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ABSTRACT

This report represents the response of the Minnesota State Colleges and Universities System (MnSCU) to a 1998 legislative directive to assess the feasibility of doctoral degree programs at MnSCU institutions. The report makes recommendations in four areas to be considered by the Board of Trustees: authority, parameters and guidelines, collaboration, and request for legislative change. After an executive summary, six sections present information on: graduate education at Minnesota state universities (access to doctoral programs and reasons for MnSCU to offer doctoral degrees); applied doctoral study in context (definition of applied doctorate and doctoral education in the United States and Minnesota); student interest (the value of student interest and MnSCU survey of the marketplace); labor market demand (educational administration and leadership, psychologists/counselors, higher education faculty in professional fields, and other fields); program quality and accountability; financing graduate education (why graduate education is more expensive, comparative costs, and finance simulation); and recommendations. Appended are the MnSCU graduate program inventory, doctorate in educational leadership, doctorate in clinical psychology/behavioral medicine, and MnSCU graduate council membership. (Contains 65 references.) (SM)

DOCTORAL EDUCATION AND THE MnSCU MISSION: ACCESS AND AFFORDABILITY

Response to 1998 Legislative Directive

Submitted to the MnSCU Board of Trustees
November 17, 1999 (First Reading)
December 15, 2000 (Second Reading)
May 17, 2000 (Information/Discussion)

May 17, 2000

TO: MnSCU Board
Linda Baer, Senior Vice Chancellor for Academic & Student Affairs
Manuel M. López, Associate Vice Chancellor for Academic Programs

FROM: Anthony Filipovitch, Chair, MnSCU Graduate Council

SUBJECT: Doctoral Education and the MnSCU Mission: Access and Affordability

The enclosed report, *Doctoral Education and the MnSCU Mission: Access and Affordability*, represents MnSCU's detailed response to the 1998 Legislative directive to assess the feasibility of doctoral degree programs at MnSCU institutions. In response to the legislative directive, as well as addressing the Chancellor's recommendation in December 1999 to adopt a plan for additional study of the applied doctorate the Council has undertaken a review of:

- market sustainability of selected applied doctorate programs
- labor issues and impacts
- cost issues related to the allocation model.

Attached is the Council's response. The report makes four recommendations to be considered by the Board of Trustees :

Recommendation 1: Authority
The Board of Trustees should amend MnSCU Board Policy 3.25 and authorizes the state universities to offer doctorate degrees in selected applied areas.

Recommendation 2: Parameters & Guidelines
MnSCU should develop Academic Program Approval Guidelines for Doctoral programs. These guidelines would incorporate existing MnSCU criteria.

Recommendation 3: Collaboration
MnSCU institutions should continue to develop fully collaborative programs among themselves, with the University of Minnesota, or with other institutions. With the flexibility of the authority to offer doctorates, the lead institution should be one of the state universities.

Recommendation 4: Request for Legislative Change
Consistent with the charge in M.S. 1995, Chapter 248, Article 11, Section 10. Minnesota statutes 1997, section 135A.052, subdivision 1 to "recommend to the legislature appropriate changes in law necessary to carry out the mission of the system, "the Board of Trustees of the Minnesota State Colleges and Universities requests the above legislation be amended as follows: "the state universities may offer undergraduate and graduate instruction through the doctorate degree, in the liberal arts and sciences and professional education; and ..."

We would be happy to discuss this further with you.

ACKNOWLEDGEMENTS

This report is the result of the work of a great number of people. The MnSCU Graduate Council has worked on this report for over a period of more than a year. Its members have included:

Bemidji State University
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Minnesota State University, Mankato
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Shelly Heller provided invaluable assistance editing and preparing the report and coordinating the various pieces of information as they flowed among the Council.

The report was written by Tony Filipovitch and Neala Schleuning.

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EXECUTIVE SUMMARY

DOCTORAL EDUCATION AND THE MnSCU MISSION: ACCESS AND AFFORDABILITY

This report represents MnSCU's detailed response to the 1998 Legislative directive to assess the feasibility of doctoral degree programs at MnSCU institutions. This report makes three recommendations:

RECOMMENDATION 1: AUTHORITY

The Board of Trustees should amend MnSCU Board Policy 3.25 and authorize the state universities to offer doctorate degrees in selected applied areas.

RECOMMENDATION 2: PARAMETERS & GUIDELINES

MnSCU should develop Academic Program Approval Guidelines for Doctoral programs. These guidelines would incorporate existing MnSCU criteria.

RECOMMENDATION 3: COLLABORATION

MnSCU institutions should continue to develop fully collaborative programs among themselves, with the University of Minnesota, or with other institutions. With the flexibility of the authority to offer doctorates, the lead institution should be one of the state universities.

RECOMMENDATION 4: REQUEST FOR LANGUAGE CHANGE

Consistent with the charge in M.S. 1995, Chapter 248, Article 11, Section 10. Minnesota statutes 1997, section 135A.052, subdivision 1 to "recommend to the legislature appropriate changes in law necessary to carry out the mission of the system, "the Board of Trustees of the Minnesota State Colleges and Universities requests the above legislation be amended as follows: "the state universities may offer undergraduate and graduate instruction through the doctorate degree, in the liberal arts and sciences and professional education; and ..."

The State of Minnesota has a compelling interest in an up-to-date workforce prepared for the "Knowledge Society." The growing demand in business and industry for highly trained labor was predicted eight years ago when Peter Senge announced "the learning organization." In a rapidly changing society, managers of that change will not only have to master the skills of their business, they will also have to have the skills to invent new techniques and approaches, often for products and services which are being invented in the process. This requires a new culture, one that straddles the technical and the theoretical—what Donald Schon (1983) called "the reflective practitioner." In the 21st Century "knowledge industry," doctoral education will become a basic requirement for senior professional practice. MnSCU is ideally positioned, both by its mission and its geography, to provide such an education. The mission of MnSCU reads, in part, "...to provide accessible, high quality, future-oriented education and community service...." Practitioner-oriented doctoral education sits squarely in the middle of that mission. Further, access to higher education is difficult for individuals who do not have ready access to the Twin Cities, the only place in the state where the doctorate is offered. MnSCU, on the other hand, already has graduate education institutions throughout rural Minnesota, but does not presently offer any doctoral programs.

Survey returns from 769 MnSCU graduate alumni indicate that student demand for doctoral education is high. Seventy-seven percent of the individuals surveyed were somewhat or strongly interested in continuing their education; 88 percent indicated that time constraints would be a significant factor influencing their decision to return to their studies; and 94 percent said it was important for them to be able to continue to work while pursuing doctoral education. Further, 93 percent of the respondents indicated that they would apply what they were learning in a doctoral program *to their present career.*

A central issue for MnSCU's provision of doctoral education is the assurance of doctoral-level quality. MnSCU universities already meet or can readily be prepared to meet the quality measures for doctoral degree programs set out by the Council of Graduate Schools:

- A high quality program distinctive from existing programs
- Coursework which is more intellectually demanding, exclusively for graduate students
- Quality of faculty—all faculty will have appropriate terminal degrees
- Expectation of ongoing faculty research and publishing—with different expectations of the research skills of faculty of professional programs
- Clear evidence of student interest
- Adequate resources—financial, library, physical facilities, support services, recruitment programs
- Appropriate administrative and research support services
- Institutional proportion of full-time to adjunct faculty consistent NCA guidelines
- Quality of students and rigorous entrance requirements

The cost of graduate education is generally higher than that of undergraduate education for a number of reasons. However, comprehensive universities like MnSCU state universities can achieve economies of scale and are likely to be more cost-effective providers of graduate education when compared to Research I institutions. Further, the state has an interest in supporting graduate education because there are societal benefits in addition to the private benefits: the importance of lifelong education for professionals to stay on the cutting edge, a renewed workforce, the economic development benefits for communities that have access to advanced training opportunities. With no more than the current level of state support for graduate education, the MnSCU universities can provide affordable doctoral education through cost-related tuition. Cost-related tuition at the graduate level enables universities to meet student demand while not passing the burden of that cost on to undergraduate students.

Of course, estimating the ratio of the benefits to the costs of practitioner-oriented doctoral programs is difficult and will vary depending on the specific configuration of the program. The benefits will accrue to the individual student, to the businesses which will employ them, and to the communities in which they will study and in which they will work. The community and economic development benefits (captured by the community and the individual firms) are more difficult to measure. The community benefit lies in the competitive advantage which comes from being able to develop depth and be up-to-date and "cutting edge" in a selected industry, and the economic growth which that brings. In rural Minnesota, this is a significant benefit. By investing in *individuals who are currently in place,* one anticipates a reduced likelihood of out-migration compared to individuals recruited to the community from elsewhere, again a significant issue in rural Minnesota.

MnSCU already has a significant investment in graduate education and it would be cost-effective to add selected doctoral-level programming at some of the state universities. A cost-revenue simulation was developed based on conservative assumptions of a cohort of 25 students, a 69 credit degree, faculty salaries well above midrange IFO salary, faculty ¾ time to doctoral program, tuition of $250 a credit, and an indirect cost ratio essentially the same as for existing graduate and undergraduate programs. The simulation shows revenue of $426,000 exceeding anticipated costs of $300,000, leaving a margin of $125,000 (a working ratio of 1.42).

DOCTORAL EDUCATION AND THE MnSCU MISSION: ACCESS AND AFFORDABILITY

Response to 1998 Legislative Directive

GRADUATE EDUCATION AT MINNESOTA STATE UNIVERSITIES

Beginning in 1953, Minnesota state universities were authorized to offer masters degrees. In 1964 Mankato State University sought approval to offer a Ph.D. As a result of their efforts, the state universities were authorized by the legislature to offer doctorates in 1967. A study mandated by the legislature and completed in 1968 identified reservations about the proposal, although, according to a 1987 HECB report, "demand might exist for professional doctorates such as the Doctor of Education and Doctor of Psychology" (HECB, 110). The authorization to offer doctorates remained, but in the early 1980s the legislature issued the first in a series of session laws which instructed the Minnesota State University System not to consider or propose doctoral education without prior legislative approval.

In the 1998 session, the legislature instructed the MnSCU Board of Trustees and the University of Minnesota Board of Regents to prepare a report to "evaluate the costs and benefits and need throughout the state for practitioner-oriented doctoral degree opportunities." The University of Minnesota presented a report independently to the legislature and the MnSCU Board of Trustees made a brief note of MnSCU's response as part of their 2000-2001 biennial budget as requested. The MnSCU Board of Trustees asked that a more extensive report be completed. This report represents MnSCU's detailed response to the 1998 directive.

Graduate education in MnSCU has grown and expanded since the first master's degree in education in the 1950s. The state universities are major providers of graduate education across the whole state, offering over 160 different graduate programs (See Table I). Many of these degrees meet the rigorous criteria of special accreditation bodies, such as the American Association of Collegiate Schools of Business (AACSB), The National Council for Accreditation of Teacher Education (NCATE), and The National League for Nursing (NLN).

Table I
State University Graduate Program Inventory*

Award	Number of Programs Available 1998-99
Master of Arts (MA)	32
Master of Science (MS)	109
Master of Business Administration (MBA)	5
Other Masters (MFA, MMA, MM, MSN, MLA)	9
Specialist (Ed.S.)	8
Total	**163**

*Does NOT include sub-specializations within degrees. See Appendix 1 for a detailed inventory of Graduate Programs at MnSCU state universities.

ACCESS TO DOCTORAL PROGRAMS

Public education has a particular mission to provide egalitarian access to the benefits of higher education. This mission extends to doctoral level work. Equality of access is currently assured on the basis of merit. Particularly in the case of applied, practitioner-oriented education, however, location and scheduling can create other significant issues in equality of access.

In 1996, MnSCU institutions graduated 8,552 baccalaureate students, the University of Minnesota institutions graduated another 6,522, and private institutions graduated 8,200. Most of these students went on to careers in education, business, industry, and public service. When they return for further professional development, they are likely to be non-traditional students who do not pursue full-time study. The primary population served by MnSCU graduate programs is by and large working professionals, and most of those students are enrolled on a part-time basis. In the fall of 1996, for example, over 5,000 students enrolled in graduate work at MnSCU institutions (including masters); 1,269 of them in education programs. Approximately 1,500 of those students attended full time; the majority—3,500—attended part time. In comparison, nearly 13,000 students enrolled in graduate programs at the University of Minnesota, over 7,000 were full-time. Non-traditional students, frequently employed full-time and committed to their professional development, cannot travel long distances or attend many daytime classes to reach their goals. They need programs that can be assembled within reasonable commuting distance of their home or work, and can be flexibly scheduled in non-traditional time slots. These issues of limited access due to distance or time schedules particularly affects many women and minorities.

Accessible to Working Professionals: The applied doctorate tends to appeal to local markets and to existing practitioners seeking advancement in their respective fields—professionals committed to remaining in the state. Their continuing education enhances the brainpower in the state's capital of knowledge and skills. In contrast, Research I Ph.D. programs operate in a national and international market. People from all over the country and the world are attracted to the high quality programs offered, and upon completion of the Ph.D. many graduates of these programs take positions outside the state where they earned it. Further, some doctoral programs at Research universities are not accessible to students if they are not willing to attend full-time or during daytime hours. MnSCU graduate programs have an established pattern of providing graduate education on a flexible basis to part-time and evening students.

Accessible to Professionals Statewide: As Rowley, Lujan & Dolence (1998) point out in *Strategic Choices for the Academy*, workplace realities are shifting from industrial work to "knowledge work" (even in factory settings). And with this shift, the education needs of the 21st century worker are changing, too. Knowledge workers "need to be highly educated to interface effectively with the technical and international components of their job" (p. 10). In a growing number of fields (e.g., educational administration, psychology, engineering) doctoral education is becoming a basic requirement. According to a recent NSF study of doctoral education, 40 percent of doctoral recipients in 1992 who were not going on for further study were planning non-academic careers with business and industry, government, and nonprofit organizations (Henderson, Clarke & Reynolds, 1996, p. 110).

While Minnesota is currently experiencing a critical labor shortage, this has been a long-standing issue for greater Minnesota. In rural Minnesota, there is a particular problem of misallocation between the supply of workers and industry needs. For the last seven years, rural Minnesota has been struggling with the out-migration of its youth. Mark Gaalswyk, CEO of Easy Systems in Welcome, MN, points out that "most of the assets of a technology company are in the minds of

your people." It is critical to attract and keep high quality employees; in rural Minnesota, more and more companies are talking about "homecoming"—stemming the outflow of the community's youth and stabilizing the local workforce. Providing the opportunity for the best and the brightest to pursue their dreams without having to leave their home community is part of this solution. Currently, all existing doctoral programs are located in the Twin Cities; none are in rural Minnesota.

Accessible to continuing professional education: In a study of graduate education programs in the state of Florida, Paul Brinkman noted, "One purpose of graduate education is to enable professionals, who are practicing or who plan to practice in an academic or non-academic setting, to add to their personal knowledge and to that of their profession.... Enrollment in education administration programs ... reflects a relationship between part-time student enrollment and the availability of an education administration program at a local institution" (Brinkman, 1986). It requires a particular flexibility to make graduate programs to students such as these.

Accessible through better articulation with prior credits earned: MnSCU already provides access to post-baccalaureate education for Greater Minnesota through the Master's degree and the Specialist degree. However, there is a lack of articulation between that work and further advancement to the doctoral degree. Currently, only 18 credits are accepted to meet the minimum number of credits for a doctoral degree from a previously earned graduate degree, including those earned at MnSCU institutions. In the absence of doctoral programs outside the Twin Cities, many beginning professionals living and working outside the Twin Cities and pursuing a career path that will eventually require doctoral training are forced to choose between their community and their ability to pursue such professional advancement.

Affordability: Private universities are very expensive, both in terms of time and money. Many young professionals are committed to their professions and to raising a family at the same time they desire to seek continuing education. In addition, the time spent traveling to the Twin Cities only adds to study and research time.

WHY SHOULD MnSCU OFFER DOCTORAL DEGREES?

The State has a compelling interest in an up-to-date workforce prepared for the "Knowledge Society." MnSCU is particularly well positioned to serve that interest, up to and including applied doctoral programs.

Applied, practitioner-oriented education is particularly suited to the **mission of comprehensive universities**. Conrad, Haworth & Miller (1993) argue that comprehensive universities have had a particular emphasis on education which is practitioner-oriented (rather than theory-oriented), which emphasizes skill development (more than research) and emphasizes training in those skills (rather than broadly focused scholarship). The mission of MnSCU reads, in part, "...to provide accessible, high quality, future-oriented education and community service...." Practitioner-oriented doctoral education sits squarely in the middle of that mission. While research universities have played an important role in the provision of applied doctoral education it is generally not central to their mission (the University of Minnesota, for example, currently offers only two applied doctorates). The University of Minnesota indicated in their report to the legislature that they "should not be compelled to deliver relatively low cost applied doctoral programs, even though some of those programs are only being delivered by private institutions in Minnesota" (*Applied,* 9).

As already noted, **access** to higher education is difficult for individuals who do not have ready access to the Twin Cities, the only place in the state where the doctorate is offered. MnSCU, on the

other hand, already has graduate education institutions throughout rural Minnesota but does not presently offer any doctoral programs.

Practitioner-oriented doctoral study provides an avenue for professional workers to **pursue lifelong learning**. While this point is obvious, when paired with issues of access it has particular importance for professional workers in areas of the state outside of the Twin Cities. Location can be a significant issue in the equality of access. Non-traditional students, frequently employed full-time and committed to their professional development, cannot travel long distances or attend many daytime classes to reach their goals. They need programs, which can be assembled within reasonable commuting distance of their home or work, and can be flexibly scheduled in non-traditional time slots.

The State Universities are in a **unique position** to serve individuals who are limited by geography in their access to further education. Because of its applied nature, both in the scope of its inquiry and in the people it attracts, practitioner-oriented doctoral education provides more immediate returns to the public, which supports it.

There are **no publicly supported doctoral programs outside the Twin Cities**. The University of Minnesota serves largely a national market with its doctoral programs while private institutions in Minnesota can meet demand only where a sufficient concentration of students exists to make it feasible. On occasion, the University of Minnesota does offer programs at temporary sites outside the Twin Cities. However, MnSCU institutions are in a more advantageous position for offering doctoral education in greater Minnesota since we already have graduate campuses in place.

Finally, there is the matter of **institutional readiness**. MnSCU universities offer 163 different graduate degree programs (Table I). Four of the state universities offer the post-master's Specialist degree in several different fields (Table II). Three of the state universities have been accepted as equals by the University of Minnesota to partner in offering the U of M's Ed.D. in limited, cohort-based offerings (the 1999 cooperative Ed.D. between U of M, Winona State University, and Minnesota State University, Mankato has 26 students enrolled). Graduate faculty from those institutions have been accepted as members of the U of M's graduate faculty. In some programs (e.g., Clinical Psychology at Minnesota State University, Mankato), more than 90 percent of the Master's recipients are accepted directly into Ph.D. programs around the country. While MnSCU institutions have no desire to offer a full range of doctoral programs, in selected areas MnSCU institutions have demonstrated that they have the faculty, the students, and the curricular depth to move to doctoral education.

Table II
Post-Master's Awards 1993-1998
State Universities#

Award	1993-94	1994-95	1995-96	1996-97	1997-98
St. Cloud					
6th Year	11	5	3	16	44*
Specialist	7	7	4	1	3
Mankato					
6th Year	20	26	23	19	20
Specialist	23	16	13	7	10
Moorhead					
Specialist	1	3	2	7	N/A
Winona					
Specialist	1	3	1	2	0
TOTAL#	62	57	71	63	77

*semester conversion completes
#Prior State University post masters awards, 88-89, 56; 89-90, 75; 90-91, 78; 91-92, 58; (*Minnesota State University Fact Book)*

APPLIED DOCTORAL STUDY IN CONTEXT

DEFINITION OF APPLIED DOCTORATE

The generic term "doctorate" is used to refer to a variety of post-master's awards. Institutions in Minnesota offer a variety of post-master's awards such as doctorates in applied fields, First Professional awards, and Ph.D.'s.

Applied Doctorate. The applied doctorate is a degree designed to prepare individuals for professional practice rather than scholarly research and study. Examples of applied doctorates include: Doctor of Education (Ed.D.), Doctor of Business Administration (D.B.A.), Doctor of Public Administration (D.P.A.), and the Doctor of Psychology (Psy.D.). This report will focus on the state's need for additional educational opportunities in professional areas.

While the Ph.D. is often described as a "research" degree as opposed to an "applied" degree, applied doctorates also reflect a deep commitment to research. The research expectations are different, as are the subjects of the applied research. Where the Ph.D. focuses on research internal to a given discipline, the applied doctorate concentrates on applied research in the practice of the discipline in the professional field. It reflects the mastery of a practice, the skills and ability to conduct a major applied research project, and a demonstrated contribution to the practice of the student's discipline.

Other terms used to describe the applied doctorate include "professional," "practitioner-oriented," "reflexive practitioner," and "action research." The corporate community sometimes refers to them as "senior executive programs." Their primary clientele is the mature professional seeking advanced learning in their professional field.

First Professional. First Professional degrees are externally regulated degrees—graduates must be formally examined and licensed before they are allowed to practice. Examples include the J.D. (Law), M.D. (Medicine), D.V.M. (Veterinary Medicine), D.D.S. (Dental Science). MnSCU is not proposing to award first professional degrees.

Doctor of Philosophy (Ph.D.) The Ph.D. is a discipline-based research degree. Recipients of the Ph.D. have conducted scholarly research (called a dissertation or doctoral thesis) that reflects an original contribution of theory to the specific discipline/field in which the award is granted. According to Scott Kerlin, "The doctoral dissertation is viewed by faculty as serving two principal goals: (1) to demonstrate skills; and (2) to train in research skills" (Kerlin, 2). The recipients of Ph.D. awards are recognized as knowledge producers.

DOCTORAL EDUCATION IN THE UNITED STATES

The Carnegie classification of institutions of higher education in the United States includes several categories of institutions that deliver doctoral education. Criteria for distinguishing among them include:

Research University I. These institutions have a major commitment to graduate education. They "offer a full range of baccalaureate programs, are committed to graduate education through the doctorate, and give high priority to research. They award 50 or more doctoral degrees each year. In addition, they receive annually $40 million or more in federal support."

Research University II. These institutions are similar to Research I universities. They receive less federal support: between $15.5 million and $40 million.

Doctoral University I. These institutions have a smaller commitment to graduate education. They "offer a full range of baccaluareate programs and are committed to graduate education through the doctorate. They award at least 40 doctoral degrees annually in five or more disciplines."

Doctoral University II. These institutions are similar to Doctoral I institutions. They offer fewer awards annually: "at least ten doctoral degrees—in three or more disciplines—or 20 or more doctoral degrees in one or more disciplines."

Minnesota state universities are currently categorized as Master's (Comprehensive) Universities I: "These institutions offer a full range of baccalaureate programs and are committed to graduate education through the master's degree. They award 40 or more master's degrees annually in three or more disciplines." Addition of doctoral education at any of the state universities could move them from one Carnegie category to another—from Master's Comprehensive University I to Doctoral University II.

It is very unusual for a state to have just one public institution offering doctoral education. In every other state in the Upper Midwest, more than one public institution of higher education offers the doctorate: North Dakota, 2; Nebraska, 2; South Dakota, 2; Wisconsin 4; Iowa, 3; and Kansas, 4.

DOCTORAL EDUCATION IN MINNESOTA

A highly educated workforce is critical to a high-tech, high-wage economy. While this study will focus on post-master's education, an overview of graduate education delivery at all levels in the state is helpful in understanding the context of post-master's education. Table III reports enrollments exceeding 30,000 in all graduate programs in Minnesota for fall 1996. As the table indicates, the majority of Minnesota graduate students were enrolled at the master's level—23,764. Healthy and viable master's programs contribute in no small measure to the success of doctoral programs. There are a limited number of post-master's providers, and they are located in the Twin Cities. Current providers of doctoral education include the University of Minnesota, Walden University, University of St. Thomas, Minnesota School of Professional Psychology, and several seminaries. St. Mary's University and Hamline University have recently initiated Doctoral degrees, but have not yet graduated their first students. Several state universities offer the Specialist degree, which is post-master's study but not a doctoral degree.

Table III
Graduate and First Professional Enrollments
Minnesota Institutions Fall 1996

Institution	Master's	Post-Master's (includes specialists, certificates, doctorates)	First Professional
St. Mary's University of Minnesota	7142		
University of Minnesota-Twin Cities	5125	3761	2552
University of St. Thomas	4122	248	72
Minnesota State University, Mankato	2627	115	
St. Cloud State University	1372	93	
College of St. Scholastica	536		
Hamline University	448		1
University of Minnesota-Duluth	342	13	110
Winona State University-Rochester	338		
Moorhead State University	332	11	
Bemidji State University	318		
Metropolitan State University	299		
Winona State University-Winona	278	66	
Augsburg College	192		
Mayo Health Related Sciences	175		
Bethel Theological Seminary	167		332
Luther Seminary	121	22	458
St. John's University	90		19
Southwest State University	80		
United Theological Seminary	47	34	112
Minnesota School of Professional Psychology	27	422	
William Mitchell School of Law	14		1046
Walden University		1032	
Mayo Medical School			165
Northwestern College Chiropractic			745
All Other Private Schools	89		
Totals:	23,764	5,817	5,612

Source: HESO, IPEDS

The investment by students and the legislature in graduate education reflects Minnesota's long-standing commitment to a well-educated workforce. A 1987 report prepared by the Higher Education Coordinating Board noted that "advanced study accounts for a significant portion of Minnesota's post-secondary enrollments." The percentage of the state's population enrolled in graduate and first professional programs varied from 9 to 12 percent (HECB, 122). Institutions enrolling graduate students changed over time: "the private sector's share of graduate enrollment increased from 3 to 25 percent, while the public sector's share declined from 97 to 75 percent" (HECB, 126). The majority of students continue to attend publicly supported institutions. In 1995, for example, a total of 21,056 students were enrolled in graduate programs: 3,336 in first professional programs such as law and medicine, and 17,720 in masters and doctoral programs. Of

the 21,056 students, 5,115 were attending private institutions, the balance of 15,941 attended public institutions (HESO, 1995).

Minnesota doctoral programs with the highest enrollments are concentrated in professional fields (see Table IV). Of the nine most popular fields of study, only one—biological sciences—reflected a traditional scholarly research discipline and another was unspecified. Most of the degrees awarded, however, are the Ph.D.

Table IV
Minnesota Master's and Post-Master's Enrollments
Nine Most Common Fields of Study
Fall 1996

Field	Master's Public and Private	Post-Master's State Universities	Post-Master's (U of M)	Post-Master's Private
Education	5189	5,817	641	408
Business and Management	4284	N/A	87	349
Health Profession/Sciences	1452	N/A	261	109
Psychology	990	N/A	196	567
Public Administration and Services	843	N/A	32	
Engineering	635	N/A	475	
Computer and Information Science	580	N/A	105	
Biological/Life Sciences	133	N/A	438	
Undeclared	4397			

Source: IPEDS

The University of Minnesota offers applied doctorates in only two areas (See Table V).

Table V
Applied Doctorates – University of Minnesota
Enrollments and Awards (Resident and Non-Resident)
1994-1998

DMA-Doctor in Music Arts					Ed.D.-Doctor in Education				
Term	Total Enroll	Total Award	MN Resident	Non-Resident	Term	Total Enroll	Total Awards	MN Resident	Non-Resident
1993-94	57	9	38	19	1993-94	72	8	62	10
1994-95	65	19	35	30	1994-95	120*	9	103	17
1995-96	63	8	29	34	1995-96	101	20	87	14
1996-97	64	11	24	40	1996-97	152	34	128	24
1997-98	59	13	21	38	1997-98	134	32	100	34

*Enrollments increased with the addition of cohort groups, one at MnSCU's St. Cloud State University.

Private institutions have filled some of this gap in applied, professional doctorates, but their efforts are largely confined to the Twin Cities (see Table VI). The state universities continue to offer the

Specialist award, but the doctorate is increasingly the degree of choice, which is reflected in enrollments in practitioner-oriented programs at private institutions.

Table VI
State of Minnesota Applied Doctorates 1999

Institution	Applied Doctorate Offered
University of Minnesota, Twin Cities	D.M.A. Doctor of Music Arts Ed.D. Educational Policy and Administration; and Work, Community, and Family Education
University of St. Thomas	Ed.D. Psy.D.
Walden University	Ed.D.
Minnesota School of Professional Psychology	Psy.D.

The doctorate is the most commonly awarded post-master's degree, and most are awarded by the University of Minnesota as first professional or Ph.D. awards. Between 1985 and 1995, the University of Minnesota ranked eighth in the nation in number of doctorates granted—outranked only by the University of California-Berkeley, University of Wisconsin, University of Illinois, Columbia, University of Texas-Austin, Ohio State, and the University of Michigan. In 1995, 907 doctorates (excluding First Professional awards) were awarded in the state (see Table VII).

Table VII
Doctorates Awarded 1995
(All Types, excluding First Professional)
Minnesota Institutions By Program

Field of Study	University of Minnesota Twin-Cities	Walden University	St. Thomas University	Mayo Health Related Sciences	Bethel/ Luther/ Unity Theological Seminary	MN School of Professional Psychology
Agriculture Production/Science	41					
Renewable Natural Resources	16					
Area and Ethnic Studies	4					
Communications	5					
Computer and Information Science	16					
Education	92	46	15			
Engineering	114					
Foreign Language	15					
Home Economics	12					
Letters	39					
Life Sciences	75			8		
Mathematics	21					
Multi-Interdisciplinary Studies	1					
Philosophy and Religion	7					
Theology					26	
Physical Science	59					
Psychology	33		8			18
Public Affairs	3					
Social Sciences	45	26				
Visual and Performing Arts	24					
Health Professions And Related Sciences	48	15				
Business Management and Administrative Services	15	60				
TOTAL	**685**	**147**	**23**	**8**	**26**	**18**

Source: IPEDS

STUDENT INTEREST

THE VALUE OF STUDENT INTEREST

Student interest is a valid measure of market demand in a free-market economy. Students are entitled, especially when they are willing to bear the marginal cost, to compete for limited opportunities. It is a competitive market advantage for the state in having a pool of well-educated professionals.

Enrollments in Applied Doctorate programs are one good indicator of student interest. Table VIII highlights interest at Minnesota institutions. Note the high enrollments in private as well as public institutions. It appears that not only is interest high in advanced degrees, but that Minnesotan's are willing to pay a premium price.

Table VIII
Enrollments in Selected Applied Areas 1996-1997*
Post Master's Programs-All Minnesota Institutions

Institution	Education	Psychology	Business Administration
University of Minnesota, Twin Cities	641 (Ph.D and Ed.D)	196 (Ph.D)	87 (Ph.D)
University of St. Thomas	64 (6th Year) 118 (Ed.D)	58 (Psy.D)	
Walden University	226 (Ph.D)	222 (Ph.D)	349 (Ph.D)
Minnesota School of Professional Psych		287 (Psy.D)	
Minnesota State University, Mankato	42 (6th Year) 26 (Specialist)	N/A	N/A
St. Cloud State University	Not Available	N/A	N/A
Winona State University	1 (6th Year) 23 (Specialist)	N/A	N/A
Minnesota State University	Not available	8 (Post Masters)	

*Source: IPEDS, state universities

There are, of course, other indicators of student interest.

- **Environmental Scan.** Fluctuation in employment opportunities and labor market demand is only one of many environmental factors affecting student choices. In the case of education, for example, 58 percent of principals have been in education for more than 25 years and 46 percent have been in their present positions for more than five years. Forty-seven percent expect to retire within the next five years (Bartleson & Boettcher, 1998). Other environmental factors include changes in professional standards emerging needs in specialized areas of knowledge or new directions in research requiring additional training.
- **Southern Minnesota Ed.D. Survey.** In 1998, the University of Minnesota commissioned a survey of almost 4,000 K-12 administrators with Master's degrees who work in southeastern Minnesota and neighboring Wisconsin and Iowa (University of Minnesota, 1998). Twenty-five percent of the respondents indicated that they were strongly interested in a doctoral program in education; another 32 percent indicated that they were somewhat interested.
- **Cooperative programs with the University of Minnesota**. The University of Minnesota has carried its Ed.D. program to rural Minnesota in cooperation with St. Cloud State University,

Winona State University, and Minnesota State University, Mankato. For the first cohort there were approximately 120 applicants, of whom 25 were accepted. The second cohort had 75 applicants, of whom 22 were accepted. The third cohort offered in Rochester, filled in 6 months and St. Mary's University filled a similar sized cohort in Mankato within a week.

MnSCU SURVEY OF THE MARKETPLACE

Yet another way to gauge student's interest (particularly in opportunities which are not currently available, so the interest can only be latent) is to ask them directly. We surveyed by mail 4,000 recent alumni of Master's programs from MnSCU institutions and selected MnSCU faculty. Seven hundred sixty-nine individuals returned usable surveys (70 percent from outside the seven counties of the Twin Cities). Summary statistics of key questions are provided in Table IX, and underscore several of the points made earlier in this report. In addition, space was provided for open-ended responses to the questions raised in the survey.

Table IX
Alumni Responses to 1998 Interest Survey

Survey Item	Strongly Disagree	Disagree	Agree	Strongly Agree
Personal interest in participating	13%	10%	32%	45%
Profession interested in participating	2	9	36	53
Time constraints important	5	7	22	66
Would apply coursework to present career	5	2	21	72
Continuous working is important	3	3	12	82

Interest in Applied Doctorates: Seventy seven percent of the individuals surveyed were somewhat or strongly interested in continuing their education. Even those who were not personally interested indicated overwhelmingly (89 percent) that they thought people in their profession would be interested in pursing applied doctoral education. One respondent wrote, "Current Ph.D. degrees are usually too much theory and way short of anything practical—too research directed." Another wrote, "Continued learning is important regardless of the specific career," and another wrote, "I believe in a philosophy of lifelong learning to continually enhance areas of knowledge in their vocation or discipline," and yet another wrote, "Professional development is essential to becoming better and more effective in our jobs."

Access: Eighty eight percent indicated that time constraints would be a significant factor influencing their decision. Ninety four percent said it was important for them to be able to continue to work while pursuing doctoral education! One of the respondents wrote, "For those of us who are hours away from a doctoral program, continuing education is almost a pipe dream. The chance to work toward a terminal degree without having to rearrange our lives completely would be an invaluable opportunity! I changed several responses from 3 to 4 [on the survey] because the more I think about this, the more I want it!" Another wrote, "Doctoral programs separate from the University of Minnesota campus would be beneficial to professionals who work full time and are under time considerations. More access and user friendly options are needed." A third wrote, "It seems that the spaces available are so limited that few people have an opportunity to go to school for a doctorate without relocating—that is if they even get accepted. This would be a wonderful opportunity to get the advanced degree while maintaining employment in one's chosen field which is how I accomplished my Master's."

Local Impact: Ninety three percent of the respondents indicated that they would apply what they were learning in a doctoral program *to their present career*! In other words, the benefits of doctoral education would return not just to the individual, but also to the community in which that individual is currently working (and would continue to work while in the program). One respondent wrote, "The tax climate doesn't help industries to locate in Minnesota—an effective continuing education program can help offset that disadvantage." Another wrote, "An enhanced pool of professionals with terminal degrees should be attractive to businesses looking to locate offices in Minnesota."

LABOR MARKET DEMAND

It is not possible to speak about a "general" market demand for the labor of doctorate-trained individuals. For example, the market for Ph.D.s in English Literature has been depressed for years while the market for Genetic Engineers far outstrips supply. Nor does MnSCU propose to provide a comprehensive array of doctoral degree programs. Rather, we address here the market for specific areas to which MnSCU schools might have the experience and the capacity to respond in the foreseeable future. Each proposed doctoral program would have to demonstrate its own market need. For purposes of illustration and discussion, several of these areas have been developed further to explore the potential fit within MnSCU for meeting the demand.

EDUCATIONAL ADMINISTRATION AND LEADERSHIP

Chapter 3512 State Board of Education Qualifications and Licensure of School Personnel Superintendents and Principals (Subp. 3) requires that school administrators complete the equivalent of two degrees or one degree and substantial post master's coursework beyond the baccalaureate. Possible awards include: Masters, 6th Year Certificate, Specialist, doctorate, or 45 credits beyond the Master's.

In recent years, these degree requirements have been replaced by twenty-one separate competencies. These competencies for school administration certification have been incorporated into the post baccalaureate curricula, and continue to be met by completion of a master's and a doctorate, 45 credits, or a specialist award. In a 1991 study of degree attainment by public school administrators, Brian Boettcher noted that "most individuals holding central office positions have their specialist, sixth year equivalent, or doctorate" (27). The state universities are responsible for training one-half of all educational administrative practitioners in the state (29).

The Minnesota Department of Economic Security (MDES) collects data from employers on occupational employment by industry. These figures are used as a basis for projections of occupational demand. The Educational Services industry includes public and private elementary and secondary schools, public and private post-secondary colleges and universities, and non-academic training organizations. MDES estimated that in 1996 there were about 4,175 educational administration positions in the State's Educational Services industry. In addition, MDES estimated that there were about 1,400 executives, such as Superintendents and Presidents. Approximately two-thirds of the administrator and executive positions are in elementary and secondary schools (3,700); nearly a fourth are in post-secondary colleges and universities (1,300); and about 10 percent are in other education service firms (600). The Minnesota Department of Children, Families and Learning (CFL) has identified 2,860 positions in public elementary and secondary education administration (this figure does not include individuals working in private institutions).

MDES projections of occupational demand are estimated by combining two figures: predicted job growth (which corresponds to general economic growth) and replacement. According to MDES projections, job growth in the educational administrator and executive field is anticipated to be above average"—about 21 percent for over the ten-year period, compared to 16 percent for all occupations. The replacement rate is higher than the average and reflects a bulge in retirements due to the hiring boom of the 70's. Taking all of these figures into account, the MDES has estimated a future need for about 250 new and replacement openings per year for the next decade (see Table X).

Table X
Projected Annual Average Job Openings, 1996-2006

Education Administrators						
Industry	**1996 Employment**	**2006 Employment**	**Growth Openings**	**Replacement Openings**	**Total Openings**	**Percent Change**
Total Education Services	4,175	4,932	76	109	185	18.1
Elementary & Secondary	2,854	3,314	46	75	121	16.1
College and University	1,044	1,162	12	27	39	11.3
Other Education	277	456	18	7	25	64.6
General Managers and Top Executives (President, Superintendents)						
Industry	**1996 Employment**	**2006 Employment**	**Growth Openings**	**Replacement Openings**	**Total Openings**	**Percent Change**
Total Education Services	1,432	1,846	41	30	71	28.9
Elementary and Secondary	823	956	13	17	30	16.2
College and University	288	321	3	6	9	11.5
Other Education	321	569	25	7	32	77.3
Total, Education Administrators and General Managers						
Industry	**1996 Employment**	**2006 Employment**	**Growth Openings**	**Replacement Openings**	**Total Openings**	**Percent Change**
Total Education Services	5,607	6,778	117	139	256	20.9
Elementary and Secondary	3,677	4,270	59	92	151	16.1
College and University	1,332	1,483	15	33	48	11.3
Other Education	598	1,025	43	14	57	71.4

Source: 1996-2006 Megamatrix, Research and Statistics Office, Minnesota Department of Economic Security

Regional employment projections for 1996-2006 are not available by region of the state. Based on the previous round of projections covering the period 1994-2005, educational administrator employment is projected to grow most rapidly in the Twin Cities and Central Minnesota regions. There was no or only minimal growth projected in the remaining regions. However, replacement needs will create openings for educational administrators in all regions. Total openings are projected to range from 10 to 18 a year in regions of Greater Minnesota and about 90 a year in the Twin Cities region.

Production of educational administrators is currently falling short of need. For example, in 1995, 153 students were awarded doctorates in education by Minnesota institutions. However, not all of these doctorates focused on educational administration. The University of Minnesota awarded 92 doctorates in education: 48, general; 19, educational administration; 19 educational psychology; 2, physical education teaching and coaching; and 4, industrial technology education. These doctoral awards include both research oriented Ph.D.'s and practitioner oriented Ed.D's. Fifteen Ed.D's were awarded by the University of St. Thomas, and 46 by Walden University. Walden offers both the Ph.D. and the Ed.D in education. A breakdown of the students' area of specialization was not available. Walden students are most likely non-residents.

A possible model for an Ed.D. program in Educational Leadership to be developed collaboratively between MnSCU graduate institutions, is included as Appendix 2. This doctorate will focus on meeting the need for educational administrators in the state of Minnesota.

PSYCHOLOGISTS/COUNSELORS

A doctorate is required for licensure in the state of Minnesota. Currently about two-thirds of nearly 3,500 licensed psychologists are licensed at the masters level. As they retire or leave their positions, new appointees will have to meet the requirement of a doctorate.

According to the University of Minnesota's report, "Applied Doctoral Education in Minnesota," the University of Minnesota offers four Ph.D. programs in clinical areas of psychology (School Psychology, Counseling and Student Personal Psychology, Counseling Psychology, and Clinical Psychology). In the last three years 1996-1998), the School Psychology program has admitted 18 students, 2 from Minnesota; Counseling & Student Personnel has admitted 18, 3 from Minnesota; Counseling Psychology has admitted 11, none from Minnesota; and Clinical Psychology has admitted 32 students; the number from Minnesota is not available (p. 27).

MDES projections indicate that there will be about 85 openings per year for psychologists. Table XI shows that about one-third of psychologists are employed in the Health Services industry, but that relatively slow growth is expected in this sector. More rapid growth is expected in Management Services, Social Services, and Educational Services settings. This would support the University of Minnesota analysis that the need for psychologists with doctorates is shifting to behavioral analysis and management.

Table XI
Projected Openings for Psychologists

TOTAL ALL Industry	1996 Employ	2006 Employ	% Distribution 1996 Employ	Percent Change 1996-2006	Annual Growth Openings	Annual Replacement Openings	Annual Total Openings	% Distribution Total Openings
Industries	3,126	3,665	100.0	17.2	54	31	85	1,000
Health Services	1,021	1,105	32.7	8.2	8	10	18	21.2
Educational Services	555	642	17.8	15.7	9	5	14	16.5
Social Services	280	396	9.0	41.4	12	3	15	17.6
Engineering & Management Services	231	390	7.4	68.8	16	2	18	21.2
Government	237	259	7.6	9.3	2	2	4	4.7
Self-Employed-Agricultural	751	802	24.0	6.8	5	7	12	14.1

Source: 1996-2006 Megamatrix, Research and Statistics Office, Minnesota Department of Economic Security

A possible model for a doctoral program in Behavioral Medicine, to be developed collaboratively between a single MnSCU graduate institution and the University of Minnesota, is included as Appendix 3. An Ed.D. program in School Counseling could also be developed collaboratively between MnSCU graduate institutions and other doctoral institutions.

HIGHER EDUCATION FACULTY IN PROFESSIONAL FIELDS

There is a national need for teachers. Bureau of Labor Statistics (BLS) reports "eight of the 146 occupations will account for about half of the new jobs: registered nurses, systems analysts, blue-collar worker supervisors, general managers and top executives, and four teaching occupations—elementary, secondary and special education teachers and college faculty." At the college and university level, the IPEDS data indicate that in 1993 there were 5,527 FTE Public University/College Professors (4 year, all fields) and 3,247 at private universities and colleges; there were 3,089 FTE Public Community/Technical College professors, (2 year, all fields) and 203 at private colleges.

There are disciplines in Minnesota that are currently in need of doctoral-degreed instructors: nursing, psychology, and education (ranging from higher education administrators, superintendents, elementary and secondary principals, community college and vocational education teachers). Minnesota particularly has a short-term need for completion of doctorates by some of the technical college faculty members.

While MnSCU plans no degrees primarily oriented toward university teaching, it is likely that some of the alumni of these programs will go to some of these careers, at least in part.

Table XII
Projected Job Openings for Teachers, Instructors, Professors

Occupation	1996 Employ	2006 Employ	Percent Change 1996-2006	Annual Growth Openings	Annual Replacement Openings	Annual Total Openings
Preschool and Kindergarten Teachers	10,036	12,011	18.0	435	474	909
Elementary School Teachers	24,807	29,152	18.0	435	474	909
Secondary School Teachers	23,005	26,730	16.0	373	685	1,058
Special Education Teachers	8,662	10,049	16.0	139	125	264
Vocational Education Teachers and Instructors	4,808	5,873	22.0	107	44	151
College and University Faculty	14,044	15,619	11.0	158	406	5,64

Source: Research and Statistics Office, Minnesota Department of Economic Security

OTHER FIELDS

There are a number of areas in which MnSCU currently offers graduate degrees that could eventually be developed into doctoral degree programs as needs in the state emerge:

Technical Fields: As early as 1991 educational policy leaders identified an emerging need for practitioner-oriented graduate programs in the state of Minnesota. The report identified a "gap in the middle" of the state's graduate education choices at both the masters and doctorate levels

(*Maintaining Minnesota's Educational Advantage*). At that time, computer science and engineering programs offered at times convenient to the needs of working adults were highlighted. The report noted that "The University [of Minnesota] may not be the only cost effective alternative to meeting these graduates' needs. Programs offered by other institutions, or cooperatively offered by public and private institutions, could provide efficient and cost effective alternatives" (*Maintaining,* 44). The plan went on to recommend that practitioner-oriented programs be supported at both St. Cloud and Mankato. In addition, the report noted that "given the relative success of other state universities around the country in developing this role, the potential success for the state universities in Minnesota would seem good. Moreover, stronger graduate programs are likely to bring with them the opportunity for developing special applied research, technical assistance, and public service centers to help address specific regional issues" (*Maintaining,* 130).

There are other examples of emerging opportunities for graduates with applied doctorates in the information technology industry. A new study just released in the summer of 1999 by the Computing Research Association notes that "excellent opportunities in industry, together with the lack of an increase in the number of new doctorates being awarded in computer and information science, is making it difficult for schools to recruit new tenure-track faculty" (*The Supply of Information Technology Workers,* 87). The applied doctorate in the computer science field is called the doctor of engineering: "It does not typically require a dissertation. It requires less time to complete than the doctor of philosophy degree, but still provides some of the same advanced training features. If there is continued high demand for high-end information technology workers by industry, it may be desirable to increase the number of doctor of engineering degrees awarded" (*Supply,* 89). Referencing the shortages in skilled instructors, the report goes on to note that "industry might be able to provide some of the instructors on an adjunct basis" (*Supply,* 91). The report concludes with several specific recommendations about increasing graduate level education opportunities, including a recommendation that it be supported financially by the U.S. government. Retraining options should also be expanded by increasing the number of certificates at the graduate level in such areas as "human-computer interfaces, bioinformatics, and high-performance computing" (*Supply,* 135).

Business Administration and Others: There are a number of areas of need for advanced work in administration. State university alumni often ask for Senior Executive Management Programs. Given the aging of the baby-boom generation, there will be increasing need for health care administrators. MnSCU's experience with the St. Cloud State University's Ed.D. cohort indicates that as many as one-third of Ed.D. students use their advanced administrative skills and abilities in other areas besides education—such as non-profits, the arts, and state government.

PROGRAM QUALITY AND ACCOUNTABILITY

A central issue for MnSCU's provision of doctoral education is the assurance of doctoral-level quality. The Council of Graduate Schools (CGS) identifies nine key indicators of quality when considering whether a doctorate should be offered (CGS, 1990):

1. **A high quality program distinctive from existing programs.** As already indicated, MnSCU doctoral programs would build on the distinctive competencies of MnSCU institutions to meet unmet needs in our market regions. Further, collaboration among MnSCU graduate institutions and with other graduate institutions will bring together highly qualified people from a number of institutions into a single program, creating a critical mass that might not be available individually. North Central Association (NCA) will perform a site visit in advance of any institution beginning to offer doctoral degrees, and MnSCU institutions will not consider advancing without prior NCA approval. Further, all of the programs which MnSCU is currently considering will stand for external accreditation not only from the North Central Association, but also from their respective accrediting bodies (NCATE, APA, CACREP). In addition, all MnSCU graduate schools engage in ongoing assessment of outcomes and periodic program review which includes an evaluation of alumni placement and employer satisfaction.

2. **Coursework will be intellectually demanding, exclusively for graduate students.** MnSCU currently requires that Master's Level programs provide at least 50 percent of their credits (exclusive of thesis/APP) at the graduate-only level. Post-Master's programs must provide all of their credits at the graduate-only level. All graduate programs must specify and assess the learning outcomes, which the curriculum will achieve, and these assessments will be part of a periodic program review at the home institution.

3. **Quality of faculty--all faculty will have appropriate terminal degrees.** MnSCU Graduate Schools already provide for separate rostering of graduate faculty, and specify specific criteria for admission to the graduate faculty. Full members of the graduate faculty must hold a terminal degree in their area of specialization, provide evidence of capability to teach effectively at the graduate level and to conduct an ongoing program of scholarly or creative inquiry. In applied professional programs, experience in professional practice is often one of the bona fide qualifications of graduate faculty.

4. **Expectation of ongoing faculty research and publishing—with different expectations of the research skills of faculty of professional programs.** The MnSCU graduate schools all have an expectation of ongoing scholarly achievement by graduate faculty. Since most of the MnSCU graduate programs focus on applied, professional programs, the standards of scholarly achievement are and should be different from those used in theory-focused, basic research programs. In applied professional programs consulting reports, case studies, and other client-commissioned studies are of scholarly significance.

5. **Clear evidence of student interest.** All MnSCU academic programs must document that there is student interest if they are to be approved; and they must continue to document that there is sufficient student interest to justify their expense if their home institutions are to continue to offer them. Graduate programs are funded at a level, which requires, over the long run, an average expectation of 20 students per class.

6. **Adequate resources—financial, library, physical facilities, support services, recruitment programs**. Since MnSCU will build upon existing strength in Master's and post-Master's programs, doctoral programs will not put significant additional burden on physical facilities, support services, or recruitment programs. As will be demonstrated in the following section, additional financial resources will come from the programs themselves. Since the intended student body are in most cases non-traditional students who are already employed, little additional funding for internships or assistantships will be required (and, where needed, can be sought from the professional community which desires these programs). Doctoral programs will require library resources beyond those already in place at even the largest of MnSCU's graduate schools. However, the State of Minnesota has made great strides in networking the libraries around the State and already supports one of the larger research libraries in the nation at the University of Minnesota.

7. **Appropriate administrative and research support services.** The MnSCU graduate institutions already have administrative and research support services in place, including deans, graduate councils, departmental graduate coordinators, graduate student advisory groups, recruitment and retention plans and procedures, research offices with administrative support, and appropriate policies regarding academic progress, grievances, and research oversight.

8. **Institutional proportion of full-time to adjunct faculty consistent NCA guidelines.** All MnSCU graduate institutions meet the current NCA guidelines for the proportion of full-time to adjunct faculty.

9. **Quality of students and rigorous entrance requirements.** All students admitted to MnSCU doctoral programs will be required to meet rigorous entrance requirements, including a previously earned Master's degree with a GPA of at least 3.0, letters of recommendation, a portfolio of professional work and an essay explaining what the student expects to achieve through the doctoral program, and either a GRE of 1500 or 5 years of professional experience after the Master's.

FINANCING GRADUATE EDUCATION

This section of the report explores a variety of measures influencing the cost of graduate education. An extensive literature search identified the following policy and financial issues:

WHY GRADUATE EDUCATION IS MORE EXPENSIVE

The cost of graduate education per student is generally higher that undergraduate education for several fairly obvious reasons:

- size of classes is usually smaller, with much more student/faculty interaction;
- faculty salaries are higher because faculty are usually senior faculty with extensive professional and publishing credentials (competition);
- type of institution. Economies of scale are apparent at the graduate level, depending on the array of graduate programs offered by a particular institution;
- number of credits taken. the average number of credits taken by undergraduate students per term is 15; first year graduate students: 11.5; and doctoral students: 8 credits (Brinkman, 1985);
- costs vary by discipline. The high cost in engineering and the sciences reflect laboratory and equipment needs for research in those fields;
- costs vary by class size. Labs work with smaller groups of students; lectures can accommodate more students;
- the number of required courses and electives in the degree program. According to Brinkman: "the typical semi-structured approach is more costly than either a highly structured curriculum or a totally unstructured curriculum" (Brinkman, Factors, 25; quoting Massey, 1990).
- type of instruction. Zemsky's basic premise is that "economic efficiency is achieved without sacrificing instructional effectiveness when class sizes regularly approach the ideal for a particular pedagogy in a given curriculum domain. Further, "By far the most efficient distribution of students is found in the humanities and social sciences. . . [and these courses] achieve enrollments equal or nearly equal to the ideal class size for the particular pedagogy" (Zemsky, 28).

Revenue: Who Should Pay? While Minnesota has taken responsibility for supporting educational opportunities at the baccalaureate level, the state has sent mixed messages concerning state support for graduate education. At the undergraduate level students are currently expected to be responsible for about 40 percent of the cost of their education, with the state underwriting 60 percent of the cost. At the doctoral level, Minnesota has heavily subsidized direct instructional activities at the University of Minnesota but has not provided state grants to students. The state supports graduate education because of the societal benefits that accrue from a highly educated workforce. This support reflects the increasing importance of lifelong education to ensure that professionals stay on the cutting edge, that the state has a continually renewed workforce, and that communities continue to benefit economically through access to advanced training opportunities. These outcomes have increasing importance in an information age. Subsidies also reflect the reality that market forces alone do not determine outcomes of educational programs. Where the market doesn't work, the state has seen a historic need to step in and support specialized education to meet state needs.

There are several policy options for funding graduate education:

(1) Subsidize graduate FTE at a higher rate (say, 75 percent of instructional expenditures, rather than the current 60 percent). This would keep tuition low;

(2) Fund special programs—to guarantee access, assure supply of students, attract students to areas where professionals are in demand, or to provide support for desired teaching and research;

(3) Dedicate support to students (available to part-time students as well as full-time students) in several ways: subsidize tuition, give merit-based or need-based grants; funding assistantships or fellows; there are precedents in Minnesota for dedicated financing. For example, in FY94, the University of Minnesota received the following dedicated financing to support graduate education: $7.5 million for assistants; $990,000 for fellows; and $553,000 for families of assistants and fellows;

(4) Assess the entire burden of cost to the student through tuition and fees.

Both the state and individual Minnesotan's benefit from low cost access to graduate education. Advanced training benefits the state's economy, and builds the economic potential within the population as a whole. And while private institutions have expanded offerings over the last decade at both the masters and doctoral levels to meet some of this need, the state has an affirmative duty to continue to play a role in maintaining a well-educated workforce. There are several reasons for taking this public policy position: increased tuition costs that shift financial burdens to individual students have the immediate impact of limiting access—particularly to low income students; the rapid turnover of knowledge and technologies in contemporary society require constant updating of knowledge; and geographic access is critical to ensure the economic health of all regions of the state.. We would propose that the legislature continue state support for graduate education at its current rate, and that universities set cost-related tuition.

The case for cost-related tuition has been well documented. David Berg, in a study of the University of Minnesota's cost-related tuition policy adopted in the early 1980's, noted the relationship between cost and tuition and concluded that high cost programs should cost more. Consistent with this policy approach, in some cases—particularly in areas in which graduates are likely to receive higher earnings—"programs also turned out to have higher costs" (Berg, 1987, 284). The study concluded that the price of tuition ought to reflect whether the society or the individual was more likely to benefit. Further, "The legislature has specifically resisted lowering the offset percentage for expensive graduate and professional programs. That is, it refused to raise the state's share of these programs' costs to make it easier for the university to avoid raising their tuition. Any extra assistance for students in costly programs will most likely come instead in the form of student aid and loan funds" (Berg, 1987, 287).

Cost-related tuition allows universities to meet student demand and not burden undergraduate students with the cost of supporting graduate education through the use of low-cost graduate assistants assigned to teaching. A policy of cost-related tuition may also generate discretionary funds that could support identified access targeted populations. The state universities have a long-standing commitment to quality teaching taught by regular faculty, and to alter that practice by increasing the number of courses taught by graduate assistants would unnecessarily compromise the quality of undergraduate education.

Achieving Economies of Scale: Factors affecting economies of scale are readily discernable in the literature. Indirect costs, for example, are a relatively insignificant cost item: "most of an institution's *indirect* costs have little if anything to do with levels of instruction . . . thereby diminishing the cost ratios" (Brinkman, 1985, 10). In general, an institution can achieve the greatest economies of scale in administration; the least in instruction. This is especially important in assessing the ability of Minnesota state universities to offer graduate education. Much of the administrative infrastructure is already in place in MnSCU institutions: recruitment, the graduate dean, research director, graduate coordinators at the departmental level. New costs incurred for delivery of doctoral programs will be reflected primarily in direct instructional costs. Enrollments are another important indicator of economies of scale.

In a study comparing cost ratios between types of institutions, Paul Brinkman noted that "with a few exceptions, the larger and more complex the institution, the larger the cost ratios" (Brinkman, 1985, 10). Comprehensive institutions achieve economies of scale at enrollments of 3,000 to 4,000. Beyond that, there are few additional benefits. He concluded that comprehensive universities with a limited array of graduate programs are likely to be more cost-effective compared to similar universities more heavily invested in offering doctoral programs and Research I institutions that offer a wider range of options at the doctoral level (See Table XIII below). As Brinkman noted, "curriculum proliferation can negate scale-related economies" (EOC, 23). This is one of the reasons why Research I institutions can be costly to support. Their mission requires offering a wide diversity of programming options. As long as comprehensive universities limit the number and type of doctorates offered, they can maintain economies of scale (EOC, 25).

Table XIII
Cost Ratios per Credit Hour by Level of Instruction
Mean by Type of Institution

Institution Type Old Carnegie	Upper/Lower	Master's/Lower	Doctorate/Lower	Combined Graduate
Baccalaureate	1.60	1.92		
Comprehensive	1.57	2.80	4.46	
Doctoral	1.64	3.79	9.12	4.54
Research	1.83	3.87	8.45	4.97
Doctorate/Research	1.76	3.61	8.56	4.78

Source: Brinkman, 1985, 11.

Faculty Workload: According to Paul Brinkman, a typical faculty teaching load at the doctoral level is 40-45 percent. For example, at the University of Minnesota at the doctoral level, faculty workload is divided between 6 credits of teaching, plus 9 credits of research and public service for a total of 15 for the school year. In the state universities, the current undergraduate workload is 12 credits per semester, 24 for the year. Workload for graduate-student-only instruction is based on a formula of one hour of release time for every 3 hours of instruction, or a total of 9 credits per semester, 18 for the year. State university faculty members generally teach a combination of undergraduate and graduate level courses. In order to achieve the desired economy of scale, MnSCU is proposing to keep the teaching load in the state universities at the current level.

Table XIV makes a tentative comparison of the instructional costs of post-baccalaureate Educational Administration programs at the University of Minnesota, MnSCU, and the simulation in the next section of this report.

Table XIV
Relative Cost of Doctoral Programs in Educational Administration
MnSCU/University of Minnesota

Institution	Total Cost of Instruction Per FYE	Average Direct Costs/FYE	Average Indirect Costs/FYE	State Support per Graduate FYE
University of Minnesota College of Education and Human Development (1995)*	$8,282	$4,958	$3,324	Not Available
MnSCU Department of Educational Administration (FY1998)	$5,900#	$3,245#	$2,673#	$2,019#
MnSCU Applied Doctorate Simulation	$4,392#	$1,718#	$2,673#	$2,019#

*latest data available on the University of Minnesota website
#Adjusted backward to 1995 to reflect inflation

FINANCE SIMULATION

A basic premise of this simulation is that MnSCU already has a significant investment in graduate education and it would be possible to add selected doctoral-level programming at some of the state universities without a substantial increase in cost. The literature predicts that the cost of practitioner-oriented doctoral programs can be expected to be slightly higher than that of Master's education, but lower than that of the Ph.D at Research I institutions like the University of Minnesota. An institution must have the capability of delivering graduation and there must be a critical mass of graduate students to achieve economies of scale. Masters FTE is an efficiency engine—the economies of scale achieved at the graduate level overall will likely contribute to the costs of the doctorate. At this time, only Minnesota State University, Mankato and St. Cloud State University have the potential/capacity to offer doctoral programs. This cost analysis does not make an attempt to study the phenomenon of joint production—the situation where both master's and doctoral students are enrolled for the same course, in the same classroom (Brinkman, 1986). As a result, the simulated costs projected in Table XV below are very conservative.

The following factors will be taken into consideration in this simulation:

Assumption 1: Student Enrollment. This analysis is based on one cohort of 24 students.

Assumption 2: Credit Requirement: The simulation is based on an average of 12 student credits per year for four year, for a total of 48 credits: 24 new credits (eight courses at 3 credits each) and 24 credits of thesis supervision. Coursework in the field of study can be completed in two years—eight 3-credit courses taken over four semesters and two summer sessions, and two additional years for thesis advising and development.

Assumption 3: Faculty Compensation and Workload. Faculty compensation is based on a salary of $60,000 plus 25 percent for benefits, for a total cost of $75,000. This is well above the

Additional Costs: Additional costs will be incurred because the applied doctoral degree will require enhanced library collections and access. Each campus that will be involved in a doctoral program must have immediate access to an appropriate core reference collection—indexes and journals. Increasingly, this service can be purchased from the Web, but for at least the most commonly used sources, paper copies should be provided. In addition, faculty and students must have access to a larger body of books, reports, and original data. These collections may be developed locally, although the State of Minnesota already supports one of the largest research libraries in the country at the University of Minnesota. Cooperative library access may be able to be arranged for doctoral students. The actual cost of improved library collections will depend on the specific configuration of the doctoral program; it will vary with the number of campuses involved and with the range of disciplines the program encompasses.

Minimal support in the form of graduate assistantships will be required, because students enrolled in applied doctorate programs are most likely to be working adults. If a limited number of graduate assistantships are offered, funds can be generated through applied research support from employers or internally in exchange for graduate students teaching at the lower division level. Because these doctorates will be offered only in a limited number of areas, there will not be large numbers of additional graduate assistants teaching lower division courses. The faculty at the comprehensive universities will continue their deep commitment to undergraduate teaching.

Benefits: Estimating the ratio of the benefits to the costs of practitioner-oriented doctoral programs is difficult and will vary depending on the specific configuration of the program. The benefits will accrue to the individual student, to the businesses which will employ them, and to the communities in which they will study and in which they will work. The community and economic development benefits (captured by the community and the individual firms) will be more difficult to measure. The community benefit lies in the competitive advantage, which comes from being able to develop depth and be up-to-date and "cutting edge" in a selected industry, and the economic growth, which that brings. In rural Minnesota, this is a significant benefit. By investing in *individuals who are currently in place* one anticipates a reduced likelihood of an exodus than by individuals recruited to the community from elsewhere, again, a significant issue in rural Minnesota. These benefits, while difficult to measure, would offset the public subsidy of the doctoral degree program—the subsidy for increased library resources and faculty research assignments.

COMPARATIVE COSTS: MnSCU/UNIVERSITY OF MINNESOTA

It is difficult to compare costs of instruction between MnSCU and the University of Minnesota. The analysis is complicated by several factors, including the fact that the marginal costs vary between the systems, and University of Minnesota budget data are not presented at the departmental level, but instead at the college level, whereas MnSCU data is gathered and reported at the departmental level. The University of Minnesota offers applied doctorates in only two areas: Music and Educational Administration, limiting the points of relative comparison. In addition, it is difficult to isolate the costs of the applied program (Ed.D.) from the research doctorate (Ph.D.) in Educational Administration because the costs of both degrees are merged. The University of Minnesota also uses continuous registration to support programs, and these kinds of costs may not be included in a cost comparison. Nevertheless, some data are available, and very tentative comparisons can be made. Fortunately, we also have a bit of fiscal history to guide the comparison. A study undertaken by HECB in 1987 analyzed costs of graduate education between the two systems. The study noted that in FY 1985 the state universities spent an average of $3,574 per student, and the University of Minnesota spent $6,172 per student (excluding the first professional programs).

midrange salary on the IFO's FY 98 salary rate schedule. It reflects the fact that faculty teaching at the doctoral level will likely be senior faculty with competitive credentials. MnSCU faculty members currently teach a total of 9 credits per semester, or 18 credits per year of graduate level courses. This is consistent with the current IFO contract. For purposes of this simulation, the workload allocated to this program will be 12 hours per year. The compensation figure used in the simulation is 2/3 of the full time compensation of $75,000, or $50,000.

Assumption 4: State Appropriation per Student. The simulation is based on the 1998 MnSCU allocation simulation for graduate Educational Administration programs.

Simulation Assumption 5: Tuition. Doctoral students will be assessed tuition at a rate that will provide substantial income to support the program. Current MnSCU policy authorizes institutions to charge differential tuition rates, so no policy change will be required to implement the new rate. The current graduate tuition rate for state residents at Minnesota state universities is estimated at $125.00 per semester credit hour. In comparison, tuition at the University of Minnesota is estimated at $420.00 per credit hour (up to 14 credits), at the University of St. Thomas, $480.00 per credit hour, and at St. Mary's University of Minnesota, $444.00. The estimated rate for purposes of this simulation will be $250.00 per credit hour. Other fees (quarterly technology assessment fees, administrative fees, others as determined) are not included in this simulation.

Simulation Assumption 6: Indirect Costs. According to Paul Brinkman, indirect costs are not generally an issue, except in programs where equipment or laboratory costs are high, as in the natural sciences and engineering. For purposes of this study, indirect costs are based on the MnSCU state university graduate Educational Administration indirect costs (MnSCU FY98 Instructional Cost Study). Indirect costs include such elements as library costs and the cost of distance delivery. No facilities costs are included, since space is assumed to be available at no additional cost.

Table XV
Applied Doctorates Simulation

Number of Students in Cohort					24
Ave. Student Credits per Year					12
State Appropriations per Student*					$2,161
Tuition Charge per Credit					$250
Average Faculty Salary (teaching and advising)					$75,000
MnSCU Graduate Indirect Cost per Student**					$2,861
Enrollment	**Year One**	**Year Two**	**Year Three**	**Year Four**	
Cohort	24	24	24	24	
Course Credits	12	12	12	12	
Total Credits	288	288	288	288	
FYE***	16.0	16.0	16.0	16.0	
Revenues					
State Appropriation	$ 34,576	$ 34,576	$ 34,576	$ 34,576	
Tuition	$ 72,000	$ 72,000	$ 72,000	$ 72,000	
Total Income	$ 106,576	$ 106,576	$ 106,576	$ 106,576	$ 426,304
Fixed Expenditures					
Faculty Compensation****	$ 33,350	$ 33,350	$ 16,650	$ 16,650	
Instructional Support*****	$ 5,885	$ 5,885	$ 2,938	$ 2,938	
Direct Instructional Expend.	$ 39,235	$ 39,235	$ 19,588	$ 19,588	$ 117,657
Variable Expenditures					
Total Indirect	$ 45,776	$ 45,776	$ 45,776	$ 45,776	$ 183,104
Total Expenditures	$ 85,011	$ 85,011	$ 65,364	$ 65,364	$ 300,751
Gain/Loss	$ 22,450	$ 22,450	$ 41,650	$ 41,650	$ 125,553
**State Appropriation per graduate student—Educational Administration program. FY1998 allocation simulation*					
***MnSCU FY98 Instructional Cost Study, Educational Administration program*					
****One graduate full year equivalency (FYE) = 18 credits/year; 288 credits divided by 18 = 16*					
*****Faculty compensation (this cohort only) spread out over 4 years. Actual compensation is $50,000 per year, with a new cohort starting up in year 3 to generate additional income.*					
******Assume faculty salary represents 85 percent of direct instructional costs*					
Direct instruction P.S.	$ 2,084	$ 2,084	$ 1,041	$ 1,041	
Instruct. Support P.S.	$ 368	$ 368	$ 184	$ 184	
Indirect P.S.	$ 2,861	$ 2,861	$ 2,861	$ 2,861	
Total P.S.	$ 5,313	$ 5,313	$ 4,085	$ 4,085	

Using these conservative assumptions (including faculty salaries well above average), the simulation shows projected revenue of $426,304 against projected expenditures of $300,751 (Table XV). This provides a working ratio of 1.42 and leaves a projected operating margin of $125,553. In fact, the simulation shows that even assuming "half" the number of projected students (12 instead of 25), the project would still break even (Table XVI). Again, the assumptions in the break-even projection are conservative, since it is unlikely that the full faculty compensation would be needed in years three and four to supervise half the number of dissertations.

Table XVI
Cohort Enrollment Break Even Projection

Break Even Cohort Size: 12 students					
	Year One	**Year Two**	**Year Three**	**Year Four**	
Revenues					
State Appropriation	$17,288	$17,288	$17,288	$17,288	
Tuition	$36,000	$36,000	$36,000	$36,000	
Total Income	$53,288	$53,288	$53,288	$53,288	$ 213,152
Fixed Expenditures					
Faculty Compensation	$33,350	$33,350	$16,650	$16,650	
Instructional Support	$ 5,885	$ 5,885	$ 2,938	$ 2,938	
Direct Instructional Exp.	$39,235	$39,235	$19,588	$19,588	$ 117,647
Variable Expenditures					
Total Indirect	$22,888	$22,888	$22,888	$22,888	$ 91,552
$62,123	$62,123	$62,123	$42,476	$42,476	$ 209,199
Gain/Loss	$ (8,835)	$ (8,835)	$10,812	$10,812	$ 3,953

RECOMMENDATIONS

The growing demand in business and industry for highly trained labor was predicted eight years ago when Peter Senge announced "the learning organization." In a rapidly changing society, managers of that change will not only have to master the skills of their business, they will also have to have the skill to invent new techniques and approaches, often for products and services which are being invented in the process. This requires a new culture, one that straddles the technical and the theoretical--what Donald Schon (1983) called "the reflective practitioner." In the 21st Century "knowledge industry," doctoral education will become a basic requirement for senior professional practice. MnSCU is ideally positioned, both by its mission and its geography, to provide such an education.

RECOMMENDATION 1: AUTHORITY

The Board of Trustees should amend MnSCU Board Policy 3.25 and authorize the state universities to offer doctorate degrees in selected applied areas.

- It appears from the initial findings of a study of interest in an applied doctorate commissioned by the MnSCU Graduate Council, that there is a need for public practitioner-oriented doctoral education in Minnesota, and that rural Minnesota is the least well-served in this regard.
- There is also a very real possibility that MnSCU universities currently have the capacity or with careful planning could have the ability to offer such programs, in some very limited cases alone, in other cases in collaboration with other MnSCU institutions or jointly with other doctoral institutions in Minnesota;
- It appears that the benefits from such programs might exceed the public cost of providing it, particularly in rural Minnesota.

RECOMMENDATION 2: PARAMETERS AND GUIDELINES

MnSCU should develop Academic Program Approval Guidelines for Doctoral programs. These guidelines would incorporate existing MnSCU criteria:

- fit with mission,
- avoidance of unnecessary duplication,
- appropriate length,
- sufficient occupational/professional demand,
- sufficient student interest, maximization of institutional resources (courses, faculty, facilities, and equipment),
- external relations,
- collaboration, and
- assessment of outcomes.

While the categories in these guidelines are appropriate, their definition and measurement should be redefined so they are appropriate to doctoral programs of study. In addition, the issue of national accreditation should be added to the list of criteria.

RECOMMENDATION 3: COLLABORATION

MnSCU institutions should continue to develop fully collaborative programs among themselves, with the University of Minnesota, or with other institutions. With the flexibility of the authority to offer doctorates, the lead institution should be one of the state universities:

- thoroughly explore both the short-term and long-term costs of designing and implementing selected applied doctoral programs;
- thoroughly explore both the short-term and long-term options for implementing selected collaborative applied doctoral programs with the University of Minnesota;
- thoroughly explore both the short-term and long-term options for implementing selected collaborative applied doctoral programs with neighboring universities as well as national and international markets;
- document the potential public benefit in each case, and analyze the viability of collaborative options within MnSCU to deliver needed practitioner-oriented doctoral education.

RECOMMENDATION 4: REQUEST FOR LEGISLATIVE CHANGE

Consistent with the charge in M.S. 1995, Chapter 248, Article 11, Section 10. Minnesota statutes 1997, section 135A.052, subdivision 1 to "recommend to the legislature appropriate changes in law necessary to carry out the mission of the system, "the Board of Trustees of the Minnesota State Colleges and Universities requests the above legislation be amended as follows: "the state universities may offer undergraduate and graduate instruction through the doctorate degree, in the liberal arts and sciences and professional education; and ..."

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Minnesota Post-Secondary Education Enrollment Data–Enrollment by Type of Institution–Fall 1996 IPEDS

Virtual Center for Research – Council of Graduate Schools. An electronic clearinghouse for research relating to graduate education

APPENDIX I: MnSCU GRADUATE PROGRAM INVENTORY

CIP4 Award	Institution	Program Name	Length	
03.01	Minnesota State University, Mankato	Environmental Science	34	MS
03.01	Bemidji State University	Environmental Studies	33	MS
05.02	Minnesota State University, Mankato	Women's Studies	34	MS
09.04	St. Cloud State University	Mass Communications	33	MS
11.01	Minnesota State University, Mankato	Computer Science	34	MS
11.01	St. Cloud State University	Computer Science	32	MS
11.01	Winona State University, Winona	Software Technology	30	MS
11.01	Winona State University, Rochester	Software Technology	30	MS
11.07	Moorhead State University	Computer Science	30	MS
13.01	Minnesota State University, Mankato	Education	34	MAT
13.01	Winona State University, Winona	Education	32	MS
13.01	Winona State University, Rochester	Education	32	MS
13.01	Southwest State University	Education	32	MS
13.03	Minnesota State University, Mankato	Curriculum & Instruction	34	MS
13.03	St. Cloud State University	Curriculum and Instruction	36	MS
13.03	Bemidji State University	Curriculum and Instruction	36	MS
13.03	Moorhead State University	Curriculum and Instruction in Education	32	MS
13.03	Minnesota State University, Mankato	Curriculum and Instruction	30	Spec
13.04	St. Cloud State University	Community Education	43	MS
13.04	St. Cloud State University	Education Administration and Leadership	36	MS
13.04	Moorhead State University	Educational Administration	36	MS
13.04	Winona State University, Winona	Educational Leadership	33	MS
13.04	Winona State University, Rochester	Educational Leadership	33	MS
13.04	Bemidji State University	Organizational Leadership	34	MS
13.04	Minnesota State University, Mankato	Educational Administration	30	SGC
13.04	St. Cloud State University	6th Year Program: Education Administration and	32	SGC
13.04	St. Cloud State University	Education Administration and Leadership	35	Spec
13.04	Moorhead State University	Educational Administration	36	Spec
13.04	Winona State University, Winona	Educational Leadership	30	Spec
13.04	Winona State University, Rochester	Educational Leadership	30	Spec
13.04	Minnesota State University, Mankato	Educational Leadership	30	Spec
13.04	St. Cloud State University	Special Education Administration	36	Spec
13.05	Minnesota State University, Mankato	Education Technology	34	MS
13.05	St. Cloud State University	Information Media	39	MS
13.05	Minnesota State University, Mankato	Library Media Education	34	MS
13.05	St. Cloud State University	Instructional Technology	12	SGC
13.10	St. Cloud State University	Special Education	39	MS
13.10	Bemidji State University	Special Education	36	MS
13.10	Minnesota State University, Mankato	Special Education	34	MS
13.10	Moorhead State University	Special Education	30	MS
13.10	St. Cloud State University	5th Year Program: Special Education	30	SGC
13.11	Moorhead State University	Counseling and Student Affairs	46	MS
13.11	Minnesota State University, Mankato	Counseling and Student Personnel	48	MS
13.11	Winona State University, Winona	Counselor Education	48	MS
13.11	Winona State University, Rochester	Counselor Education	48	MS
13.12	St. Cloud State University	Child and Family Studies: Early Childhood Special	36	MS
13.12	St. Cloud State University	Child and Family Studies: Family Studies	36	MS
13.12	Moorhead State University	Elementary Teacher Education	30	MS
13.12	Minnesota State University, Mankato	Experiential Education	34	MS
13.12	Winona State University	Training and Development	34	MS
13.12	St. Cloud State University	5th Year Program: Child and Family Studies	30	SGC
13.13	Minnesota State University, Mankato	Art Education	34	MS
13.13	Moorhead State University	Art Teacher Education	33	MS
13.13	St. Cloud State University	Biological Sciences	30	MS
13.13	Minnesota State University, Mankato	Biology Education	34	MS
13.13	Winona State University	English	30	MS
13.13	St. Cloud State University	English	39	MS

CIP4	Institution	Program Name	Length	Award
13.13	Bemidji State University	English	30	MS
13.13	Minnesota State University, Mankato	English Education	34	MS
13.13	Minnesota State University, Mankato	Family Consumer Science Education	30	MS
13.13	Minnesota State University, Mankato	French Education	34	MS
13.13	St. Cloud State University	Geography	34	MS
13.13	Minnesota State University, Mankato	Geography Education	34	MS
13.13	Minnesota State University, Mankato	History Education	34	MS
13.13	St. Cloud State University	History Teacher Education	33	MS
13.13	Bemidji State University	Industrial Technology	30	MS
13.13	St. Cloud State University	Mathematics	33	MS
13.13	Bemidji State University	Mathematics	30	MS
13.13	Minnesota State University, Mankato	Mathematics Education	34	MS
13.13	Moorhead State University	Music (Teacher Education)	30	MS
13.13	St. Cloud State University	Physical Education	32	MS
13.13	Minnesota State University, Mankato	Physical Education	34	MS
13.13	Minnesota State University, Mankato	Physics Education	34	MS
13.13	Moorhead State University	Reading Teacher Education	30	MS
13.13	Minnesota State University, Mankato	School Health Education	34	MS
13.13	Bemidji State University	Science	30	MS
13.13	Minnesota State University, Mankato	Science Education	34	MS
13.13	St. Cloud State University	Social Sciences	32	MS
13.13	Minnesota State University, Mankato	Social Studies Education	34	MS
13.13	Minnesota State University, Mankato	Spanish Education	34	MS
13.13	Minnesota State University, Mankato	Speech Communication Education	34	MS
13.13	Bemidji State University	Sport Studies	34	MS
14.01	Minnesota State University, Mankato	Engineering	32	MS
15.06	Minnesota State University, Mankato	Manufacturing Engineering Technology	34	MS
16.09	Minnesota State University, Mankato	French	34	MS
16.09	Minnesota State University, Mankato	Spanish	34	MS
19.01	Minnesota State University, Mankato	Family Consumer Science	34	MS
19.07	St. Cloud State University	Gerontology	36	MS
19.07	St. Cloud State University	Gerontology	15	SGC
21.01	St. Cloud State University	Environmental and Technological Studies	33	MS
23.01	Minnesota State University, Mankato	English	30	MA
23.01	Winona State University	English	30	MA
23.01	St. Cloud State University	English	36	MA
23.01	Bemidji State University	English	30	MA
23.05	Minnesota State University, Mankato	Creative Writing	48	MFA
23.05	Moorhead State University	Creative Writing	42	MFA
23.10	Minnesota State University, Mankato	Speech Communication	34	MA
23.11	Metropolitan State University	Technical Communication	32	MS
24.01	St. Cloud State University	Special Studies	30	MA
24.01	Moorhead State University	Liberal Arts	32	MLA
24.01	Minnesota State University, Mankato	Multidisciplinary Studies	34	MS
24.01	St. Cloud State University	Special Studies	36	MS
26.01	St. Cloud State University	Biological Sciences	30	MA
26.01	Bemidji State University	Biology	30	MA
26.01	Minnesota State University, Mankato	Biology	30	MS
26.04	St. Cloud State University	Biological Sciences: Cell, Molecular and Organismal	38	MA
26.06	St. Cloud State University	Biological Sciences: Ecology and Natural Resources	36	MA
27.01	St. Cloud State University	Mathematics	30	MA
27.01	Minnesota State University, Mankato	Mathematics	32	MA
27.01	Minnesota State University, Mankato	Mathematics	32	MS
27.99	Minnesota State University, Mankato	Math: Computer Science	34	MS
30.11	Minnesota State University, Mankato	Gerontology	16	Certificate
30.11	Minnesota State University, Mankato	Gerontology	34	MS
30.99	St. Cloud State University	Social Responsibility	32	MS
31.05	Minnesota State University, Mankato	Physical Education	34	MA
31.05	St. Cloud State University	Exercise Science	34	MS
31.05	St. Cloud State University	Sports Management	32	MS
40.05	Minnesota State University, Mankato	Chemistry	34	MA
40.05	Minnesota State University, Mankato	Chemistry	34	MS

CIP4	Institution	Program Name	Length	Award
40.08	Minnesota State University, Mankato	Physics	34	MS
42.02	Minnesota State University, Mankato	Clinical Psychology	47	MA
42.06	St. Cloud State University	Applied Psychology: Behavior Analysis	52	MS
42.06	St. Cloud State University	Counseling Psychology	50	MS
42.09	Minnesota State University, Mankato	Industrial/Organizational Psychology	44	MA
42.17	Moorhead State University	School Psychology	30	MS
42.17	Moorhead State University	School Psychology	31	Spec
43.01	Metropolitan State University	Law Enforcement	36	Certificate
43.01	Metropolitan State University	Police Supervision	20	Certificate
43.01	St. Cloud State University	Criminal Justice Studies	42	MS
43.01	Minnesota State University, Mankato	Sociology Corrections	34	MS
44.04	Minnesota State University, Mankato	Public Administration	34	MA
44.04	Minnesota State University, Mankato	Urban and Regional Studies/Public Administration	34	MA
44.04	Moorhead State University	Public And Human Services Administration	35	MS
45.06	Minnesota State University, Mankato	Economics	34	MA
45.06	St. Cloud State University	Applied Economics	42	MS
45.07	Minnesota State University, Mankato	Geography	34	MS
45.07	St. Cloud State University	Geography: Geographic Information Systems	33	MS
45.07	St. Cloud State University	Geography: Tourism Planning and Development	32	MS
45.07	St. Cloud State University	Geographic Information Systems	15	SGC
45.08	Minnesota State University, Mankato	History	34	MA
45.08	St. Cloud State University	History	33	MA
45.08	Minnesota State University, Mankato	History	34	MS
45.10	Minnesota State University, Mankato	Political Science	34	MA
45.11	Minnesota State University, Mankato	Sociology	34	MA
45.12	Minnesota State University, Mankato	Urban and Regional Studies	33	MA
45.12	Minnesota State University, Mankato	Urban Planning	30	MA
50.05	Minnesota State University, Mankato	Theater Arts	34	MA
50.05	Minnesota State University, Mankato	Theatre Arts	48	MFA
50.07	Minnesota State University, Mankato	Art	34	MA
50.07	St. Cloud State University	Art	36	MA
50.07	Moorhead State University	Art	33	MA
50.09	Moorhead State University	Music	30	MA
50.09	St. Cloud State University	Music	32	MM
50.09	Minnesota State University, Mankato	Music	34	MM
51.02	St. Cloud State University	Communication Disorders	49	MS
51.02	Minnesota State University, Mankato	Communications Disorders	34	MS
51.02	Moorhead State University	Speech-Language Pathology	40	MS
51.03	Minnesota State University, Mankato	Community Health	34	MS
51.15	St. Cloud State University	Chemical Dependency Specialist Certificate	73	SGC
51.16	Winona State University, Winona	Advanced Practice Nursing	48	MS
51.16	Winona State University, Rochester	Advanced Practice Nursing	48	MS
51.16	Metropolitan State University	Nursing Science	51	MSN
51.16	Minnesota State University, Mankato	Nursing Science	32	MSN
51.23	Minnesota State University, Mankato	Rehabilitation Counseling	48	MS
52.02	Moorhead State University	Business Administration	32	MBA
52.02	Winona State University	Business Administration	30	MBA
52.02	St. Cloud State University	Business Administration	36	MBA
52.02	Metropolitan State University	Business Administration	42	MBA
52.02	Metropolitan State University	Management and Administration	40	MMA
52.02	St. Cloud State University	Public and Nonprofit Institutions	42	MS
52.03	St. Cloud State University	Accounting	33	MS
52.12	Metropolitan State University	Management Information Systems (MIS) Generalist	20	SGC
52.12	Metropolitan State University	MIS Systems Analysis and Design	20	SGC
52.14	Southwest State University	Management	32	MS

APPENDIX II:DOCTORATE IN EDUCATIONAL LEADERSHIP

St. Cloud State University, Winona State University, and Minnesota State University, Mankato

Educational leaders in public education and in higher education are called upon to manage approximately one-third of the state's financial resources. The State of Minnesota, on the other hand, provides only one public institution to which its residents can turn to obtain a terminal degree.

Although the University of Minnesota has pursued 3 cohorts of doctoral students in collaboration with St. Cloud State University, Winona State University, and Minnesota State University, Mankato, the educational and training needs of constituents in rural Minnesota are not currently being served in a consistent and sustained fashion. The doctoral degree has always been in demand to provide the quality of leadership that Minnesota expects of its schools and as a means for educational leaders to put themselves in a position of improving their quality of life through upward mobility.

More than ever before, the subject of leadership has come to the fore in readership and research on education. Shifts in both the content and method in the study of educational leadership have changed the scope of work in the area. A broader appreciation of the phenomenon of leadership now includes expanded contributions from political science and psychology, as well as from social, political, and communications sciences. Recent international and cyber-age events have painted new colors on the canvas of educational leadership which delineate rich dimensions, possibilities and promise to people's imaginations and expectations for their leaders. As substantive research on the subject of educational leadership continues to mine deeper and broader elements of the concept, the yield clearly reflects our age's new global and cultural consciousness and conscience. Charismatic, inspirational, and transformational leadership are now solidly-developed topics in educational leadership research literature, which add an amplified dimension to the subject and to implications for future leaders.

As society enters the new millennium, nations have increasingly found themselves seeking their individual identities within a preserve of pluralism and diversity. Out of this broad cultural milieu will emerge leaders whose qualities, principles and behaviors will shape the world to come. What will the twenty-first century educational leader look like? With an impressionistic perspective, the image of the leader in these times depicts an individual whose attitudinal complexion is multi-cultural, and whose professional education is clothed with the rich, interdisciplinary folds of knowledge. This broadly-educated leader celebrates the best of human thoughts and words as recorded in the arts, literature, and history. The educational leader of the Twenty-First Century also possesses proficiencies of specialization within a particular life's occupation. This specialization, however, does not exist in isolation, devoid of connecting fibers; it finds its complement in strands of applied psychology, ethics and science which are interwoven into the texture of the leader's vocation.

Among the trade tools of the twenty-first century educational leader appear multiple human relations skills which are deftly applied to group dynamics in cooperative and community team-building. Also found in the leader's portfolio of professional instruments will be those hewn to precision for rapid problem-solving and decision making. This educational leader of the twenty-first century will be both a generalist and a specialist, equipped and prepared to act in a context committed to the accomplishment of group purpose.

Demographic and survey data support the need for a doctoral program in educational leadership, particularly for students outside the Twin Cities area. An examination of the educational background of educational administrators and teachers in Minnesota shows that the largest proportion of them received Bachelor's, Master's, and Specialist degrees and post-Master's certificates from MnSCU institutions. Further, a majority of potential students surveyed indicate that currently available programs are not meeting their needs. There is both interest and need for a doctoral program in educational leadership within the MnSCU system.

APPENDIX III: DOCTORATE IN CLINICAL PSYCHOLOGY/BEHAVIORAL MEDICINE

Department of Psychology, Minnesota State University, Mankato
Collaborating Institutions: University of Minnesota Medical School, Minnesota Department of Human Services

Background Information and Institutional Readiness
The Minnesota State University, Mankato Department of Psychology has maintained a Master of Arts in Clinical Psychology since the mid 1970s preparing psychologists for professional practice. By 1980, it became apparent that preparation for professional practice in Minnesota would eventually require doctoral preparation. At that same time faculty recognized that the Department could best meet Minnesota needs by focusing on Behavior Analysis & Therapy as the primary assessment and intervention training for students. Those decisions were very fortunate, because both the health care industry and the profession have moved in a similar direction.

The Minnesota State University, Mankato Psychology Department is uniquely qualified to meet this emerging need.

- Recognition of program quality by other institutions of higher education and by the profession. It has become nationally recognized as a "feeder" to behaviorally oriented prestigious clinical doctoral programs. Graduates are in high demand in clinical practice.
- Faculty credentials. All of the graduate faculty in the program hold the Ph.D. degree and are recognized regionally and nationally for their research, both individually and in collaboration with their students.
- Interest in advanced programs. Due to the consistent quality of the program, students, professional and advocacy groups have periodically inquired about the possibility of offering doctoral level training.

Identification of Need
There is no program which is specifically designed to meet the needs of Minnesota's current integrated health care initiatives, and changes in the health care delivery system have made behaviorally trained Clinical Psychologists in even greater demand. While Minnesota *appears* to have an abundance of psychologists, few are prepared to provide the leadership, and specific service expertise that is required of psychologists serving within multidisciplinary health care settings. The "new" psychologist will require applied research skills, administrative skills, clinical intervention and diagnostic skills as well as an understanding of the broad perspective of the needs and opportunities unique to evolving health care system. Psychologists who will be trained in the model outlined in this proposal are in great demand in Minnesota and in many other states that have begun to address the changes inherent in modern health care.

The emerging need for a professionally oriented, behaviorally focused doctoral program in Clinical Psychology has been explored in depth by the Department of Human Services as it focused on the needs of the emerging health care system. Over the last several years, representatives from Minnesota's Department of Human Services contacted the Psychology program to inquire about the possibility of doctoral level training for behaviorally trained Clinical Psychologists, and to offer support and encouragement in developing such a program. Historically, graduates of the M.A. program who left Minnesota to earn the doctorate had to be recruited back to Minnesota to meet the state's needs.

Minnesota has also identified a need to respond to under-served or hard-to-serve populations in the state. The proposed program will provide an opportunity to enhance service to rural areas. In addition, graduates will be versed in services to families and children. Finally, graduates will have expertise in health care psychology and will be prepared to consult with physicians and other health care professionals.

Student Demand

Many talented people are forced to leave Minnesota to obtain the training described in this model. Regrettably many never return to the state—only about 7 percent of the alumni have returned to Minnesota to practice at the doctoral level. Students will benefit by having a quality professionally oriented educational opportunity available to them in Minnesota. Surveys of graduates of the MSU, Mankato program reveal that since 1979 about 150 of the Clinical Psychology alumni have had to leave Minnesota to seek behaviorally-based clinical doctoral training. A great percentage of those students would have remained in Minnesota if such a training option had available at MSU, Mankato.

Doctoral training in clinical psychology is in great demand nationwide as well as in Minnesota. Doctoral clinical psychology at A.P.A. approved University programs typically receive about 100 to 300 applications with placement available for only about 6-10 students per program per year. Each year 8-10 of the current M.A. program alumni apply and are admitted to doctoral programs outside Minnesota. They have indicated great interest in continuing at MSU, Mankato should a doctoral program become available.

In recent years the MSU, Mankato Clinical Program has averaged about 60 applicants yearly. It is reasonable to expect a yearly applicant pool of about 100 to 150 for such a doctoral program. The demand for training in Clinical Psychology remains high. The program as envisioned would draw applicants from Minnesota who have limited opportunities for publicly funded doctoral training in clinical psychology.

Overview of Proposed Program

This proposed program would be unique in Minnesota. The program that is envisioned would be a doctorate in clinical psychology/behavioral medicine designed to conform with the guidelines for accreditation established by the American Psychological Association (APA). The program would require four full years of academic and clinical training plus a 2000-hour full-time clinical internship. The program would be a professional-scientist-oriented degree with graduates being prepared to provide professional services as licensed psychologists within an integrated health care system.

Clinical training will emphasize service to rural areas and meeting the health care needs of the elderly, the developmentally disabled, children, families, and the serious and persistently mentally ill and other under-served clinical populations. Such consumers often require coordination of services with multiple providers and integration of treatment plans. Explicit training in professional leadership will prepare graduates to integrate into the changing health care system. The program will provide students a broad background in diagnostic and assessment procedures with a primary focus on cognitive-behavioral and behavior analytic approaches and toward preparing psychologists for leadership positions in an integrated health care system. The mission, professional focus and content would complement existing programs.

The program is intended to train professional psychologists who exhibit the following:

a. A firm grounding in the foundations of psychology, including knowledge of normal and abnormal processes of thought, emotion and behavior.
b. The ability to evaluate critically their own and others' clinical and programmatic interventions.
c. The ability to implement objective assessment and treatment techniques to meet the health care needs of under served citizens of Minnesota.
d. The skills to integrate services among private and public agencies in providing services to consumers.

Clinical training will be available to qualified holders of the bachelors degree in psychology or to bachelor degree holders who have course work in psychology equivalent to a major in psychology. The program will also encourage applications from holders of the masters degree in psychology and who desire to be prepared for the evolution in the health delivery system. Transfer credit for equivalent course work will be awarded. The program would also attract applicants who are currently credentialed at the masters level in Minnesota. For this group of applicants, the proposed program would provide the opportunities to expand their

expertise in research and clinical practice. Finally, the program will invite doctoral degree holders of other psychology specialties to apply for respecialization and licensure in clinical psychology and to broaden their base of expertise to include applications.

The degree would be housed at and granted by Minnesota State University, Mankato. Program development for a prospective doctoral program can emerge out of the current M.A. program in clinical psychology. MSU, Mankato's Clinical Psychology program is a nationally regarded predoctoral program. The current program serves as the first two years of student's doctoral study. Further program development would be needed to incorporate additional coursework in the basic psychological processes.

The A.P.A. standards provide guidelines for both minimum or core curriculum as well as recommendations for specialization. It is recognized that because of the professional orientation of the degree a collaborative relationship (or partnership) with a medical education institution would provide an important applied multidisciplinary component. Practicum and medically oriented courses could be provided on site at the U. of M. Medical School or Mayo Medical School. Similarly, the Department of Human Services and the demands of health care system will influence curricular decisions. This particular program would be designed to meet the practice needs in the evolving health care system and therefore would need to be particularly sensitive to the demands of the profession.

The administration of the program would remain in Mankato with a representative coordinator at a Medical School site. Research projects could be completed at either site as appropriate to the topic and resource availability. Research advising committees could consist of faculty from each of the partners' faculty.

Collaboration

The State Department of Human Services has a vital interest in such a program and has been a catalyst for this proposal. It is anticipated that they would likely be actively involved in a partnership by providing a variety of support, including practicum, internship and postdoctoral opportunities. In addition, representatives from DHS have indicated an interest in providing student funding and sharing clinical staff to serve as clinical supervisors.

As part of their overall review of educational needs in the state, the Department of Human Services met with faculty at Minnesota State University, Mankato and at the University of Minnesota, Medical School to discuss their perception of program need and possible interest in collaboration. Preliminary indications are that the faculty consulted recognize the need and are interested in collaboration. DHS has had a long history of involvement with the Medical School in meeting the needs of under served populations. The University of Minnesota Medical School has also had an illustrious history of collaboration with and training of clinical psychologists for professional practice. The clinical training opportunities, practical and internship opportunities offered would provide an excellent compliment to the academic programs at MSU, Mankato. In addition, such a partnership would provide for the availability of additional funding sources for students and faculty at MSU, Mankato. Federal training grants would be more favorably received by combining the resources available to each of the partners in such a venture.

A possibility also exists to expand cooperation and collaboration with the Mayo Clinic. MSU, Mankato M.A. program students have been placed at the Mayo Clinic for research practica for several years. There is excellent relationship between the Clinical Psychology program and departments at Mayo.

Benefits to the Community and to Students

The major goal of the proposed program is to provide doctoral level practitioners who will meet the health care needs of Minnesota. These service providers will be trained in a model responsive to current health care trends integrating a variety of services within the services available through primary care medicine. The availability of these providers will offer appropriately trained clinical psychologists who meet national standards for training and who are prepared to assume leadership positions within the innovative programs currently implemented in the state. The presence of these graduates in the health care delivery system will upgrade the quality of services available in the state.

APPENDIX IV: MnSCU GRADUATE COUNCIL MEMBERSHIP

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