
Master of Science in Education in Educational Technology

Self-Study Document in advance of
Program Review

College of Education
Dakota State University
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PART 1: INSTITUTIONAL HISTORY

Heritage: 1881-1982

Dakota State University was established in 1881 as the first teacher education institution in the Dakota Territory. Teacher education remained the primary mission of the institution through the 1950s. However, in response to the changing needs of South Dakota in the 1960s, the university began to expand its role to include degree programs in the liberal arts and business.

In 1980, South Dakota welcomed a major new industry into the state: the banking and securities industry. The success and growth of this new industry, as well as the success of other information-oriented, computer-based industries in the state, prompted the state's leadership to carefully examine the degree programs being offered at the public institutions of higher education within the state. In response, leaders in state government, the banking and information services industries, and the SD Board of Regents agreed to develop new degree programs at one institution and then to use the experience and knowledge to expand programs throughout the state's public higher education system. That institution is Dakota State University.

Answering the Call: 1983-84

In 1984, the Legislature of the State of South Dakota (South Dakota Codified Law 13-59-2.2) changed the mission of Dakota State University to address the challenges of transitioning to the information age. DSU responded by developing technology-based degree programs in information systems, business, computer science, and allied health care services at both the undergraduate and graduate levels. The transformation was comprehensive as traditional academic areas added coursework specific to the computer and information systems areas. Existing faculty were retrained or released, and new faculty were hired. Those efforts led to the development of technology intensive degree programs in the humanities, education and sciences, as well as state-of-the-art programs in information systems, computing and cyber science.

Amplifying the Mission Change: 1984-present

In 2015, as part of the launch of DSU's 2020 Strategic Plan, "Excellence through Innovation", DSU leadership and employees reaffirmed the Institutional Mission, Vision, and Values. The Mission reads:

DSU provides learning that integrates technology and innovation to develop graduates ready to contribute to local, national, and global prosperity.

As the institution endeavors to articulate its mission in the fullest way, our degree programs are carefully scrutinized each year to ensure they remain on the cutting edge relative to technology to enhance and support instruction and address work force demands. When new degree programs are proposed by the colleges, they must clearly satisfy the “Is it compatible with our mission?” question before any additional planning is done.

To date, those curriculum development efforts have resulted in 28 bachelor’s degrees, seven associate’s degrees, and 16 certificate programs. These programs range from Cyber Security to Elementary Education to Respiratory Care to Business Administration. The five highest enrolled programs are as follows (in alphabetical order):

- BS in Computer Science
- BS in Cyber Operations
- BS in Digital Arts & Design
- BSED in Elementary/Special Education
- BS in Network & Security Administration

In the delivery of graduate education, the institution also offers seven master’s degrees, certificates, and two doctoral degrees. The five highest enrolled programs are as follows (in alphabetical order):

- D.Sc. in Cyber Security
- D.Sc. in Information Systems
- MS in Analytics
- MS in Applied Computer Science
- MS in Information Systems

DSU Rising Initiative

In 2017, Dakota State University began a transformational five-year capital investment initiative called DSU Rising.

The initiative is the result of a \$30M donation from philanthropists Miles and Lisa Beacom and Denny Sanford. The donation will allow for the construction of an \$18M, 40,000-square-foot research and development building for the Madison Cyber Labs (MadLabs). The funds also provide for additional scholarships, new program

development, hiring of more faculty and staff, and support the university's intent to bring 5G network capabilities to Madison, the region, state, and eventually the nation. In addition, South Dakota Governor Dennis Daugaard pledged \$10M to Dakota State, monies from the research and development Future Fund. U.S. Senator Mike Rounds (R-SD) has pledged to help Dakota State earn \$20M in federal funds to advance DSU's cyber mission.

Madison Cyber Labs

On Jan. 31, 2018 Governor Dennis Daugaard signed House Bill 1057 into legislation which permits the demolition of DSU's Lowry Hall and construction of the Madison Cyber Labs, or MadLabs. The Madison Cyber Labs, in the developmental stage, will build on DSU's expanding capabilities and strengths to establish a hub of cybersecurity and cyber operations expertise, research, and economic development in South Dakota.

The MadLabs will include resources (labs, networking, hardware, software), partners (government, business and industry, nonprofits), people (undergraduate, graduate, professional, teachers, researchers, interns and collaborators), programs (certificates, A.S., B.S., M.S. and D.Sc.) and innovation (interdisciplinary and multidisciplinary groups and projects, forensics and security). Groundbreaking for the MadLabs building will begin in Spring 2018, with full occupancy expected for Fall, 2019.

Already known as a national leader for cyber security and having a mission focusing on technology and information technology, DSU earned a 2012 National Security Agency designation as a Center for Academic Excellence in Cyber Operations. The NSA designation comes with levels of responsibility to the Agency regarding Knowledge Units and student success. DSU's We Are Rising initiative intends to put South Dakota on the leading edge of cybersecurity with new economic development clusters creating high paying jobs, and giving former students the ability to 'come home' to cutting-edge companies and a growing regional economy.

Student Demographics

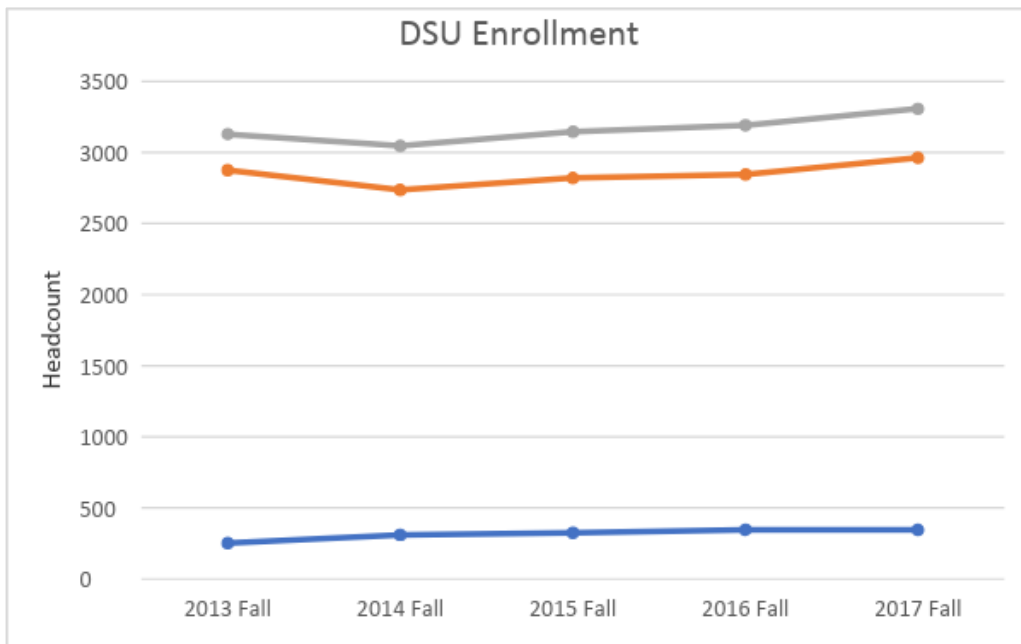
Prior to the mission change in 1984, most DSU students lived within a 50-mile radius of the campus. Most were traditional students coming to the institution directly from high school. Since the mission change, the DSU audience and student population has changed markedly. Immediately after the mission change, enrollment plunged a frightening 27.6 percent the first year, followed by another 12.6 percent decline the

second year. But the new curriculum changes, combined with new institutional vigor, provided the institution with unprecedented enrollment growth and stability.

In Spring, 2018, DSU enrolled 3,274 total students, including 393 graduate students¹. Of that total, 42% are female, 80% are white, and 3% report two or more races. Student enrollment represents 50 states, and 23 countries. The student to faculty ratio for 2017 was 17:1; first-time, full-time bachelor-seeking student retention is 72%. Five-year enrollment trends by program are provided in Figure 1.

Figure 1. University Headcount by Academic Level, 2013-17

(Blue = graduate students; Orange = undergraduate students; Grey = all students)



Computing Environment

Dakota State University students at DSU enjoy unique access to technology. DSU was not only the first institution in the region to provide 1:1 portable computing and a campus wide wireless network overlay, but one of the first in the nation to do so. In 2005 all students were provided fully functional portable computers (tablets) that included digital inking capabilities and voice to text translation. Since Fall, 2007

¹ Dakota State University Enrollment Extract, January 16, 2018. South Dakota Board of Regents.

students have had the option to use Fujitsu LifeBooks or Apple MacBooks. Similar computing tools allows for common computer imaging and software licenses used in classes. However, students may join the ubiquitous computing environment with devices of their own. Computing omnipresence builds on a long tradition of supporting data communication and networking innovations. For degree programs emphasizing information assurance and security issues as well as digital design, additional lab facilities featuring computers with high-end functions have been added to the campus technology infrastructure. DSU's leadership in using technology to support student learning also extends to the online environment when Liberal Arts Dean Eric Johnson delivered the first Internet enabled course in 1989.

Throughout its 137 years, Dakota State University has had a proud heritage of preparing graduates to meet the needs of a changing society. Since 1881, the university has provided challenging academic programs in one of the best educational environments in the state. The continuation of this tradition of service is of prime importance to the faculty, students, staff, and administration of Dakota State University.

Accreditation History

Dakota State University was granted accreditation by the Higher Learning Commission for a period of ten years in 1961 and accreditation has been continued after each comprehensive visit. The institution's most recent comprehensive visit, in October 2010, resulted in accreditation for 8 years with no interim reports or visits required. Currently, DSU is participating in the Higher Learning Commissions' Academic Quality Improvement Program (AQIP). Six AQIP Categories provide a framework for examination. The nine AQIP Categories are Helping Students Learn, Meeting Student and Other Key Stakeholder Needs, Valuing Employees, Knowledge Management and Resource Stewardship, Planning and Leading, Quality Overview, Each AQIP Category deals with a related group of key processes and encourages an organization to analyze, understand, and explore opportunities for improving these processes and the interrelationships among them.

The AQIP process works in tandem with our existing strategic planning and project review processes. It provides a framework that focuses on data analysis and the achievement of its published goals and objectives. The alternate accreditation review process is every ten years. With AQIP, our accreditation is reviewed yearly in cycles and culminates in a Reaffirmation of Accreditation at the end of a seven-year cycle.

In addition to accreditation by the Higher Learning Commission, the College of Education has been accredited by a number of other specialized accreditation agencies. DSU's teacher education programs are accredited by the Council for the Accreditation of Educator Preparation (CAEP) with the most recent accreditation in Fall 2016. CAEP advances excellence in educator preparation through evidence-based accreditation that assures quality and supports continuous improvement to strengthen P–12 student learning. Teacher education programs are accredited by the National Council for Accreditation of Teacher Education (NCATE). The most recent accreditation visit took place in March, 2017. Concurrent to NCATE review, all teacher education programs certified by the South Dakota Department of Education (SDDOE) were also reviewed. The Department of Education reviews the courses and experiences an institution requires candidates to complete and recommends approval to the state board on a seven-year cycle.

In 1999, the Higher Learning Commission of the North Central Association of Colleges and Schools (NCA) approved DSU's request to add its first graduate program, a Master of Science degree program in Information Systems, to the curriculum. In 2000, a Master of Science in Education degree program in Computer Education and Technology was also approved by the Higher Learning Commission. (The program name for the Master of Science in Education degree program has since been changed to Educational Technology.) The Master of Science in Educational Technology (MSET) program last underwent external review in May, 2009.

Shaping the MSET Program Through External Review

Dakota State University received South Dakota Board of Regent approval in Sept. 1998, to develop and offer a Master of Science in Educational Technology (MSET). Early in the year of 1999 the South Dakota Board of Regents commissioned special consultant, Dr. David Moursund of the University of Oregon to review the proposal and make recommendations for its delivery.²

² Moursand, D (1999). *Review and Evaluation of Three Proposed Programs: Dakota State University MEd. In Computer Education and Technology, University of South Dakota MS in Technology for Education and Training, and University of South Dakota Educational Specialization in Technology for Education and Training*, (p. 18).

Initial external review several significant suggestions that impacted the infant MSET program. Modifications implemented include:

1. An increase in elective credits. Initially, the program was comprised of 28 required credits and 8 elective credits. The consultant suggested a decrease in the number of specifically required courses and an increase in electives and/or in required choices.
2. The inclusion of a “leadership” course designed to help students understand how to create and support technological change through a systems approach. Rather than treating leadership as a transdisciplinary concept addressed within the context of each course. To address this recommendation, a 3-credit course was added as one of the required courses in the program.
3. Anticipating heavy demands on faculty in course development, external review recommended lightening the teaching load and/or providing summer support to aid the faculty members developing and teaching new courses. Dakota State University’s response in the first year of program delivery was to provide both faculty release time and summer grants to faculty members to support course development.
4. Finally, the review suggested that careful attention be paid to the technology support needs of distance learning students. And that additional technology support staff and/or additional training of this staff might be required. From that time, and continuing through the present term, Dakota State University provides technology support through the Office of Online Education where a team consisting of technical and instructional design personnel is available to assist faculty with the design, development, and delivery of distance education courses. Additionally, the emergence of screen sharing tools has made it possible to connect with online students quickly and easily.

Though course delivery first started in the fall of 1999, final approval for the Master of Science in Educational Technology program came from the North Central Accreditation Association (NCA) on April 26, 2000. Beginning in the 2000-2001 school year, students were formally accepted as MSET degree-seeking students.

External Review: 2009

In May of 2009 a self-study was prepared for external review³. The reviewer selected was Dr. Michael Simonson, chair and program professor at Nova Southeastern University in the Instructional Technology and Distance Education program. He earned his Ph.D. from the University of Iowa in Instructional Systems. Simonson has considerable experience working with domestic and international businesses and industries, especially on projects related to virtual schools, instructional technology and distance education. He is editor of the *Quarterly Review of Distance Education*, *Distance Learning Journal*, and *Proceedings of Selected Research and Development Papers Presented at the Annual Conventions of the Association for Educational Communications and Technology*.

Simonson's review was generally approving. He summarizes:

The MSET program at DSU does not need to dramatically change. It is functioning satisfactorily and is serving a need within the university and community. The program has a dedicated and qualified faculty and presents a curriculum that is within the mainstream of Educational Technology programs. Students are knowledgeable and are employable. Alumni are supportive.

MSET program review taking place in 2009 resulted in the recommendations below. Those suggestions and the program committee's subsequent response to them are noted in Table 1.

Table 1. 2009 External Review Recommendations and Responses.

Suggestions for Improvement	Programmatic Response
1. Develop a marketing plan that includes an improved web presence and promotional materials – both electronic and printed – that can be used to advertise the program.	Google ad campaigns targeted upper plains region (2010). Worked with communication services to develop stronger print brochures (2010). Web site enhancement (2013) for more inviting interface with users. (2017) Twitter account created. Continued presence at regional educational technology conferences such as TIE. (2017) Ads placed in DSU alumni publications. (2017) Flipgrid implemented to promote and communicate

³ Simonson, Michael (2009). *Program Evaluation: Master of Science in Educational Technology*, Dakota State University. June 2.

Suggestions for Improvement	Programmatic Response
	<p>information about the program to faculty, alumni, and current students.</p> <p>University lacks is a systemic marketing plan that includes graduate programs.</p>
<p>2. Identify three peer institutions that offer educational programs similar to MSET and conduct an in-depth analysis of these programs.</p>	<p>Programs for comparison:</p> <ul style="list-style-type: none"> ● U North Dakota, MS and Ph.D. Instructional Design & Technology ● U Northern Colorado, Master of Arts in Educational Technology ● U Nebraska Lincoln, Masters of Arts in Instructional Technology ● U Wyoming, Masters of Science in Instructional Technology ● U South Dakota, Master of Science in Technology, Education and Training <p>Programmatic response to the comparative analysis are discussed a later section titled "Curriculum Management" (p. 19).</p>
<p>3. Develop a curriculum review process involving all MSET faculty that critically examines the MSET academic vision, mission, courses, course content/learning objects, and learning outcomes, and use this analysis to develop a plan for continuous improvement of the MSET curriculum, including the revision, addition, and deletion of courses in the curriculum.</p>	<p>Program Committee review process resulted in 2009-10 program goals:</p> <ol style="list-style-type: none"> 1) Improve participation of graduate students in professional conferences and research in related disciplines. 2) Review course rotation schedule, reduce low enrollment courses. 3) Conduct program comparison as a validity study in course currency and relevance. 4) Improve the participation of faculty in the balance of professional responsibilities: teaching, scholarship, service.
<p>1. Examine the individual roles of each faculty person involved in the MSET</p>	<p>The interdisciplinary nature of the MSET program puts faculty under the direct supervision of several</p>

Suggestions for Improvement	Programmatic Response
<p>program and develop a comprehensive plan that identifies teaching, research/scholarship, and service for the MSET program, and for individual professors.</p>	<p>different deans, each with different ideas with regard to teaching load, promotion and tenure expectations, and productivity outlets. Objectives for each faculty are expressed annual individual evaluations.</p>
<p>2. Use the analysis of faculty activities to develop a proposal to add at least one additional professor who possesses the background and potential to complement and supplement the teaching, research/scholarship, and service activities of other MSET professors.</p>	<p>Departing Faculty:</p> <p>Dr. Deb Gearhart, Director, Distance Learning Dr. Robert Warren, Professor of Education Dr. Roger Reed, Professor of Sociology</p> <p>New Faculty:</p> <p>Dr. Jennifer Nash, Assoc. Prof. Education Dr. Kevin Smith, Assist. Prof. Education</p> <p>Moved to Emeritus Status (all remain adjuncts):</p> <p>Mr. Tom Farrell, Assoc. Prof. Computer Science Dr. Lynnette Gorder, Prof. Computer Education Dr. Don Wiken, Assoc. Prof. Education</p>
<p>3. Plan and propose the acquisition of hardware, software, materials, and facilities that directly relate to the teaching, research/scholarship, and service responsibilities of MSET faculty and students.</p>	<p>Institutional review of technology needs takes place annually in the spring of the year. College of Education funds remain available year rounds for needs. Both sources have produced technology tools to support student and faculty development.</p>
<p>4. Plan and conduct faculty retreats where the continuous improvement of the MSET program is the primary activity. The outcomes of the MSET retreat should be made available to students and administrators.</p>	<p>Planning restricted to program committee meetings and graduate council dialogue.</p>
<p>5. Identify and conduct one significant event or activity that spotlights the MSET</p>	<p>1. Annual professional development training held on DSU campus for technology directors</p>

Suggestions for Improvement	Programmatic Response
<p>program, students, and faculty – an innovative and important contribution of the program to the field and to South Dakota.</p>	<p>and coordinators from around the state (June of each summer).</p> <p>2. CET 692, Inclusive STEM Instruction course developed and offered statewide at reduced tuition 2016, 2017.</p> <p>3. DSU STEAM Camp held in 2016 and 2017 for approximately 100 educators in the region. This is a 1-day professional development opportunity for educators. The MSET program is highlighted so all attendees have an opportunity to learn about the program.</p>

Regental Collaboration

Contingent to the South Dakota Board of Regents approval for delivery of the DSU program was the requirement that Dakota State University collaborate with the University of South Dakota Technology for Training and Development (now called Technology for Education and Training, TET) program. DSU’s MSET program has as its client focus educators, administrators, instructional support and technology support personnel in the K-12 and Higher Education environments. The University of South Dakota’s TET program had as its client focus those with responsibilities for employee training in business and industry. In recent years, USD’s TET focus has shifted to supported professionals in education. To satisfy the Regents call for collaboration, a plan was devised to share in the delivery of core courses. That delivery plan is illustrated in Table 2.

Table 2. DSU/USD Shared Core Course Schedule

Course	Cr.	Title	Delivery
LT 712	3	Principles of Learning for Instructional Technology	USD
LT 716	3	Systematic Design of Instruction	USD
LT 731	3	Multimedia Production	DSU/USD
LT 741	3	Introduction to Distance Learning	DSU
LT 785	3	Research Methods in Educational Technology	DSU

All graduate students in either program will take at least two courses from USD (LT 712 and LT 716) and at least two courses (LT 741 and LT 785) from DSU. The DSU Office of Graduate Studies and Research has also developed credit transfer policies to accommodate the transfer of USD courses, and the enrollment of students in the USD courses. A joint DSU/USD master's program collaboration council was organized to include program faculty, external partners and students.

PART 2: TRENDS IN THE DISCIPLINE

The technology landscape continues to change at a rapid pace. This has several implications for education and specifically for our MSET program. Advances in technology present opportunities for new methods of collaboration, different delivery approaches, and increased student engagement. Conversely, advances in technology also present a number of challenges as well. Security of personal information, staying abreast of the latest and greatest technology, and making sure we're using technology that is evidence-based are a few of the challenges we must consider. Both the opportunities and challenges of technology are essential components of planning and delivering our MSET program. Below are four key trends associated with technology in education followed by the implications for our program.

Virtual and Augmented Reality

Providing students with engaging, authentic learning experiences is one of the goals of education. Technologies such as virtual reality and augmented reality are helping enable these types of learning experiences in classrooms. This technology allows students to interact with 3D images by manipulating the images on a computer or mobile device⁴. Virtual reality and augmented reality provide an immersive experience for students to simulate what it would be like to be in the environment they are exploring. Examples include having students use Google Expeditions and VR goggles to visit places around the world virtually⁵, or having students explore a 3D image of the heart to gain a better understanding of human anatomy. The cost of these technologies has come down in

⁴ Freeman, A., Adams Becker, S., Cummins, M., Davis, A., and Hall Giesinger, C. (2017). NMC/CoSN Horizon Report: 2017 K–12 Edition. Austin, Texas: The New Media Consortium.

⁵ U.S. Department of Education, Office of Educational Technology. (2017). *Reimagining the Role of Technology in Higher Education: A Supplement to the National Education Technology Plan*, Washington, D.C., 2017.

recent years and the prevalence of the hardware and software that is available has increased.

Cyber Security Education

Cyber security related stories are often in the news headlines. Cyber threats continue to increase. There is a shortage of people trained specifically in cyber security, and this trend is predicted to grow in the coming years⁶. Because of this, cyber security education at the K-12 level is a growing trend. Leaders in cyber security and education realize that it is important to begin teaching K-12 students about the careers available and the skills necessary to pursue a career in cyber security at an early age.

Organizations such as the National Security Agency (NSA) have invested money creating curriculum and training for K-12 teachers on cyber security. DSU's Beacom College of Computer and Cyber Sciences has had a relationship with the NSA for several years to offer cyber security education to undergraduate and graduate students. We have just recently begun a collaborative effort between the College of Education and the Beacom College of Computer and Cyber Sciences to bring cyber education to K-12 teachers and to our MSET students.

Coding & STEM Education

Coding in the K-12 classroom has seen rapid growth over the past few years. Popular initiatives such as the Hour of Code by Code.org and Computer Science for All week have fueled much of this growth⁷. Numerous companies and organizations create and distribute hardware and software programs for the classroom. Much of the growth in coding is driven by the desire to prepare students for the workforce, however, there are a number of benefits beyond simply preparing students for jobs. Coding can help students develop problem-solving skills, perseverance, and computational thinking skills.

Similar to coding, STEM learning, is a growing trend in education. There is high demand for workers with STEM related skills. Unfortunately, there is a lack of people with these

⁶Cortez, M. B. (2017). K-12 Schools, Universities Boost Cybersecurity Education to Close the Skills Gap. *EdTech Magazine: Focus on K-12*. Retrieved from <https://edtechmagazine.com/k12/article/2017/12/how-k-12-schools-and-universities-engage-cybersecurity-workers-future>

⁷ Freeman, A., Adams Becker, S., Cummins, M., Davis, A., and Hall Giesinger, C. (2017). NMC/CoSN Horizon Report: 2017 K–12 Edition. Austin, Texas: The New Media Consortium.

skills. STEM learning activities provide students in grades K-12 with authentic learning experiences in which they have the opportunity to use hands-on materials to solve complex problems. Often technology plays a central role in these STEM learning activities. Technology is used to collect data, conduct simulations, research information, and create presentations to showcase work.

Personalized Learning

Classrooms today are more diverse than ever in terms of the abilities and backgrounds of students. To meet the needs of all students, personalized learning approaches are a popular trend. Although personalized learning can be delivered without technology, technology is often at the core. Technology is used to gather data and learning analytics to deliver personalized learning. Additionally, technology-based adaptive learning programs are a particular type of personalized learning that is used by many schools. Some of the adaptive learning programs today use sophisticated algorithms as well as artificial intelligence to deliver content, feedback, and guidance to meet the needs of each individual student.

Implications for MSET

These technology trends have several implications for our MSET program. First, it is important that we are continually evaluating our program and the curriculum we offer to make sure it is aligned with foundational technology skills as well as current technology trends. In 2013 we undertook a major curriculum revision to align ourselves with current technology trends. We will undertake a similar evaluation and curriculum review process in 2018 to ensure we remain on the cutting edge and our program is aligned with current technology trends. This process of evaluating what we are currently doing and making sure we are providing a curriculum that is relevant and applicable to our students is a critical part of our degree.

Second, we have to make sure we have flexibility in our program both in terms of costs and learning opportunities for our students. According to the U.S. Department of Education, Office of Educational Technology⁸, it's important to make sure students understand the costs associated with pursuing a degree in higher education and as well

⁸ U.S. Department of Education, Office of Educational Technology. (2017). Reimagining the Role of Technology in Higher Education: A Supplement to the National Education Technology Plan, Washington, D.C., 2017.

as providing students with flexible learning opportunities. The majority of the students in our program are full-time educators in K-12 school systems. We meet with them individually to advise them on the costs associated with the program and educate them on tuition reduction opportunities that are available for K-12 teachers in our state. Additionally, we utilize grants to offer unique and affordable learning opportunities to accommodate their busy schedules and financial constraints. For example, for the last two summers we have offered a week-long workshop on the DSU campus called Gencyber Camp for Teachers. Attendees were able to receive 3 credits for participating in this workshop. The cost was \$40 per credit hour with the expense being offset by a grant from the National Security Agency and National Science Foundation. These credits serve as electives in our MSET program. We have also offered a 1-day workshop for teachers the last two summers called STEAM Camp. This is a 1 credit course for \$40 per credit hour. Again, the expense is offset by a grant from the National Science Foundation/EPSCoR. Both of these opportunities allow us to offer flexibility to our students in terms of schedules and costs. Moreover, these types of learning opportunities allow us to further address the technology trends mentioned previously by offering workshops that address technology trends without major curriculum changes.

Third, as stated previously, staying current with technology trends is of critical importance for an educational technology program. We are working hard to do that. However, we also recognize that an educational program, regardless of discipline, needs to be built on a solid foundation. One of the foundations of the MSET program is making sure our students understand how to make evidence-based decisions when deciding on what technology to use in education. We address this across multiple courses in our program as students learn about learning theory, educational research, and how to evaluate technology. Building this foundation coupled with staying current on technology trends makes the MSET program relevant and meaningful for our learners both in the long term and short term.

PART 3: ACADEMIC PROGRAM AND CURRICULUM

Mission and Objectives

The Master of Science in Educational Technology (MSET) is an instructional technology program designed to meet the rapidly increasing demand for educators who are trained to integrate computer technologies into the curriculum and instruction. As computers

and technology have become a significant part of the teaching and learning process, addressing the information needs of teachers has become the key to integrating technology into the classroom and increasing student learning. The primary emphasis of the master's program is to prepare educators who can create learning environments that integrate computers into the teaching and learning process.

The table below (Table 3) outlines the goals and objectives of the MSET program along with disciplinary and content standards promoted in the education field.

Table 3. MSET Program Goals to Standards Correlation

Student Goals and Objectives	ISTE Standards for Educators ⁹	ISTE Standards for Coaches ¹⁰
<p>Goal 1. Students will be leaders in educational technology.</p> <ul style="list-style-type: none"> ● Students will manage instructional, computer technology systems. ● Students will be active in professional organizations in the field of computer education and technology and have an impact on the field of education. ● Students will demonstrate proficiency in teaching and assessing others in the use of computers and related technologies in a variety of educational settings. 	<p>1. Learner Educators continually improve their practice by learning from and with others and exploring proven and promising practices that leverage technology to improve student learning.</p> <p>2. Leader Educators seek out opportunities for leadership to support student empowerment and success and to improve teaching and learning.</p> <p>4. Collaborator Educators dedicate time to collaborate with both colleagues and students to improve practice, discover and share resources and ideas, and solve problems.</p> <p>6. Facilitator Educators facilitate learning with technology to support student achievement of the 2016 ISTE Standards for Students.</p>	<p>1. Visionary Leadership Technology coaches inspire and participate in the development and implementation of a shared vision for the comprehensive integration of technology to promote excellence and support transformational change throughout the instructional environment.</p> <p>2. Teaching, Learning and Assessments Technology coaches assist teachers in using technology effectively for assessing student learning, differentiating instruction, and providing rigorous, relevant and engaging learning experiences for all students.</p> <p>6. Content Knowledge and Professional Growth Technology coaches demonstrate professional knowledge, skills and dispositions in content, pedagogical and technological areas as well as adult learning and leadership and are continuously deepening their knowledge and expertise.</p>

⁹ International Society for Technology in Education (ISTE) Standards for Educators, 2017
<https://www.iste.org/standards>

¹⁰ International Society for Technology in Education (ISTE) Standards for Coaches, 2014
<https://www.iste.org/standards>

Student Goals and Objectives	ISTE Standards for Educators ⁹	ISTE Standards for Coaches ¹⁰
<p>Goal 2. Students will be current in teaching and learning processes and practices.</p> <ul style="list-style-type: none"> ● Students will be aware of current trends and issues in computer education, distance education, electronic communications, computer hardware and software. ● Students will apply learning theory and the principles of instruction design in curricular and instructional decision-making. 	<p>2. Leader Educators seek out opportunities for leadership to support student empowerment and success and to improve teaching and learning.</p> <p>c. Model for colleagues the identification, exploration, evaluation, curation and adoption of new digital resources and tools for learning.</p> <p>5. Designer Educators design authentic, learner-driven activities and environments that recognize and accommodate learner variability.</p> <p>7. Analyst Educators understand and use data to drive their instruction and support students in achieving their learning goals.</p>	<p>1. Visionary Leadership Technology coaches inspire and participate in the development and implementation of a shared vision for the comprehensive integration of technology to promote excellence and support transformational change throughout the instructional environment.</p> <p>2. Teaching, Learning and Assessments Technology coaches assist teachers in using technology effectively for assessing student learning, differentiating instruction, and providing rigorous, relevant and engaging learning experiences for all students.</p> <p>3. Digital Age Learning Environments Technology coaches create and support effective digital age learning environments to maximize the learning of all students.</p> <p>4. Professional Development and Program Evaluation Technology coaches conduct needs assessments, develop technology-related professional learning programs, and evaluate the impact on instructional practice and student learning.</p>

Student Goals and Objectives	ISTE Standards for Educators ⁹	ISTE Standards for Coaches ¹⁰
<p>Goal 3. Students will be current in research technologies and designs.</p> <ul style="list-style-type: none"> ● Students will be proficient in finding, evaluating, and using current educational research to support continuous improvement in their profession. ● Students will understand the capabilities of the computer, its impact on education, business, industry and government and will be able to adapt to, understand, and evaluate and make use of new and emerging innovations in computer and information technology. 	<p>1. Learner Educators continually improve their practice by learning from and with others and exploring proven and promising practices that leverage technology to improve student learning.</p> <p>2. Leader Educators seek out opportunities for leadership to support student empowerment and success and to improve teaching and learning.</p> <p>5. Designer Educators design authentic, learner-driven activities and environments that recognize and accommodate learner variability.</p> <p>7. Analyst Educators understand and use data to drive their instruction and support students in achieving their learning goals.</p>	<p>1. Visionary Leadership Technology coaches inspire and participate in the development and implementation of a shared vision for the comprehensive integration of technology to promote excellence and support transformational change throughout the instructional environment.</p> <p>2. Teaching, Learning and Assessments Technology coaches assist teachers in using technology effectively for assessing student learning, differentiating instruction, and providing rigorous, relevant and engaging learning experiences for all students.</p> <p>4. Professional Development and Program Evaluation Technology coaches conduct needs assessments, develop technology-related professional learning programs, and evaluate the impact on instructional practice and student learning.</p>
<p>Goal 4. Students will be knowledgeable of technologies and programming skills.</p> <ul style="list-style-type: none"> ● Students will be proficient in the use and application of computer software. ● Students will be proficient with a programming language. ● Students will develop the skills needed to maintain computer programs, computer systems and networks. 	<p>5. Designer Educators design authentic, learner-driven activities and environments that recognize and accommodate learner variability.</p> <p>6. Facilitator Educators facilitate learning with technology to support student achievement of the 2016 ISTE Standards for Students.</p>	<p>2. Teaching, Learning and Assessments Technology coaches assist teachers in using technology effectively for assessing student learning, differentiating instruction, and providing rigorous, relevant and engaging learning experiences for all students.</p> <p>3. Digital Age Learning Environments Technology coaches create and support effective digital age learning environments to maximize the learning of all students.</p>

Student Goals and Objectives	ISTE Standards for Educators ⁹	ISTE Standards for Coaches ¹⁰
<p>Goal 5. Students will be knowledgeable of current, technology-based educational tools and products.</p> <ul style="list-style-type: none"> ● Students will use telecommunications-based tools to integrate information into the classroom and the curriculum. ● Students will integrate computer software, authoring tools, programming languages, the Internet, and multimedia into curriculum design and instruction. ● Students will demonstrate proficiency using computers and related technologies in instruction. ● Students will use systematic problem solving and research-based human/computer interaction practices in the development of computer-assisted instructional programs. 	<p>1. Learner Educators continually improve their practice by learning from and with others and exploring proven and promising practices that leverage technology to improve student learning.</p> <p>5. Designer Educators design authentic, learner-driven activities and environments that recognize and accommodate learner variability.</p> <p>6. Facilitator Educators facilitate learning with technology to support student achievement of the 2016 ISTE Standards for Students.</p>	<p>2. Teaching, Learning and Assessments Technology coaches assist teachers in using technology effectively for assessing student learning, differentiating instruction, and providing rigorous, relevant and engaging learning experiences for all students.</p> <p>3. Digital Age Learning Environments Technology coaches create and support effective digital age learning environments to maximize the learning of all students.</p> <p>5. Digital Citizenship Technology coaches model and promote digital citizenship.</p>

Program Description and Requirements

The program requires a total of 30 credit hours beyond the baccalaureate degree. Students must satisfy core, required, and elective course requirements.

1. 15 hours of required common course (shared between DSU and USD);

2. 8 hours of required DSU courses, and
3. 7 hours of elective courses.

Students receive a South Dakota K-12 Technology Endorsement upon program completion. It is also possible to select the thesis option from among these electives (Table 4).

Table 4. A list of courses in the MSET program

Course Prefix	Course #	Course Title	Cr. Hrs.
Common Core Courses (15 cr.)			
LT	712	Principles of Learning for Instructional Tech	3
LT	716	Systematic Design of Instruction	3
LT	731	Multimedia Production	3
LT	741	Introduction to Distance Learning	3
LT	785	Research Methods in Educational Technology	3
Required Courses (8 cr.)			
CET	720	Leading Evaluation and Change in the Educational Technology Environment	3
CET	756	Intro to Instructional Programming	2
CET	751	Computer Hardware and Networking Essentials	3
		or	
CET	753	Network Management in Educational Institutions	3
Electives (7 cr.)			
CET	657	Network & Operating Systems	2
CET	721	Web Authoring	1
CET	723	Inclusive STEM Instruction	2
CET	725	Educational Applications for Mobile Devices	3
CET	726	Technology in the Curriculum	3
CET	749	Policy and Management of Distance Education	3

Course Prefix	Course #	Course Title	Cr. Hrs.
CET	750	Multimedia II	2
CET	788	Masters Research/Projects	2
CET	792	Topics (to be determined by request)	1-3
CET	795	Practicum	3
CET	798	Thesis	4

All courses are offered once a year except for CET 751 and CET 753 which are offered every other year. Individual/faculty directed courses (CET 792, 795, 798) are offered all terms including summer. Full time students can complete the program in one year. Most students who are also working full or part-time take between 2 to 2.5 years to complete the program. The program web site (<https://dsu.edu/graduate-students/mset>) includes links to the online applications, course descriptions, course rotation and the Graduate Catalogue.

Program delivery

The MSET program can be completed online via the Internet. *Desire to Learn (D2L)* is the SD Regents choice of course management system and so program faculty present course materials within that resource using the interactive tools available there. Faculty are also known to use both live and encoded streaming video/audio for class collaboration.

Because of their technical content, students have indicated that they appreciate options that allow them to study on campus. Two courses of that nature are offered on-campus in the summer:

- CET 657 Network and Operating Systems (2 cr.)
- CET 751 Hardware and Networking Essentials (3 cr.)

On a rare occasion, a course is delivered using room-based interactive video-conferencing via the Dakota Digital Network available at multiple sites in South Dakota.

Curriculum Management

Since the last cycle of external review in 2009, the MSET program has experienced several changes to its curriculum. The changes are primarily driven by the desire to remain current in the educational technology field in a way that best prepares students to meet program goals and objectives. Table 5 summarizes the significant changes to the curriculum and the justifications for these changes.

Table 5. Summary of Significant Changes to the MSET Curriculum Since Last External Review.

Date	Curriculum change	Justification
April 2012	<p>Courses Designated to Inactive Status:</p> <p>CET 659 (2) Teaching in the One to One Computing Environment CET 759 (1) One to One Computing Implementation</p> <p>Course Modification:</p> <p>CET 747 (3) Web and ITV Based Applications of Distance Education, to CET 747 (3) Interactive and Social Media in Distance Education</p>	<p>These changes were enacted in response to 2009 external review encouraging analysis of comparative programs. In summary, our analysis showed very strong similarities in core course requirements. Major differences included the highly technical aspects of MSET (programming, networking) over that of comparable programs. The following actions were taken to address relevance and currency issues.</p>
Sept 2015	<p>Change in total number of hours required for degree from 36 to 30.</p> <p>Program Course with a name change:</p> <p>CET 720 (3) Evaluating Educational Technology Outcomes to Leading Evaluation and Change in the Instructional Technology Environment</p> <p>Course moved from elective to option as a required course:</p> <p>CET 753 (3) Network Management in Educational Institutions (On-line)</p>	<p>A reduction from 36 to 30 credit hours makes the program commensurate to others MS degrees in the field and on our campus.</p> <p>Moving CET 753 to an option for a required course makes the degree program completely obtainable from a distance.</p> <p>Course Changes—The instructional technology field is a dynamic one, course changes to the MSET program above reflects the evolutions of our field. This includes adaptations to a mobile computing environment and a stronger orientation to distributed</p>

Date	Curriculum change	Justification
	<p>Courses moved to inactive status:</p> <p>CET 765 (3) Leadership in Technological Change</p> <p>CET 727 (3) Social Studies in the Mobile Computer Environment</p> <p>CET 747 (3) Web and ITV-Based Applications of Distance Education</p> <p>CET 758 (2) Advanced Instructional Programming</p> <p>CET 769 (3) Adult Learning for Distance Education</p> <p>New Course:</p> <p>CET 725 (3) Educational Applications for Mobile Devices</p>	<p>learning—as opposed to the traditional distance paradigm.</p> <p>Reducing the number of courses helps ensure remaining courses reach Regental enrollment requirements.</p>
June 2016	<p>New Course</p> <p>CET 692 Special Topic: Inclusive STEM Instruction (2)</p>	<p>NSF funded course promoting STEM instruction across age levels, with special emphasis on creating inclusive environments for students with special needs, including but not limited to assistive technology tools and pedagogical strategies.</p> <p>Questioning and sharing information and best practices on how to improve STEM learning outcomes for all students, regardless of disability.</p>

PART 4: PROGRAM ENROLLMENTS AND STUDENT PLACEMENT

Program Enrollments

Program admission requirements have attempted to stay aligned with the requirements of other DSU MS programs. Table 6 summarizes the admission standards for the MSET program relative to sister programs, the Master of Science program in Information

Assurance, and the Master of Science program in Information Systems. The table shows that for applicants to DSU MS programs, there is a fairly even application of entry requirements.

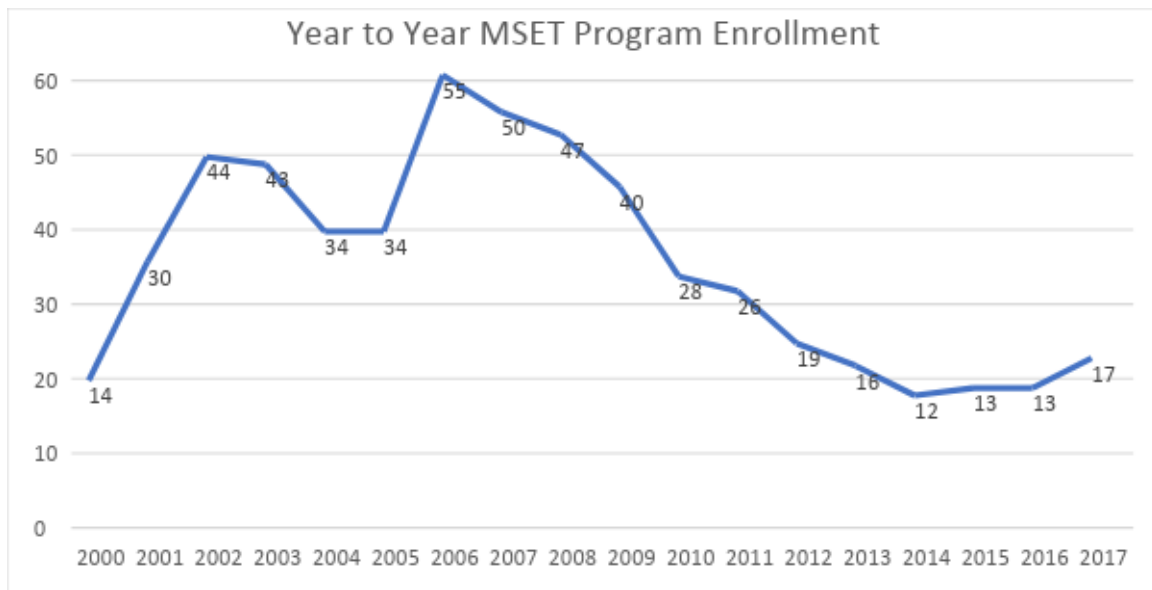
Table 6. MSET admission standards relative to other programs at DSU

Master of Science in Information Systems (MSIS)	Master of Science in Information Assurance (MSIA)	Master of Science in Educational Technology (MSET)
Baccalaureate degree from an institution of higher education with full regional accreditation for that degree.	Baccalaureate degree in computer science, computer engineering or software engineering from an institution of higher education with full regional accreditation for that degree.	Baccalaureate degree from an institution of higher education with full regional accreditation for that degree.
Minimum undergraduate grade point average of 2.75 on a 4.0 scale.	Minimum undergraduate grade point average of 3.25 on a 4.0 scale.	Minimum undergraduate grade point average of 2.7 on a 4.0 scale.
Satisfactory verbal and quantitative scores on the Graduate Record Examination.	Satisfactory verbal and quantitative scores on the Graduate Record Examination.	Satisfactory verbal and quantitative scores on the Graduate Record Examination.
GRE waiver granted to: students with 3.25 GPA undergraduate; or undergraduate degree earned at least 15 years ago; admission to and at least 12 credits successfully earned in another graduate program.	GRE waiver granted to: students with 3.25 GPA undergraduate; or undergraduate degree earned at least 15 years ago; admission to and at least 12 credits successfully earned in another graduate program.	GRE waiver granted to: students with 3.25 GPA undergraduate; or undergraduate degree earned at least 15 years ago; admission to and at least 12 credits successfully earned in another graduate program.

Master of Science in Information Systems (MSIS)	Master of Science in Information Assurance (MSIA)	Master of Science in Educational Technology (MSET)
<p>Essential knowledge in both business fundamentals and information systems.</p> <p>Demonstrated by: BS in Information Systems; BS in Business Administration with information systems work experience; combination of degree and work experience.</p>	<p>Essay on security problem scenario.</p> <p>Students who do not have an undergraduate degree in computer science, computer engineering or software engineering will be required to take specified computer science courses as a condition of admission</p>	<p>Demonstrated basic knowledge of computers and their application for educational purposes.</p> <p>Demonstrated by: Technology endorsement from an accredited university; in-service position as technology coordinator in school; personal statement of technological competency.</p>

Since the last evaluation period, the MSET program experienced some significant declines in enrollment, due in part to recessionary pressures and program saturation. Enrollment from the start of the program in 2000 is shown in Figure 2 below. The two peaks (2002 and 2006) can be attributed to cohort groups that were formed.

Figure 2. Year to year MSET program enrollment



As of March, 2018, there are 172 students admitted in the program, from which, 40 (23.3%) are still enrolled in the program, 127 (73.8%) graduated, 4 (2.3%) withdrew, and 1 (.05%) is currently on academic suspension.

The MSET program generally serves educators, technology coordinators, technology facilitators and instructional trainers in South Dakota, western Minnesota, and northwestern Iowa. A number of other students have come from other states including but not limited to California, Colorado, Washington, Pennsylvania and Vermont. Very few international students enroll due to visa requirements for on-campus course work.

With respect to diversity by ethnic composition, 90.8% of current students are white, 5.7% are Asian, 1.2% are African, 2.3% Native American. By gender, 62% of the current students are female. While computing fields have traditionally attracted more males than females, the opposite is true in the MSET program.

Student Recruitment and Marketing

Very modest and local efforts have been made to promote the program. Efforts to market the program are generally isolated and not part of a systemic university marketing plan. Funds for student recruitment come out of the general funds of the College of Education and Office of Graduate Programs—neither of which have funds specifically targeted for marketing. At the present time, we are involved in the following recruitment activities:

- State Technology conference—perhaps our most intensive effort, recruitment at the Technology Innovations in Education (TIE) conference in April of each year include discussion with potential students and the distribution of a number of program promotional and informational materials. This conference annually alternates locations between Sioux Falls, SD to Rapid City, SD.
- Contacts with inquiries—The Office of Graduate Studies and Research creates a database of all inquiries made by internet, phone, or mail. These contacts are periodically contacted to assess their interest, to answer questions, to encourage enrollment.
- DSU undergraduates in the college of education—Every semester a presentation about the MSET program is made by the program coordinator to graduating student teachers.
- 40 placards with tear-away information slips were mailed to local institution of higher education with a request to post the placard on a relevant bulletin board.

- Over the years of 2012-2018 a Google Ads campaign was generated. The landing page was the MSET page on the DSU web site. Clicks and impressions were monitored.
- Twitter - In 2017, a Twitter account was created for the MSET program (@DakotaStateMSET). We currently have 468 followers. We use the social media account to connect with educators in the region and promote the program.
- Flipgrid - In 2017, we created a Flipgrid Grid (<http://www.flipgrid.com/mset>) to connect with faculty, alumni, and current students. This tool allows prospective students to watch videos of the various people connected with the program.
- Email Marketing - In 2018, we are planning to implement email marketing campaigns specific to the MSET program using an email marketing tools such as Mailchimp.
- Promotional/Informational Video - In 2018, we created a promotional video (<https://youtu.be/2Xc6PUJkS7E>) to share information about the program with prospective students. This video is shared on social media and in emails.
- EdCamps - We have begun to provide giveaways such as education related books to area EdCamps in the region. When the EdCamps give our materials away, they share some brief information about the MSET program.

Student Placement

The MSET students and graduates work in a variety of sectors. Almost all of them have jobs they remain in as they study. Over the years, we have found that students have leveraged their MSET degree to move in new directions. Those new positions include EROS Data Center and the SD State Department of Education. Examples from higher education include: University of Indiana, Oregon State University Extension, Dakota State University, Southwest Minnesota State University, Lake Area Technical School, Mitchell Technical School, Southeast Technical School. Examples from financial services and the business sector include: Wells Fargo, Premier Bank, Daktronics and Citibank. In the healthcare industry examples include: Sanford System Hospitals and Avera Health Systems. But the majority of our students work in the K-12 environment as teachers, technology directors or coordinators, or technology integrationists/facilitators.

PART 5: FACULTY CREDENTIALS

A list of the faculty who teach in the MSET program at DSU and their academic credentials is included in Table 7. All but one of the faculty members listed have terminal degrees in a related field. The program values the disciplinary diversity and affiliations of its faculty, as the nature of educational technology is itself, interdisciplinary.

Table 7: DSU Faculty teaching in the MSET Program

Faculty Member	Discipline	Academic Credentials
Mark Geary	Instructional Technology	Ed.D.
Mark Hawkes	Instructional Design, Development and Evaluation	Ph.D.
Jennifer Nash	Science Education	Ph.D.
Kevin Smith	Instructional Design & Technology	Ed.D.
Haomin Wang	Instructional Technology	Ed.D.
Adjuncts		
Tom Farrell	Information Systems	M.S.
Lynette Molstad-Gorder	Educational Administration	Ed.D.
Carmen Weaver	Instructional Design and Technology	Ed.D.
Don Wiken	Math Education	Ed.D.

Faculty Workload

The institution's faculty workload policy establishes the equated workload credit earned by faculty who teach graduate-level courses and who supervise graduate research assistants and graduate teaching assistants. The policy provides for workload credit at

the graduate level at $(1.33) \times$ (semesters credit hours of the course).¹¹ The differential for graduate-level courses is intended to provide the additional time graduate faculty need to effectively develop and offer courses, advise students on their curriculum, projects or theses at the master's degree level.

Faculty Development

Course development grants have frequently been available from year to year for faculty developing new courses or transitioning course from on-campus to online. MSET program faculty have benefited from such programs and a number of MSET courses have been developed using funds from this development program. The institution also routinely sets aside significant funding for instructional and professional travel and for faculty training. Individual faculty can qualify for up to \$1,200 for travel and training at qualifying events (i.e., juried conferences).

PART 6: ACADEMIC AND FINANCIAL SUPPORT

Office of Graduate Studies and Research

The Office of Graduate Studies and Research was established to promote and support graduate education at DSU. The Dean of Graduate Studies and Research provides support and guidance to the Graduate Council, the graduate program committees within each of the university's colleges, and serves as the advocate for graduate education and graduate student support at DSU. In addition, the Dean is an integral member of DSU Research Committee in a consultative role regarding key decisions relating to the research goals for the university, and serves as Institutional Official for the DSU Institutional Review Board.

The day-to-day operations and services provided by the Office of Graduate Studies and Research are client-centered. The Office of Graduate Studies and Research offers guidance and assistance to students from the first inquiry to graduation. This includes providing accurate and timely program information, answering additional program inquiries, and maintaining the graduate program's website with current information for degree-seeking students (URL: <http://www.dsu.edu/gradoffice/index.aspx>). The Office

¹¹ Dakota State University Faculty Workload Policy (2013). Available at: <https://dsu.edu/assets/uploads/policies/02-46-00.pdf>

of Graduate Studies and Research also facilitates the application process, provides new student orientation -- on campus for resident students, interactive audio-video for remote sites in South Dakota, and online for distance students.

Once registered, the Office of Graduate Studies and Research continues to support the graduate students and students involved in research at DSU through many facets of mentoring and support. This begins with registration (events and individual student registration), course scheduling and rotations assistance from registration through graduation; guidance regarding student progress and graduate policies; supporting the assistantship committees as administrative members; and serving as a liaison among other support staff, faculty, and administrators.

Additional program services offered through the Office of Graduate Studies and Research staff include guidance and assistance by the Sponsored Programs Director on all pre-grant award activities from coordinating an initial project idea to submission, serving as mentor through the submission process both the internal approval process and during the grant award submission process with funder. This office serves as liaison between the executive offices at DSU and relevant project staff, grant funders and research investigators, as well as research investigators and monitoring committees. The Research Compliance Manager serves as administrative and consultative support for the DSU IRB, research investigators, and other key stakeholders in the research process. The manager is also responsible for monitoring and updating research regulatory training for key staff and students, as well as insuring the research compliance program for the university is up to date and aligned with necessary regulations and policy. Table 8 lists the Office of Graduate Studies and Research staff.

Table 8: Office of Graduate Studies and Research Staff

Name	Title
Mark Hawkes	Dean of Graduate Studies and Research
Peter Hoesing	Director of Sponsored Programs
Jayne Valnes	Research Compliance Manager
Erin Blankespoor	Senior Secretary

Library Resources and Services

The mission of the Karl E. Mundt Library is to support the curriculum of Dakota State University. Mundt Library provides a wide range of library services as well as a diverse collection of reference and informational materials for the use of the faculty and staff of Dakota State University. The Library exists to serve as an archive of accumulated knowledge, a gateway to scholarship, and a catalyst for the discovery and advancement of new ideas. In fulfilling its obligation to provide knowledge to the University and the scholarly community at large, the Library collects, organizes, and provides access to recorded knowledge in all formats. The Library faculty initiates discussions and proposes creative solutions to the information challenges facing the University and the scholarly community. The Library's faculty and staff actively participate in providing quality service, access, instruction, and management of scholarly information.

Since Dakota State University received its current focused mission in the 1980's, the Mundt Library's mission has been to expand its collection of materials on computers, technology, and information systems. To that end, the Library has subscribed to an ever widening number of databases and ebooks that support this emphasis. The physical and electronic collections continue to be built through faculty recommendations and requests, as well as from librarian selection based upon their knowledge of the curriculum and its needs. The journal collection is also based on faculty requests and is fine-tuned by means of an annual analysis of journal use. This analysis helps the Library focus its expenditures (and finite budget) on those journals that are regularly needed and used by the institution's students. The collections have been enriched with digital information. The Library subscribes to numerous online databases including the Association for Computing Machinery (ACM) Digital Library, ProQuest Research Library, ABI-Inform, IEEE, Lexis-Nexis and over 100 others. Most of the material indexed in these databases includes direct access to the full text of the articles indexed. For those articles not available in full-text, the Library provides speedy interlibrary loan service at no extra cost to all DSU students, faculty, and staff.

The Library holds an extensive collection of electronic books on computer security and information assurance, which are discoverable via the library catalog. In addition, the Library subscribes to Safari Tech Books Online, which provides access to 150 titles that provide hands-on training in many areas of technology. The Library also provides access to LyndaCampus.com, which provides digital tutorials in almost every area of technology, marketing, education, and career planning.

The Karl E. Mundt Library is a member of several library consortiums, and maintain borrowing and lending agreements with academic libraries across the country and around the world. As such, the Library can attain materials in digital and/or physical formats for any scholarly need.

In addition to the collections, systems and services offered, Library staff also provide assistance and instruction to faculty and students through workshops, classroom instruction, online tutorials, and one-to-one assistance and training. Library faculty collaborates with course faculty to ensure students have the research background necessary to complete course assignments. Library faculty develops tutorials, subject guides, and other instructional materials to support classroom learning on campus and online.

It is also the Library's goal to graduate students who are able to find, evaluate, and use information to solve problems and to make decisions effectively. Graduates should have the knowledge and skills to function successfully as continuous learners in a continuously changing information world. To successfully meet its goals, the Library provides excellent collections, information systems, services, instruction, and staff. The professional library staff is included in Table 9.

Table 9. Professional Library Staff

Name	Title
Jan Enright	Library Director
Mary Francis	Associate Professor / Reference & Instruction Librarian
Vaughn Hennen	Digital Design / Access Librarian
Ryan Burdge	Archivist

Computing and Technology infrastructure

DSU has an excellent technology infrastructure supporting wired and wireless access to computing resources. All on campus students and faculty are provided iMacs or Fujitsu tablets by the university. DSU was one of the first institutions in the U.S. to implement a 1:1 computing environment in 2003. Online students are free to use any computing tools they want—portable or fixed. Course management tools including D2L and

Eluminate are routinely used. Courses are also delivered using the Digital Dakota Network of room-based interactive video.

The department of Information Technology Services (ITS) ensures reliable core systems and network infrastructure. The suite of computing services provided to the campus community include: maintaining the campus data network; Support desk and tablet repair services; Computer lab and server management; Administrative application development; Website and web application development services; Academic technology training and assistance; Multimedia services. Key support staff of MSET programming are included in Table 10.

Table 10. Information Technology Services Support Staff

Name	Title
David Overby	VP for Technology and Chief Information Officer
Stephanie Baatz	Director of Support Services
Brent Van Aartsen	Director of Technical Operations & Development
Haomin Wang	Manager of Instructional Technology

Online Programs

Extended Programs is responsible for program planning, marketing, program implementation and overall management of courses and programs offered by alternative delivery at Dakota State University. Working in partnership with the colleges and the institution’s academic support areas, Extended Programs works to design and develop active and collaborative degree programs at a distance.

Extended Programs is staffed with the Director of Extended Programs, the DSU Webmaster, Instructional Technologist, Web Support Technologist, and a senior secretary (Table 11). This team serves the needs of students who are enrolled in the online and videoconferencing courses at DSU. The office is the mainstay of distance services to students, working with the administrative offices of DSU to provide these services. The staff also serves the Web needs of faculty, staff and students at DSU and the needs related to educational technology. The office staff assists faculty in the design and implementation of courses delivered by various forms of technology.

Table 11. Online Programs Support Staff

Name	Title
Sarah Rasmussen	Director, Online Education
Annette Miller	State Authorization Coordinator
MingMing Shao	Instructional Design Specialist

Administrative Support Staff

Current administrative staff will provide the academic support services to deliver undergraduate and graduate programs at DSU. The administrative support personnel who are particularly involved in the support of graduate students and programs are included in Table 12.

Table 12. Administrative Support Staff

Name	Title
Jennifer Mees	Enrollment Services
Jay Kahl	Director, Assessment and Institutional Effectiveness
Steve Bartel	Assistant Dean, Student Affairs
Michelle Ruesink	Director, Student Development and ADA Academic Coordinator
Shelly Rawstern	Data Analyst, College of Education
Denise Grayson	Director, Financial Aid
Pete Hoelsing	Director, Office of Sponsored Programs
TBD	Director, Career and Placement Services
Patti Weber	Manager, DSU Bookstore

Academic Advising

Students are required to work with the graduate programs coordinator to complete a Plan of Study within their first semester in the program. Information regarding the program, rules and requirements, and expected milestones will be provided through the online orientation material posted on the Office of Graduate Studies and Research website and in the Graduate Bulletin, and an on-campus orientation for new students is scheduled at the beginning of each fall semester. As part of initiating their project,

students select and work with a faculty supervisor. The faculty acts as a mentor and advisor to the student as well as chairs the project committee.

Financial support to the program

The operating budget (including marketing and recruitment effort) for the Office of Graduate Studies and Research (OGSR) is \$19,000. The OGSR supports all graduate programs at DSU. This includes seven masters' programs in addition to two doctoral programs. Personnel support is comprised of the Dean of Graduate Studies and Research, and a full-time secretary who works with applications, inquiries and petitions/forms. Given the high cost of producing promotional material, and the high cost of travel associated with student recruitment, and other marketing and recruitment efforts in general, the budget is considered as a limiting factor and is considered for increase in the future.

Moreover, the university funds 25 assistantships for the graduate programs. The MSET degree program usually assigns 2-3 per academic year. However, financial aid opportunities are expected to come from other institutional and private sources. DSU has also certified alternative loan eligibility for enrolled graduate students (based on their educational costs) to regional and national lenders.

PART 8: ASSESSMENT AND STRATEGIC PLANS

Assessment

Assessment of the Master's degree in Educational Technology rests on how well students reflect fourteen programmatic objectives within five overarching goals. Activities center around the following four assessment measures:

1. Portfolio exhibits: samples of written, oral, and online exams, course projects, and the master's project are included in the portfolio – representing the attainment of the program's goals and objectives.
2. Periodic graduate survey, conducted by the DSU Office of Institutional Effectiveness and Assessment.
3. Grades in required courses.

Student assessment in the MSET program takes place at three overlapping phases of program progress. Those stages and the assessment activities characterizing them are detailed in Table 13.

Table 13. Assessment phases and activities.

Assessment Phase	Purpose	Indicators
Entry Level	To assure that all admission criteria are met	GRE, GPA, three letters of recommendation, and demonstrated basic knowledge of computers and their applications for educational purposes, statement of professional goals to show alignment with program.
Mid-Level	To monitor progress on coursework and portfolio requirements	Advisor review of <ul style="list-style-type: none"> • progress on the plan of study • the matrix of courses and associated objectives • electronic portfolio requirements and guidance toward portfolio development (i.e. artifacts from completed courses).
Major Field Assessment	To ensure that graduates are proficient in areas identified by the program objectives	The portfolio review is a culminating program exit experience and will show a relationship between student products and program goals and objectives.

Major Field Assessment: Exit Portfolio

The Exit Portfolio Process involves a panel of three DSU graduate faculty (two from the program, one representing the DSU Graduate Council). This panel assesses the portfolio using the MSET Portfolio Evaluation Rubric¹². In addition, each student will describe the link between their portfolio exhibits and the MSET program goals and objectives during his/her formal presentation. Each reviewer will rate the candidate on a three point scale (1=unacceptable, 2=adequate, 3=well done) on the criteria below. The average

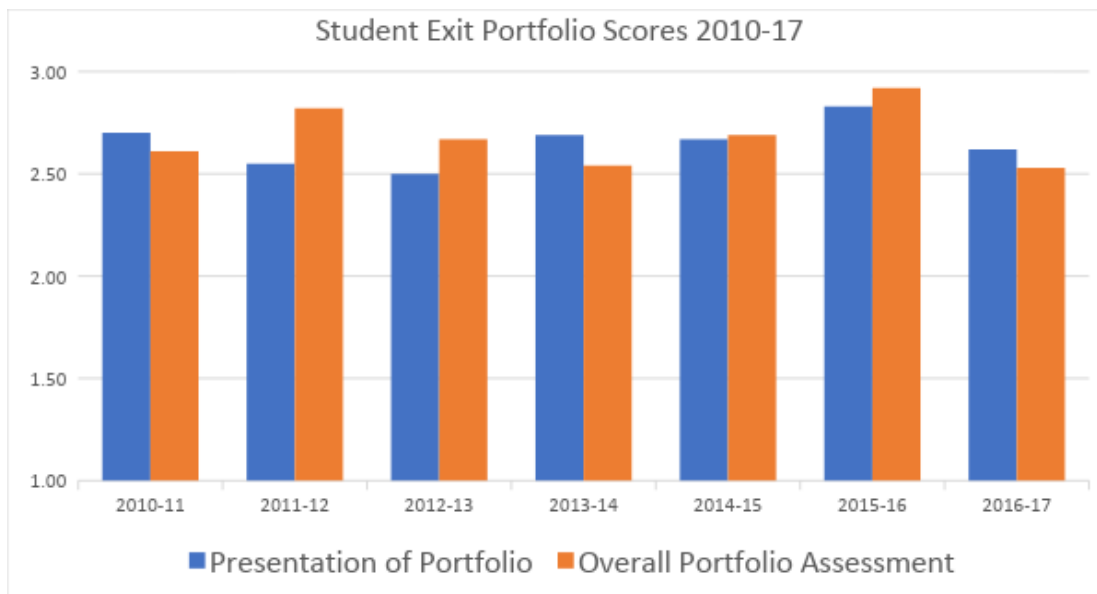
¹² MSET Exit Portfolio Information: <http://www.kevindsmith.org/mset.html>

score of the student candidate must meet or exceed the “acceptable” criteria for both their portfolio and presentation. The rubric contains the following items:

- Philosophy of technology integration into instruction built on sound concepts of learner development
- Portfolio organizing structure appropriately guides reader through content
- Guiding instructional themes reflect the philosophy statement
- High quality products/projects are profiled
- The portfolio and presentation communicates mastery of relevant skills
- Products/projects directly relate to program objectives
- Products/projects extend from the five guiding goals of the program
- Writing is succinct, focused and descriptive
- The portfolio demonstrates appropriate web design principles

Over the last 7 academic years, portfolio raters have consistently rated student portfolio’s in the “exceptional range.” A historical snapshot of portfolio presentation and overall portfolio scores are provided in Figure 3.

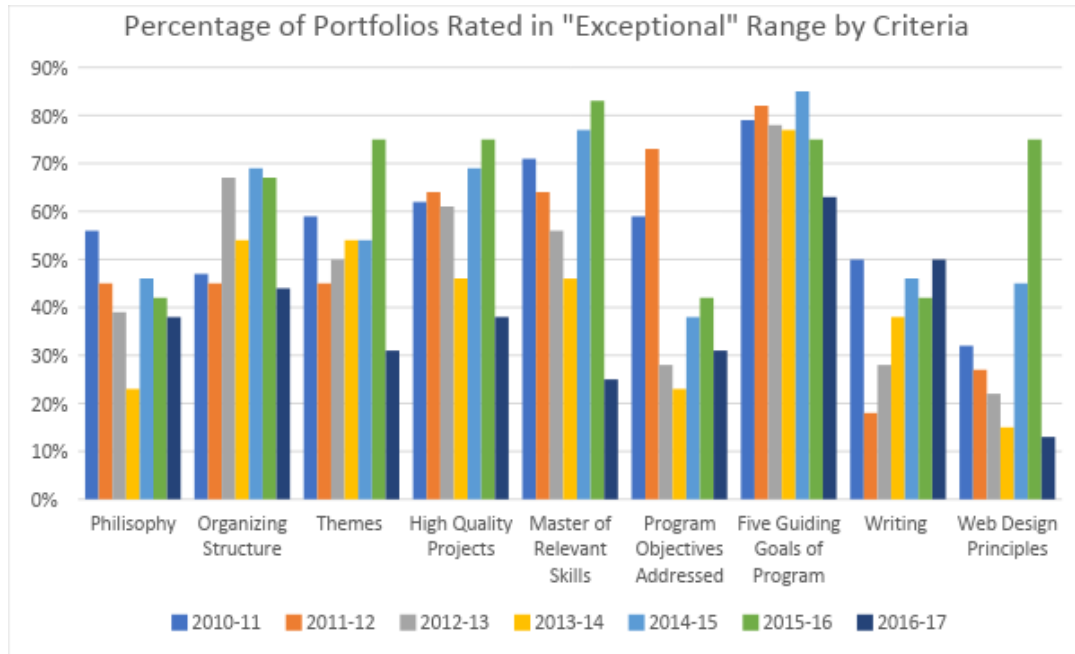
Figure 3. Student Exit Portfolio Scores 2010-17



The data in Figure 4 below provides a visual summary of the percentage of portfolio’s reaching the “exceptional” range on various rubric criteria. From year to year, portfolio

raters show that portfolios do best at *demonstrating high quality products, mastering relevant skills, and meeting the five guiding goals* of the program. Fewer portfolios reach “exceptional” status in *writing and applying web design principles* criteria.

Figure 4. Percentage of Portfolios Rated in Exceptional Range by Criteria 2010-17

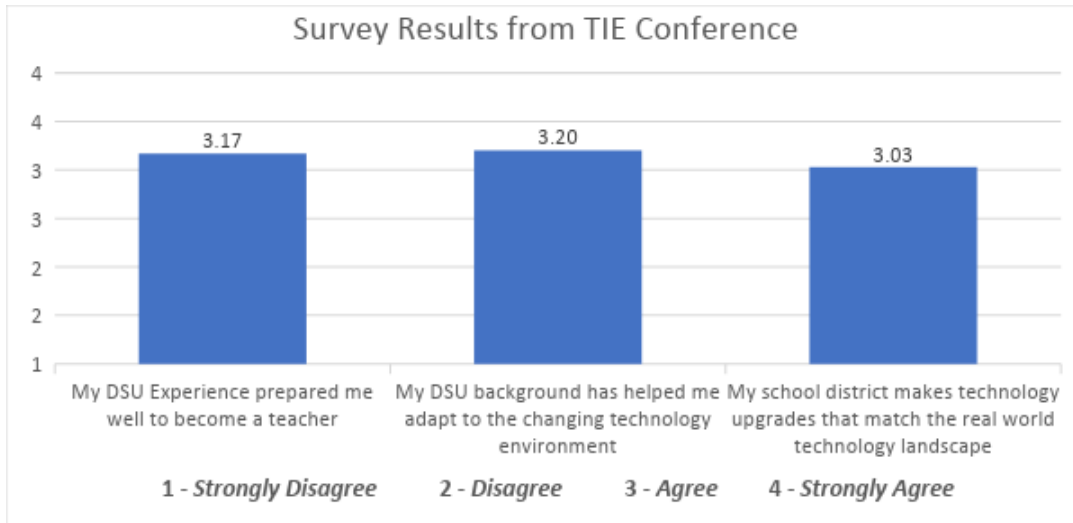


The table below details the student and program assessment activities that are a part of the Master's Degree Program in Educational Technology at Dakota State University. Assessment methodologies and multiple standards of performance are listed for each of the fourteen learning objectives identified under five overarching program goals. Demonstrated competency drives these assessment activities, which validate graduates of the program can and will perform as capable professionals in the field.

MSET Student Perceptions of Curricular Outcomes

In April, 2013 MSET graduates participated in a short alumni survey during the annual SD Technology, Innovation and Education Conference (Figure 5). Graduates rated three statements on a 4-point scale (4=Strongly Agree, 3=Agree, 2=Disagree, 1=Strongly Disagree). The questions reflect well on their DSU MSET experience.

Figure 5. 2013 TIE Conference MSET Student Survey



In October, 2017 MSET graduates between the years of 2010-17 responded to a DSU survey reflecting on their experiences in the MSET program. Student respondents (n=35; 38% of total graduates) were informed that their participation was voluntary and responses would be kept confidential. All responses were aggregated and reported as a group. The survey was developed under the supervision of the DSU Office of Institutional Effectiveness using *Qualtrics Research Software* and administered online.

The first section of the survey identified 11 learner outcomes directly tied to program objectives. Using a 4-point scale where 4=Very Satisfied, and 1=Very Dissatisfied, students indicated their satisfaction with the skills they had acquired. A follow up question inquired the extent to which the skill can be attributed to their DSU MSET experience (4=A Great Deal, 1=None). Table 14 below summarizes student feedback.

Table 14. Student Satisfaction and Attribution of Program Objectives

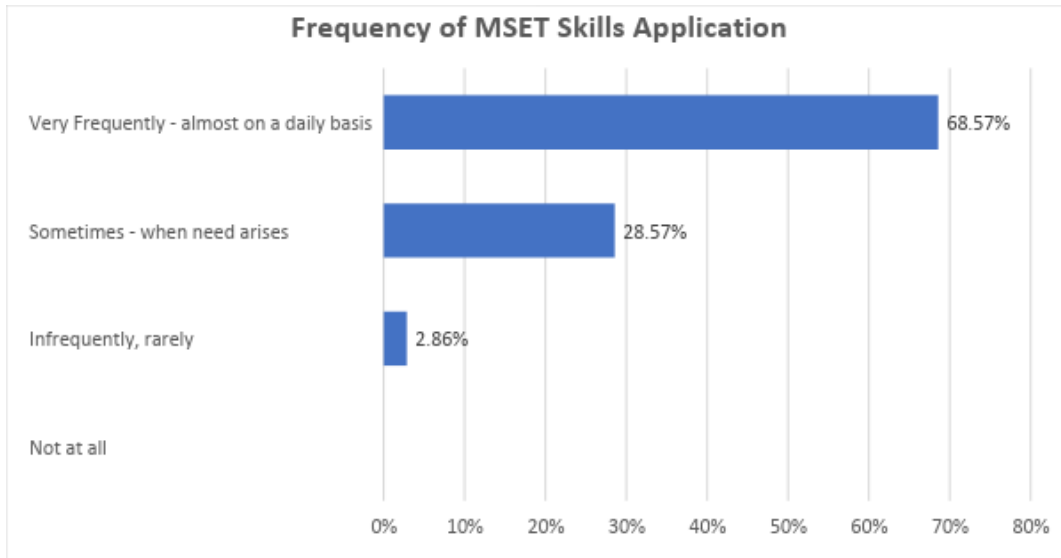
Student Learning Objectives	Satisfaction with Learned Skill/Knowledge	Skill/Knowledge Attributed to MSET
Ability to integrate technology to support student learning.	3.74	3.45
Ability to select and apply appropriate technology to the appropriate task.	3.65	3.40
Ability to adapt to changes in the computing environment.	3.63	3.47

Student Learning Objectives	Satisfaction with Learned Skill/Knowledge	Skill/Knowledge Attributed to MSET
Ability to apply learning theory and principles of instructional design in curricular and instructional decision-making.	3.59	3.62
Use of computers for research (e.g. Library's research databases, search engines).	3.59	3.43
Ability to evaluate technology tools and systems for improved use and application.	3.56	3.43
Proficiency in finding, evaluating, and using current educational research to support continuous improvement in the profession.	3.56	3.14
Awareness of current trends and issues in computer education, distance education, electronic communications, computer hardware and software.	3.44	3.48
Awareness of professional organizations in the field of computer education and technology and their impact on the field of education.	3.44	3.14
Ability to make use of new and emerging innovations in computer and information technology.	3.41	3.31
Ability to maintain computer programs, computer systems, and networks.	3.26	3.29

The data above is organized in descending order of satisfaction with awareness and abilities students perceive they have acquired. Students report being very satisfied with their *ability to integrate technology to support student learning, to select and apply appropriate technology to the appropriate task, and to adapt to changes in the computing environment*. The weakest perceived outcome is the *ability to maintain computer programs, computer systems, and networks*. Not surprisingly, those objectives are also rated highly attributable to the MSET program. The high scores on the 4-point categorical scale reveal strong student satisfaction on acquired outcomes, and that those outcomes are compellingly attributed to their MSET experience.

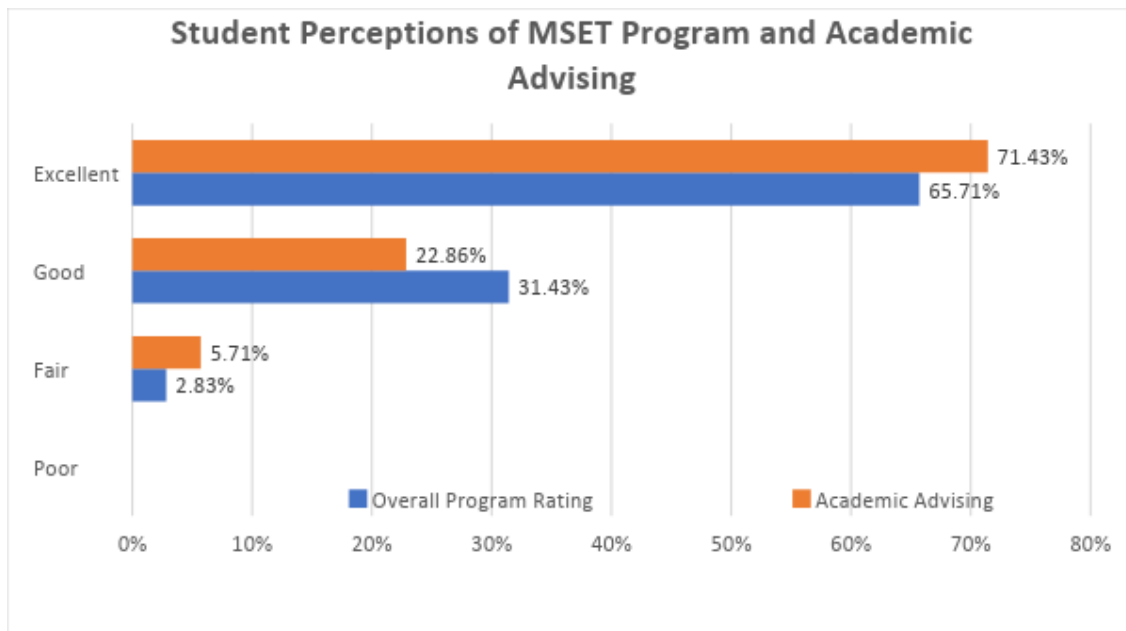
Information on student perceptions of satisfaction and attribution of program objectives, is complemented by survey data indicating students' perceptions of the application of those skills. Figure 6 show student responses to an item that asks how often they the skills they acquired in the MSET program.

Figure 6. Frequency of Application Acquired Skills



In a general evaluation of their MSET experience, survey respondents rated “academic advising” and “overall program quality” on a 4-point scale where 4=Excellent, 3=Good, 2=Fair, and 1=Poor. Student responses are displayed in Figure 7. Mean item scores based on the 4-point rating scale for quality of academic advising is 3.66, and for overall program quality is 3.62.

Figure 7. Quality of Overall MSET Experience and Academic Advising



Summary of Student Qualitative Feedback

At the end of the survey students were invited to identify strengths of the MSET program, along with perceived areas for continued improvement. A brief thematic analysis is provided below, with a few quotes to punctuate major themes.

Strengths. Of the 35 students completing the survey, 27 commented on strengths producing 36 unique responses (some students commented on more than one strength). The largest category of strengths (39%) focused on instructor quality and commitment.

MSET's commitment to the students is evident in all aspects of the program. Their caring and dedication can be felt by the students. I found the professors and advisers always available and their teachings and direction were invaluable. My educational experience at DSU was amazing and I value the relationships with both staff and fellow students.

The past and present faculty in the graduate program are fantastic. The faculty stay current with the trends in education and develop positive relationships with their students. The faculty also stay in contact with alumni are willing to help alumni with questions related to the alumni's classroom.

Another frequent strength cited by the students was the variety and relevance and course topics (25%). Students were satisfied that courses were technologically current and had application to their workplace.

I appreciated how some professors used new ideas that were relevant to today's society with today's learners.

Students also cited as a strength the authenticity of the delivered courses (14%).

The ability to adjust the contents of each student's work to their current or desired positions

Other strengths cited is the online availability of the program, opportunities for collaboration, small class size and affordability.

Areas for Improvement. Students' ideas about how the program could improve were less frequent and more diverse than areas of strength. In all, 17 students commented on areas for improvement which produced 20 unique comments. The largest group of

comments (35%) addressed the theme of course relevance and authenticity, like the example below.

[Make] sure that the offered classes are modernized to match up with today's technology trends. A class or two was outdated in my opinion. Case in point - a textbook we were required to read for class was from the early 2000's and talked about the use of VCR's and camcorders in the classroom. I haven't owned a VCR in over 5 years, and if I'm recording something, I'm using my smartphone.

Another repeated theme was students desire to see more technical topics addressed in the curriculum (25%), as these comments verify:

I personally would like to see more network administration in the program, as an option. The program is heavy on theory and integration methods, which is important, but in South Dakota, we are expected to integrate and maintain the system.

I would like to the graduate program extend into a specialist and/or doctoral program. With emphasis on computer science and security education across the country, having teachers at the K-12 education level with enhanced education in those areas would be a benefit.

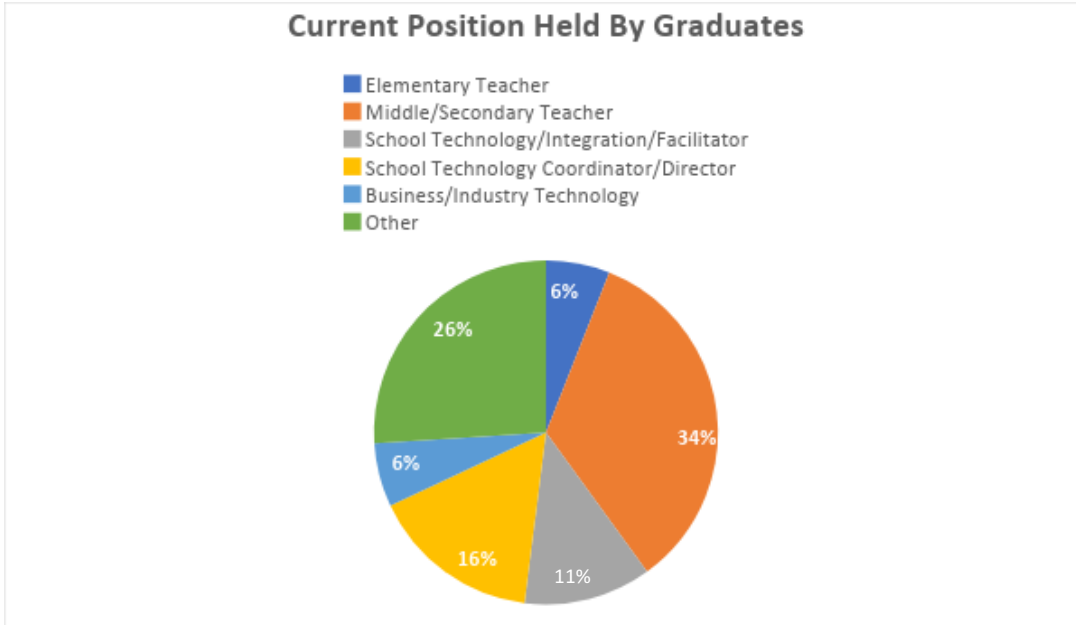
A smaller set of comments (10%) addressed faculty interactions:

Some professors were not always punctual in their grading or responding to student questions - improvement is needed there.

Other areas for improved listed by students included, start students on portfolio development earlier in program, eliminate group work, make the program more affordable.

Below is a breakdown of respondents by current employment position (Figure 8). Most of respondents belonging to “other” category work in higher education or state/regional education service agencies.

Figure 8. Current Position Held By Graduates



Aligning with Institutional Strategic Planning

In Fall 2013, 259 DSU employees, students, and community members began work on the university’s new Strategic Plan. Participants were divided into 26 groups, facilitated by DSU faculty and staff, who met to discuss campus values, marketing mission, and a university vision. In 2015, new university President Dr. Jose Marie Griffiths used this campus wide work as a basis to define the institutions five-year strategic plan, Excellence through Innovation: Vision 2020¹³. The goals were also informed by the University’s Academic Quality Improvement Program, associated with accreditation in the Higher Learning Commission of the North Central Association. The goals are:

¹³ Excellence Through Innovation:2020. A Five-Year DSU Strategic Plan (2015). Available at: <https://dsu.edu/assets/uploads/resources/Strategic-Plan.pdf>

1. **Educate to Inspire: Dedicated to Academic Quality and Excellence.** DSU promotes active engagement in scholarship, teaching, and learning to prepare students to excel in their disciplines and be leaders in their communities.
2. **Grow to Thrive: Dedicated to Student Access and Success.** By improving access and opportunity, DSU will enroll, retain, and graduate a larger, more diverse student body.
3. **Innovate to Transform: Dedicated to Continuous Improvement.** Continuously enhance our academic programs, university facilities, student services, and campus technologies to become a more effective and efficient university.
4. **Collaborate to Lead: Dedicated to External and Internal Partnerships.** By fostering collaborative relationships with internal and external stakeholders, DSU will expand educational opportunities for students.

Table 15 shows MSET in the planning stages of aligning to the strategic initiatives of the university. While all goals are addressed in the goal alignment plan, not all initiatives are, as evidenced by non-linear numbering.

Table 15. Alignment of MSET actions with DSU Strategic Goals

Vision 2020 Goal	Initiative	MSET Response
Educate to Inspire: Dedicated to Academic Quality and Excellence	1. Offer innovative and robust academic programs that link to our mission.	Organize external advisory board to provide input into the delivery of academic programs.
	2. Advance inquiry, scholarship, research, and creative activity.	Increase citations and publications by faculty and students in local, regional and national conferences by 5%.
	4. Infuse innovative technology in the delivery of academic programs.	Increase participation in institution research programs (FRI, SRI, START) by 10%
		Pioneer and integrate media and interactive technologies to engage the distance learner.

Vision 2020 Goal	Initiative	MSET Response
Grow to Thrive: Dedicated to Student Access and Success	1. Optimize graduate enrollment.	Maintain high level of graduate advising as measured on graduate student alumni survey.
	2. Recruit a more diverse student, faculty, and staff population	Implement 4+1 accelerated program for DSU undergraduates.
		Improve retention of graduate students to 95%.
		Target urban populations with marketing materials encouraging student enrollment.
Innovate to Transform: Dedicated to Continuous Improvement	1. Through continuous quality improvement, DSU will evaluate university-wide processes to promote a student-friendly environment.	Conduct annual review of curricula for currency and student satisfaction.
	2. Create a campus culture that promotes transparent decision making, effective communication, and shared governance.	Online student satisfaction with service excellence will reach core score of 6.0 using Noel-Levitz Priorities Survey of Online Learners (PSOL); survey measured on a 7-point Likert scale.
	3. Improve brand awareness regionally, nationally, and globally.	Share program and institutional information at a frequency that helps students and faculty feel up-to-date and fully informed of program events and progress.
		Increase number of visitors to program website and followers on Twitter.

Vision 2020 Goal	Initiative	MSET Response
Collaborate to Lead: Dedicated to External and Internal Partnerships	2. Expand industry, government, and K-12 partnerships to enhance the student educational experience.	Explore partnerships with BIA and other predominantly Native- American institutions of higher education to support student study.
	3. Increase alumni involvement through university-wide programs that engage both current and former students.	Participate with state department of education officials and other funding sources (NSA, NSF) to deliver professional develop experiences for K-12 educators, technology facilitators and coordinators to support and integrate technology into the classroom. Deliver annual newsletter on program events, progress and achievements to alumni and friends.