderbilt's
position in the top 50 research universities cannot be considered secure. Thus, achieving this
vision for graduate education at Vanderbilt will represent dramatic transformation.

To be realistic, we must allow ourselves time, patience, and persistence while navigating the
road to success. Greatness cannot be achieved through quick fixes or working around the edges
of a problem. Strengthening our graduate programs, initially targeting for national prominence
a few within each school, will require cultural change. In the end, however, Vanderbilt will
become known as a great research university. As this report makes clear, we have the will and
the capacity to achieve this goal.

Creating a New Culture of Graduate Education at Vanderbilt

Vanderbilt has an outstanding faculty, and continuing to build outstanding faculty is key to
enhancing graduate education and Vanderbilt’s national stature. Indeed, indices for a
successful graduate program are faculty scholarship and creativity, as well as the critically

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evaluated quality of their products. Yet graduate student quality and graduate placement, some argue, are the most reliable indicators of the quality of a given graduate program in a large number of fields. In this regard Vanderbilt falls behind its peer institutions. In aggregate, Vanderbilt's graduate students, as well as the graduate education environment in which they become immersed, need to become on par with the University's exceptional faculty or even the quality of its undergraduate students and programs. While in the last few decades the quality of faculty increased rapidly, this growth was not paralleled in our graduate students and graduate programs and certainly not uniformly. Consequently, there is a developmental lag. Below we discuss how to close the gap and make recommendations for creating a similar cultural change for graduate education as has been produced in faculty quality, while continuing to build an award-winning faculty.

**Challenging Talented Individuals is the Key to Success—Talent Development**

Vanderbilt needs to do a much better job of attracting the most talented graduate students, students with passion and drive. Talent identification (or selection and recruitment), while absolutely critical, becomes an empty proposition if not coupled with high expectations and a top-notch talent development process. Such a process challenges students, capitalizes on their talents and brings them to fruition, and enables students to follow their passions and dreams. The challenge is to redesign the graduate experience at Vanderbilt in order to create such an environment. Creating a new culture of graduate education will involve providing rich and varied opportunities to students as they transform themselves into future intellectual leaders. It will involve having faculty of renown also teach and train graduate students well, treating them as students, not as employees. The desired outcome of a Vanderbilt graduate education is a future intellectual leader.

We know what that outcome looks like for we are hiring these kinds of graduates here as junior faculty members. It is a known quality. Thus, the goal can be operationalized and made concrete. Vanderbilt's culture of graduate education should enable graduate students to build a
curriculum vitae (CV) that is on par with the junior faculty we are hiring, albeit at an earlier developmental stage (i.e., before any post-doctoral experience). This necessitates a shift in focus, away from obtaining the actual degree. The doctoral degree is simply something students receive on their way, just like a master's degree. The goal is for students to develop CVs that will launch their careers.

What is the process that leads to a CV that launches a career? The literature is clear on that point. It is accomplished through what Harriet Zuckerman first labeled as the multiplicative effect of the accumulation of [educational] advantage. This process begins when the environment detects a talented individual and then responds by providing an opportunity for that individual to develop, in this case via entry into graduate school. If the individual not only responds to the invitation but responds well to the challenge presented, this results in the individual standing out even more. This increases the probability that even more opportunities are presented to the individual. Again, if the individual responds well to them, this makes the person stand out even more and further opportunities come his/her way. Thus, the cycle of talent development necessary for eminence is born. It operates in an iterative and multiplicative fashion, having a "snowball" effect on the person's development.

Vanderbilt's challenge, therefore, is to create opportunities in its environment that attract talented students and begin the talent development process. This must be followed by successive instances where students are engaged to maintain them on a steep developmental path. We argue that this needs to be the guiding principle for the redesign of graduate education at Vanderbilt.

Encouraging Structural and Environmental Change

A corollary to reorienting graduate education around talent development is to require change in the structure of graduate education itself. We tend to be far too prescriptive at Vanderbilt. This tendency possibly developed in response to too many students being perceived as weaker than
they should be. Yet truly talented individuals whom we will be recruiting do not want to be constrained and do not require rigid structure. They chafe under such conditions. Within reason, truly first-rate students need to be allowed to become active in shaping their own development and afforded considerable flexibility. Thus, we need to worry less about the collection of prescribed courses and credit hours required for a degree than is currently the norm. Formal course-work is necessary but not sufficient for producing high quality Ph.D.s (and much of that should be accomplished in the first two years). Rather, we need to place our emphasis on providing individualized experiences and enhancing the scholarly apprenticeship experience with the major professor(s). The apprenticeship is where formative and critical one-on-one interactions take place and students develop their professional identity as well as their scholarly taste, standards, and self-confidence. It is through the apprenticeship that a graduate student is transformed into a colleague upon completion of graduate studies.

Yet, while the apprenticeship (also discussed below) is critical in shaping the future intellectual leader, and it tends to be a close one-on-one relationship, the emergence of true excellence requires that the whole community shape and nurture the development of its very top graduate students. While being too prescriptive or program specific in our approach, Vanderbilt has, at the same time, often taken a hands-off approach with its graduate students in regard to mentoring. Graduate students need to take courses from or share experiences with the great faculty within their domain, broadly construed, even if that means going to another department or college. Moreover, departments and colleges should be aware of their "diamonds in the rough," and all should be active in helping those individuals of "star potential" attain their promise. It takes all of Vanderbilt's rich pool of talent to provide the opportunities that create the type of graduates we seek.

Moreover, there is also a need to construct an environment where fellow graduate students play an active part in the socialization process of turning a beginning student into an "intellectual leader" and colleague who will begin his/her career, perhaps after a post-doc, at a peer institution or another appropriate setting. In schools, it is known that peers constitute a powerful force in shaping achievement behaviors, and this is certain to hold for graduate school.
as well. Graduate students should hold high expectations for each other and not provide
excuses for behaviors that are not career advancing. Students who are not making sufficient
progress must be dropped or counseled out.

Excellence in graduate education at Vanderbilt will emphasize not only research and discovery
but also the ability to communicate in teaching, publication, and non-traditional forms of
disclosure. Vanderbilt's graduates will be known as highly effective representatives of their
disciplines. That should be our trade-mark.

Finally, while graduate student satisfaction with quality of life and related issues has a tenuous
relationship with their development as "intellectual leaders," we nonetheless need to do what
we can to ensure that our students feel well cared for and nurtured. It is simply the right thing
to do. Graduate students also need to have their educational needs take priority.

Strategies follow from the above premises and principles for changing the culture of graduate
education at Vanderbilt. The following strategies are recommended for implementation by
programs, schools, and within central administrative structures where appropriate. Individual
graduate programs will implement these strategies in different ways, but we anticipate that all
of the strategic elements will be present in every program.

Strategy: Continue the recruitment of nationally eminent faculty. Faculty distinction, on a national
level, is almost entirely due to the published results from various types of inquiry and criticism
or from creative work. A highly distinguished faculty is a highly productive one, and they
attract quality graduate students as well as provide the challenging environment to train
intellectual leaders.

Strategy: Ensure that faculty members have sufficient time to invest in graduate education. Graduate
education, if done well, is time intensive. Yet, faculty members are expected to perform many
other functions, and our institutional commitment to undergraduate education cannot be
compromised. Thus, to enhance graduate education at Vanderbilt, we should consider expanding the size of the faculty, especially in those program areas identified for enhancement.

Strategy: Launch a study to address the policies of the University that bear on its efforts to enhance the level of faculty engagement and scholarship that is at the heart of graduate education. Some of the issues to be considered are:

A. Criteria for promotion that recognize the different kinds of contributions and achievements that will be found in the faculty that constitute the broader vision of Vanderbilt, including excellence in graduate as well as undergraduate education.

B. Criteria for membership in the graduate faculty

C. Administrative policies that address the requirement for protected time for faculty to pursue scholarly endeavors.

D. Strategies for recruiting and retaining outstanding senior scholars

Strategy: Emphasize graduate supervision when assessing faculty for promotion and in annual salary reviews. A broader definition of teaching that goes beyond student ratings of performance in formal courses is required. Graduate supervision and mentoring should be evaluated and counted as part of teaching, using quality indices that go beyond sheer number of students supervised (e.g., interviewing graduate students in their final year, inspecting and holding faculty accountable for graduate students' CVs). Moreover, we should recognize that, just as for scholarship, there are many ways to demonstrate excellence in teaching and that to be considered an excellent teacher does not necessitate being superior in every facet of teaching. Some can demonstrate excellence through graduate education, while others, for example, might demonstrate their excellence in their work with undergraduates. We should not have a “one size fits all” model of assessment. Also, reward faculty for producing high quality doctorates with strong CVs.

Strategy: Create incentives for faculty to support their graduate students through grants and fellowships in fields where this is viable. Many faculty would prefer hiring a post-doctoral fellow rather than
support two graduate students, believing that a post-doc helps advance their own research and
careers more. This, at times, has a negative effect on graduate education and Vanderbilt’s
ability to elevate its national standing. To be clear, we realize that post-docs contribute to the
intellectual community and are a critical element in the overall graduate experience. In many
labs they are in the best position to provide some of the needed mentoring and supervision of
graduate students. Faculty should be able to benefit from the contributions post-doctoral
fellows make. The concern arises when this strategy is taken to extremes and post-docs are
supported at the expense of graduate students. There needs to be a balance, and to achieve this
balance we must ensure adequate incentives for faculty to do their part in supporting graduate
students through grants.

Strategy: Conduct annual evaluations of graduate student progress. At least once a year graduate
students need to be evaluated by the whole faculty or a group broadly representative of the
faculty in a program (possibly using an external member), with feedback generated to the
students. The evaluation should go beyond course-work and time-in-program indicators and
include assessment of progress in research and in their development as scholars. This must be
done in a way that allows assessment of students’ capabilities independent of their mentor.
Thus, annual evaluations might include presentations by the students if they are advanced in
their program. Yet, it is critical that the emerging CV of each graduate student, in particular, be
examined annually by the faculty committee to provide recommendations for further growth.
If serious problems are uncovered by the evaluation, then the department chair needs to be
notified and appropriate action taken. Concerns and means of addressing them must be
communicated to the student in writing.

Strategy: Create a more flexible and distinctive curriculum. Graduate students must achieve
competence in their discipline and be able to connect to the field. Achieving those goals has to
be the guide to setting requirements. Yet, we urge faculty to provide as much flexibility as
possible in course selection for students and to be creative in how they count hours or package
courses. The fewer courses students take, the more time they have to achieve in their remaining
courses and in their research. As well, we sense the need to make our curricula more
distinctive. We recommend that the associate provost for graduate education share with deans
and directors of graduate studies (DGSs) examples of innovative programs and procedures.

Strategy: Train graduate students to be not only consumers but producers of knowledge. This demands
that faculty teach to the creative potential of students and provide reinforcement, rewards, and
feedback that strengthen individual and collaborative research by graduate students. Students
with exceptional progress should be identified early and supported and encouraged to conduct
impactful research and to publish, quite apart from and before undertaking their Ph.D.
dissertations.

Strategy: Provide more research assistantships to students, including some that are "duty-free," so that
students can develop their research interests and abilities. To develop the type of "intellectual
leader" we seek, students need opportunities to work unfettered on research projects that could
advance their careers. We propose a three-pronged approach. (1) In some disciplines, faculties
obtain grants that support graduate students to work as research assistants. This needs to be
encouraged (as noted above), and faculty efforts to obtain such funds should be supported and
rewarded. Yet, not all disciplines can compete for such monies and not all research
assistantships enable students to develop their own unique potential. Thus, (2) each college
should provide research assistantships on a competitive basis. As well, (3) special research
assistantships need to be created for students where the student's own ideas and interests are
the drivers, not the needs of a particular faculty mentor. This would be a distinctive type of
research assistantship not found in many schools and would work as follows. If a talented
graduate student has developed an exciting idea, funding would be provided, on a competitive
basis, to the students themselves, not through professors, to enable them to work with faculty
members or in settings of their choosing to develop this idea into a scholarly product. This
would allow the student to take existing research in a new direction or to apply concepts in one
area to another. It would allow them to participate in a different lab (at Vanderbilt or
elsewhere), work within industry, or align with a project that could be seen as enriching. The
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students are, thereby, enabled to create their own scholarly niche or unique set of experiences that follows their passions. It allows Vanderbilt not only to recognize but to honor and capitalize on the truism that there are many different avenues for obtaining success.

*Strategy: Provide small research grants to graduate students.* Conducting quality research requires money. Sometimes such funds can and do come from faculty grants. Yet, not all students have access to such funds or, in some cases, their research does not fall within the parameters of an available grant. Schools need to set up competitive funds to ensure that quality of graduate student research is not compromised.

*Strategy: Provide ample and varied opportunities for graduate students to develop their teaching and presentation skills.* In collaboration with the Center for Teaching, colleges/schools or departments should be required to develop programs that prepare our graduate students to become excellent teachers and communicators, particularly if their career objectives fall within academia.

*Strategy: Encourage students to apply for fellowships and other grants and support them in doing so.* A funded fellowship is not only prestigious but allows the student to focus more on his/her scholarship. Even obtaining a simple travel grant is a CV-enhancing activity and promotes student development. Yet, regardless of actual success, the experience of applying for grants is itself educational. Support structures need to be developed, therefore, within each department to assist students in this process and to encourage this expectation. Moreover, preparing a research grant proposal may be an effective project for a graduate class, perhaps more than writing a paper on some specified topic.

*Strategy: Promote more conference participation among graduate students.* Attending and participating in conferences is especially valuable for inducting graduate students into their professional career. Presenting papers or posters is especially beneficial and, thus, more support for such activities must be provided. And, for beginning students, participation in key
conferences is critical in shaping their professional identity and enthusiasm. It makes them feel part of a bigger agenda or mission. It also helps set high expectations and standards. Thus, funds for travel should not be limited to students who make presentations as that precludes all beginning students, some of the very people who need to learn how presentations are offered in situ. Programs and schools should build such funds into their budgets.

*Strategy: Accommodate the reality that a Ph.D. degree stopped being a 4-year process many years ago.*

Schools need to provide guaranteed 5-year assistantships (if a person enters with only a bachelor’s degree), with opportunities for a 6th year of support.

*Strategy: Include components that support graduate education in the interdisciplinary research efforts funded by the Vanderbilt Academic Venture Capital Fund.* Each interdisciplinary research center provides a rich intellectual community in which to immerse graduate students and educate them. Centers should be accountable for capitalizing on this. Thus, funds within these centers need to be dedicated in part to graduate education and specific plans developed for insuring that this investment in faculty research also enhances graduate education.

*Strategy: Diversify and internationalize the scope and content of graduate course-work and research training opportunities.* Recognizing that we live in a global society, many students need exposure and in-depth experiences that include other cultures and societies. (1) Students need access to funds to enable them to present at international conferences and (2) to conduct research in international settings, possibly through partnerships that involve field schools in some disciplines or internships in international labs in other disciplines. (3) Bringing international conferences, faculty, or students to Vanderbilt is another mechanism. And, (4) to diversify the graduate experience, we recommend the establishment of several honorary distinguished visiting professorships to bring outstanding minority professionals to campus for one semester or a year during which time they could lead seminars or involve graduate students in their research.
Strategy: Make scholarly ethics a component of every student’s graduate experience. Discussions about IRB and animal care issues, including how to navigate the approval processes, need to become embedded in the graduate education process. In some programs, a specific course may be required. For others, these issues may be infused into the regular curriculum.

Strategy: Create more professional development opportunities. The focus on constructing a strong CV should not occur at the end of the graduate experience, when it is almost too late, but at the beginning of graduate school and throughout the program. Thus, faculty should meet with their students periodically throughout their training to ensure that graduate students are engaging in the types of activities that are career enhancing. The emerging CV always should be the focus. When the time comes and the CV is ready for students to take to market, faculty need to provide concrete advice to students on how to conduct a job search and how to interview, including advice on such mundane matters as appropriate dress and how to comport themselves. Students should not only be required to do practice job talks but be given coaching throughout the process. As well, departments need to take active responsibility for successfully placing their graduate students and be held accountable for their success.

Strategy: Enhance graduate student satisfaction by making certain that the needs of graduate students as students take priority. Obviously, providing an excellent and rigorous graduate education is pivotal in ensuring graduate student satisfaction, as is providing good stipends and benefits. In regards to the latter, Vanderbilt must become more competitive. There are other tactics that ought to be explored. (1) Departments need to ensure that students are not asked to make significant compromises in their own educational development to meet teaching or grant-related needs. The issue here is not that no compromise should ever be allowed but rather one of appropriate balance. (2) Exit interviews and surveys of current students and alumni should be conducted to identify areas where we can make improvements. And (3) we need to provide opportunities for socializing with faculty and other graduate students.
Strategy: Target selected programs for enhancement. While we can do much to change the culture of graduate education throughout Vanderbilt University, progress in elevating the stature of Vanderbilt's graduate education programs also should be done through a selective process within each school. That is, the goal is to raise both the mean and "lift the top" in graduate education. Resources, after all, are insufficient within schools or even across schools to invest in all graduate education programs simultaneously and expect a large rise in quality. In the selected areas chosen for emphasis—those areas where we already have considerable strength, capacity, and mission alignment, the goal is to become world-class. We must acknowledge, however, that for some areas, the aim will be to refocus the department and leverage the strength of selected programs in order to allow excellence in graduate education to develop. Thus, for those graduate programs that are to be de-emphasized, deans need to work with their affected faculty to develop strategies for ensuring access to graduate students. Emerging interdisciplinary research programs may serve as a venue for such access.

Strategy: Develop compelling answers to the prospective student's question, "Why should I study at Vanderbilt?" Every graduate program should be capable of answering this question in a manner that reflects the reality and aspirations of the program.

Strategy: Create a communications plan that elevates the standing and visibility of graduate education at Vanderbilt. Inspection of current communication efforts at Vanderbilt (e.g., the Register, Web-pages) yields few examples of where graduate students and graduate education are the focus. Graduate education is almost invisible. That needs to be corrected. And, we need to do a better job of showcasing how research can make a difference.

Apprenticeship: Mentoring Graduate Students to Unlock their Creative Potential

Potentially the most formative experience during graduate school for a future intellectual leader is the close relationship that often develops between a graduate student and a mentor (or mentors) within the apprenticeship portion of graduate education. The significance of this
relationship is captured in the frequent reference to the mentor(s) in graduate school, typically
the major professor is primary, as the individual's academic or professional parent (or parents).
No other mentoring relationship (and eminent individuals often have several in the course of a
lifetime) has the potential to be as deep, as lasting, or as important as this first one. Indeed,
when this relationship goes awry or is absent, there are negative impacts on the student's
development, and eminence becomes much harder to achieve.

Through the apprenticeship and mentoring received in the research training environment,
graduate students develop their scientific tastes—a preferred methodology; a particular
theoretical or conceptual lens; a characteristic form of argument; one's values, standards, and
scholarly ethics; and other research related outcomes. Through the apprenticeship, graduate
students experiment with and eventually acquire their initial professional identity, which
matures over a lifetime.

Because the mentoring role is so important, it is useful to define concretely the functions a
mentor fulfills. The mentor facilitates the process of accumulating educational and career
advantage, serving as a role model, providing support, direction, and feedback to graduate
students regarding career plans, publication opportunities, and interpersonal development. To
be more specific, the career functions that a mentor provides, as delineated by Noe (1988)
include: nominating or identifying the protégé for desirable projects or assignments such as
writing chapters, journal articles, or conference participation and helping them learn and
benefit from the experience (i.e., sponsorship); providing the protégé with assignments that
increase visibility to decision-makers and exposing them to future opportunities; sharing ideas,
providing feedback, and suggesting strategies for accomplishing research objectives and
publication goals (i.e., coaching); reducing unnecessary risks that might threaten the protégé's
reputation (i.e., protection); and providing challenging research assignments and opening the
doors to publication (i.e., challenge and setting expectations).

Yet not all functions of a mentor fall in the realm of career advancement. There are also some
specific psychosocial functions of a graduate mentor—to enhance the protégé's sense of
competence, identity, and work-role effectiveness (Noe, 1988). This is effected through the
mentor serving as a role model of appropriate attitudes, values, and behaviors for the protégé;
conveying positive regard, acceptance, and confirmation as well as setting expectations for
productivity and quality of work; providing a forum in which the protégé is encouraged to talk
openly about anxieties, fears, and plans (i.e., counseling); and interacting informally with the
protégé in the work environment (i.e., friendship). Evidence indicates that the greater the
number of functions provided by the mentor, the more likely the relationship will be beneficial
to the protégé.

Unfortunately, more graduate students have advisors than have mentors in graduate school,
and this may be the case at Vanderbilt. Yet the formation of intellectual leaders is greatly
facilitated when students have mentors. Because of its deep developmental significance, we
provide a set of specific strategies for ensuring that the apprenticeship experience and the
mentoring therein are positive and successful. We also provide strategies for how all faculty
can develop the mentoring functions discussed above that they then display with all of their
students.

**Strategy:** Ensure that all graduate students have at least one quality mentoring experience. This is
especially critical for those with the most potential to succeed where often several mentors can
be identified. Thus, admissions into doctoral studies must be limited so as not to tax the ability
of faculty members to provide quality mentoring. We simply cannot have faculty take on too
many students and then compromise these relationships in order to cope.

**Strategy:** Ensure that graduate students have and feel that they have a choice in selecting a mentor or
mentors. Students often come in with a temporary advisor, or their interests change after
program entry, necessitating a change in who becomes their mentor. Students should feel free
and even encouraged to find the mentor or mentors who have the necessary expertise and
attributes required for forming a successful mentoring relationship. Students must be able to
follow their passions and should be empowered to seek mentoring relationships that provide
positive benefits. Doing otherwise is counter-productive.

Strategy: Reward faculty for their mentoring of graduate students. Promotions and salary increases
should be partially based on a faculty member's engagement and performance in mentoring.
This can be judged through exit interviews, surveys, and performance of graduate students
(e.g., their CV at graduation and placement). We should reward as many of the specific
mentoring functions, delineated in the above narrative, as possible.

Strategy: Create an Award for Excellence in Graduate Mentoring. While Vanderbilt has awards to
recognize excellence in research and in teaching (usually limited to classroom teaching), there
are no awards that specifically recognize excellence in mentoring. The individuals thus
recognized should be drawn upon to develop programs of professional development to faculty
in the area of graduate mentoring.

Strategy: Create training programs for faculty to help them become excellent mentors. By drawing
upon the talents of faculty who are excellent graduate mentors, we will expand the sphere of
excellence in graduate mentoring through, for example, graduate mentoring circles, roundtables
with DGSs, and training of junior faculty. Professional development opportunities should be
made widely available and participation strongly encouraged. At minimum, faculty need to
learn what are the functions served by successful mentors and, then be given the necessary
supports to adopt these functions in their interactions with graduate students.

Strategy: Strongly encourage self-assessment by graduate programs, using available measures, to learn
how well they are fulfilling their role in mentoring graduate students. There are instruments available
to assess advisor-advisee or mentoring relationships that could be adapted for use (Noe, 1988;
Schlosser & Gelso, 2001). We recommend only that information be obtained by deans on a
department's or program's overall performance, not the performance of individual faculty
Whether departments/programs subsequently take the assessment down to the faculty level is a matter of choice.

Strategy: Ask graduate programs to ensure that a strong apprenticeship experience is a critical component of each department’s graduate experience. In some programs, the apprenticeship, which provides the research training environment, is too short or compromised in some other way to serve its scholar-forming function. As well, relevant support structures, facilities, or equipment may not be available to provide a rich research training experience and for the full benefits of apprenticeship to emerge. Alternatively, graduate students may be spread too thin, with competing demands that make them unable to benefit fully from the apprenticeship.

Strategy: Ask the director of graduate studies to foster quality graduate mentoring and to serve as a back-up mentor in each department. DGSs need to visit with graduate students on a regular basis and should function as the go-to-person if there is a serious problem with a mentor, classes, etc. Department chairs or deans need to empower DGSs by giving them sufficient autonomy and authority. As well, DGSs need to meet on a regular basis, within excellence circles, to share ideas and concerns and to ensure the development of high quality programs. They need to be the central figures in ensuring that quality mentoring occurs in their programs. Mentor award winners could be useful contributors to and facilitators of such meetings.

Strategy: Focus the apprenticeship on the experiences necessary to launch a career. The mentor and protégé should focus on customizing research training experiences and developing a record of accomplishments, as captured in a CV, which will enable the protégé to launch a successful career in the direction of his or her dreams.

Strategy: Separate the creation of a dissertation and associated advisement from the dissertation evaluation. In some universities, the dissertation committee is not known until the end of the program. At other universities, it is required that the committee has not worked with the student at all. We believe that, while the committee working with the student to develop a
dissertation must have the necessary expertise, it might be useful if a different group or a somewhat expanded group evaluated the final product.

Recommendation: Departments or programs should look to the procedures listed below to ensure that the above strategies are implemented.

1. Establish the mentoring expectations for a department or program.
2. Have the DGS serve as an active second mentor to students.
3. Provide dual mentors where appropriate.
4. Establish a committee that meets regularly to assess the quality of mentoring that candidates are receiving and the program provides.
5. Prepare an annual mentoring report to be submitted to the dean.

Graduate Education and Trans-institutional Initiatives

The University's Strategic Plan emphasizes trans-institutional initiatives as a means of leveraging existing strengths to address new areas of research and discovery. Trans-institutional initiatives, understood this way, are all related to research, scholarship, and graduate education. It is, therefore, essential that every Academic Venture Capital Fund-supported initiative be evaluated for how it aims to affect the improvement of graduate education, a strategic priority of the University. Not all of our trans-institutional initiatives, however, are funded out of the Academic Venture Capital Fund. It is important then to attend to the ways that existing and future collaborations can help foster an intellectual culture conducive to graduate education and serve as a resource for those faculty with no access to graduate students.

In reviewing some of the existing forms of collaboration while trying to derive lessons about the structure of graduate education in an era when increased emphasis is being placed on interdisciplinary study, it is our strong conviction that decanal and program accountability needs to be maintained so that graduate students are well served by lasting and firm
commitments. In this respect, the Interdisciplinary Graduate Program (IGP) in the School of Medicine is one model for how faculty from separate entities can work together to educate graduate students at Vanderbilt. In this instance, faculty from the biological and medical sciences participate in the education of graduate students but the accountability for the finances and student progress in the program rests on the Medical School. The Graduate Department of Religion has likewise involved Arts and Sciences faculty for more than 40 years while placing financial accountability for the program in the Divinity School.

Can graduate students be admitted to study in centers or institutes? We think not. By long-standing arrangement, new graduate programs require Faculty Senate approval, approval that is based among other things on the ability of units to guarantee the resources necessary to deliver the graduate program. More importantly, joint ventures are often by their nature temporary efforts to get something going that has not existed heretofore. They are funded for a definite period of years, based on the belief that the research initiative will prove its potential during that period (or not) and thus qualify for long-term regular funding (or not) during that period. If the Academic Venture Capital Fund is doing its work investing institutional funds on promising initiatives but also ones that cannot be guaranteed, then some of those initiatives will not succeed in becoming permanent. Graduate students admitted to this University deserve a commitment from a graduate program that they will be able to complete the program if they do their part. The University needs to do its part to assure that there will be no orphan programs or orphan graduate students.

Strategy: Give every graduate student a firm institutional home. Until the time when an interdisciplinary program has achieved permanence, any graduate students involved in the work of centers ought to be based in a specific existing graduate program just as multiply-appointed faculty have a home appointment. Preexisting graduate programs should be encouraged to make appropriate modifications in the structures of their programs to take maximum advantage of the opportunities afforded by the existence of the new programs, centers, and institutes. In sum, we strive to provide both the security of achieving disciplinary
Almost by definition, investigators involved in centers and trans-institutional initiatives, both those specially funded and those conducted without extraordinary support, are doing something new and unusual. They are the kind of individuals who should serve as models and mentors for graduate students beginning careers of research and discovery. Taking advantage of such opportunities is discussed separately for (a) the humanities and social sciences and (b) the sciences and engineering.

The Humanities and Social Sciences

In the humanities and social sciences the opportunities lie in two areas: the first is in soft-money funded research.

Strategy: Encourage graduate students to involve themselves in the work of trans-institutional initiatives and seek external support where appropriate. These opportunities will differ from field to field and the entire University community needs to be aware that the opportunities for funding graduate students in the humanities from external sources are quite small. Nevertheless, we need to do a better job of encouraging students and faculty to pursue external sources of funding, which in the humanities and social sciences are often linked to issues of career advancement and visibility.

The second area of opportunity for graduate students in the humanities and social sciences ought to be more widely available and that is the chance to become a liberally educated and informed specialist. It is said that the best researchers are those who dig deep holes, while the best teachers are often able to plow vast fields. The implication of this saying is that the two aims of graduate education – teaching and research - are in fundamental tension. The most interesting and useful scholars in the humanities and social sciences, however, manage to dig deep holes into fields of research, but to do so on questions that are of interest and importance.
to others outside those immediate fields. Becoming a person who is wise in moving between fields, in knowing the status of fundamental questions and perspective in fields of humanistic and social scientific inquiry should begin in graduate school, if it has not begun earlier. Knowing how to re-combine approaches to attain advances in knowledge is one characteristic of the well-educated scholar.

Strategy: Create opportunities for interdisciplinary study working groups for graduate students and faculty. Vanderbilt needs to learn from universities such as the University of Chicago and the University of Toronto, which have leveraged strengths in multiple fields to create a culture of intellectual curiosity and shared conversation. Indeed, the beauty of a private Research I university of Vanderbilt's size in the social sciences and humanities is that vital questions of human social relevance can be addressed by scholars from multiple fields who nevertheless know one another and are able to make efforts to translate between field-specific languages and between academic discourse and that of the general public. For this to happen more effectively, colleges and schools at Vanderbilt must look for ways that they can turn their separate strengths to common advantage and to offer these strengths to the graduate students who are the future professoriate. To provide this environment to graduate students, deans, with central support and encouragement, should begin working groups on vital questions that do not belong solely to one field of study. The range of such topics is wide and includes, for example, children, violence, race, and global development. Such working groups would deliberately involve graduate students and faculty from across the university, including schools like Law that may have something to contribute to the questions and thus to graduate education, even though the school does not itself host a Ph.D. program in that area.

The Sciences and Engineering

Unlike the humanities and social sciences, most of the opportunities in the sciences and engineering lie in areas that can seek federal or industrial support and, indeed, a reasonable expectation is that graduate students in the sciences and engineering not supported by training
grants, fellowships, or teaching assistantships should be supported from externally won sources of research funding.

Strategy: To enable students to participate in the funded research possibilities offered by trans-institutional initiatives, streamline the processes that now result in missed opportunities.

The University needs to work to facilitate the efforts of the faculty winning external research funding by continually improving the research administration, accounting, purchasing, and human resources systems with which these faculty members must interface to be successful. Administrative burdens too often result in faculty failing to pursue programs that would improve graduate student support.

In the sciences and engineering, a wide variety of interdisciplinary cooperative and collaborative work is underway. An example is the Interdisciplinary Graduate Program in Materials Science that draws faculty from physics, chemistry and a number of engineering disciplines. Another example is the Center for Integrative and Cognitive Neuroscience, which draws on faculty and resources from throughout the University. New programs in areas such as biophysics/bioengineering and nanoscience/nanoengineering also are emerging as opportunities for interdisciplinary work involving faculty and graduate students cutting across numerous disciplinary boundaries.

Strategy: As a relatively small, research intensive university, particularly in consideration of the resources available in the sciences and engineering, Vanderbilt must seek ways whereby the colleges and schools can turn their separate strengths to common advantage. This is the only way in which Vanderbilt can reach new levels of national and international recognition in these fields. And, by doing so, Vanderbilt will strengthen its position in recruiting excellent graduate students as well as in providing state-of-the-art challenges in research and scholarship for these students. The Provost's Office should continue to encourage and facilitate opportunities for interdisciplinary and trans-institutional efforts in the sciences and engineering.
Part Two: Challenges, Commitments, and Measurable Goals

In realizing its goals for positively transforming graduate education, Vanderbilt will face challenges. The challenges of obtaining the best students and then guiding them through the best programs that can be devised and offered necessitate a commitment to a new, active program of recruitment, especially amongst international students and students from racial and ethnic groups under-represented in the contemporary academy. It also will require new commitments to evaluation, to data collection for tracking student progress, to benchmarking measurable program goals and, consequently, to an ethos of continuous program development.

Recruitment

Implementation of the recommendations presented in other sections of this report will reinvigorate and strengthen graduate education at Vanderbilt University; however, administrative and programmatic reforms will not, by themselves, yield adequate enrollments of highly qualified and diverse pre-doctoral scholars. With declining enrollments in many areas, we no longer can assume that students will come to us. Instead, the effective recruitment of talented graduate students requires the coordinated efforts of each program’s faculty, staff, current graduate students, and alumni. With central support, and beginning with the development of an understanding of its recruitment market, each program must exploit a variety of strategies to publicize itself, make contact with prospective students, and cultivate them through a series of communications that develop an increasingly personalized relationship carrying the most promising individuals through the application process and culminating in their matriculation.
Staffing for Graduate Recruitment

Strategy: Include graduate recruitment coordinators in the staffing of the Office of the Associate Provost for Graduate Education. Most individual programs lack the expertise and staff to undertake graduate recruitment without the assistance of a suitable specialist; moreover, centralized coordination of recruitment efforts can avoid needless duplication of activities and resources. The graduate recruitment coordinator will oversee marketing research, help individual programs develop recruitment plans, and coordinate recruitment activities that serve multiple programs.

Understanding Our Market

Strategy: Commission a marketing study to guide the recruitment strategies of individual programs. While the faculty of our graduate programs should aspire to the ultimate realization of a national and international recruitment catchment, previous marketing surveys conducted for the University’s professional programs suggest that we are likely to find that many of our graduate programs currently compete for students primarily within a geographic region consisting of neighboring states that we cannot afford to ignore. In addition, we need to understand better the priorities of prospective students in order to structure appropriately communications in recruitment brochures and program Web sites as well as such direct contacts as telephone conversations, letters, and e-mail messages. A comprehensive marketing study conducted by a carefully selected external organization is, thus, an essential first step in effective graduate recruitment.

Publicizing Our Programs

While those few Vanderbilt graduate programs that currently are highly ranked (e.g., by U.S. News & World Report) receive resulting favorable publicity that attracts applicants, most of our programs must find other ways to bring themselves to the attention of prospective students.
Strategy: Make sure that each of our graduate programs is effectively promoted on the World Wide Web.

Most prospective graduate students are introduced to our programs by their Web sites. We need to look at each program’s Web site through the eyes of a prospective graduate student and ask whether we promote the best features of our programs, whether we appear particularly welcoming to graduate students, and whether we celebrate their involvement in research. Is the program’s site easy to navigate? Is adequate information about the scholarly interests and activities of faculty included? Can students interested in an interdisciplinary program easily find their way to relevant information? Does the site provide encouraging information about financial aid? The creation and maintenance of graduate program Web sites is a crucial responsibility of school deans.

Strategy: Develop attractive brochures for promotion of graduate programs. While Web sites have become the most important tools for the dissemination of information to prospective students, brochures remain useful for mailings and distribution at meetings. Working through the Recruitment Coordinator (who ultimately will have to rely upon the schools to support development costs), the Associate Provost for Graduate Education should help assure that each of the University’s graduate programs has an attractive and informative promotional brochure.

Strategy: Use Educational Testing Service’s GRE Locator Service to make contact with prospective students. For a modest fee the Educational Testing Service provides names and e-mail addresses of persons (sorted by field, state, GPA, etc.) who recently have taken the GRE. Using these addresses, programs could send letters or (less expensively) e-mail messages to prospective graduate students who might not otherwise think of applying to Vanderbilt.

Strategy: Develop feeder programs to identify talented prospective students from colleges and universities in the United States and abroad. The cultivation of relationships—both formal and informal—with other institutions can provide local recruiters who will bring our programs to the attention of outstanding prospective students who ordinarily would overlook Vanderbilt. The following are examples of possible programs:

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• **Faculty Visits to Other Institutions.** Where one of our graduate programs has shared interests or long-standing contacts with colleagues at another university or college, we should send faculty to discuss their research and information about our graduate programs with prospective graduate students. Several of our programs have counted on large numbers of talented Asian students, but increasingly other countries (Britain, Australia, New Zealand, and Canada) are soliciting applications from these students. As China develops its own graduate programs (as it is in mathematics), the deep pool of talent will become more shallow. We need to look to South America and Eastern Europe as sources of international students. When our faculty travel to foreign universities to present their work, we should fund them for an extra day in order to allow them time to speak to prospective students.

• **Partnerships with Historically Black Institutions.** Effective minority recruitment could be accomplished through partnerships between Vanderbilt departments and corresponding departments in historically black institutions. If, for example, Fisk University departments were our partners, selected Fisk undergraduates could take a Vanderbilt course (with a Vanderbilt-funded tuition scholarship) each semester of their junior and senior years. In addition, we could provide paid research internships during the summers following their junior and senior years. If they did well in the courses they took as visiting students, if they maintained a stipulated GPA, and if they successfully completed their first summer research project, we could guarantee their admission to Vanderbilt without requiring them to present GRE scores. Such a program would be small in size but significant if it forged productive department-to-department partnerships.

• **McNair Program.** Dean Smith began the development of a relationship with the McNair Program, a national effort that identifies talented minority undergraduates and prepares them for eventual admission to graduate school. We need to continue to
work with that program, not only to obtain access to their mailing list, but also to bring
McNair fellows to the Vanderbilt campus to meet our faculty and graduate students.

- **Summer Academy for Rising Seniors.** Using the Medical School's Vanderbilt Summer
  Academy as a model, we could invite talented undergraduates (rising seniors) to
  Vanderbilt for a summer to work on a research project in a Vanderbilt laboratory or to
  take part in a special seminar. If they produced impressive work, we might offer them
  admission—contingent upon maintenance of their high GPA—and financial aid before
  the regular recruitment season.

- **Research Paper Competitions.** In some fields, an award for the best undergraduate
  research paper submitted in a nationally and internationally advertised competition
  might be a useful experiment. If well publicized, the competition would identify
  Vanderbilt's name with research in the minds of prospective students and would
  provide a useful list of prospective students whom we could recruit.

**Strategy: Develop fifth-year masters programs.** Vanderbilt undergraduates are, in some fields,
superior to our entering graduate students. Accordingly, we should create selective BA/MA,
BS/MEd and BS/MS degree programs to tap this outstanding pool. Highly talented Vanderbilt
undergraduates would be encouraged to apply to such programs in their junior year and, if
admitted, begin taking graduate level courses in the senior year. After a fifth year, they would
graduate with a master’s degree. This would be particularly attractive for small programs with
more faculty eager to teach graduate courses than there are current graduate students to fill
them. Such programs also would provide a source of revenue that could be applied to the costs
of improving graduate education. In addition (as Peabody College already has discovered with
its fifth-year MEd programs), the existence of fifth-year masters programs would enhance
undergraduate recruitment.
Nurturing the Development of Contacts into Matriculants

Having established contact with prospective graduate students, we need to develop an increasingly personalized relationship with them through communications and events that encourage them to apply, motivate them to complete the application process, and, if they are admitted, to choose Vanderbilt for their graduate studies. To accomplish this, we should extend the contact management capabilities of the recently-installed online application system, exploit Web- and Internet-based communications, and involve faculty, staff, current students, and alumni in face-to-face interactions with prospective graduate students.

Strategy: Continue to waive the application fee for persons who apply online. This year's waiver of the application fee for persons applying electronically has dramatically increased the number of applications for graduate study. They doubled. We should continue this policy.

Strategy: Extend the contact management capabilities of the online application system to produce a predefined sequence of communications to each prospective student. Because the online application system is built around a high-capacity Oracle database, it is quite feasible to produce automatically, according to a predetermined schedule, a series of personalized e-mail messages and letters (that would be different for each graduate program) to each prospective student in the system. Database records should be created for prospective students as soon as they have been identified (by their own inquiry or some other means) so that an initial sequence of communications can encourage them to begin the application process. After individuals have begun the application process, the next series of communications should exhort them to complete their applications. Finally, persons who have received offers of admission should receive communications designed to help them see the wisdom of choosing Vanderbilt over other institutions to which they also have been admitted. In general, the sequence of communications should be structured to build an increasingly personal relationship with each prospective student, and relevant information should be provided with each message or letter. For example, general information about Nashville supplied early in the process could help
overcome possible regional biases of persons from other parts of the United States. Late in the
decision-making process, detailed information about the local cost of living could help
prospective students decide to come to Vanderbilt.

Strategy: Use the World Wide Web to conduct “virtual open houses.” While, as recommended
below, our top prospects should be actively encouraged to visit Vanderbilt, preferably for an
organized recruitment event, Web-based “chats” can be used to answer prospective students’
questions and help build personal relationships with them. Peabody’s initial experience with a
virtual open house has confirmed the ease and convenience (e.g., University personnel and
alumni participate via computers in their offices or residences) of conducting such an event.
The response of prospective students was quite favorable.

Strategy: Provide prospective graduate students opportunities for direct contact with faculty. Because
prospective graduate students are attracted to institutions with outstanding and welcoming
faculty whose scholarly interests match their own, it is important that our faculty confirm that
Vanderbilt is such a University. We should build into the recruitment process direct
communications between our faculty and outstanding prospective students, particularly after
they have been admitted. Ideally, the communications should include correspondence by e-
mail or letter (both of which could be part of the automated contact management capabilities
recommended above), telephone conversations, and culminating face-to-face interactions as
part of a campus visit.

Strategy: Place prospective graduate students in contact with current graduate students. While contact
with faculty is of great importance to prospective students, they are likely to trust current
students to tell them what it is really like to study at Vanderbilt. Accordingly, we should
provide ways for applicants to interact with students who already are on campus. Enthusiastic
students who are enrolled in the graduate program of interest to a prospective student and who
are familiar with Nashville can very effectively promote Vanderbilt and the city.
Strategy: Mobilize alumni to help with graduate recruitment. In addition to assistance with the feeder programs recommended above, our alumni can help with recruitment in many other ways, including, for example, representing Vanderbilt at “graduate school fairs” at other universities, nominating prospective graduate students, participating in virtual and on-campus open houses, supplying their success stories for brochures, and meeting with prospective students. Because an important goal of most persons contemplating graduate study is career advancement, the testimonials (in brochures, on Web sites, or in person) of well-placed alumni are powerful tools in graduate recruitment. Of course, our Ph.D. alumni will be effective in recruiting the students we want only if they have positions in first-rate departments or comparable settings and have proven themselves as teachers and scholars. Ultimately, effective recruitment depends on effective placement.

Strategy: Subsidize campus visits of highly qualified prospective graduate students. At the time of an offer of admission, some Vanderbilt programs extend an invitation to visit campus and meet with faculty and current graduate students. We know such efforts work; we simply need to make available modest funds to allow departments to recruit in this way. In some cases, an “open house” involving several departments in related areas can reduce duplication of effort and yield a more impressive event. Examples of multiple-department campus visitations include Peabody’s Ph.D. recruitment weekend for four of its five departments and the series of interview visits for groups of finalists for admission to the Interdisciplinary Graduate Program in the Biomedical Sciences, which encompasses nine departments spanning Arts and Science, Engineering, and the Medical Center.

Financial Aid for Graduate Study

While the strategies recommended above will increase the number of prospective students at each stage of the process from initial contact to admission, our ability to matriculate those whom we have accepted largely depends upon the competitiveness of our financial aid offers. Accordingly, we must monitor the financial packages offered by our competitors, structure our
own awards to be competitive, and make sure that prospective students are aware of possible awards and their actual awards in a timely manner.

Strategy: Monitor the financial aid awards offered by our competitors. Because low rates of acceptance of offers of admission (yields) to some of our programs may reflect noncompetitive financial aid offers on our part, we should obtain, on a program-by-program basis, information regarding the financial packages offered by peer programs each year. In many cases, these data can be obtained from Web sites; however, if the information we need is not posted, we should solicit it.

Strategy: Extend our use of top-off awards to attract top prospects. Because funds for graduate assistantship stipends are limited, top-off awards provide a way to create particularly competitive awards for the most outstanding prospective students. The top-off awards that previously have been based in the Graduate School should be continued and supplemented with additional school-based awards. For example, Peabody has instituted its own top-off awards and professional development funds that have helped attract exceptional students who, in previous years, would have been lost to graduate programs at other universities. In addition to increasing Peabody’s yield, this strategy also raised the GRE scores (V+Q) of this year’s cohort by 135 points.

Strategy: Offer five years of support. To complete successfully with other schools, we must offer a full five years of support for students who make satisfactory academic progress.

Strategy: Offer summer funding. In programs that currently offer no summer funding (e.g., many non-science programs), students must seek non-academic summer employment to make ends meet. More and more universities are offering all graduate students at least modest summer funding. To be competitive, Vanderbilt must do the same.
Strategy: Relieve graduate students of teaching responsibilities towards the end of doctoral study. At leading research institutions, prospective students in the humanities and social sciences currently are recruited to graduate programs with the promise of a dissertation year of support free of teaching responsibilities. One-year dissertation fellowships and summer research fellowships would offer fundraising opportunities for named fellowships at modest cost.

Strategy: Publicize available financial aid awards and cost-of-living information on program Web sites. Because, as noted above, prospective students increasingly rely upon the World Wide Web for information about graduate programs, it is essential that encouraging financial aid information be included in each program’s Web site. Such information should include the range of stipends that will be awarded, make clear that tuition will be fully subsidized, and specify the duration of support. In addition, each program’s Web site should provide the standard budget used for calculation of need-based financial aid as well as a comparison of Nashville’s cost of living with other cities in which the program’s competitors are located. Such information should help us by alerting prospective students to the fact that their Vanderbilt stipend will have more buying power than the same amount in many other cities.

Strategy: Make firm funding offers at the time of admission. To attract the best graduate students, we need to offer all the funding we can at the time of admission rather than simply holding out the possibility of future funding. Without firm offers in hand, students who would prefer to study at Vanderbilt may feel compelled to accept admission with a definite financial aid offer from another institution.

Diversity and International Students

Diversity is one measure of the richness of opportunities for intellectual and civic growth that a university offers its students and faculty. This richness is expressed in the content and scope of the curriculum and research as well as in the ethnic and cultural composition of the faculty and student body. A diversity of ideas is not apt to flourish in the absence of a diversity of kinds of
human beings. As an institution that aspires to contribute to the knowledge and understanding of the world, Vanderbilt needs to nurture diversity across its campus.

Diversity reflects the value a community of scholars places upon inclusion of contributions made by different cultures and ethnic groups to a better understanding of the world. It reflects an integration of distinct views and experiences that better mirror the population as a whole. And it incorporates talented people from groups that are currently underserved who will become leaders of our disciplines, professions and society in the future.

In promoting a greater future breadth of intellectual leadership through graduate education, it is useful to distinguish two groups. This report addresses international students and faculty first and, then, considers students and faculty from underserved groups of US nationals.

**International Students and Faculty**

Increasing numbers of international students are admitted to universities across the country. Some disciplines are staffed by significant numbers of international faculty. In other areas the numbers of international students and faculty can be quite low. Increasingly, students and faculty from the international arena have reasonable English-language skills; often they speak three or more languages.

International students often have received a high school preparation superior to US students, particularly in languages and sciences, which make them highly attractive. This seems to be true regardless of country because those who can avail themselves of such opportunities are from the highly educated elite. Such students score comparatively high on objective tests, such as the GRE, which is to be expected when applicants come from some of the largest, most competitive societies in the world.
The reasons for recruiting international faculty vary considerably with academic discipline. Some fields recruit internationally because they are not able to fill their ranks domestically due to a shortage of home-grown professionals. Other disciplines strive to address the educational needs of a greater proportion of the world’s students, reasoning that international faculty will help in recruiting and teaching them. Still others seek international faculty to broaden and energize intellectual scholarship that increasingly crosses cultural and national boundaries.

The overall rationale for strengthening international student and faculty participation in the university is composed of several strands. First, many intend to return home to help build their countries and societies utilizing the skills acquired in the U.S. Through their experience in the US they will more accurately and positively inform their nations regarding the strengths and weaknesses of our democratic society. Second, while they are in the U.S. they can teach students and faculty of the university about the reality of their home country and culture, thereby enriching U.S. understanding of them. The need to learn more about other countries and cultures is well understood. Third, if the U.S. is to remain competitive in international commerce, science and culture, U.S. students and faculty can only benefit from learning to compete with their international counterparts sooner rather than later.

**Strategy:** Continue to recruit international graduate students and faculty. Their contribution to the richness of intellectual life at the university is important. It is unlikely they would constitute the majority of a given class, though in a few specialized fields where U.S. applicants are few they may approach being so.

**Strategy:** Strengthen recruitment of international faculty to be (and be seen to be) a university that addresses intellectual issues of broad, global significance. This will make possible recruitment of the best international students. For strategic reasons (i.e. mentoring), such appointments should be at senior levels with more junior levels recruited for fixed-term appointments (e.g. 2-3 year visiting professorships).
Strategy: Expand existing and create new opportunities in the U.S. for international students to participate in research projects, internships, practica, community service, field schools, etc. Through such exposure to actual U.S. workplaces, institutions and communities their knowledge of U.S. society and cultures will be deepened.

Strategy: Open up greater opportunities in other countries for U.S. students to participate in research projects, practica, community service, field schools, etc. Through such exposure to actual workplaces, institutions and communities in foreign countries, their knowledge of other societies and cultures will be deepened.

Strategy: Establish regularly available internship opportunities through formal agreements with multilateral organizations and transnational corporations for both U.S. and international students. This will help reinforce a vision of potential careers in the international arena for our graduates.

Strategy: Establish long-term collaborative relationships with key, well-regarded universities in other countries, and promote the regular exchange of faculty and students in structured, cooperative team research, teaching and service programs. Priority regions would be Latin America and the Caribbean, Europe, Central Asia, and parts of East Asia.

Strategy: To ensure excellence in international student recruitment, establish relations with key, well-regarded universities in other countries who will assist in credential evaluation. Consider also the International English Language Testing System (IELTS) or a contract with an external credential review agency to ensure accurate reporting. IELTS has a significant advantage in that it evaluates writing skills that are important for future graduate students. We could also use the resources of international faculty and students already here to help us review foreign applicants, possibly including performing telephone interviews. In any case, the "infrastructure" for managing the credential issue has to be created.
Strategy: Once international students arrive, give them every support, including appropriate language instruction. This may include peer group interaction with tutors, courses in U.S. customs and lifestyles, short-term loans for intensive language training, timely visa support services and others. A semester "grace period" for language improvement may be a good idea for students in some disciplines.

Strategy: Curricular content in several disciplines should be reviewed and evaluated with an eye to building capacity to meet the needs of international students and faculty whose careers aim at returning home to develop their own societies and countries. It cannot be assumed that what is currently taught is adequate to meet that challenge.

Strategy: Assure that tuition issues do not get in the way of such international exchanges. This institution should be flexible and creative in dealing with productive "tuition exchange."

Underserved U.S. Nationals

Diversity has characterized the U.S. experience and population throughout its history and is even more pronounced today. The integration of distinct views and experiences that mirror the population as a whole has the effect of enriching opportunities for intellectual, civic and spiritual growth that the university offers its students and faculty. A major challenge that faces our society is the inclusion of those talented people from groups previously excluded, including women, who have the capacity to become leaders of our communities, professions and disciplines in the future.

While there is a pipeline issue that reduces the number of American students from under-represented groups in graduate education, it is not difficult to find examples of institutions that have done well in recruiting these students. Their success has required commitment, considerable creativity, and some expenditure of funds.
A commitment to racial and ethnic diversity and to advancing women is expressed through recruitment of senior faculty who can lead the diversification of intellectual discourse and curricular content or who can serve as role models. This cannot be done through junior hires alone. In addition, students from historically underserved groups are attracted to institutions committed to diversity in their hiring practices. Creativity is required to foster welcoming conditions for such scholars, including joint-appointments in research centers, creation of distinguishing honors, competitive salaries and benefits packages, family-friendly policies, and their engagement in scholarly critique and debate on issues of mutual concern.

To achieve this goal, we need to agree to forego less urgent desires in order to dedicate resources to diversifying our faculty. What is needed is a more aggressive, targeted effort than has been undertaken in the past. Equally important, systematic planning is needed to ensure the active, programmatic engagement of scholars from underserved populations in the intellectual mission of the university and the social life of our community through, for example, deepening and expanding our commitment to service-learning projects in underserved populations. Students from underserved groups will undoubtedly continue to be attracted to the university. Both their numbers and quality will increase to the extent that we create a community of scholars that values diversity through its actions. The key action in this regard is appointment of senior faculty of African, Asian and Hispanic origins. Similarly, appointment of senior women faculty in some disciplines is needed.

Strategy: Dedicate financial resources to recruit tenured senior faculty of African, Asian and Hispanic origins. Efforts should be concentrated in departments that are likely to grow in national and international stature over the next five years (avoid such efforts in departments that show no signs of growth). In the absence of dedicated funds, it is unlikely departmental and disciplinary parochialism can be overcome in the short-run; and in the absence of dedicated funds to recruit the best people, the following efforts will yield more smoke than fire.
Strategy: Dedicate financial resources to recruit tenured senior women faculty in those areas where they are seriously underrepresented. As with other underserved groups, appointments should be targeted to departments most likely to yield growth in the years ahead. As well, the scholars who receive these appointments should seek to recruit more women scholars to their academic disciplines.

Strategy: Establish a task group to manage the recruitment of senior scholars from initial contact through contract signature. Such a group should be characterized by the (a) national prominence and (b) ethnic or gender diversity of its members. To be successful, all faculty must participate in the process (hosting visitors in their homes, including visitors in classes and seminars, attending visitor's presentations, introducing visitors to graduate students, colleagues and friends, etc.). Faculty who make this commitment should receive substantive, not symbolic, recognition. The task group would also spearhead student recruitment as a "learning exercise." Primarily this would include visits to campuses with high concentrations of underserved groups, learning of the needs of these students by talking with them, developing relationships with the faculty and administration of these campuses, and (most importantly) maintaining a continuing relationship and flow of information regarding our community of scholars and theirs.

Strategy: Students should be encouraged to visit the campus especially for an extended time (most likely during a summer) so that they can engage in scholarly activity to test the waters. Potential recruits will need a stipend during such extended stays, as well as housing. Many other universities already have such outreach programs targeting high school juniors from underserved populations.

Strategy: The university should ensure that underserved students have access to educational opportunities they would not have elsewhere. These include participation in international field-schools, faculty research projects, internships, community service-learning, practica, and so forth. In particular, they should be enrolled in courses taught by international faculty so as to obtain greater exposure to their place in the world, rather than simply the U.S.
A Culture of Evaluation

Quality in graduate programs is somewhat subjective such that leading criteria for one field of study are nearly meaningless in another. (Compare, for example, the criterion of externally funded graduate students applied to Engineering and English). Nevertheless, quality in a field is something that scholars outside the field can recognize when they see it. Just as good art can be Impressionist, Abstract Expressionist, or Realist, there are certain judgments that faculty from other parts of the university can legitimately render about the quality of graduate programs not their own.

Strategy: The Associate Provost for Graduate Education (University Central) and Senior Associate Dean of Biomedical Education and Training (VUMC) should prepare an annual report that lets faculty know where their programs stand on relevant measures of quality and performance. Information fosters healthy competition. An annual report on graduate education ought to go to each member of the faculty, university-wide. The purpose of the report would be to disseminate information now known by the provost, deans and graduate program directors only to the broadest possible level where cognitive and behavioral change is desired. The quality of the Vanderbilt faculty

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has improved dramatically in the last decade in many departments and schools. Yet the quality of the graduate student body in these same programs has not improved in like measure. This suggests the importance of concrete measures to specifically target graduate admissions quality. One of the places the Provost’s Office can take a leadership role in graduate education is in helping to benchmark programs, their measures and early signs of outcomes.

Strategy: As part of a comprehensive commitment to evaluation, each graduate program should develop measures by which it can best be evaluated and then regularly benchmark themselves against those measures. The nature of graduate education guarantees that strategic improvements come to fruition only years after they are begun. Even a multi-million dollar investment in a graduate program cannot guarantee a top-five Ph.D. program in five years, or even ten. On the other hand, the measures of excellence in graduate education are widely known and are used in the National Research Council (NRC) rankings and field specific evaluations. It is a truism that we evaluate what we value. At Vanderbilt frequent evaluation and planning for improvement need to be a feature of university-wide graduate education efforts. Moreover, we believe that graduate education is sufficiently distinct from professional and undergraduate education so as to argue for internal evaluations of graduate programs separately from the departments in which their faculty are based. These evaluations ought to serve as indications of where graduate programs are likely to rate in external rankings and so surface issues for continuous improvement by the faculty leadership that guides the programs.

Strategy: Periodic external evaluations should focus on graduate education efforts and include comparison to closely related programs within the institution. There also would be merit in doing graduate program evaluations in clusters of closely related programs in order to foster a cross-program continuous improvement ethic, to build leadership across departmental walls, and to draw attention to systemic problems that require solutions beyond the level of the particular program. Our faculty are often sought out to be peer reviewers for other institutions. It is time we made better use of these talents internally.
Setting concrete goals, both short-term and long-term, that can be monitored over time is critical if Vanderbilt is to achieve its aspirations in graduate education. The timeline to realize the benefits of additional investments in graduate education is a long one, unfolding over 15-20 years. If we are to be successful, we must adopt the strategies of a long-term investor and not expect immediate and dramatic improvements in quality. If we stay the course over the next two decades, Vanderbilt will take its place among the great research universities of the United States.

Vanderbilt must be able to document that progress is being made on various fronts. This provides an opportunity to make mid-course adjustments and to demonstrate accountability. Moreover, the collection and ready availability of valid data are marks of a well-organized graduate program. Yet, to be clear, the benefits of such a strategy far outweigh the satisfaction of merely having a well-run program and justify the expense of the data collection. Data collection and benchmarking, together, provide a potent and fair tool to evaluate current programs and to offer guidance as to those areas deserving reward, or those areas in need of additional improvement and support.

*Strategy:* Faculty in distinct areas must establish appropriate benchmarks for their programs that are to be approved by the responsible school dean or deans. Benchmarks for success need to be crafted across the life histories of our students, from the quality they bring with them at matriculation to the achievements attained during their careers. Listed on the next two pages are some initial ideas.
All students will aspire to a career that will make a difference at a national level.

The academic profile of the students in terms of GRE scores and GPA will be unsurpassed nationally.

Students will convey a passion to excel (e.g., they will convey a commitment to inquiry; a sense of curiosity and creativity; a proclivity for intellectual engagement; an affinity for research and scholarship; zeal).

**During Graduate Education (years 2, 3, 4)**

<table>
<thead>
<tr>
<th>Time Frame</th>
<th>Data Source</th>
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<tbody>
<tr>
<td>Participation at conferences</td>
<td>Vita</td>
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<tr>
<td>Presentations at conferences</td>
<td>Vita</td>
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<tr>
<td>Funding applications</td>
<td>Vita</td>
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<td>Funding for work</td>
<td>Vita</td>
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<td>Publications</td>
<td>Vita</td>
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<tr>
<td>University/College awards and recognition</td>
<td>Vita</td>
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<tr>
<td>External awards and recognition</td>
<td>Vita</td>
</tr>
<tr>
<td>Teaching experiences</td>
<td>Vita</td>
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</tbody>
</table>

At Graduation

<table>
<thead>
<tr>
<th>Time Frame</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vita competitive to be hired at Vanderbilt University (using categories listed in “during education,” adjusting post-doctoral experience).</td>
<td>Vita Profile</td>
</tr>
<tr>
<td>First position</td>
<td>Interview</td>
</tr>
<tr>
<td>Prestige of institution, lab, etc.</td>
<td>Interview</td>
</tr>
</tbody>
</table>
Early Career (years 3, 7)

<table>
<thead>
<tr>
<th>Time Frame</th>
<th>Data Source</th>
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<tbody>
<tr>
<td>Success on the job</td>
<td>Survey</td>
</tr>
<tr>
<td>Recognition for making important contributions</td>
<td>Survey &amp; Citations</td>
</tr>
<tr>
<td>Received tenure</td>
<td>Survey</td>
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</tbody>
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Mid-to-Late Career (years 10, 15, 25)

<table>
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<tr>
<th>Time Frame</th>
<th>Data Source</th>
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<tbody>
<tr>
<td>Success on the job (promotion, movement to first-tier universities, etc.)</td>
<td>Survey</td>
</tr>
<tr>
<td>Recognition for making contributions (e.g., professional awards and honors for work; turning out well-respected new scholars; patents).</td>
<td>Survey &amp; Citations</td>
</tr>
</tbody>
</table>

Strategy: Once benchmarks are established, faculty members should establish the current baseline for each variable. Progress can be determined only if we know where we are starting from or how well we are doing with regard to each benchmark before any changes are implemented. Thus, the standing of current students and recent graduates needs to be compiled, tabulated, and analyzed.

Strategy: An electronic survey needs to be developed and conducted centrally to survey our graduates to obtain the necessary benchmark data. This critical task would be handled by the person in charge of institutional research for graduate education in collaboration with the various schools. IGP has a discipline specific approach that might be modified. Another example is the Mellon Foundation’s recent survey of faculty.

Strategy: Individual programs should collect and evaluate data that track graduate students throughout their graduate careers. Vanderbilt has set a high standard in tracking undergraduates from application through graduation. A similar effort for graduate students is necessary if the
university is to achieve its potential as a leader in graduate education. This might include GPA and qualifying exam performance, university service and honors, faculty advisor, financial support, as well as monitoring the timeline followed by the student (e.g., satisfying departmental requirements, committee members assigned, committee meetings, filed reports of meetings, published material, time to qualifying exam, time to degree).

**Strategy:** Each program should collect data on how well it fares in the market place. Data from the application process should permit one to identify the strengths and weaknesses of the program in its ability to attract the most talented students to an individual program, as well as to construct the overall performance of the university. These indices should be monitored over time to ensure progress. Some of the common elements to track include:

- Size of applicant pool
- Percentage admitted
- Yield of admitted students
- Gender, ethnicity, international student status of admitted students
- Quality of incoming students versus admitted students who did not matriculate
- Other schools applied to by matriculants
- Of those admitted but not coming, the school of choice
- Reasons for declines and for accepts.
- Financial details of stipend, inc. source of funds.

**Strategy:** Program evaluations should be supported by regular data collection and review. The elements that need to be tracked include the following:

- Regular internal/external reviews.
- Evaluation of the program from the student's perspective
- Productivity of faculty including citation frequency.
- Grant portfolio of faculty.
- Faculty/student ratios.
- Faculty demographics (e.g., diversity)
- Ability to attract training grants and other direct student support vehicles, where appropriate to the field
- Attrition and reasons for students leaving.
Part Three: The Structure of Change: Leadership, Arrangements, and Investments

The report to this point has detailed a vision for graduate education at Vanderbilt. In the report our task force has offered numerous strategies for improving graduate education. Yet changes in cultures as complex as research universities do not emerge merely from good ideas and clear analysis. Visions and commitments must be given structures and resources for positive change to be effected. In this part of the report, the task force considers the questions of who will be charged to implement this report if accepted and the investments that need to be made to make those strategic ideas realities. And here we offer recommendations for how graduate education at Vanderbilt ought to be led, structured, and supported. We begin with recommendations as to function and structure and then assess the financial cost of the vision, strategies and structures we have recommended.

Function and Structure

The Vanderbilt community must become confident in the quality of existing and ongoing graduate programs and that graduate education either is or will become outstanding and will be recognized as such. Developing a culture of excellence in graduate education was first addressed by the Task Force and became a high priority. There was also a belief that form should follow function. Thus, administrative structure is addressed in this, the last section of the report.

Here we propose an administrative structure for graduate education that we feel can best bring to life the vision and aspirations set for graduate education in our report and for implementing the strategies developed throughout our deliberations. As well, the proposed administrative structure represents the mechanism for assuring and affirming quality. It allows for centralization of those activities that are common to multiple schools in the interest of efficiency, for ensuring that
graduate education does not become balkanized, and for providing a means to explore new
graduate training opportunities, particularly at the interface of disciplines, such as those espoused
in programs proposed and funded by the Chancellor’s Academic Venture Capital Fund.

There are three basic categories of graduate programs to be handled within the administrative
structure: department/school-centered programs, interdepartmental programs, and interschool
programs. Department/school-centered graduate programs feature courses and research that
occur primarily or entirely in a single academic department or within a single college/school.
Interdepartmental graduate programs feature courses and research that span several departments,
all of which reside in a single college or school. Interschool graduate programs feature courses
and research involving academic units in two or more colleges or schools.

As stated in the Introduction, the faculty bear the ultimate responsibility for excellence in
graduate education. A school can provide only the infrastructure and support for the faculty’s
efforts. Nevertheless, administrative structures and leaders exist at the university to provide the
context and culture for excellence and to maintain a steady focus on achieving excellence in
graduate education and research. The deans of the schools are also graduate faculty and must
share with their faculty colleagues responsibility for the work undertaken and outcomes
produced.

Recommendation: A Graduate Faculty Council should remain and continue to serve in an
advisory capacity to the Associate Provost for Graduate Education and Senior Associate Dean
for Biomedical Education and Training. We are recommending no changes here. Yet
consideration should be given to ensuring that the Graduate Faculty Council better represents
those who are now involved in graduate education and at a true level of excellence. The
responsibilities of this body include approving all new graduate programs and major changes to
existing programs; setting minimal requirements and standards for graduate degrees; and
advising the associate provost for graduate education and the senior associate dean for biomedical education and training in policy matters concerning graduate education.

Recommendation: As the chief academic officers of their schools or colleges, the academic or school deans bear the primary administrative responsibility for the conduct and quality of undergraduate, graduate and professional education in their schools or colleges. For interschool programs, that responsibility is shared jointly by the deans of the participating schools. Vested in them is also the authority to establish and eliminate programs with the concurrence of the Graduate Faculty Council, the associate provost for graduate education and/or the senior dean of biomedical education and training (VUMC), provost and/or vice chancellor for medical affairs, chancellor, and the Board of Trust.

Recommendation: Create an Office of Graduate Studies that provides central services and coordination to support graduate education throughout University Central. The existing Office of Biomedical Education and Training will handle these functions for the medical and nursing schools. The Office of Graduate Studies and the Office of Biomedical Education and Training together should provide designated central services for all of Vanderbilt's graduate programs, such as registration, central record-keeping, degree audits, and institutional research. It shall meet regularly with the Graduate Faculty Council. This office will help coordinate, as needed, the development of new interschool programs and offer assistance to students whose needs require special attention. The Office of Graduate Studies is expected to assist school deans in every way possible in their efforts to increase the quality and visibility of their graduate programs and the quality and number of their graduate students. It also will provide the vehicles for ensuring that school deans meet and collaborate. The Office of Graduate Studies may carry out special projects, manage special programs (e.g., graduate fellowship programs), or otherwise provide central coordination for the university (as with, for example, a major proposal for multischool, graduate student support).
Recommendation: The Office of Graduate Studies will be led by the Associate Provost for Graduate Education, who works in partnership with the Senior Associate Dean for Biomedical Education and Training, and reports to the Provost and Vice Chancellor for Academic Affairs. With the support of the Graduate Faculty Council, the new Office of Graduate Studies and/or the new associate provost for graduate education as well as the existing senior associate dean for biomedical education and training and the Office of Biomedical Education and Training would have at least the following responsibilities:

1) Facilitate the development by faculty of interdisciplinary programs that would bridge existing schools
2) Explore, in collaboration with school deans, new educational and research opportunities to which Vanderbilt's faculty are uniquely poised to contribute and from which Vanderbilt's students are uniquely poised to benefit
3) Facilitate the submission of training grants, where available, that cut across departments and schools
4) Assist in developing some of the elements that focus on graduate education and training for departmental and/or school reviews by external advisory panels (e.g., provide the overall graduate education context)
5) Develop, with input from the schools, departments and programs, objective measures of success, and request and compile data annually
6) Prepare for the university community an annual state-of-graduate-education report
7) Oversee the staff for the functions of registrar, student grievances, student misconduct and disciplinary issues, dissertation formatting and editing, international student issues, minority recruitment, and institutional research for both University Central and the Medical Center
8) Develop and maintain, in an updated format, information about the recruitment, retention, quality, progress, and placement of graduate students
9) Represent Vanderbilt at national or regional coordinating functions and meetings
10) Inform and educate the Vanderbilt community on issues critical to graduate education
11) Define and maintain a set of appropriate standards for admission, satisfactory progress, degree completion, membership on thesis and dissertation committees, and other components of the graduate academic mission
12) Coordinate graduate education efforts across schools and programs.

Recommendation: As soon as the appropriate approvals can be obtained, graduate students’ enrollment will reside in the appropriate school or schools (for joint programs). Currently, all graduate students are enrolled in the graduate school. This will no longer occur as the school would no longer exist. Rather, enrollment will reside within the school or schools that have primary responsibility for the programs into which the students matriculate. Nonetheless, the Ph.D. remains a Vanderbilt degree.

Recommendation: Decentralize many of the functions currently fulfilled by the Graduate School, sometimes in a duplicative fashion, to better align responsibility with where work is conducted and relevant knowledge resides. In particular, the entire admissions process, including receiving applications and letters of recommendation, sending acceptance letters, and putting together financial-aid packages, including top-off awards, should devolve to colleges and schools, as should the responsibility for approving doctoral committees. (As a result of a report issued by the Graduate Applications Implementation Team and submitted by the deans to the provost, decentralization of processing graduate applications is already occurring so that greater efficiency could be experienced this academic year.)

We envision that deans with graduate programs, and associate deans with graduate program responsibilities, will meet frequently, as necessary, with one another and with the associate provost for graduate education, the senior associate dean for biomedical education and training, and the chair of the Graduate Faculty Council so as to coordinate policies and procedures promoting excellence in graduate education.
For programs based within a single school, the following activities* would be carried out by that school or delegated by the dean to a particular department or program leader. For programs that involve multiple schools, those activities would be carried out by individuals and offices identified at the time of the establishment of those programs.

1) Create an applicant pool
   - Advertise
   - Market
   - Recruit, including visits and events
   - Recruit to enhance racial, ethic and gender diversity and greater internationalization

2) Receive applications and respond/confirm
   - Evaluate applications
   - Develop and make offers
   - Keep statistics throughout the process (critical for funding opportunities)

3) Admit to programs those who accept offers
   - Provide information about housing / living
   - Establish each student's I9 immigration status by working with the Office of International Scholar and Student Services
   - Arrange stipends, tuition or waivers, professional development funds, etc.
   - With input of faculty, select students to receive top-off awards.
4) Provide academic advising
   • Arrange link-up with faculty advisors and arrange ongoing financial support
   • Approve doctoral committees
   • Evaluate students' performance regularly, with feedback to students
   • Mentor/nurture (personal/academic); monitor progress
   • Provide career advice and placement assistance

5) Communicate with alumni – maintain faculty contact with department and school graduate alumni

6) Evaluate entire program and process periodically, but analyze the statistics annually.

[*An exception, of sorts, is the Interdisciplinary Graduate Program (IGP) involving the School of Medicine and the Department of Biological Sciences, College of Arts and Science, which serves as an entry route for department-based Ph.D.’s of the participating departments as well as the Ph.D. in Neuroscience. The IGP also parents the first-year core curriculum and related training activities for the first nine months of these multiple programs. Ph.D.-granting programs linked to the IGP would presumably rely on the current IGP process for activities 1, 2, and 3 above or engage in IGP - and school/department/program-based activities 1, 2 and 3 in parallel.]

Another exception is the Graduate Department of Religion that is managed by the Divinity School, but involves faculty from five other schools. The Divinity School would continue to be administratively responsible for the program and required reporting. The terms of participation by faculty of other schools is a matter for coordination and agreement between deans.

Recommendation: The graduate application process should switch from being primarily a paper driven process to an electronic process, waiving the application fee if students apply electronically. The Web-based system currently used by the Interdisciplinary Graduate Program in Biomedical Sciences [referred to as either "the IGP system" or “Excalibur”] should be adapted for use by all of the University's graduate programs. This recommendation, which has already been implemented, was made after the completion of a feasibility study by the Graduate Education Task Force, page 55.
Applications Implementation Team during the summer 2002. To encourage students this year to apply electronically and to increase the number of applications, the application fee for on-line graduate applications was waived on a trial basis. (Applications doubled.)

Recommendation: Provide on-line application support for each school, reallocating centralized graduate school staff but with supervision provided by the schools. Schools require assistance to handle the application process that is now fully their responsibility (e.g., scanning supplementary application materials such as transcripts and letters of recommendation, following through with applicants). Existing graduate school personnel are currently providing this assistance to the schools/colleges, where needed, with the schools supervising their work. It is essential that this arrangement continue as the Graduate School evolves to become an Office of Graduate Studies.

Recommendation: Hire at least one individual responsible for institutional research. Currently, no such individual exists for graduate education. At least one is needed to work with Greg Perfetto, who handles institutional research for undergraduate education. The electronic application process and the data maintenance functions contained within Excalibur, including portfolio maintenance for individual students, will facilitate this task immensely.

Recommendation: Hire recruitment coordinators for each school or within natural graduate program clusters. Recruiting top students, marketing programs, and developing effective communications strategies is a full-time endeavor. We cannot expect to attract top talent to Vanderbilt without such an investment. The recruitment coordinator would work with specific departments and programs.

Recommendation: Each school dean assigns major responsibility for attracting high-quality graduate students to the departments and programs within which those students would study. Departments and programs recruit students by means of the excellence of their programs, the scholarly reputations of their faculty, advertising using Web pages, brochures and similar
vehicles, campus visits, special recruitment events, and other personal contact. The recruitment coordinators will be of assistance to departments in this regard.

Recommendation: Hire a minority recruitment officer for graduate education. This individual will serve all programs in an effort to enhance the diversity of the graduate student population. Of course, individual schools will have this responsibility as well.

Recommendation: Each school dean’s office should bear the responsibility for approving admissions and offers of financial assistance for programs in that school, so that school deans or their delegates can issue the formal letter of admission, in a timely manner, with whatever financial aid has been arranged. Departments and programs first receive applications electronically and then evaluate them to determine which students should receive offers of admission. These decisions are then approved by school deans or their delegates as is any financial aid packet accompanying admissions. Application statistics and related information should be maintained at the department, program and/or school levels using the computer-based format common to all departments, programs, and schools (i.e., currently Excalibur). The degree to which a given dean's office centralizes any or all of the processes of recruiting, application and offering admission may vary from school to school, however.

Recommendation: Departments and programs should respond directly to students who accept or decline offers of admission. The mail response to an accepted offer is congratulatory, welcoming and informational (housing information, names of campus contacts, immigration requirements, and so forth), preceded or followed by a telephone call. Students accepting Vanderbilt offers should be asked, in addition, to identify the details and schools of origin of the offers they declined. The mail or e-mail response to a declined offer consists of an acknowledgement and a request to fill out an information sheet that inquires about 1) the offer the student chose to accept instead of Vanderbilt's offer and 2) the reasons for the student's choice. Departments and programs keep detailed contact records with potential applicants,
acceptances, and matriculations, and maintain contact with admitted students, continuing the
recruiting process through matriculation, after which the focus shifts to education, mentoring,
and retention.

Recommendation: While there must be a single registrar's office for all graduate students,
schools with the capacity to handle the registrar functions themselves should be allowed to do so
if it provides enhanced services and/or efficiency. School registrars have the responsibility,
however, of coordinating their efforts with the central registrar. The centralized office of the
graduate registrar and all the functions associated with that office (e.g., degree audits) would be
housed organizationally within the Office of Graduate Studies.

Recommendation: New graduate-degree programs must be approved by the school’s faculty or
Faculty Council, by the cognizant school dean(s), the Graduate Faculty Council, the Associate
Provost for Graduate Education and/or the Senior Associate Dean for Biomedical Education
and Training, by the Provost and/or Vice Chancellor for Health Affairs, by the Faculty Senate,
by the Chancellor and finally by the Board of Trust. Departments and programs then maintain
the curricula to support existing graduate degrees, subject to approval by the academic dean(s).

Recommendation: School deans, in consultation with faculty, should establish the criteria that
faculty in a given college or school must meet in order to teach graduate courses and/or to
supervise thesis or dissertation research. A given dean may, then, choose to confer an intrinsic
right to teach and/or supervise research at the graduate level upon all school faculty who meet
the minimum criteria, leaving it to departments to handle teaching assignments in an appropriate
manner. The associate provost for graduate education (APGE) and/or the senior associate dean
for biomedical education and training set minimum standards for determining which faculty are
appropriate to teach graduate courses, to supervise thesis or dissertation research, and to serve on
thesis or dissertation committees. Thus, deans may set only higher standards in their
schools/colleges if they so choose. When special circumstances warrant it, deans may request
graduate teaching/supervision status for faculty who do not appear to meet those minimum standards.

Recommendation: Each school dean is responsible for ensuring that the doctoral work of each department is of high quality. School deans' offices follow up each final defense of a graduate degree in their schools with a brief questionnaire, sent to each member of the examining committee, that inquires about 1) the publications resulting from the graduate work, 2) the quality and impact of the research described in the thesis or dissertation and 3) the quality of the oral presentation and defense. The dean also obtains the candidate’s CV. Each dean's office collects annually, as well, a designated set of quantitative information about 1) the most recent admissions year, 2) the status of its current graduate students and copies of their emerging CVs, and 3) the financial underpinnings of its graduate program. The relevant school deans will assure the collection of information for inter-school programs, but it is likely that a designated office that serves those programs will take responsibility for collecting and synthesizing the necessary data.

Recommendation: An on-line system for tracking the progress of graduate students should be established. The system should enable each program to develop a detailed CV for each student in the program. Evaluating collectively the emerging CVs, the committee believes, is the best means of monitoring the quality of graduate programs. Information for each graduate student would be obtained from three sources—students records, the database generated by the on-line graduate applications system, and the database generated by the new system—with communication among the three databases. Information flowing into this system will be entered by DGS's and by individual graduate students. The latter will have writing privileges to only a limited number of fields. A preliminary schematic outline of the data to be collected by the three aforementioned databases can be found in figure 1. (Of course, the CVs students used in their job searches should be individualized.)
Recommendation: The Associate Provost for Graduate Education and the Senior Associate Dean for Biomedical Education and Training should prepare and present jointly an annual “State of Graduate Education” report. By using the information collected and provided by the deans for their programs, the Office of Graduate Studies and the Office of Biomedical Education and Training will assemble a university-wide description of the current status, progress towards goals, and needs to be provided to the offices of the provost and the vice chancellor for health affairs. It also will be shared with the deans, the graduate faculty, and other stake-holders. Because enhancing graduate education is one of Vanderbilt's chief goals, it is important to create reports that will provide annual assessments of the progress that is being made, overall and program by program, toward institutional goals.

Recommendation: Each school dean will use the aforementioned statistical information for that school as the basis for an annual report to the provost, in University Central, and to the vice chancellor for health affairs, in VUMC, on the quality and status of graduate education in that school. These reports also will be shared with the relevant faculty and other stake-holders.

Recommendation: The separate commencement ceremony for graduate students should be eliminated. PhD recipients would be recognized at the main university ceremony but hooded in separate school ceremonies, possibly the evening before or as part of the school’s regular commencement ceremony. This would allow students to graduate as part of the ceremonies for their own school, where they define their loyalty, and it would prevent faculty from being spread out over possibly three simultaneous ceremonies. This recommendation could not be implemented until May 2004 at the earliest.

Recommendation: Any savings in the graduate school budget generated from decentralization should either be returned to schools to be reinvested in graduate education or reinvested in some other way that directly benefits graduate education. Currently, schools pay a higher tax on graduate student tuition revenue than on any other revenue (approximately 23 percent vs. 12
percent). The difference goes to cover the costs of the graduate school, its scholarships, and top-off awards. The money for scholarships, top-off awards, and travel funds should be returned to schools for distribution. Administrative savings centrally should either be returned to schools to cover their extra expenses resulting from decentralization or reinvested in some manner to benefit graduate education.

**Recommendation:** The Associate Provost for Graduate Education and the Senior Dean of Biomedical Education and Training need to work out details for any recommendations that are accepted but need further refinement, using either the Graduate Faculty Council (if policy is involved) or working groups with relevant expertise. The committee did not attempt to anticipate every detail in need of resolution for implementation and decided this was the most realistic approach.

**Investments in Graduate Education**

If Vanderbilt University is to move forward with its commitment to enhance graduate education, a plan must be established that is realistic in terms of the time required to achieve eminence in selected disciplines across the various schools and the resources that will be essential for these major improvements. One must be mindful as well that our peer institutions will not be sitting still while Vanderbilt is making additional investments in graduate education. Two examples will illustrate the competitive landscape in graduate education. Harvard University announced late in 2001 that it was investing an additional $4 million annually to increase support for graduate students. These funds will provide for two full summers of support for graduate students in the humanities and social sciences and a service-free first year and increased stipends for all students in the sciences. Similarly, Princeton University announced early in 2002 that all first-year graduate students in science and engineering disciplines will receive full-tuition fellowships and duty-free stipends. Also, $1.8 million in additional support was approved for
doctoral students in the humanities and social sciences to provide summer support ranging from $3,000-4,500 per student.

Based upon extensive discussions held over the past two years and culminating in the formation of the Graduate Education Task Force, many proposals have been advanced to support our quest for excellence in graduate education, especially within University Central. The remainder of this document will attempt to summarize many of the promising avenues for investment that have been advanced, provide estimates of costs that will be incurred, and suggest the probable sources of funding.

1. Enhance the budget for recruiting prospective graduate students to Vanderbilt (to begin in year one)

   - In the IGP, current costs are $140,000 per year to interview 140 students.
   - Increase the budget for University Central schools to $60,000 (120 students @ $500) to account for departments that are strong academically but currently lack funds for recruitment.

2. Enhance stipend offers for graduate students (to begin in year one with full implementation by year five)

   - Requires careful tracking of information on offers made by peer institutions. (This is currently in place in the IGP.) Assume a small percentage of students currently receive competitive offers. Assume that investments will be made selectively.
   - 150 students X $4,000 = $600,000 in additional support per year to make stipends competitive with peer institutions. This cost must be extended over a 5-year phase-in period.
3. **Additional topping off awards (to begin in year one with full implementation by year five)**
   - We need to determine how much additional money for topping off awards we need to make available for recruiting our most talented applicants and then devise a plan for central versus school-based distribution of the funds.
   - Provide 80 additional topping off awards @ $5,000 = **$400,000**. This cost must be extended over a five-year phase-in period.

4. **Minority student recruitment expenses (to begin in year one)**
   - Total annual costs = **$50,000**

5. **Health Insurance for graduate students (to begin in year one with full implementation by year five)**
   - Provide health insurance for current graduate students.
   - 140 students @ $1,000 = **$140,000**. This cost must be extended over a five-year phase-in period.

6. **Increase the number of graduate slots in humanities and social science programs that currently lack a critical mass of students (to begin in year three with full implementation by year seven)**
   - Several high quality programs currently have a graduate student-to-faculty ratio of less than one. Increases in numbers are required to promote retention of faculty in these departments and to develop the critical mass of intellectual resources required to sustain an excellent graduate program.
   - Add 150 new graduate students slots across all University Central Schools @ $21,000 = **$3,150,000**. This cost must be extended over a five-year phase-in period. (Costs are in year one dollars.)
7. Increase travel and research support for graduate students (to begin in year three with full implementation in year four)
   - Assume the greatest need is in the humanities and social sciences where research funds are less readily available. (Costs are in year one dollars.)
   - Provide support for one trip per year per graduate student. Approximately 450 students @ $500 = $225,000
   - Research funds for selected graduate students. Approximately 200 students @ $1,500 = $300,000
   - Support for two summers for graduate students in the humanities and social sciences, including some programs at Peabody College. Assume an entering class of 105 X $4,000 X 2 = $840,000. This cost must be extended over a two-year phase-in period.

8. Provide a guaranteed fifth year of support for all graduate students (to begin in year five)
   - Increase the overall level of support by 25 percent for all graduate students currently admitted with four years of support guaranteed.
   - Assume 115 students X $15,000 = $1,725,000. (Costs are in year one dollars.)

9. Dissertation Year and Professional Development Awards (to begin in year five)
   - Provide twelve-month support packages for dissertation year support and for professional development opportunities (e.g. placements at Vanderbilt University Press, special collections, assignment as executive editors for journals, etc.)
   - 20 slots @ $20,000 = $400,000
Other issues that must be addressed by the associate provost of graduate education and senior associate dean for biomedical education and training as part of a long-term strategy to enhance graduate education at Vanderbilt University:

1. Graduate Student Tuition
   - In FY01, the total amount of tuition paid from all sources was $16.6 million for 1,600 graduate students. We must develop a financial model that will remove tuition as a barrier when funded investigators consider seeking support from sponsors for research assistantships versus postdoctoral fellows. The IDS tax structure is also an issue in this regard. Finally, the new associate provost for graduate education should examine the current 72 hour credit requirement for students pursuing the Ph.D.
   - Costs of replacing tuition charges and appropriate incentives for P.I.s to be determined.

2. Endowment for Graduate Fellowships
   - Targets for the capital campaigns of the various schools include:
     - Arts and Science = $10 million
     - Peabody = $9 million
     - Engineering = $8 million
     - Divinity = $1.5 million

3. Increase faculty lines to support the instructional programs of Peabody, Engineering, and Arts and Science
   - Many faculty members are currently stretched to the limit to cover the undergraduate instructional needs of the College of Arts and Science, Peabody College and the School of Engineering. Little remains of faculty time to mentor graduate students and to support graduate-level courses. To strike a healthier balance between
undergraduate and graduate education, additional faculty positions must be funded in
the coming decade.

- Costs to be determined

4. Facilities required to support graduate education

- Several graduate programs in University Central lack acceptable facilities for
  accommodating students and supporting scholarly activities. This is especially true in
  the humanities and social sciences. Attention should also be directed to expansion of
  laboratory space for the biomedical, engineering and physical sciences.

- Costs to be determined.

5. Additional infrastructure concerns

- In addition to laboratory space, improvements to the Library (after all, a first-class
  research library is essential to an excellent graduate school), addition of more office
  space for graduate students, even housing may all pose significant challenges to
  Vanderbilt’s infrastructure. To ascertain better the extent of these needs, we
  recommend that the provost commission a study of how effectively our present
  infrastructure matches our ambitions for research-driven graduate education.

A quick scan of the list of possible investments in graduate education leads to a total of more
than $10 million in new funding annually within University Central. This figure excludes the
personnel costs for the Office of the Associate Provost for Graduate Education and the costs for
recruitment coordinators. As daunting as this figure might appear at first viewing, an annual
budget increment of $10 million equates to roughly three percent of combined University
Central school budgets and roughly .6 percent of the total University budget. These
comparisons give us cause for hope that the strategies that make for excellence are within
Vanderbilt’s reach.
Conclusion

The mark of a great university is the palpable spirit of people learning. Students and faculty who thirst for knowledge, who desire to know "why?" and people who excite in fresh discovery characterize the ethos of great schools. Though each university will have unique strengths and not every program can be equally strong, the intellectual quality of the parts of a university is indivisible from its intellectual quality as a whole. Great undergraduate education, professional schools, and excellence in faculty research are not possible in a community that does not value, and even prioritize, graduate education. Now is the fitting moment to attend to graduate education to build the best Vanderbilt possible. We hope that this report will guide and inspire our collective best efforts to realize the full promise of graduate education in a great university.

Reference

Appendix A

Graduate Student Portfolio System: Schematic Outline of Data

Seed Data from Student Records

1. Social Security Number
2. Name
3. Citizenship
4. Place of Birth
5. Race
6. Department
7. First Term
8. GRE Scores V, Q, A
9. GRE Advanced General Type and Score
10. Prior Institutions and Degrees (detail field)

Recurring Data from Student Records

1. Degree earned and term (detail field)
2. Semester, courses, grades, hours (detail field)

Portfolio Data

1. Major, minor (update tracking with dates)
2. Advisor (update tracking with dates)
3. Qualifying exams, area, date, and result (detail field)
4. Publications – title, publication, order of authors, date (detail field)
5. Presentations – title, place, order of authors, date (detail field)
6. Grants and Contracts – title, source, order of PI's, amount, date, term (detail field)
7. Awards – name, source, date, amount (detail field)
8. Recitation Courses – course#, name, semester (detail field)
9. Courses Taught - course#, name, semester (detail field)

Professional Experience

1. Professional Experience – description, date (detail field)
2. Post Doc – area, institution, date
3. Faculty Position – area, type (TT, NTT), rank, institution, date

Note: Detail field may have multiple date sensitive entries with same format. Update tracking should identify the initial status and date as well as any subsequent changes.
Appendix B

How Graduate Programs Are Ranked and Evaluated by the National Research Council

The Chronicle of Higher Education
Survey of Doctoral Programs Should Include More Fields and Opinions of Students, Panel
Suggests
By JEFFREY BRAINARD
Washington

A National Research Council panel proposed big changes this week in the methodology of its next survey of research-doctorate programs, to be completed in 2005. The report, which is the definitive ranking of doctoral programs in the United States, would expand to 57 from 41 the number of academic fields the survey covers and track "emerging" scholarly areas, such as gender studies and nanoscience. The panel is also mulling other significant modifications. One would report the quality of doctoral programs as falling within a certain range, rather than as a numerical rank. The aim is to deter university officials from fixating on minor differences in numerical rankings among programs. Another change under consideration would put greater weight on quantitative measures of departments' educational quality, some of which could be based on surveys of graduate students. The survey is considered an authoritative source about the quality of individual academic departments, and the council conducts it only about once a decade. The last was published in 1995. Many universities put a premium on boosting their departments' rankings. The scores generally command more respect in academe than those of U.S. News & World Report because they are based on a wider scope of data, including the collective judgments of scholars in each field studied. The report covers disciplines within the life, physical, and social sciences, and the humanities.

A panel of the council that is examining the survey's methodology posted details about some of its proposals on Wednesday on the World Wide Web. The panel is requesting comments by March 1. Other details will not be finalized until after the council completes pilot studies of the proposed changes at nine universities in March. "The methodology committee is definitely on the right track, and I think graduate deans are very supportive of the approach they're taking," said Debra W. Stewart, president of the Council of Graduate Schools.

The 57 fields to be studied represent an increase of about 40 percent over the 41 studied in the 1995 survey. One field, oceanography, which appeared in the 1995 survey, would be subsumed under geoscience in the new version. In addition, there are 17 newcomers, which the panel concluded have emerged as distinct fields in academe since the last version. They are agricultural economics, American studies, animal sciences, applied mathematics, communications, developmental biology, East Asian literatures, entomology, food science and food engineering, immunology, microbiology, molecular biology, Near Eastern literatures, nutrition, plant sciences, Slavic literatures, and theater and performance studies. Two of these fields, molecular biology and developmental biology, were named as part of other categories covered in the 1995 report.
The council panel also proposes to gather and report data about other "emerging" fields in academe but will probably not rank them, said Charlotte V. Kuh of the research council, who is the survey's director. They include bio-informatics; cognitive studies; computational biology; feminist, gender, and sexuality studies; genomics; nanoscience; and race, ethnicity, and postcolonial studies. These fields "are important and not particularly large now, but may be in the future," she added. Depending on the institution, they "may or may not exist as identifiable doctorate programs. They're sometimes subfields. ... We're not likely to do reputational rankings on them because they're relatively new."

The panel also wants suggestions from scholars about subfields within disciplines that have produced "a significant body of research." The panel hopes to use the suggestions to ensure proper balance among the scholars who are surveyed for the rankings, Ms. Kuh said. "If there are particular subfields that we're missing, we want to be sure we know what's out there."

Other proposed changes would affect how the survey would be conducted and reported. The panel is considering reporting each department's quality within a range, replacing the numerical rankings used in previous surveys. Those rankings were not necessarily precise measurements of quality, although many people have interpreted them that way, Ms. Kuh said. Ms. Stewart agreed, adding that "the rank ordering is meaningless when two departments rank 37th and 38th in a field that has rankings for 90 programs."

Another change under consideration by the panel would reduce the survey's reliance on subjective evaluations by graduate-faculty members of the educational quality of the doctoral programs. In previous surveys, each department's score was influenced heavily by these assessments and by the survey respondents' judgments about the "scholarship quality" of the programs' faculty. Scholars are more likely to know the research accomplishments of colleagues at other institutions than the details of education offered there, Ms. Stewart said. The panel proposes to collect more quantitative information about programs' educational success, which could be based in part on surveys of graduate students. These questions might cover details about students' research training, the information they used to choose the doctoral program they attended, and topical areas about which they would have liked more instruction. The survey may also collect information about financial support for students and the time they spent earning degrees. However, the student surveys will probably not solicit subjective assessments of overall satisfaction, Ms. Kuh said. Some of this information would appear in the survey report, but the panel has not yet decided whether to use it to help generate the quality ratings for graduate programs.

Graduate-school deans generally support gathering more information about the educational quality of doctoral programs, Ms. Stewart said. However, incorporating it into the council's methodology will be difficult because educational quality cannot easily be boiled down to numbers. "My guess is we're not going to get everything we want [in the council's survey], but we'll definitely move forward and get more information about students' experiences," she said.
The pilot studies of the new methodology are scheduled to begin soon and end by March. The institutions are: Auburn University, Florida State University, Michigan State University, Rensselaer Polytechnic Institute, Yale University, and the Universities of California at San Francisco, Maryland at College Park, Southern California, and Wisconsin at Milwaukee.

The panel expects that the full-scale survey would begin in the fall of 2003 and be published in 2005.