



External Evaluation Report for the Bush Foundation Grant Year 1

Submitted by:



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EXTERNAL EVALUATION REPORT FOR THE BUSH FOUNDATION GRANT Year 1

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CHAPTER 1.0:

Executive Summary

1.0 EXECUTIVE SUMMARY

Since March 2001, the Bush Foundation has supported an initiative to enhance student learning on the four University of Minnesota campuses—Crookston, Duluth, Morris, and Twin Cities. The goal of the initiative has been to foster the development of faculty skills for integrating innovative teaching practices, including new developments in technology-enhanced learning, and to address problems of student learning.

During the three-year grant period ending June 2004, each campus strengthened its own particular approach to enhancing student learning. Many guiding lessons from the literature on faculty development were also successfully incorporated on each campus. Interview data from key leaders and grant participants provided considerable detail on the campus approaches and what was working well. Some common challenges reported involved dealing with lack of faculty time, finding creative ways to engage faculty, and helping faculty were new to technology achieve fluency with it. Also, at the end of the grant period it remained a significant challenge for faculty to acquire new instructional assessment and technology skills and to conduct systematic inquiry into the effects of course changes.

1.1 Grant Continuation Proposal

Each of the four campuses reviewed their 2001-2004 grant efforts in light of the lessons learned. In response to the evaluation findings, each campus group determined specific ways to extend and/or adapt its efforts to enhance student learning through instructional technology and other innovative teaching strategies.

The four campuses proposed the following three goals to unite their efforts and design specific program activities:

- Goal 1: Align grant efforts with current campus initiatives to keep student learning in the forefront.
- Goal 2: Foster a scholarly and collaborative approach to addressing student learning issues.
- Goal 3: Integrate the assessment of student learning and the evaluation of student learning initiatives into the campus mainstream.

The learning issues each campus will focus on during the grant continuation are outlined later in this chapter and detailed further in Chapter 4.0: Summary of Campus Participation.

1.2 Evaluation

The external evaluation of the grant continuation was designed to fulfill some information needs that go across campuses and to answer some questions that are also of common

interest. The external evaluator is working with campuses in a variety of ways to coordinate activities at the system level. Campuses have been encouraged to engage in local evaluation activities that can be reported in their annual project reports. The evaluation plan is structured to address the impact of the program, outcomes from program participants and their research, and the effectiveness of program leadership. Guiding questions for each of these components are detailed in Chapter 2.0 of this report.

A grant coordinating team was established for the purposes of mainstreaming the evaluation efforts for the Bush continuation grant, and a grant coordinating team was established. This team consisted of Principal Investigators, campus coordinators, and an external evaluator. Each member of this coordinating team was responsible for ensuring that data were collected for multiple levels of the evaluation.

1.2.1 External Evaluator

The University of Minnesota contracted with MGT of America, Inc., to conduct the external evaluation for this continuation project. MGT was established over 30 years ago in Tallahassee, Florida, for the purpose of providing high-quality management and research consulting services to public sector entities. In addition to our corporate office in Tallahassee, MGT has established regional offices in Olympia, Washington; Sacramento, California; Austin, Texas; Columbia, South Carolina; and Washington, D.C.

MGT is recognized as one of the nation's premier higher education planning and management research consulting firms. The firm's consultants have extensive experience in higher education and a keen understanding of university, college, and state system operations that far exceeds that of the competition. More than half of MGT's 2,700 client engagements have involved educational institutions or state education agencies.

1.2.2 Evaluation Approach

MGT, in consultation with grant Principal Investigators (PIs), developed an evaluation plan that would ensure that qualitative and quantitative data were collected and analyzed to measure the impact of the grant on student learning in relation to the aforementioned goals. The plan was also structured to address the guiding evaluation questions listed in Chapter 2.0 of this report.

To evaluate the project, MGT:

- Developed evaluation procedures and documentation tools;
- Conducted data collection and analysis as outlined in the evaluation plan;
- Participated in monthly video conference calls with grant coordinators;¹

¹ Monthly video conference calls were suspended during the Summer semester of 2005.

- Conducted a minimum of six conference calls with each of the campus coordinators;
- Conducted site visits to each of the four participating campuses;
- Prepared and delivered six evaluation progress reports; and
- Prepared a year-end evaluation report for the Bush Foundation.

1.2.3 Development of Evaluation Procedures and Documentation Tools

To fulfill the requirements of this project, the first task was to develop the instruments that would be needed to conduct the evaluation. Several different data gathering techniques were employed during Year 1, including faculty reflection logs, a faculty survey, focus groups, and interviews. Information on each of these data collection instruments and procedures are detailed in Chapter 3.0 of this report, and copies are included in the appendix of this report.

1.2.4 Data Collection and Analysis

Faculty reflection logs were developed in January and ready for faculty to begin completing on a monthly basis in February. MGT developed a protocol for faculty to follow as they were completing the entries. Since some faculty were not entirely comfortable with posting logs via a public forum, participants had the option of completing the logs either through a password-protected web portal provided by MGT or via a Word document. Faculty who chose the latter format would e-mail their logs to the campus coordinator, who would in turn send them to their MGT consultant. Data collected from these logs were compiled, and relevant findings are reported in subsequent chapters of this report.

Faculty surveys were developed in January, and letters instructing faculty to complete the first iteration of the annual electronic survey were developed and distributed to faculty participants in February. The PIs distributed the letters to grant participants in February 2005. Data collected from the surveys were compiled and distributed to grant PIs and campus coordinators in March.

MGT visited each of the participating campuses once during Year 1, in November 2005. During these visits, MGT conducted interviews with campus coordinators and focus groups with grant participants. Stakeholder focus groups included faculty participants, consultants, and graduate and undergraduate students. At the conclusion of the site visits, MGT conducted an interview with the grant PIs and orally reported on data collected from the interviews and focus groups. Data collected from these focus groups and interviews were compiled and analyzed to support information obtained from grant participants from the reflection logs and surveys.

In addition to the aforementioned data collection activities, MGT participated in monthly video conferences with campus coordinators and grant PIs. During these calls, campus coordinators provided brief updates on campus activities related to the Bush grant, and systemwide evaluation issues were discussed. MGT consultants conducted follow-up

conference calls with campus coordinators to discuss campus activities in more detail, as well as local evaluation issues or concerns.

Other data collected by MGT included minutes submitted by campus coordinators from meetings and workshops with participants, workshops and training opportunities available to campus participants through Bush grant resources, and PowerPoint presentations from monthly campus participants' meetings.

1.2.5 Year-End Evaluation Report

When all the data had been gathered and all the site visits had been completed, MGT began the process of preparing the evaluation report for Year 1. This initial report focuses on providing an overview of the start-up of grant-related activities on each of the campuses. Successive annual reports will entail a more direct focus on the measurable impact of Bush initiatives and the spread of this information across the campuses as these data become available. The following activities, among others, were completed during this process for Year 1:

- Analysis of the final data from surveys, focus groups, interviews, and other campus submissions;
- Identification of the issues to be addressed in the report;
- Description of the background of the project and the methodology employed to complete the evaluation;
- Preparation of a draft report for review by the grant's Principal Investigators and campus coordinators;
- Modification of the report based on corrections and/or omissions suggested by those reviewing the draft; and
- Finalization of the report and submission to the Bush Foundation.

1.3 Summary of Campus Participation

The purpose of this report was to evaluate how each campus extended and/or adapted its efforts to enhance student learning through the use of instructional technology and other innovative teaching strategies. The campuses were united by the three goals of the Bush continuation grant as they designed program activities. Exhibit 1-1 summarizes the project focus for each campus, the number of faculty involved, the courses impacted by the research, and the number of students enrolled in those courses. More detail on the outcomes for each of these projects can be found in Chapter 4.0 and Appendix C of this report.

**EXHIBIT 1-1
SUMMARY OF CAMPUS PARTICIPATION**

Courses Impacted by Projects	No. Students Impacted by Research	Focus of Research Projects
Crookston (4 Faculty): Encouraging cooperation and collaboration among students through the use of technology and innovative teaching strategies.		
Economics	60 Students per Semester	Assessment of effectiveness of collaborative learning techniques in introductory economics courses using a real-time/instantaneous in-class polling system. This system was used first with a control group cohort that did not use collaborative techniques, and subsequently with an experimental group that included collaborative elements.
Physics	60 Students per Semester	Faculty partnered with the economics project above, involving the same control/experiment groups for students enrolled in a physics course.
Hotel, Restaurant, and Institutional Management	15 Students per Semester	Internship involves web-based report submissions and a chat room/discussion board through which students regularly update progress and share, reflect on, and analyze their experiences on the job, while faculty and student peers evaluate and discuss.
Business Management	15 Students per Semester	Faculty partnered with the hotel, restaurant, and institutional management project above, using an identical design administered to students in management internships.
Duluth (10 Faculty): To improve student learning by integrating and implementing a reflective cycle of action research that engages faculty in a four-step process that involves planning, acting, evaluating, and reflecting. Furthermore, the faculty implemented a model that engaged students in four self-regulatory processes—self-evaluation and monitoring, goal setting and strategic planning, monitoring learning outcomes linked to teaching strategies, and implementing previously learned or new learning strategies.		
Computer Science	150 Students per Semester	Student learning in 1000-level large lecture classes.
Social Work	30 Students Total	Utilizing group reflection to increase engagement with course topics and strengthen divergent and critical thinking.
Theater	65 Students per Semester	Identifying student learning strategies and the linkage between classroom learning opportunities and laboratory exercises.
Composition	30 Students per Semester	Using ePortfolio to facilitate lifelong reflective learning.
Math/Statistics (2 Courses/2 Faculty)	200 Students per Semester	Increasing student ability to study independently and to think mathematically.
Health, Physical Education, and Recreation	20 Students per Semester	Implementing cyclical phases of self-regulated learning: forethought, performance, and self-regulation.
Education (Research for this course was not implemented this year; instructor was on sabbatical.)		Explicitly examining instructor's values and assumptions about student learning and instructor teaching with a focus on critical thinking and self-regulation.
Economics	30 Students per Semester	Identifying individual learning styles, recognizing the style being used in a course, and developing adaptive study strategies when there is a mismatch between preferred and class style.
Chemistry	30 Students per Semester	Using contemporary scientific breakthroughs to increase critical and integrative thinking in a liberal education course, and implementing new lab curricula to improve student ability to integrate concepts and apply them in labs.

**EXHIBIT 1-1 (Continued)
SUMMARY OF CAMPUS PARTICIPATION**

Courses Impacted by Projects	No. Students Impacted by Research	Focus of Research Projects
Morris (13 Faculty): To enhance student learning by addressing diverse learning needs and creating an integrated, efficient, and responsive system for technology-enhanced learning by focusing on learning styles and the applications of technology to meeting the needs of diverse learners.		
Technology Integration to Support Constructivist and Collaborative Learning	30 Students per Semester	Changing delivery from formal lecture formats to include visual, audio, and spatial forms of communication and other technologies that will engage students and promote constructivist and collaborative learning.
Forum for English Seminars (3 Courses/3 Faculty)	40 Students per Semester	Involves a web forum for English seminars that will enhance research, discussion, and debate.
Foreign Language Work Group (6 Courses/3 Faculty)	150 Students per Semester	Researching the application of various instructional methods in foreign language classrooms to accommodate for differences in learning styles through the use of various multimedia and interactive technologies.
Dynamic Web Page Teaching Tools (2 Courses/2 Faculty)	40 Students per Semester	Development of tools and applications to assist a diverse group of non-CS major students that are interested in learning basic web-programming skills.
Using Mathematica on Teaching Calculus to Diverse Learners (2 Courses/1 Faculty)	70 Students per Semester	Adapting and updating Mathematica notebook files to allow for extended use in all calculus sections at UMM, extending the application and utility of technology in these courses and thereby accommodating diverse learning styles.
Computer Modeling of Materials in Physics	15 Students per Semester	Collaborating with the computer science department to develop a software interface that will allow for visual computer modeling in selected physics courses.
Financial Management	140 Students per Semester	Integrating the use of an online simulated portfolio into the course in order to give direct, collaborative experiences to students in real world concepts.
Horizontal Integration of Constitutional Law (2 Courses/1Faculty)	40 Students per Semester	Introduction of an online collaborative forum for case briefing that is intended to expand potential learning opportunities, particularly for students that have not taken related coursework.
Twin Cities (15 Faculty): To enhance student learning in large classes through the use of innovative teaching and creative technology strategies.		
General College: Human Anatomy and Physiology	150 Students per Semester	Increasing students' understanding of the course, time-on-task, and engagement (What do I study?).
Introduction to Dance	75 Students per Semester	Improving writing ability for the course, creating new opportunities for structured group assignments, increasing student interest in small and large group discussion, and easing the flow of digital video in lecture to facilitate discussion.
Computer Science	135 Students per Semester	Increasing student engagement, attendance, and retention of material for females, and decreasing the non-success rate.
Biology	800 Students per Semester	Increasing student engagement, attendance, and preparation.
Geology	150 Students per Semester	Increasing student abilities to read maps for geology classes.
Biology of Plant Food Systems and the Environment	100 Students per Semester	Increasing student engagement and attendance.
Architecture: Environmental Design and Sociocultural Context	90 Students per Semester	Improving learning outcomes, positively impacting course experience, and helping students see all aspects of the course as a coherent whole.

**EXHIBIT 1-1 (Continued)
SUMMARY OF CAMPUS PARTICIPATION**

Courses Impacted by Projects	No. Students Impacted by Research	Focus of Research Projects
Twin Cities (Continued)		
Theatre History and Drama I	75 Students per Semester	Increasing student engagement with material while overcoming classroom limitations with innovative teaching strategies.
Business Statistics	90 Students per Semester	Increasing attendance at discussion sections, addressing inconsistency across discussion sections by achieving a single voice between instructor and teaching assistant.
History of Medicine	96 Students per Semester	Increasing students' reading and writing skills in a course in which they must process unfamiliar, foreign, and historical vocabulary words, complex sentences, and sophisticated arguments; and increasing their ability to think critically about academic texts and evaluate the merits of historical arguments in the contexts of medicine and biology.
Personal and Family Finances	100 Students per Semester	Increasing student engagement, attendance, and integration of all aspects of the course material.
Principals of Marketing	120 Students per Semester	Enhancing, or maintaining, student satisfaction in a weeder course while increasing the enrollment count across all 30 sections per year.

The following summarizes the project focus for each of the campuses and data collected. Key outcomes from Year 1 for the research and evaluation are divided into three subsections—Evaluation of the Program, Evaluation of Program Participants, and Evaluation of Program Leadership.

1.3.1 Evaluation of the Program

Data summarized in this section examine the extent to which faculty development activities assisted faculty participants with implementing their research, and the extent to which each campus engaged the desired number of faculty and types of courses. More detailed data for each individual campus can be found in Chapter 4.0 of this report.

As shown in Exhibit 1-1, all campuses have adopted a multi-disciplinary focus for the Bush continuation grant and involved faculty from a number of different colleges. On the UMN campus (through creative budgeting) more research projects for faculty were funding than originally planned.

As reported throughout Chapter 4.0, all campuses offered several levels of faculty development opportunities to faculty participating in the grant. Grant leaders on each campus utilized leadership teams or committees to plan for guest speakers, set agendas for regularly held meetings, and organized other collaborative events. Examples of workshops available to grant participants on the various campuses included:

- Discussion forum for the article “Learning and Teaching in the 21st Century: Trends and Implications for Practice” (Crookston);
- Review and Q&A session on The Advancement of Learning: Building the Teaching Commons (Crookston);
- Workshop: Do Learning Styles Make a Difference? (Duluth);

- Workshop: Creating Independent Learners: A Colloquium by UMD Faculty (Duluth);
- Workshop: Engaging Students with Multiple Learning Styles Using Technology Tools (Morris);
- Inter-Campus Conversations on Innovative Teaching (Morris);
- Workshop: Engaging Faculty and Students in Talking about Teaching and Learning (Twin Cities);
- Workshop: Nine Ways to Design and Deliver Engaging Lectures (Twin Cities); and
- An interactive web-based presentation session to showcase research across all campuses (all campuses).

Faculty and grant participants across all campuses agree that these staff development opportunities have been most beneficial to them. They reported that the workshops keep them motivated and on track with their research. They were very pleased with the interactive web-based presentation held across all campuses and would like to see more of this interaction in the future.

1.3.2 Evaluation of Program Participants

Evaluation data summarized in this section analyze the extent to which faculty participating in the Bush continuation grant aligned their research with strategic campus initiatives, used a collaborative and scholarly approach to teaching, assessed student learning in their courses, used information gathered from assessment and evaluation to inform their course design, and altered their definition of and attitudes towards the importance of a scholarly and collaborative approach to teaching changed during the grant period.

As outlined in Exhibit 1-1, data collected from focus groups, interviews, and course profiles showed that faculty participating in the grant have aligned their research and project focus with their campus initiatives. However, while faculty agree that the Bush grant was assisting with addressing their campus initiatives, there seemed to be a lack of awareness of the Bush grant activities on some campuses, and as a result, resources were not being maximized or shared. Interviews with campus coordinators revealed that information on grant activities and their impact was generally being disseminated to campus administrators, though at varying levels across campuses.

Focus group and interview data collected from each campus revealed that faculty were collaborating together through regularly held meetings. While these meetings focused on grant processes and procedures, time was set aside for faculty to ask questions and work together on their research and evaluation designs. In several instances, faculty reported that they were also getting together informally over brown bag lunches to review research and discuss additional evaluation methods and innovative strategies.

Analysis of evaluation data collected from grant stakeholders revealed that while many grant participants are using literature and articles to inform their course redesigns and

grant research, the amount of this type of research varies from project to project and campus to campus. Likewise, evaluation data revealed that grant participants among the four campuses are at varying stages in their research. As a result, few have felt comfortable disseminating information on their research and the outcomes.

One of the biggest challenges reported by faculty on all campuses in Year 1 has been the demand on their time for other responsibilities. They believe that grant activities are addressing the individual goals and initiatives for their campuses; however, this information is not being disseminated to campus administration. As a result, they are being pulled in many different directions. This problem is having a direct impact on the evaluation of outcomes for their research.

Faculty agreed that the staff development they have been offered on assessment and evaluation has been very helpful with applying evaluation designs to their research. However, they have found they do not have enough time to properly analyze the data and relate it to specific innovative strategies they have incorporated into their courses.

Analysis of reflection log, focus group, and course profile data collected from grant participants in Year 1 demonstrated that each of the projects on the four campuses is engaged in evaluation of outcomes, though at varying degrees. At a minimum, all grant participants have identified their specific teaching challenges or issues for their research.

Course profiles show that that majority of faculty participating in the grant have a common understanding of what it means to use a collaborative approach to their teaching; however, stakeholders seem to have defined “a scholarly approach to teaching” in a manner that, perhaps, reflects their own individual disciplines. For example, faculty from a scientific or mathematical background focus on a more statistical or quantitative approach, while those with an art or language background focus more on reflection of teaching strategies to evaluate one’s own teaching.

1.3.3 Evaluation of Program Leadership

Data summarized for this section focus on the successes achieved, challenges faced, and lessons learned by program leadership while implementing the grant. Data also examined how well the program leaders addressed these issues, and the processes that became critical in managing the program.

Focus group and interview data from grant stakeholders revealed several successes for the grant in this implementation year. Stakeholders across all four campuses agreed that the interdisciplinary focus created a synergy among faculty. Many reported that though they had collaborated with faculty in the past, it had typically been within their own discipline. The Bush grant opened their eyes to the benefits of networking across disciplines. Campus coordinators are all thrilled with the interdisciplinary focus of the grant on their campuses, but agreed that managing the grant and keeping faculty on track was difficult. They found that holding regularly scheduled meetings and workshops with faculty participants was critical to the success of the grant. In addition, campus coordinators have ensured that faculty remain on track by disseminating minutes and notes from these meetings and workshops.

Furthermore, the grant brought about significant changes in faculty views. Faculty are more ready to embrace new strategies in their teaching and evaluate the impact of those

strategies on student learning. All faculty have focused their efforts in Year 1 on enhancing student learning in their courses. As a result, they have noticed higher levels of student engagement and attendance. Furthermore, new course designs and syllabi have enabled faculty to be more productive in their courses.

While stakeholders participating in the grant reported many successes in Year 1, there were also several common challenges experienced among the campuses. The greatest of these was lack of time. Campus coordinators were concerned in Year 1 that the demands placed on faculty were inhibiting them from spending adequate time on data analysis. Faculty confirmed that while they are implementing new, innovative strategies and techniques in their courses and collecting evaluation data, they did not have adequate time to analyze the impact of these strategies on student learning. Faculty found that they were making assumptions based on their own intuition and agreed to take a more measurable and objective approach in the future.

Course profiles reveal that about half of the research projects implemented by faculty or course teams in Year 1 were able to collect data. However, only a few of those were able to analyze the data to determine the impact of specific strategies introduced into their courses.

Several campus coordinators believe that faculty were also having some difficulties with integrating technology into their courses due to the varying degrees of technological proficiency among the participants. Data collected from faculty confirmed this challenge. Campus coordinators intend to address this issue in a variety of ways as the grant moves into Year 2.

Evaluation data collected from all grant stakeholders in Year 1 revealed that the grant program's leadership on each campus is addressing the needs of faculty participants and campus leadership. Campus coordinators are handling challenges as they arise and encouraging faculty to stay motivated and move forward with their research.

1.4 Year 1 Evaluation Summary

The focus for Year 1 was on implementing the grant and getting everyone up and running. From the perspective of the grant's Principal Investigators, the greatest successes this year were the strong participation from faculty on each campus; the establishment of good communication across the campuses, facilitated by the monthly ITV meetings; and the establishment of protocols for collaborating among campuses.

With every grant implementation and activity also come challenges. Some of the challenges the grant leaders experienced this year centered around mainstreaming evaluation. There are actually three levels to the evaluation of the Bush grant. The first is the evaluation that occurs by faculty at the course level. The second involves campus coordinators at the campus level. The last is the system level evaluation being conducted by MGT. Evaluation data from Year 1 reveal that more communication and evaluation protocols are needed to more effectively communicate expectations for the mainstreaming of these evaluations and the reporting of outcome data among grant participants.

Processes that emerged as critical to managing the Bush grant—monthly video conference calls, utilization of listservs to disseminate information between and among campuses, monthly evaluation conference calls, and monthly progress reports—will be continued into Years 2 and 3.

All grant leaders agree that Year 1 was successful in terms of developing and establishing the roles and responsibilities of all stakeholders. As the grant moves into Years 2 and 3, the focus should shift to evaluation and dissemination.

The following information summarizes the efforts of the campuses in meeting the three proposed goals for the Bush continuation grant during this implementation year.

1.4.1 Goal 1: Aligning Grant Efforts with Campus Initiatives

Each of the four campuses focused on learning issues that aligned with a variety of campus initiatives. The campus initiatives addressed through the continuation grant for the four campuses are identified below.

- **Crookston:** At UMC the focus is on efforts to enhance the learning experience of students in terms of achievement and satisfaction. In addition, among the campus “core components”—defined as dominant themes, transferable skills, and abilities essential to an individual’s success in any occupation or life setting—is a focus on the development of teamwork skills among students.
- **Duluth:** Bush grant activities on the UMD campus were aligned with ongoing campus initiatives in advising, retention, and mentoring. The project was also designed to be aligned with several of the campus faculty development and student learning initiatives.
- **Morris:** The UMM strategic three-year plan states two main objectives to strengthen the UMM community—to attract and retain high-quality students, faculty, and staff with a continuing effort to improve campus diversity; and to improve student satisfaction and retention by providing excellent and innovative classroom instruction, careful and responsive academic advising, high-quality academic support services, and meaningful co-curricular opportunities. The project on the UMM campus aims to improve faculty’s abilities to address diverse learning styles of students and to create an integrated, coherent support structure for technology-enhanced learning (TEL) that will make continued innovations in this area more successful.
- **Twin Cities:** Since the grant proposal was written, the university has promoted a new strategic initiative, a goal of making the University of Minnesota one of the world’s top three public research institutions. A strategic initiative task force developed a plan to stimulate cutting-edge international research, as well as teaching. Evidence from Year 1 of the grant reveal that the activities of the Bush grant, at their broadest, are emphasizing students and

learning, through the focus to improve student achievement in large courses by keeping student learning in the forefront.

Evaluation data reveal several other key outcomes related to the first systemwide goal. First, faculty reported that the demands placed on their time were a challenge for them. They felt there was not enough awareness among deans regarding grant activities and how they relate to the aforementioned campus initiatives. While data showed that grant information is being disseminated to campus leaders, the extent to which this occurs varies from campus to campus.

Data also revealed that campus coordinators are providing faculty development opportunities to grant participants that stimulate the belief among faculty that they belong to an institutional culture that values enhancing student learning and values their growth as teachers. While campus coordinators plan to continue to offer these opportunities, they should recognize that grant participants could benefit from sharing these resources and opportunities systemwide. Furthermore, faculty participating in the Bush grant are aware of research projects being conducted on other campuses and would like to know more about the implementations and outcomes. Uniting grant participants would go a step further in aligning the campuses and their initiatives for the benefit of the university as a whole.

1.4.2 Goal 2: Fostering a Scholarly and Collaborative Approach to Student Learning

As stated in the grant proposal, a key characteristic of a learning organization is the ability of its members to learn together and to add value to the organization by converting individual information into organizational knowledge. In each of the program components, campus coordinators designed grant programs and activities that brought faculty and instructional staff together to reflect on their research and experiences as teachers. These opportunities also allowed grant participants to discuss their insights into teaching with colleagues, read literature to inform their thinking, and use the classroom as a laboratory to systematically investigate questions about enhancing student learning.

1.4.2.1 Fostering a Scholarly Approach to Student Learning

All campus coordinators seemed to define fostering a scholarly approach to student learning as using research to inform course redesigns and make decisions in regards to project outcomes and adjustments, in addition to disseminating of the research outcomes. However, faculty often viewed using a scholarly approach more as dissemination activities.

Analysis of evaluation data collected from grant stakeholders revealed that while many grant participants are using literature and articles to inform their course redesigns and grant research, the amount of this type of research varies from project to project and campus to campus. On the UMTC and UMM campuses, consultants are working with grant participants to provide literature and articles to help them make more informed decisions. However, faculty and faculty teams on the UMC and UMD campuses did not work with consultants in Year 1, and implemented research projects more independently. Data also reveal that faculty

seemed to define a scholarly approach to teaching in a manner that, perhaps, reflected their individual disciplines.

In addition, evaluation data collected from faculty and course team members indicate that libraries of the resources being used by grant participants to inform their research decisions were not being kept consistently among the campuses. Campus coordinators noted that they are keeping these libraries; however, the degree to which such information is being collected and disseminated varies from campus to campus.

Likewise, evaluation data reveal that grant participants among the four campuses are at varying stages in their research. As a result, few have felt comfortable disseminating information on their research and the outcomes. Faculty admitted they would feel more comfortable once they had more reliable longitudinal data for reporting purposes. In addition, many feel they are just now beginning to understand the impact of their research on teaching and learning and what course redesign means. As a result, few faculty have begun to present their findings and research designs. The majority of these presentations have occurred at monthly workshops/meetings of grant participants, or at the intercampus Breeze session held in November. Grant leaders intend to continue these monthly presentations and the interactive Breeze sessions systemwide as the grant moves forward; however, grant participants should be encouraged to present their research and findings beyond the university system through presentations at conferences and/or publications.

1.4.2.2 Fostering a Collaborative Approach to Student Learning

Evaluation data collected through interviews and focus groups reveal that all grant stakeholders believe that collaboration is vital to the success of the Bush grant. Each campus coordinator has worked diligently to ensure that faculty participants have plenty of opportunities to network and collaborate together. As reported, many faculty admitted that collaboration was not an emphasis in regular activities. Many stated that they had previously collaborated only with colleagues within their own colleges on their campuses. The Bush grant has forced more interaction between colleges and campuses.

Examples of collaboration among the campuses are summarized below.

- **Crookston:** Collaboration is readily apparent in all projects in terms of both student and faculty interaction at UMC. The requirement of partnered research projects, in conjunction with the small campus size, has dictated interdisciplinary collaboration. The campus has established a Faculty Learning Community to facilitate grant activities and efforts.
- **Duluth:** Grant participants on the UMD campus meet bi-weekly to report on the status of their research and implementation. These meetings have encouraged faculty to work together. Some grant participants have emerged on the campus as

mentors for successive grant participants, and an informal mentoring program has developed.

- **Morris:** Grant activities on the UMM campus were designed to encourage faculty participants to collaborate in a variety of ways. The first was within their discipline through the work of three projects with multiple participants from a college. The second was inter-disciplinary collaboration with participants sharing information and experiences through various events and meetings. The third was inter-unit collaboration, with faculty coming together as an integrated unit to implement joint projects and research. Lastly, there was inter-campus collaboration, which encouraged faculty from all campuses to come together and share their experiences.
- **Twin Cities:** The UMTC campus worked to encourage faculty to focus on a collaborative approach to addressing student learning in several ways. The first level of collaboration occurs within the course teams themselves, which were designed to bring students, professors, and staff members together in a collaborative effort. The second level involved the consulting team and monthly course team meetings. The last level of collaboration is uniting the four UMN campuses.

Evaluation data reveal that many activities and opportunities for faculty to collaborate together on their own campuses are being provided. However, little is being done to facilitate collaboration between campuses. Many faculty feel that an opportunity to network together across campuses would be very beneficial to them, not only in terms of disseminating information on projects from other campuses, but in reassuring faculty participants that they are on target with their own research efforts.

1.4.3 Goal 3: Integrating the Assessment of Student Learning and the Evaluation of Student Learning Initiatives into the Campus Mainstream

Assessment of student learning has become an important and highly visible component of higher education institutional improvement, accountability, and accreditation. Faculty are using both informal and formal classroom assessment techniques and course assessment procedures to understand what their students are learning, with the intent of using these findings to shape their teaching. In the grant continuation proposal, all campuses proposed to use assessment to create better conditions for teaching and learning.

When asked on the annual survey what criteria faculty would use at the end of the grant to determine whether their success in the grant was worthwhile, two main criteria were identified—improved student performance and effective teaching strategies. Faculty responding to the survey indicated that student performance will be measured by improvements in student achievement, retention of knowledge, engagement, attendance, participation, enrollment, attendance, and attitude. Participants expect to see a greater understanding and appreciation of the material by students, improved

performance on exams and project work, improved study skills, more motivation and willingness to take responsibility for their learning, willingness to explore subject areas beyond the required courses, and a stronger correlation between labs, lectures, and assignments.

Additionally, faculty responding to the survey intend to identify and implement effective and diversified teaching and assessment strategies, encourage and add more active learning and individualized strategies, and improve student evaluations of faculty.

Analysis of reflection log, focus group, and course profile data collected in Year 1 from grant participants demonstrated that each of the projects on the four campuses is engaged in evaluation of outcomes, though at varying degrees. At a minimum, all grant participants have identified their specific teaching challenges or issues for their research. Many grant participants hit the ground running with their research and evaluation designs during the Spring semester and were ready to implement various innovative teaching strategies or methods as the Fall semester rolled around. Alternately, some faculty began their research in the Spring, but could not implement in the Fall because their course would not be taught again until the following Spring. The third level of faculty participants seemed to be overwhelmed by the idea of implementing research designs that provided specific outcomes on innovative teaching techniques and strategies. As a result, they needed more support from other faculty or consultants. While over half of the grant participants were collecting data during the Fall semester, most faculty stated that they did not have enough time for proper analysis of the data to implement mid-course corrections or report findings on specific intervention strategies. Course profiles reveal that nearly three-fourths of the project implemented by faculty or course teams in Year 1, integrated new strategies into the courses impacted by the research, and have collected evaluation data at some level. Approximately a third of these faculty projects have analyzed the data collected to determine the impact of the strategies on students and student learning.

1.5 Year 1 Accomplishments

While this was an implementation year for the Bush continuation grant, the accomplishments described below are directly related to the lessons learned by the university during the 2001-2004 funding. More detail on each of these accomplishments can be found in Chapter 6.0 of this report. To better illustrate their relationship to the grant outcomes, these accomplishments have been divided into two sections—Student and Faculty Learning and Grant Processes and Procedures.

Student and Faculty Learning

- **Changing the Views of Faculty.** One of the more significant developments that occurred later in Year 1 was the grant's impact on faculty opinions and research. More faculty members found themselves experimenting with technology and reported that they were comfortable implementing research in their courses through the support and resources made available through the Bush grant.

- **Enhancing Student Learning.** Course profile and focus group data collected from faculty reveal that faculty participating in the Bush grant are focusing their projects on enhancing student learning through implementing innovative teaching techniques and strategies. Moreover, faculty are implementing their research using a more interdisciplinary focus, thus impacting students across multiple program areas.
- **Implementing Educational Research Processes.** All faculty participating in the Bush grant have identified their specific teaching challenges or issues for their research. Furthermore, these faculty have developed research designs and processes for implementing the various teaching strategies into their courses. While course profile and focus group data reveal that the faculty are at various stages with evaluating the impact of these strategies on students, the majority of faculty participants and grant leaders agree the focus of their projects as they move into Year 2 will be on evaluation.

Grant Processes and Procedures

- **Pre-grant Planning.** In anticipation of the grant being awarded, the grant PIs and campus coordinators came together and met with external evaluators to discuss the learning focus each campus would be researching and their local evaluation. During this meeting the campus coordinators outlined the implementation approach that would meet the needs of their campuses and explore data elements that would be required from grant participants for evaluation. As a result, campuses hit the ground running when the proposal was funded.
- **Effective Operational Procedures.** The Principal Investigators for the 2004-2007 Bush grant established formal operating procedures that have facilitated the implementation of the grant. In the future, these can be used to enhance networking among grant participants, assist with the sharing of resources across campuses, and help keep participants informed.
- **Improved Working Relationships and Inter-campus Collaboration Among Grant Leaders.** The four University of Minnesota campuses have much in common and share many of the same concerns. The new Bush grant has allowed them to improve communications and develop closer working relationships. The monthly video conference calls have enabled campus coordinators to highlight activities more regularly and discuss concerns.
- **Stronger Collaboration Among Faculty Participants.** The campus coordinator from the Morris campus worked closely with grant leadership to organize an interactive, web-based video conference so that grant participants across all four campuses could network together. A grant participant from each campus presented data on

his/her research efforts and outcomes. Grant participants were enlightened by hearing about the work on other campuses and reported that they felt better about the status of their own research.

1.6 Year 1 Challenges

Throughout Year 1 of the Bush grant, MGT identified challenges that the university would face in the coming year. The intent was to identify areas that the grant PIs and campus coordinators should address in order to reduce the effect of the challenges to the extent possible. The challenges are summarized in order to reinforce the Bush grant efforts to reduce their impact for Years 2 and 3, as well as in the months ahead. More detail on each of these challenges is provided in Chapter 6.0 of this report. It should be noted that these challenges are listed in no particular order, but have been divided into two sections—Student and Faculty Learning and Grant Processes and Procedures.

Student and Faculty Learning

- **Data Collection and Evaluation/Compelling Evidence.** One of the most significant concerns of the Bush Foundation is the evaluation of student achievement and the impact the research is having on student learning. While grant participants are collecting data on student outcomes, some of that data is not being captured and reported for the evaluation due to the lack of time for proper analysis or for reporting in general.
- **Promoting a Scholarly Approach to Teaching.** One of the goals of the Bush grant continuation is for the university to foster a scholarly approach to teaching. Faculty are working under many different definitions of scholarly approach because they are defining it in a manner that reflects their individual disciplines.

Many of the grant participants are utilizing research to inform their decisions; however, a library of this research and the associated resources is not being maintained consistently among campuses. Furthermore, while a handful of faculty are continuously presenting their research at workshops and other university events, others are not as comfortable since it is only Year 1 of the grant.

Grant Processes and Procedures

- **Team Development.** One of the more significant challenges faced by grant recipients that include multiple partners is the ability to remove barriers within their own organization to create a cohesive unit. Perhaps the greatest barrier impacting the Bush grant is the belief among faculty participants that the campuses are operating and individual silos. The grant leaders began to remove these assumptions towards the end of Year 1 through more intercampus collaboration. Efforts must continue to keep these barriers to a minimum so that leaders are effective in carrying out the

administrative functions of the Bush grant. Another challenge related to team development under multi-year grants is the potential for staff turnover, as was the case this year.

- **Coordination with Other Campus Initiatives.** Evaluation data revealed that the four campuses have directly related their research for the Bush continuation grant to the strategic campus initiatives underway on their campuses. However, grant participants do not always recognize the significance of this relationship and at times see their participation in the Bush grant as an added responsibility. There is a need to strategically integrate these initiatives with the campus strategies for the grant.
- **Networking and Cross-campus Collaboration.** Data collected showed that there is considerable overlap among grant activities on the various campuses. As stated previously, many of the grant participants across all four campuses found the interactive video conference conducted in November to be quite beneficial for their own research.
- **Resource Sharing.** As the campuses implemented the Bush grant, they acquired many resources and an in-depth knowledge of research available to support grant initiatives, as well as participating in a variety of professional development and training opportunities. However, these resources and opportunities are not being shared systemwide with grant participants.
- **Dissemination of Grant Activities and Information.** Dissemination of grant activities and research outcomes is occurring on the four campuses with campus administrators and non-grant participating faculty, though not consistently. Data indicate that the smaller campuses established a more detailed process that enabled them to more effectively disseminate outcomes than the larger campuses.

1.7 Year 1 Recommendations

This section summarizes the recommendations for Year 1 that the evaluation team believes will improve the university's ability to continue to implement the Bush Foundation Grant effectively. Most of these recommendations are designed to address the challenges identified in Chapter 6.0. More detail on each of these recommendations can be found in Chapter 7.0 of this report. It should be noted that these recommendations are in no particular order, but like the accomplishments and challenges, are divided into two categories—Student and Faculty Learning and Grant Processes and Procedures.

Student and Faculty Learning

1. Establish processes and procedures for collecting and communicating evaluation data from local evaluation activities.

The formal plan developed for the systemwide evaluation included collecting data from grant participants on the outcomes for each of the initiatives addressed by the four campuses in relation to the three goals and research questions identified in the grant continuation proposal. One of the more significant goals of the evaluation is to collect and analyze data that relates to student outcomes and the impact of the research on student learning. Evaluation data revealed that the reporting of these outcomes varies between campuses and faculty.

Grant PIs, in collaboration with the external evaluator, should establish quantitative requirements to satisfy each of the evaluation questions and goals of the grant wherever possible and appropriate, and ensure that data is reported each semester at a minimum. By focusing earlier in Year 2 on evaluation data and outcomes for projects that have solid evaluation designs and data collection, grant leaders will ensure that data are available at the end of the year.

2. Establish a process that will promote a scholarly approach to teaching among grant participants.

The second goal of the grant continuation proposal states that the university will foster a scholarly and collaborative approach to addressing student learning. When talking with faculty members during the site visits, evaluation consultants learned that each faculty participating in the grant defines “scholarly approach” in a manner that reflects his/her own discipline.

The grant PIs and campus coordinators should come to an agreement on the university’s definition of “scholarly approach to teaching” and communicate that to faculty and grant participants. As a result, faculty could still define scholarly approach in a manner that reflects their individual disciplines, but everyone would be creating a working definition from an overarching one.

Furthermore, as grant participants continue to conduct and inform their research, they should report their resources to their campus coordinators so that a more formal library of these resources can be created. Furthermore, the grant PIs and campus coordinators should encourage faculty to present their research and findings not only to other participating faculty, but also at conferences and through publications.

Grant Processes and Procedures

3. Formulate a plan for molding the grant leaders into a cohesive administrative support team.

As stated earlier, two of the more significant challenges facing grants that have multiple partners and span multiple years are removing the barriers within the participating organizations and coping with staff turnover. As previously stated,

the greatest barrier impacting the Bush grant is the belief among faculty participants that the campuses are operating and individual silos. The grant leaders began to remove these assumptions towards the end of Year 1 through more intercampus collaboration. Efforts to continue to keep these barriers to a minimum must continue, especially in the event of staff turnover.

While many of the recommendations, if implemented, will foster cohesiveness, the grant PIs must ensure that grant leaders continue to collaborate.

4. Devise a strategy for more closely integrating the Bush grant goals and objectives into various campus-related initiatives and communicating these efforts to campus administrators and grant participants.

The first goal of the grant continuation proposal states that the university will align grant efforts with current campus initiatives to keep student learning in the forefront. While data revealed that the focus of the Bush continuation grant on each of the campuses is aligned with the current strategic initiatives established for each campus, some faculty reported during focus groups that they were unclear as to how the Bush grant addressed their campus initiatives. Evaluation data also revealed that though each campus was keeping campus administrators informed of grant activities and outcomes, such communication was not consistent from campus to campus.

Campus coordinators should work together with campus administrators to strategically integrate the goals and objectives of the Bush grant with their campus initiatives to maximize grant funding and resources through more consistent communication with all stakeholders.

5. Devise a plan to create more networking opportunities for grant participants and formalized information sharing channels to promote internal and cross-campus collaboration.

On each campus, faculty reported that through their monthly meetings, they have been able to learn from one another and maximize grant funding by sharing data collection techniques and other resources, and that data is being disseminated among non-participating faculty and campus administrators to varying degrees. Furthermore, many of the research projects being implemented on the four campuses are similar in nature even if they are addressing different outcomes. However, other than one opportunity for cross-campus presentation, collaboration seems to have stopped at the boundaries of each campus.

The grant PIs and campus coordinators should explore the possibilities of networking grant participants together more frequently as the grant moves into Year 2. Two options would be bi-monthly Breeze sessions and a summer conference for faculty to present their research.

6. Develop a more collaborative approach to enable campuses to share grant-related resources and staff development opportunities.

Many resources are available to support faculty as they implement their research projects. Some campuses have an abundance of resources, while others are more limited. In addition, some campuses are organizing workshops for faculty that include presentations from field experts. All of these opportunities are beneficial for the grant implementations on each of the four campuses, and would benefit all participating faculty.

The grant PIs and campus coordinators should collaborate each semester, at a minimum, on training and staff development offerings to see where workshops would be beneficial for faculty beyond each campus.

CHAPTER 2.0:

Grant Overview

2.0 GRANT OVERVIEW

Since March 2001, the Bush Foundation has supported an initiative to enhance student learning on the four University of Minnesota campuses—Crookston, Duluth, Morris, and Twin Cities. The goal of the initiative has been to foster the development of faculty skills for integrating innovative teaching practices, including new developments in technology-enhanced learning, to address problems of student learning.

During the three-year grant period ending June 2004, each campus strengthened its own particular approach to enhancing student learning. Interview data from key leaders and grant participants provided considerable detail on the campus approaches and what was working well—peer-facilitated work groups and student consultants at Morris; focus on student assessment and peer discussion groups at Crookston; individualized desk-side consulting in Duluth and the Twin Cities. Some common challenges reported involved dealing with lack of faculty time, finding creative ways to engage faculty, and helping faculty who are new to technology achieve fluency with it.

Many guiding lessons from the literature on faculty development were also successfully incorporated on each campus. The four most clearly embraced lessons were that the projects were faculty led, they drew on campus resources in teaching and technology, they required sustained involvements rather than short-term skill building, and they adopted developmental approach with individual faculty. The single greatest challenge reported was that of engaging faculty in the evaluation of the impact of re-designed courses.

In terms of project evaluation, about one-third of the faculty reported seeking student feedback about their course changes on questionnaires, or using student performance as a way to gauge the success of the course revisions. Far fewer faculty members engaged in more systematic evaluations of their project. Only 12 faculty members reported making a formal presentation, submitting a report, or writing a paper for publication. It remains a significant challenge for faculty to acquire new instructional assessment and technology skills, and also conduct systematic inquiry into the effects of course changes.

2.1 Grant Continuation Proposal

Each of the four campuses reviewed their 2001-2004 grant efforts in light of the lessons learned. In response to the evaluation findings, each campus group determined specific ways to extend and/or adapt its efforts to enhance student learning through instructional technology and other innovative teaching strategies.

The four campuses proposed the following three goals to unite their efforts and design specific program activities:

- **Goal 1: Align grant efforts with current campus initiatives to keep student learning in the forefront.**

Given the competing demands for their time, faculty need to: (1) know that they are part of an institutional culture that values enhancing student learning; and (2) have ready access to programming that promotes their growth as teachers. When institutional priorities and faculty commitments are aligned with each other and keep student learning at the forefront, the result is a win-win situation for faculty, students, and the institution.

- **Goal 2: Foster a scholarly and collaborative approach to addressing student learning issues.**

A key characteristic of a learning organization is the ability of its members to learn together and to add value to the organization by converting individual information into organizational knowledge. Each of the campuses designed program components intended to encourage faculty and instructional staff to reflect on their experience as teachers, discuss their insights with teaching colleagues, read literature to inform their thinking, and use the classroom as a laboratory to systematically investigate questions about enhancing student learning.

- **Goal 3: Integrate the assessment of student learning and the evaluation of student learning initiatives into the campus mainstream.**

Assessment of student learning has become an important and highly visible component of higher education institutional improvement, accountability, and accreditation. Faculty use both informal classroom assessment techniques and formal course assessment procedures to understand what their students are learning, then use these findings to shape their teaching. In the proposed grant continuation, each campus plans to use assessment to create better conditions for teaching and learning.

The learning issues each campus will focus on during the grant continuation are outlined in Chapter 4.0: Summary of Campus Participation. This chapter also highlights each campus's implementation plan and outlines how they will evaluate their efforts and disseminate what they learn.

2.2 Evaluation

The external evaluation of the grant continuation was designed to fulfill some information needs that go across campuses, and to answer some questions that are of common interest. The external evaluator is working with campuses in a variety of ways to coordinate activities at the system level. Campuses have been encouraged to engage in local evaluation activities that can be reported in their annual project reports. The evaluation plan is structured to address the following guiding questions:

A. Evaluation of Program

1. To what extent did the faculty development activities on each campus help participants:
 - Meet their campus program needs and expectations;
 - Use scholarly and collaborative approaches to address student-learning issues; and
 - Use classroom assessment techniques and course evaluation findings to shape their teaching?
2. To what extent did each campus meet its goals in terms of:
 - Engaging the desired number of instructional staff and students in grant-related projects; and
 - Involving the desired number and types of courses?

B. Evaluation of Program Participants

3. To what extent did program participants:
 - Align their projects with strategic campus initiatives;
 - Use a collaborative and scholarly approach to teaching;
 - Assess student learning in their courses; and
 - Use information gathered from assessment and evaluation to inform their course redesign?
 - Definition of and attitudes towards the importance of a scholarly and collaborative approach to teaching change during the three year program?

C. Evaluation of Program Leadership

4. What lessons did program leaders (campus coordinators, consultants, PIs) learn?
 - What tasks did leaders need to complete?
 - What challenging issues did leaders need to address?
 - What were the most important successes?
 - What processes emerged that were critical in managing the program?

The following outlines the roles and responsibilities of the grant coordinating team for the purposes of the evaluation:

- Grant Principal Investigators (PIs):
 - Monitor project implementation at each campus and conduct monthly conference calls with campus coordinators.
 - Serve as the primary contact to the external evaluator for the system-wide evaluation.
 - Monitor monthly progress reports from the external evaluator and disseminate information to campus coordinators; make adjustments to the implementation process as necessary.
- Campus Coordinators:
 - Write annual program reports describing implementation of program activities, local evaluation findings, coordination with other campus initiatives, and lessons learned.
 - Submit annual process data to the external evaluator according to a standardized form.
 - Participate in planning sessions with the external evaluator to develop a common faculty survey.
 - Provide feedback on other system-level evaluation tools and procedures.
 - Share findings generated by the external evaluation with campus colleagues.
 - Work with external evaluators to finalize campus evaluation designs and develop data collection instruments.
 - Complete annual coordinator surveys and periodic reflection logs.
 - Participate in regularly scheduled conference calls.
- External Evaluator:
 - Work with campus coordinators to finalize evaluation designs and data collection instruments for local evaluations.
 - Design program tracking web site to collect and track program data and variables.
 - Develop protocol for reviewing evidence that supports and documents course redesign on a per term basis.

- Develop, administer, analyze, and report faculty survey findings per term or year as appropriate.
- Serve as a contact person for working with IRRS to review trends in course indicators.
- Conduct faculty focus groups annually and report summary data.
- Conduct monthly evaluation calls with campus coordinators.
- Suggest common report format for annual campus coordinator reports.
- Write two annual reports and one final report describing the external evaluation and summarizing themes from annual campus reports.

2.3 External Evaluator

The University of Minnesota contracted with MGT of America, Inc., to conduct the external evaluation for this continuation project. MGT was established over 30 years ago in Tallahassee, Florida, for the purpose of providing high-quality management and research consulting services to public sector entities. In addition to our corporate office in Tallahassee, MGT has established regional offices in Olympia, Washington; Sacramento, California; Austin, Texas; Columbia, South Carolina; and Washington, D.C.

The firm's full-time staff of over 130 professionals brings a wealth of knowledge and depth of understanding to all their client engagements, delivering the quality services clients expect and deserve. The organizational mission is supported by their capacity to deliver an extensive range of services to a variety of public sector institutions, nonprofit groups, private businesses, and other organizations.

MGT is recognized as one of the nation's premier higher education planning and management research consulting firms. As a result of our extensive experience in higher education, we have a keen understanding of university, college, and state system operations that far exceeds that of the competition. More than half of MGT's 2,700 client engagements have involved educational institutions or state education agencies.

A great advantage MGT offers to clients is our understanding of educational structures and operations, and how best business practices can be applied to those structures and operations. Our staff includes individuals who have served in various roles throughout the education community; many were educators before they became consultants. Thus, we have credibility with the educational community.

The MGT staff fully understands the process of grant evaluation. Our relevant past experience make us exceptionally qualified to serve as the external evaluator for the Bush Foundation Grant.

CHAPTER 3.0:

Methodology

3.0 METHODOLOGY

The purpose of this project was to evaluate how each campus extended and/or adapted its efforts to enhance student learning through the use of instructional technology and other innovative teaching strategies. As previously mentioned, the four campuses proposed the following three goals to unite their efforts and design specific program activities.

- Goal 1: Align grant efforts with current campus initiatives to keep student learning in the forefront.
- Goal 2: Foster a scholarly and collaborative approach to addressing student learning issues.
- Goal 3: Integrate the assessment of student learning and the evaluation of student learning initiatives into the campus mainstream.

3.1 Evaluation Approach

MGT, in consultation with grant Principal Investigators (PIs), developed an evaluation plan that would ensure that qualitative and quantitative data were collected and analyzed to measure the impact of the grant on student learning in relation to the aforementioned goals. The plan was also structured to address the guiding evaluation questions listed in Chapter 2.0 of this report.

To evaluate the project, MGT:

- Developed evaluation procedures and documentation tools;
- Conducted data collection and analysis as outlined in the evaluation plan;
- Participated in monthly video conference calls with grant coordinators;¹
- Conducted a minimum of six conference calls with campus coordinators;
- Conducted site visits to each of the four participating campuses;
- Prepared and delivered six evaluation progress reports; and
- Prepared the year-end evaluation report for the Bush Foundation.

¹ Monthly video conference calls were suspended during the Summer of 2005.

3.2 Development of Evaluation Procedures and Documentation Tools

To fulfill the requirements of this project, the first task was to develop the instruments that would be needed to conduct the evaluation. Several different data gathering techniques were employed during Year 1, including faculty reflection logs, a faculty survey, focus groups, and interviews. Copies of all data collection instruments are included in the appendix of this report.

3.2.1 Faculty Reflection Logs

In collaboration with the campus coordinators, MGT developed an electronic faculty reflection log for grant participants to complete on a monthly basis to journal their grant activities and research. The reflection logs were developed in January 2005 for faculty to begin reporting in February.

3.2.2 Faculty Survey

A faculty survey was also developed in January 2005. The electronic survey was customized to ensure that it addressed the specific goals of the Bush grant project. Prior to administering the survey from mid-February to mid-March, MGT submitted it to the campus coordinators and grant Principal Investigators (PIs) for review.

3.2.3 Interview and Focus Group Guides

In order to conduct the interviews and focus groups with grant participants, MGT visited each of the participating campuses annually. Interview and focus group guides were developed to ensure consistency among the visiting consultants. These guides provided detailed questions, areas to be probed, follow-up topics, and a general format for the visits.

3.3 Data Collection and Analysis

3.3.1 Faculty Reflection Logs

As previously mentioned, faculty reflection logs were developed in January 2005 and ready for faculty to begin completing on a monthly basis in February. MGT developed a protocol for faculty to follow as they were completing the entries. Since some faculty were not entirely comfortable with completing the logs electronically, faculty had the option of completing the logs either through a password-protected web portal provided by MGT, or via a Word document. Faculty who chose the latter format would e-mail their logs to the campus coordinator, who would in turn send them to their MGT consultant. Data collected from these logs were compiled and are reported in subsequent chapters of this report.

3.3.2 Faculty Survey

Letters instructing faculty to complete an electronic survey were developed by MGT and the grant PIs. The PIs distributed the letters to grant participants in February 2005. Data collected from the survey are compiled and reported in Chapters 4.0, 5.0, and the appendix of this report.

3.3.3 Site Visits

As outlined in the evaluation plan included in the grant proposal, MGT visited each of the participating campuses once during Year 1 in November 2005. During these visits, we conducted interviews with campus coordinators and focus groups with grant participants. Stakeholder focus groups included: faculty participants, consultants, and graduate and undergraduate students. At the conclusion of the site visits, MGT conducted an interview with the grant's Principal Investigators and orally reported on data collected from the interviews and focus groups. Summaries of these visits are detailed in Chapters 4.0 and 5.0.

3.3.4 Other Data Collection Activities

In addition to the aforementioned data collection activities, MGT participated in monthly video conferences with campus coordinators and grant PIs. During these calls, campus coordinators provided brief updates on campus activities related to the Bush grant, and system-wide evaluation issues were discussed. MGT consultants conducted follow-up conference calls with campus coordinators to discuss campus activities in more detail, as well as local evaluation issues or concerns.

Following these periodic conference calls, MGT submitted a progress report to grant PIs and campus coordinators detailing campus activities and system-wide issues or concerns. These progress reports also highlighted key upcoming evaluation activities.

Other data collected by MGT included meeting minutes submitted by campus coordinators from meetings and workshops with participants, workshops and training opportunities available to campus participants through Bush grant resources, and PowerPoints from monthly meetings/presentations of campus participants.

3.4 Year-End Evaluation Report

When all the data had been gathered and all the site visits had been completed, MGT began the process of preparing the evaluation report for Year 1. The following activities, among others, were completed during this process:

- Analysis of the final data;
- Identification of the issues to be addressed in the report;
- Description of the background of the project and the methodology employed to complete the evaluation;
- Preparation of a draft report for review by the grant's Principal Investigators and campus coordinators;
- Modification of the report based on corrections and/or omissions suggested by those reviewing the draft; and
- Finalization of the report and submission to the Bush Foundation.

CHAPTER 4.0:

Campus Participation

4.0 CAMPUS PARTICIPATION

As previously mentioned, the purpose of this project was to evaluate how each campus extended and/or adapted its efforts to enhance student learning through the use of instructional technology and other innovative teaching strategies. The campuses were united by the three goals mentioned in Chapter 3.0 as they designed program activities. The following sections outline the project focus for each of the campuses and detail the data collected. The Research and Evaluation section for each campus is divided into three subsections—Evaluation of the Program, Evaluation of Program Participants, and Evaluation of Program Leadership. Each of these subsections contains the following evaluation data.

- **Evaluation of the Program:** Data summarized in this section examines the extent that faculty development activities on each campus assisted faculty participants with implementing their research, and the extent to which each campus engaged the desired number of faculty and types of courses.
- **Evaluation of Program Participants:** Evaluation data summarized from this section analyze the extent that faculty participating in the Bush continuation grant aligned their research with strategic campus initiatives, used a collaborative and scholarly approach to teaching, assessed student learning in their courses, used information gathered from assessment and evaluation to inform their course design, and how their definition of and attitudes towards the importance of a scholarly and collaborative approach to teaching changed during the grant period.
- **Evaluation of Program Leadership:** Data collected from grant participants and leaders for this section focus on the accomplishments, challenges, and lessons learned that program leadership faced while implementing the grant. Data also examine how well the program leaders addressed these issues, and the processes that emerged that became critical in managing the program.

Each campus summary concludes with a summary of the upcoming grant activities planned for Year 2.

4.1 Crookston

4.1.1 Issue to Be Addressed and Description of Project

The University of Minnesota, Crookston focused its grant-related efforts on encouraging cooperation and collaboration among students through the use of technology and innovative teaching strategies. A host of research supports the campus's desire to

increase student collaboration as a means of improving both student achievement and satisfaction.¹

The campus also hopes to further collaboration among faculty members as part of the research projects. Due to the small size of the campus, however, courses are rarely duplicated by multiple faculty in a given term. Thus, a learning issue that applies to all disciplines was necessary to allow for partnerships between faculty. This faculty collaboration component is highlighted in projects on this campus by the protocol that two or more faculty are partnering on each project.

Pursuant to these broad emphases, three institutional goals were established for the grant projects:

1. Align Bush Faculty Development Grant efforts with current campus initiatives to keep student learning in the forefront.
2. Foster a scholarly and collaborative approach to addressing student learning issues.
3. Integrate the assessment of student learning and the evaluation of student learning initiatives into the campus mainstream.

The first goal is clearly consistent with an investment in developing new ways of reaching and engaging students. The second goal aligns with the efforts to create partnerships in the grant projects and further highlights the scholarly aspects that are emphasized by the Bush Foundation. The final goal reflects an attempt to ensure that the benefits and practices associated with these Bush grant projects are embraced and continued within the campus's identity as fundamental aspects of its academic environment.

For Year 1 of the grant, the specific applications of these research directives to utilize technology and innovative teaching strategies to promote both student and faculty collaboration at the Crookston campus include projects in:

- **Economics:** Assessment of the effectiveness of collaborative learning techniques in introductory economics courses using a real-time/instantaneous in-class polling system. This system was used first with a control group cohort that did not use collaborative techniques, and subsequently with an experimental group that will included collaborative elements.

¹ Chickering, A. and Gamson, Z. (1999). "Development and Adaptations of the Seven Principles for Good Practice in Undergraduate Education." *New Directions for Teaching and Learning*, no. 80, 75-81. Ewell, P., and Jones, D. (1996). Indicators of "Good Practice" in Undergraduate Education: *A Handbook for Development and Implementation*. Boulder, Colorado: National Center for Higher Education Management Systems. Chickering, A. and Ehrmann, S. (1996). "Implementing the Seven Principles: Technology as Lever." *AAHE Bulletin*, October. Astin, A. (1993). *What Matters in College?* San Francisco: Jossey Bass. Light, R.J. (1992). *The Harvard Assessment Seminars, Second Report*. Cambridge, MA: Graduate School of Education and Kennedy School of Government, Harvard University.

- **Physics:** Faculty partnered with the economics project above, using the same control/experiment groups for students enrolled in a physics course.
- **Hotel, Restaurant, and Institutional Management:** Internship involving web-based report submissions and a chat room/discussion board through which students regularly updated progress and shared, reflected on, and analyzed their experiences on the job, while faculty and student peers evaluated and discussed.
- **Business Management:** Faculty partnered with the hotel, restaurant, and institutional management project above, using an identical process for students in management internships.

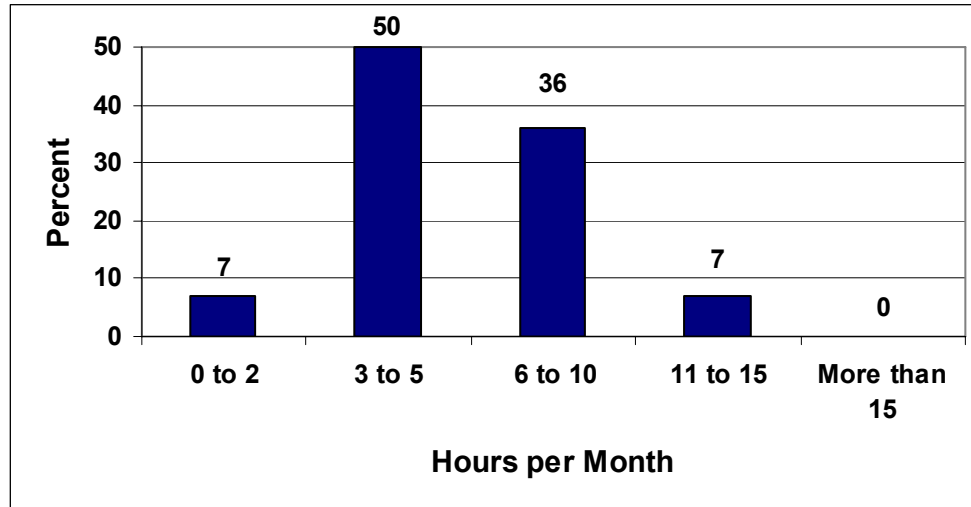
Data collected for these projects in relation to the research and evaluation questions for the systemwide Bush grant are summarized in the following sections. More detail on each of the individual projects can be found in Appendix C of this report.

4.1.2 Research and Evaluation

Since grant project proposals at Crookston had not yet been accepted when the first iteration of the annual survey was administered, all eligible faculty were asked to participate—a total of 34 faculty were eligible to apply to participate in the Bush continuation grant.² Of the 28 faculty responding to the survey at UMC, 68 percent were male and 32 percent were female. Ninety-three percent were tenured or tenure-track faculty, and 7 percent were full-time non-regular faculty or professional academic staff. Eighty-nine percent devoted more than 50 percent of their time to teaching, while 11 percent devoted 50 percent or less of their time. Eighty-six percent of staff expected to invest between three and 10 hours per month in the Bush Foundation Grant. Faculty also reported an average of 19.43 years of experience teaching post-secondary students. When asked to define their role in the Bush grant, faculty responding to the survey appeared to fall into three basic groups: those involved in redesigning the classes, team members leading faculty, and faculty teaching the courses. It is important to note that some faculty may fall into more than one of the basic groups. Exhibit 4-1 shows the breakdown of faculty that anticipated investing in the ranges of hours per month on the grant.

² On the Crookston campus eligible faculty were defined as tenured or tenured-track.

**EXHIBIT 4-1
HOURS FACULTY ANTICIPATED INVESTING PER MONTH ON BUSH
FOUNDATION GRANT**



Source: MGT Survey, February 2005.

Data presented in this section are detailed by the research and evaluation questions for the grant.

4.1.2.1 Evaluation of the Program

The Bush grant for the 2005 through 2007 period represents a continuation of prior activities on the Crookston campus. As the same campus coordinator is involved as in the prior cycle, there has been a great deal of carry-over from the prior period in terms of the persons involved and the experience within the grant context. The consultant group—known as the Teaching and Learning Advisory Committee—also includes members with several prior years of experience with Bush grant projects.

UMC decided to extend and refine their use of a cohort-based model, a decision supported by faculty development literature, to serve as the primary gathering point for both current and past participants as well as other eligible faculty. Faculty Learning Communities (FLCs) encourage collaboration between faculty committed to the scholarship of teaching. At the reading and discussion sessions, faculty engage in reflective practice as they study current literature regarding student learning. A large majority (nearly 90 percent) of eligible faculty on the campus have participated in FLC events during the previous three years of the Bush grant, and regardless of their participation in grant projects, have assisted in brainstorming sessions and then sharing and dissemination of ideas. In 2005, two such events were held, including a Spring 2005 forum discussing the article “Learning and Teaching in the 21st Century: Trends and Implications for Practice” (Magolda, M. B., Terenzini, P. T., & Hutchings, P., 2002) from the *Journal of College Student Development*. The second event was a November meeting that involved a review and Q&A session centering around the publication *The*

Advancement of Learning: Building the Teaching Commons (Huber & Hutchings, 2005), a report published by the Carnegie Foundation.

As outlined previously, four faculty (two teams of two) successfully applied and were sponsored for the 2005 cycle. Two more faculty have successfully applied and will be conducting projects beginning in the Spring 2006 term.

4.1.2.2 Evaluation of Program Participants

For a teaching institution, the foremost alignment that can be observed between the Bush projects and overall campus initiatives is the effort to enhance the learning experience of students, in terms of both achievement and satisfaction. Therefore, faculty at Crookston readily embrace the concepts involved in these research projects.

Further, among the campus “Core Components” (defined as dominant themes, transferable skills, and abilities essential to an individual’s success in any occupation or life setting) is a focus on the development of teamwork skills among students. Hence, the primary goals behind the Bush grant mesh well with the pre-existing campus ideals.

Survey data reveal that in addressing the extent to which program participants used a collaborative and scholarly approach to teaching, 100 percent of respondents found that the desire to encourage students to spend more time on learning tasks and the desire to expect higher quality work from their students moderately or highly motivated them to change their course while 96 percent found that the desire to teach their course more efficiently made them moderately or highly motivated to change their course. Only half (50 percent) of survey respondents found that the desire to use technology simulations to teach topics that may have been too dangerous or expensive previously made them moderately or highly motivated them to change their course. All (100 percent) faculty responding to the survey intend to use new technology-enhanced learning strategies as part of the Bush Foundation Grant. Nearly all (96 and 93 percent, respectively) intend to use new instructional strategies and new grading techniques as part of the Bush grant. Exhibit 4-2 shows the factors that motivated faculty to change their course.

**EXHIBIT 4-2
FACTORS MOTIVATING COURSE CHANGES**

	None	Low	Moderate	High
Desire to address varied learning styles and needs (n=28)	0%	11%	50%	39%
Desire to encourage students to spend more time on learning tasks (n=28)	0	0	29	71
Desire to facilitate communication between students and instructors (n=28)	0	11	32	57
Desire to help students work more collaboratively (n=28)	0	18	57	25
Desire to build on students' familiarity with technology (n=28)	0	29	46	25
Desire to increase students' access to course materials (n=28)	4	14	54	29
Desire to use technology simulations to teach topics that may have been too dangerous or expensive previously (n=28)	18	32	32	18
Desire to teach my course more efficiently (n=27)	0	4	19	78
Desire to expect higher quality work from my students (n=28)	0	0	11	89

Source: MGT Survey, February 2005.

Further, 100 percent of faculty responding to the survey allocated moderate or high priority to helping students make connections between their prior learning and new knowledge, using examples or illustrations to clarify course material, and setting high expectations for all students. Ninety-six percent of respondents reported being moderately or highly motivated to use comments from students to alter teaching practices or materials, to provide prompt feedback to students about their exam results and assignments, and to provide syllabi with course objectives, assignments, and grading procedures.

As a result of the explicit institutional goals on the Crookston campus, collaboration is readily apparent in all projects in terms of both student and faculty interaction. The requirement of partnered research projects, in conjunction with the small campus size, has dictated interdisciplinary collaboration, as demonstrated by the ongoing partnerships between hotels and restaurants and business faculty and between economics and physics faculty, as well as the upcoming (Spring 2006) project between biology and chemistry faculty. A further example of intra-campus collaboration is the cooperation and sharing of technologies in conducting the projects. The instantaneous feedback mechanism developed by the physics faculty member was being used not only by his project partner, but also by several other faculty at the campus for other projects.

Collaboration with other UMN campuses was not as apparent, however. The Breeze session hosted by the Morris campus in November was the only reference to any such collaboration in the focus groups, besides the limited sharing of information through the monthly inter-campus video conferences with the Grant Principal Investigators and MGT. Faculty agreed that more interaction with other campuses could be beneficial to their efforts.

Scholarship is evident in projects on the Crookston campus, and is encouraged by the discussion topics and resources provided at the FLC meetings. Each faculty member involved in the campus focus groups cited efforts towards collecting existing research and reviewing literature relevant to their particular subjects as part of developing their projects and overcoming obstacles that they have faced.

In focus groups conducted by MGT, faculty cited resistance to change among students as one impediment to the implementation of new teaching methods. Students accustomed to standard approaches were not necessarily receptive to methods that they had not already mastered.

Focus groups also revealed the sentiment that campus administrative issues and conflicting initiatives represented another impediment to unifying efforts relating to the Bush grant projects this year. Senior administrative turnover reset some aspects of the campus learning curve and hindered the level of support that could be provided for projects and eligible faculty. Further, re-accreditation efforts at the campus this year represented a conflicting obligation that distracted some from focusing on grant-related activities. As more permanent administrators are put in place and re-accreditation is completed, Bush-related initiatives can regain some focus and momentum at the administrative level.

Despite these conflicts, participating faculty and consultants expressed enthusiasm regarding Bush activities. The initiatives that existed prior to the recent upheavals appear to have grounded the Bush initiative within the faculty mentality, so focus was maintained among active participants and awareness appears to have been maintained among all eligible faculty.

Another impediment that often surfaces on the campus is the limited amount of support or assistance for projects involving technology. Faculty that are not particularly comfortable with these resources are not as likely to participate in grant projects due to the limited support that will be available to them in physically staging the efforts. Participants often have to be savvy enough to troubleshoot equipment themselves and, further, must have the time available to do so.

The level of assessment varies in rigor between projects on the Crookston campus, but is universally recognized as a key component in the process. In some cases, very detailed quantitative procedures involving multiple regressions with a host of controls to standardize results are being utilized. At a minimum, qualitative assessment tools are used to gauge student satisfaction and acclimation to the methods and technologies that are being employed, and achievement is compared to previous performance levels.

Survey data reveal that in addressing the extent to which program participants assessed student learning in their courses, survey respondents found that motivating students to improve their study skills (96 percent), getting a better sense of what the class as a group is learning (96 percent), and using student feedback to evaluate the overall course (96 percent) were either somewhat important or very important in improving student learning based on classes taught in previous semesters. Helping students learn to assess their own progress (75 percent) was seen as the least important measure in improving student learning

based on classes taught in previous semesters. Eighty-nine percent of faculty responding to the survey said they were moderately or highly motivated to use a variety of techniques in assessing student learning in their courses. Exhibit 4-3 shows the importance faculty placed on various means of enhancing student learning.

**EXHIBIT 4-3
IMPORTANCE PLACED ON STUDENT LEARNING**

	No Importance	Little Importance	Somewhat Important	Very Important
Collecting information to assess students' entry-level knowledge or abilities (n=28)	4%	18%	43%	36%
Collecting information to diagnose learning problems or identify individuals who need extra help (n=28)	4	18	46	32
Using classroom assessment strategies to prompt student thinking during lecture or class discussion (n=28)	7	4	36	54
Helping students learn to assess their own progress (n=28)	4	21	39	36
Motivating students to improve their study skills (n=28)	4	0	21	75
Getting a better sense of what the class as a group is learning (n=28)	4	0	36	61
Using assessment strategies to help make mid-course corrections in teaching strategies or materials (n=28)	0	14	29	57
Using feedback to improve mid-term or final exams (n=28)	0	7	54	39
Using student feedback to evaluate the overall course (n=28)	4	0	29	68

Source: MGT Survey, February 2005.

Faculty responding to the survey said that in addressing the extent to which they used information gathered from assessment and evaluation to inform their course design, respondents listed graded performance measures (94 percent), quantitative methods (93 percent), individual student performance (92 percent), and required performance measures (82 percent) as the forms of assessment often or very often used in the past. Exhibit 4-4 shows the types of assessment faculty used in the past.

**EXHIBIT 4-4
TYPES OF ASSESSMENT USED IN THE PAST**

	Never	Sometimes	Often	Very Often
Interactive techniques (e.g., voting, debates, small group problem-solving) (n=28)	11%	61%	11%	18%
Qualitative methods (e.g., journals, reflection papers, essays, short answer) (n=28)	18	29	43	11
Quantitative methods (e.g., quizzes or tests, surveys) (n=28)	0	7	32	61
Anonymous student response techniques (n=28)	32	50	18	11
Identified student response techniques (n=28)	32	32	36	0
Ungraded performance measures (n=28)	11	54	25	11
Graded performance measures (n=28)	0	11	29	61
Voluntary measures of performance (n=28)	25	46	25	4
Required measures of performance (n=28)	4	14	36	46
Individual student performance (n=28)	4	4	32	61
Group performance (n=28)	18	39	21	21

Source: MGT Survey, February 2005.

In addition, 67 percent of faculty responding to the survey reported that it was a moderate or high priority for them to invite colleagues to review their syllabi or teaching materials, while the same percentage said it was a moderate or high priority for them to work with other faculty to further inform their course design.

When asked in the survey what criteria faculty would use at the end of the grant to determine whether their success in the grant was worthwhile, two main items were identified: improved student performance and effective teaching strategies. Student performance will be measured by improvements in student achievement, retention of knowledge, engagement, and attitude. Participants expect to see a greater understanding of the material by students and improved performance on exams and project work. Participants also intend to identify and implement effective and diversified teaching and assessment strategies (including colleague review) and improved student evaluations of faculty.

Exhibit 4-5 highlights some of the key accomplishments and outcomes for each of the grant participants in Year 1. More detail on these projects can be found in the Appendix of this report.

**EXHIBIT 4-5
SUMMARY OF PARTICIPANT ACCOMPLISHMENTS AND OUTCOMES FOR YEAR 1 AT UMC**

Course Impacted by Project	Summary of Research Project	Evaluation Methods	Summary of Key Findings
Summer 2005 – Summer 2006: Hotel, Restaurant, and Institutional Management and Business Management Internships	Students summarize and evaluate experiences during course of summer internship. Faculty and peers review and critique via online discussion forums.	Surveys administered to students to assess satisfaction with internship structure.	Very successful program, enjoyed by students and creates reflective, learning environment instead of being purely an experience-building activity. Project will continue through Summer 2006 with data analysis completed by the end of the year.
Fall 2005 and Spring 2006: Introductory Microeconomics and Physics Courses	Learning experience of control group in Fall 2005 and experimental group in Spring 2006 will assess effectiveness of collaborative learning strategies in respective courses. Instantaneous feedback survey tool will be used in classes, first <i>without</i> collaboration in the semester (control) and successively <i>with</i> collaboration in the Spring (experimental).	Standardized testing questions will be administered to both and classes. Controls will be implemented to account for differences in class composition.	Instantaneous feedback mechanism well received by students in first term of experiment. Data analysis will occur in the Summer of 2006.
Spring 2006: Chemistry and Biology Courses	Partnered faculty are investigating the impact of technology in transitioning students from “surface” to “deep” learning.	Quantitative and qualitative methods are planned.	Forthcoming, as project has yet to begin.

4.1.2.3 Evaluation of Program Leadership

The campus coordinator and Teaching and Learning Advisory Committee (TLAC) see their role with respect to the Bush projects as a resource for both strategies and problem-solving, offering diverse and extensive areas of expertise to grant participants.

Among the greatest successes cited by leadership in the focus groups were the connections that have been established across disciplines between faculty involved in projects or simply participating in the FLC meetings. Faculty have discovered that teaching is a universal component to all of their disciplines, and therefore, they have more in common than they suspected.

Another long-term success (or potential success) that was identified by campus leadership was the notion that the emphasis on improving teaching methods will help the campus to better meet the Chancellor's goals of improving retention and achievement.

Finally, the grant projects have opened the eyes of faculty leadership on the campus to the idea that technology should not be used simply for technology's sake. Rather, faculty are maintaining a student-learning focus and attempting to discern how technology can help. Therefore, the integration of new technologies into courses needs to be assessed in the same way as any other potential refinement of the teaching process.

As mentioned previously, the volatility of the campus administration has been viewed as a serious challenge. Fortunately, some stability has been restored, and the campus is hopeful that the new elements of the administration will be receptive to Bush initiatives. The members of the TLAC view the continuity of the campus coordinator position as a great aid in sustaining the initiatives amidst this volatility.

4.1.3 Looking Forward to Year 2

Year 2 of the grant cycle will involve continued work on all four courses from 2005, as well as the two new projects. The management internships will undergo a second term of experimentation in Summer 2006, while the experimental group for the physics and economics projects will be conducted in the current semester (Spring 2006). The two additional projects will also begin this semester, involving chemistry and biology courses with a research focus on utilizing technology to transition students from "surface" to "deep" learning.

The FLCs will continue to meet, with a minimum of three events scheduled for both the Spring and Fall semesters. Calls for proposals will continue to be issued at the beginning of every semester, on a rolling basis (without deadlines), to encourage maximum participation. The next informational meeting will be held in February 2006 to encourage applications for this semester.

4.2 Duluth

4.2.1 Issue to Be Addressed and Description of Project

Prior to Year 1 of the Bush grant, most class settings on the Duluth campus focused on disciplinary content. As a result, faculty found that too little time is spent considering why, how, and what students learn and teachers teach. The intent of the Bush grant is to improve student learning by integrating and implementing a reflective cycle of action research that engages faculty in a four-step process that involves planning, acting, evaluating, and reflecting.³ Furthermore, the faculty would implement a model that engages students in four self-regulatory processes—self-evaluation and monitoring, goal setting and strategic planning, monitoring learning outcomes linked to teaching strategies, and implementing previously learned or new learning strategies.⁴

Faculty participating in the Bush grant agreed to study three related areas:

1. Defining and measuring student outcomes;
2. Teaching methods and strategies that lead to student outcomes; and
3. The values, philosophies, assumptions, and expectations inherent in those strategies.

The ultimate goal of these reflective processes is to improve student learning by teaching students to be self-regulated learners.

Faculty on the Duluth campus agreed that the research on self-regulation has led to three important findings. The first is that practitioners who train students in the use of learning strategies such as goal-setting and self-evaluation attain higher standards of achievement in and across subjects and disciplines. Secondly, the self-regulated learners, once trained, will use decision-making learning strategies to attain academic and performance goals. Lastly, students acquire these learning strategies through training, and faculty should not assume that learners will develop them on their own. Faculty used these findings to shape the research designs and inform their course redesigns in Year 1.^{5,6}

Faculty on the Duluth campus utilized the Bush grant funding to study a number of different student learning issues under the common framework they called “reflective practitioners and self-regulated learners.” The student learning issues addressed in Year 1 are listed below.

- **Computer Science:** Student learning in 1000-level large lecture classes.

³ Mills, G.E. (2003). *Action Research: A Guide for the Teacher Researcher*. Columbus, OH: Merrill Prentice Hall.

⁴ Zimmerman, B.J., Bonner, S., and Kovach, R. (1996). *Developing Self-regulated Learners: Beyond Achievement to Self-efficacy*. Washington, DC: American Psychological Association.

⁵ Zimmerman, B.J. (1998). “Academic Study and the Development of Personal Skill: A Self-Regulatory Perspective.” *Educational Psychologist*, 33(2/3), 73-86.

⁶ Zimmerman, B.J. (1989). “A Social Cognitive View of the Self-regulated Academic Learning.” *Journal of Educational Psychology*, 81(3), 329-339.

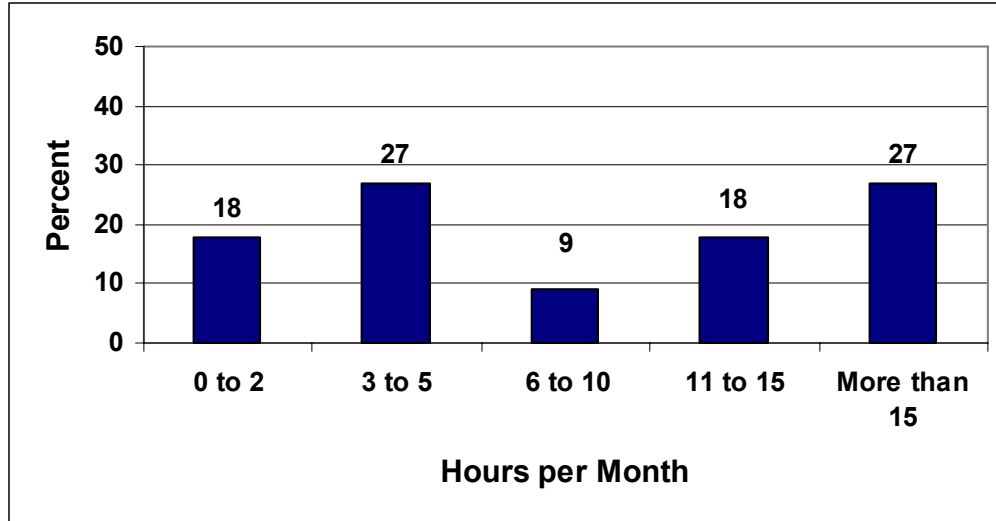
- **Social Work:** Utilizing group reflection to increase engagement with course topics and strengthen divergent and critical thinking.
- **Theater:** Identifying student learning strategies and the linkage between classroom learning opportunities and laboratory exercises.
- **Composition:** Using ePortfolio to facilitate lifelong reflective learning.
- **Math/Statistics:** Increasing student ability to study independently and to think mathematically.
- **Health, Physical Education, and Recreation:** Implementing cyclical phases of self-regulated learning (forethought, performance, and self-regulation).
- **Education:** Explicitly examining instructor's values and assumptions about student learning and instructor teaching with a focus on critical thinking and self-regulation.
- **Economics:** Identifying individual learning styles, recognizing the style being used in a course, and developing adaptive study strategies when there is a mismatch between preferred and class style.
- **Chemistry:** Using contemporary scientific breakthroughs to increase critical and integrative thinking in a liberal education course, and implementing new lab curricula to improve student ability to integrate concepts and apply them in labs.

Data collected for the aforementioned projects in relation to the research and evaluation questions for the systemwide Bush grant are summarized in the following sections. More detail on each of the individual projects can be found in Appendix C of this report.

4.2.2 Research and Evaluation

Survey data show that of the 11 faculty participants on the Duluth campus, 64 percent are male and 36 percent are female. Seventy-three percent are tenured or tenure-track faculty, and 27 percent are full-time non-regular faculty or professional academic staff. Seventy percent devoted more than 50 percent of their time to teaching, while 30 percent devoted 50 percent or less of their time. Fifty-five percent of staff expected to invest more than five hours per month in the Bush Foundation Grant. Faculty also reported an average of 18.64 years of experience teaching post-secondary students. When asked to define their role in the Bush grant, faculty responding to the survey appeared to fall into three basic groups: those who are developing the projects, those faculty (including the campus coordinator) implementing the projects, and those responsible for acting as resources and/or assessing/evaluating the results. Exhibit 4-6 shows the breakdown of faculty that anticipated investing in the ranges of hours per month on the grant.

**EXHIBIT 4-6
HOURS FACULTY ANTICIPATED INVESTING PER MONTH ON BUSH
FOUNDATION GRANT**



Source: MGT Survey, February 2005.

Data presented in this section are detailed by the research and evaluation questions for the grant.

4.2.2.1 Evaluation of the Program

Deans of the individual colleges at the University of Minnesota, Duluth (UMD) handpicked participants not only to develop the grant proposal for the campus, but also to participate as the Year 1 cohort. As a result, each college had one representative, and these representatives taught several levels of courses.

Faculty participating in the Bush grant during Year 1 established a monthly meeting schedule at the beginning of the year. At the beginning of the grant, about half of the participating faculty were new to the research on self-regulated learning. As a result, the remaining faculty acted as mentors and assisted with the development of research designs and assessment tools. As the year progressed, faculty found that meeting on a monthly basis was not enough and as a group decided on a bi-weekly meeting schedule. Faculty reported through reflection logs, a focus group, and individual interviews that one of their challenges in implementing grant activities was time. Accordingly, meetings were not mandatory and faculty participated as they were able; however, faculty reported, and the minutes showed, that the majority of faculty attended these bi-weekly sessions.

During the faculty focus group, participants reported that while they found the meetings and discussions invaluable, they were experiencing challenges with implementing their research designs as an indirect result of their lack of time. In many cases, faculty had many other responsibilities, such as serving as department heads or on other campus committees as appointed by their deans,

and thus had time for focus on course redesign. As a result, the campus coordinator assisted participating faculty by collecting and providing a library of assessment resources developed by grant participants that could be utilized by all grant participants with minor modifications. These resources included student focus group guides, pre- and post-surveys, and reflection logs.

Data collected during the focus group also indicate that the majority of faculty at UMD utilized the Spring semester to research their course redesigns and develop data collection and assessment tools, and the Fall semester for implementation. As a result of this model, faculty reported during the site visit that they were not making major changes to the teaching strategies since they were in the process of collecting data. The majority of faculty were conducting pre- and post-exam/project surveys, and data collected from these tools were used to make minor course changes such as the development of future exams.

Faculty again reported that time constraints were causing challenges for them with regard to data analysis. In most cases faculty were collecting large amounts of data from students and did not have time to devote to proper analysis so that adjustments could be made mid-course. They did anticipate that the data would prove useful in making adjustments for upcoming semesters.

Faculty unanimously agreed that professional development activities were quite useful in assisting them with meeting their program needs. At the beginning of the grant, one staff member from the Instructional Development Services (IDS) Department met with faculty members during the monthly group meetings and supplied research articles as needed. IDS also worked with the UMD campus coordinator to organize workshops and guest speakers that were open to all faculty. These offerings included the following:

- Tips for Teaching with Implications for Learning;
- Do Learning Styles Make a Difference?;
- At the Intersection of Thinking and Feeling: Motivation, Emotion, and How They Impact Learning; and
- Creating Independent Learners: A Colloquium by UMD Faculty.

During the focus group, faculty reported that they attended the majority of these professional development opportunities and found the group meetings to be invaluable. Towards the end of Year 1, IDS added a second individual to work with the faculty participating in the Bush grant on the UMD campus.

4.2.2.2 Evaluation of Program Participants

In addition to aligning the Bush grant activities with ongoing campus initiatives in advising, retention, and mentoring, this project was also to support the following campus faculty development and student learning initiatives:

- **Classroom Assessment Techniques and Strategies (CATS):** Sponsored by IDS, the CATS group of 12 to 15 faculty help instructors “learn from life” in the classroom through reflection, integration, and application by gathering information about students’ goals, background knowledge, and comprehension.
- **Technophytes Cohort:** This program, previously funded by the Bush Foundation and now supported by Information Technology Systems and Services, serves four cohorts of faculty members. It mentors faculty who are self-identified as “late bloomers” with regard to technology.
- **Tech Talk:** This interdisciplinary program, also previously funded by the Bush Foundation and now supported by IDS, brings together faculty and staff for informal luncheon discussions about the impact of technology on teaching.
- **ePortfolio Initiative:** This systemwide initiative, originally conceived at the UMD campus, encourages faculty, staff, and students to document their educational, professional, and personal development by storing records electronically in a central repository. The ultimate goal is life-long learning and reflection.
- **Academy of Distinguished Teachers:** The mission of the Academy is to strengthen the university’s teaching and learning communities, advocate for students and learning, advocate for teachers and teaching, and serve as a resource on excellence in teaching.

When faculty were asked how their individual projects aligned with other strategic campus initiatives, they replied that most of their projects focused on student development and success. They learned through the course of the year, and agreed that perhaps this was tapped into a bit too late in Year 1, that the focus of the grant resources should have been on promoting self-regulated learners in the larger, general college and liberal arts courses. Tapping into these students with quality improvement for student learning would help develop more self-regulated learners who could maximize their potential as they moved through their undergraduate studies. In addition, faculty mentioned that at UMD the focus on outcomes and assessment is a huge issue for the colleges. They agreed that the Bush grant was assisting with addressing these campus initiatives, but felt that there was a lack of awareness of the Bush grant activities, and as a result, resources were not being maximized and shared.

On the survey of UMD participants, 100 percent of respondents indicated that their desire to encourage students to spend more time on learning tasks, to teach their courses more efficiently, and to expect higher quality work from their students made them moderately or highly motivated to change their course. Almost half (54 percent) of respondents found that the desire to use technology simulations to teach topics that may have been too dangerous or expensive previously made

them moderately or highly motivated them to change their course. All (100 percent) respondents intended to use new technology-enhanced learning strategies and new collaborative strategies as part of the Bush Foundation grant. Nearly all (91 percent) intended to use new grading techniques as part of the Bush grant. Exhibit 4-7 shows the factors that motivated faculty to change their course.

**EXHIBIT 4-7
FACTORS MOTIVATING COURSE CHANGES**

	None	Low	Moderate	High
Desire to address varied learning styles and needs (n=11)	0%	46%	36%	18%
Desire to encourage students to spend more time on learning tasks (n=11)	0	0	55	45
Desire to facilitate communication between students and instructors (n=11)	0	9	46	46
Desire to help students work more collaboratively (n=11)	0	46	18	36
Desire to build on students' familiarity with technology (n=11)	0	36	36	27
Desire to increase students' access to course materials (n=11)	0	36	27	36
Desire to use technology simulations to teach topics that may have been too dangerous or expensive previously (n=11)	9	36	46	9
Desire to teach my course more efficiently (n=11)	0	0	27	73
Desire to expect higher quality work from my students (n=11)	0	0	18	82

Source: MGT Survey, February 2005.

All participants surveyed reported that setting high expectations for all students was a moderate or high priority. Almost all (91 percent) respondents reported moderate or high priority to using examples or illustrations to clarify course material, while 90 percent indicated moderate or high priority to providing prompt feedback to students about their exam results and assignments and providing syllabi with course objectives, assignments, and grading procedures. Only 20 percent gave moderate or high priority to making their course syllabi available to anyone through the Internet or other public sources.

When faculty were asked during a focus group about the extent to which they utilized collaboration in their approach to teaching, the majority reported that the collaboration that occurred on the campus was within their own colleges. Almost all the faculty agreed that other than the Bush grant meetings, there was little to no collaboration between colleges and faculty. They agreed there was a need for more collaboration because the meetings encouraged faculty to use reflective teaching methods to promote self-regulated learning strategies. Bush grant faculty also reported that there was almost no interaction between UMN campuses. They found the Breeze session held at the beginning of November to be very beneficial in motivating them to continue their research. They felt they, as a UMD faculty, were right on track with their research in relation to the work of faculty on other campuses. In addition, the faculty member who presented during

the session reported that he had received a lot of questions and correspondence from colleagues on other campuses. The faculty wished there were more of this interaction to keep everyone on track and motivated. They felt that if these sessions or presentations occurred more frequently, they would be less apt to let their research slide behind schedule. On a 10-point scale, the faculty felt they rated a two for collaboration in Year 1 and vowed to do better.

Faculty on the UMD campus reported using a lot of research on learning styles and self-reflective learning to inform their research designs. While some of the faculty were more knowledgeable in these areas than others, they worked in Year 1 to assist each other. Those familiar with these teaching principles worked closely with those less so. Furthermore, to keep other faculty on the UMD campus informed of their work, several grant participants presented their work and research to all faculty at a workshop in mid-November. These presentations were designed to recruit faculty members for the upcoming grant year. Faculty reported that some were more willing and eager than others to disseminate information from their research. For example, one faculty participant presented a workshop on learning styles from his work and research under the Bush grant, as well as showcasing his research through an online presentation at UMD's Visualization and Digital Imaging Lab. Dissemination was definitely not a primary focus for the participants in Year 1.

Analysis of reflection log data and course profiles show that the UMD faculty do not have the same understanding of collaboration and scholarly approach to teaching. Likewise, during the faculty focus group, responses, as noted, were across the board. When discussing this issue, faculty agreed that as they moved into Year 2, they should have a common understanding of these terms. The lack thereof prevented them from discussing how their definition and attitude towards the importance of a scholarly and collaborative approach to teaching had changed during the past year. With a common definition, they agreed, this would be more measurable.

As previously mentioned, faculty reported through their reflection logs and the focus group that time was a constraint when using information from student assessment and evaluation to inform their course redesigns and make modifications as courses continued. The majority of faculty used data from previous semesters to make assumptions for course redesign and research, in addition to shifting the focus of their courses to more conceptual learning and teaching to look at expectations rather than problem solving. Faculty agreed they would be analyzing the data in the Spring to make course adjustments for the next Fall, since the majority of courses for the grant are offered during the Fall semester.

Reflection logs and course profiles revealed that faculty used a variety of assessment techniques. These included questionnaires, pre- and post-exams, personal response systems, ePortfolio, pre- and post-surveys, and online reflection and self-assessment. Faculty also reported using personal intuition, though they agreed this was not objective or measurable.

Survey data reveal that in addressing the extent to which program participants assessed student learning in their courses, respondents found that using student feedback to evaluate the overall course (82 percent) and using classroom assessment strategies to prompt student thinking during lecture or class discussion (73 percent) were either somewhat important or very important in improving student learning based on classes taught in previous semesters. Helping students learn to assess their own progress (46 percent) was seen as the least important measure in improving student learning based on classes taught in previous semesters. Seventy-three percent of participants surveyed accorded moderate or high priority to using a variety of techniques in assessing student learning in their courses. Exhibit 4-8 shows the importance faculty placed on various means of enhancing student learning.

**EXHIBIT 4-8
IMPORTANCE PLACED ON STUDENT LEARNING**

	No Importance	Little Importance	Somewhat Important	Very Important
Collecting information to assess students' entry-level knowledge or abilities (n=11)	18%	27%	27%	27%
Collecting information to diagnose learning problems or identify individuals who need extra help (n=10)	10	40	30	20
Using classroom assessment strategies to prompt student thinking during lecture or class discussion (n=11)	9	18	27	46
Helping students learn to assess their own progress (n=11)	9	46	0	46
Motivating students to improve their study skills (n=11)	9	27	18	46
Getting a better sense of what the class as a group is learning (n=11)	9	27	18	46
Using assessment strategies to help make mid-course corrections in teaching strategies or materials (n=11)	18	18	27	36
Using feedback to improve mid-term or final exams (n=10)	10	30	20	40
Using student feedback to evaluate the overall course (n=11)	9	9	27	55

Source: MGT Survey, February 2005.

Survey data reveal that in addressing the extent to which program participants used information gathered from assessment and evaluation to inform their course design, respondents listed graded performance measures (100 percent), individual student performance (91 percent), and required measures of performance (90 percent) as the forms of assessment used often or used very often in the past. Exhibit 4-9 shows the types of assessment faculty used in the past.

**EXHIBIT 4-9
TYPES OF ASSESSMENT USED IN THE PAST**

	Never	Sometimes	Often	Very Often
Interactive techniques (e.g., voting, debates, small group problem-solving) (n=11)	18%	27%	9%	46%
Qualitative methods (e.g., journals, reflection papers, essays, short answer) (n=11)	18	36	18	27
Quantitative methods (e.g., quizzes or tests, surveys) (n=11)	18	9	27	46
Anonymous student response techniques (n=11)	9	64	18	9
Identified student response techniques (n=9)	33	33	11	22
Ungraded performance measures (n=11)	46	27	18	9
Graded performance measures (n=11)	0	0	18	82
Voluntary measures of performance (n=10)	80	20	0	0
Required measures of performance (n=10)	10	0	30	60
Individual student performance (n=11)	9	0	36	55
Group performance (n=11)	27	27	18	27
Other Student Portfolios (n=1)				

Source: MGT Survey, February 2005.

Additionally, 80 percent of faculty responding to the survey accorded moderate or high priority to making their course syllabi available to anyone through the Internet or other public sources, while 60 percent assigned moderate or high priority to inviting colleagues to review their syllabi or teaching materials and working with other faculty to further inform their course design.

When asked what criteria faculty would use at the end of the grant to determine whether their success in the grant was worthwhile, the two main criteria were identified—improved student performance and implementation of effective teaching strategies. Student performance will be measured by conducting surveys, including control groups, and monitoring changes in student grades. Participants expect to see improvement in student grades, study skills, motivation, and willingness to take responsibility for learning. Participants also intend to identify effective teaching strategies and make improvements on those strategies deemed less successful.

Exhibit 4-10 highlights some of the key accomplishments and outcomes for each of the grant participants in Year 1. More detail on these projects can be found in the Appendix of this report.

**EXHIBIT 4-10
SUMMARY OF PARTICIPANT ACCOMPLISHMENTS AND OUTCOMES FOR YEAR 1 AT UMD**

Course Impacted by Project	Summary of Research Project	Evaluation Methods	Summary of Key Findings
Fall 2005: Exercise Adherence and Psychology	Using the basic assumption of self-regulation and metacognitive strategies to . . . (1) determine what common metacognitive strategies are used by the students in the course; (2) conduct an in-depth investigation of student differences in their use of the common metacognitive strategies; and (3) in the Spring and Fall of 2006 use Zimmerman's social cognitive model of self-regulation to promote self-regulation in students.	(1) Open-ended inventory to identify common metacognitive strategies (2) Metacognitive student inventories (3) Microanalytical approach to assess student learning involving the three-phase self regulation model (Forethought phase, Performance Control phase, and Self-reflection phase)	Common metacognitive strategies identified were: Note taking, PowerPoint presentations, Reading and Comprehension, Study Habits, Goal Setting, and Study Guides. When assessing how students used the metacognitive strategies across the semester, it was determined that note taking was one of the primary strategies for test preparation; 75% of students were reading the assigned materials and of those 80% were underlining key sentences and phrases while reading; 95% of students were using the study guide to prepare for tests, all students studied primarily at home; and only 35% of students set daily or weekly goals.
Computer Science 1511 and 1121	This project seeks to improve the learning environment in several large lecture classes by introducing a series of reflective opportunities that students can use to (1) come to understand themselves as learners; (2) state their initial goals and strategies for the course; (3) determine whether their strategy was effective after each exam and allow them to reformulate a new one based on dropping unproductive methods; and (4) reflect back on the course as a whole and their growth as learners.	The four measurement tools for this project are: (1) Online learning styles survey (2) First week statement of goals and objectives (3) Post-exam reflective papers (4) Final reflective paper	

EXHIBIT 4-10 (Continued)
SUMMARY OF PARTICIPANT ACCOMPLISHMENTS AND OUTCOMES FOR YEAR 1 AT UMD

Course Impacted by Project	Summary of Research Project	Evaluation Methods	Summary of Key Findings
Physical Chemistry	The key focus of this project was to teach students to think explicitly about their study habits and methods and then to modify them to be more successful.	Reflection surveys were completed three times during the semester. These surveys asked students to describe how they studied for the exam or quiz and how they think they did. Following the exam or quiz, students reflected on their actual score and if they would change their study strategies.	Most of the students participating in the course were third year biochemistry majors. As a result, they were observed to be very motivated, competent, and hard working, and to have a good attitude about the course. Based on the surveys, most of the students had good study skills, realistically assessed their mastery of the material, and were willing to spend time studying as needed. The students with the lowest grades did not realistically assess their mastery. They thought they were doing better than they were, which possibly led them not to study as much. Lastly, homework was a focal point for studying.
Applied Statistics for Business and Economics	Students typically have difficulty on the second exam given in our statistics course. After that test I administered the GAMES survey. A striking result to me was that very few students indicated that they tried to make the connections between concepts. Understanding the relationship between concepts is a key to understanding statistics. I chose to use concept maps to help students reflect on the matter being covered and how it fits into the bigger picture. According to various sources, concept maps can be used to: (1) develop an understanding of a body of knowledge; (2) explore new information and relationships; (3) assess prior knowledge; and (4) share knowledge and information generated. Throughout Fall 2005, concept maps were used to review old and introduce new material. After being presented the students with several examples, the students were asked to develop their own concept maps as a part of a cooperative learning exercise. At the end, the maps were displayed and a vote was taken to determine which concept map was most useful in learning the material.	The evaluation of this project was threefold. First, the concept maps were reviewed to evaluate their thoroughness, the appropriateness of the concepts included, and the complexity or depth of the analysis. Second, after completing the exercise, the students were given a quiz on hypothesis testing. Students had been told that there would be bonus points for any group in which all members scored at least 80% on the quiz. Third, on the final exam the students will be asked to explain the idea behind hypothesis testing to a friend. Often students can memorize the mechanics of solving a problem without necessarily understanding what they are doing or why. My goal was that, through reflection, students would have developed a deeper understanding of the material. It is by internalizing the material that students will retain it for a longer period. This is important because concepts developed in this course will be used in their upper division course, but they may not see this material again for a year or so.	General observations showed that there was a correlation between the level of complexity in the concept maps developed by the groups and individual performance on the post-exercise quiz. The two groups with the most detailed concept maps were also the two groups that received the bonus points on the quiz. The group with the least detailed map also had the lowest group average on the quiz. Although there was variability among the groups in terms of quiz scores, overall the class average was higher than for similar quizzes given in class. The main differences were that other quizzes were announced in advance and were often open book. This quiz was closed book and students were not given any notice in advance.

**EXHIBIT 4-10 (Continued)
SUMMARY OF PARTICIPANT ACCOMPLISHMENTS AND OUTCOMES FOR YEAR 1 AT UMD**

Course Impacted by Project	Summary of Research Project	Evaluation Methods	Summary of Key Findings
<p>Organization and Community Practice</p>	<p>The objective of this study was to gain a better understanding of the impact of reflection using WebX discussion on: 1) student learning, and 2) student satisfaction with the course. The hypothesis is that students who share reflection papers with each other using the WebX discussion format will report that they learned more and are more satisfied with the course than students who simply turn in written reflections for feedback. Students in the control group were asked to complete weekly written reflections on the course reading, which they turned in at the start of each class session. The control group was provided with individual written feedback on each of their reflection papers. The experimental group was asked to write a written reflection on the reading, but rather than turning the papers in they posted their papers in WebX groups of three. Students in each group were asked to read and respond to the other reflection papers posted in their group of three.</p>	<p>All students agreed to participate in the study. The research design was experimental. During the Fall semester two sections of the same course were taught. The experimental group, was randomly selected from the course sections out of a hat. The other section served as the control group. All students in both sections of the course take a pre- (the first day of class) and post- (the last day of class) self assessment regarding how much they feel they know about specific course content. At the end of the semester, course evaluations will be used to evaluate differences in student satisfaction between the experimental and control groups. In addition, students in both sections were asked to generate a list of what they hoped to gain from the course. At midterm and again at the end of the semester students will be asked to rate on a scale of one to 10 the extent to which each hope had been accomplished.</p>	<p>At this point (11-28-05), pre-test data on students' self assessment regarding how much they feel they know about specific course content has been collected. Data on student hopes and midterm data on the extent to which those hopes are being accomplished has also been collected. Similar data will be collected the last day of the course in each section.</p> <p>At midterm, when it was discovered that the hopes of the students in one of the sections (the non-web-discussion section) rated the accomplishment of their hopes lower than the other section, a class discussion was held about what could be done to increase the likelihood of accomplishing their hopes for this course. Students generated several suggestions which were promptly implemented including guest speakers who could bring insight and information on specific issues related to the course content.</p>
<p>Introduction to Probability and Statistics</p>	<p>The primary purposes for this research project were to increase study skills and increase problem solving skills through student reflection.</p>	<p>Both qualitative and quantitative evaluation methods were used to measure the impact of this project. First, test scores for this year were compared to those for previous years; scores were also compared across semesters. Secondly, through observation and analysis of student papers, comparisons were made across the semester on students' problem-solving skills</p>	
<p>Introduction to Theatre Arts I (TH 1001)</p>	<p>Course was moved to a hybrid structure with on line discussion forums.</p>	<p>End of the semester course evaluations</p>	<p>On line discussions have increased in class discussion activity. Students prefer the limited lecture style of course delivery. Students prefer guest speakers for the course.</p>

EXHIBIT 4-10 (Continued)
SUMMARY OF PARTICIPANT ACCOMPLISHMENTS AND OUTCOMES FOR YEAR 1 AT UMD

Course Impacted by Project	Summary of Research Project	Evaluation Methods	Summary of Key Findings
College Writing (Freshman Composition)	The focus of this project was on how to help students reflect more intentionally and more thoughtfully on what they learned, particularly in terms of writing reflection statements to accompany work uploaded to their ePortfolios. The project centered around four questions: (1) Can students be taught to write high-quality reflection statements regarding their work through answering straightforward survey questions about their writing process; (2) Will students be able to independently change the process they use for completing a writing assignment by identifying what that process was as well as what did and did not work well for them in using that process; (3) Will students make connections between the writing they do for a first-year writing course and the writing they will do in other college course by reflecting on specific lessons learned by completing a particular assignment; and (4) Will students make connections between the writing they do for a first-year writing course and the writing they will do beyond college by reflecting on specific lessons learned by completing a particular assignment?	At several points during the semester, students filled out a survey after writing a paper but prior to getting it returned with a grade on it. They answered questions such as these: What was the most important goal you had for this assignment? In preparing to write this paper, how much of the assigned reading did you do? How did you approach completing the draft you brought for peer review? They also completed questions that dealt with the extent to which they revised the paper, the extent to which they had been reading the teacher's as well as a peer's comments on the paper, the effort put into getting questions answered prior to submitting the paper, and the number of points (i.e., the grade) they predicted they would get on the paper. After they received the graded papers, they were then asked to write about what they learned in terms of the assigned material, what they learned about the process they each used to complete the assignment, and what they might keep or change in that process for future assignments.	Several preliminary findings include the following: Most students are overly optimistic as to the grade they believe they will receive on any given assignment. While most students seem to be able to make a connection between the process they used and the grade they ultimately received on a paper as well as ways that process could be improved for subsequent papers, those alterations in the process were often not made. Students' reflection statements as recorded in ePortfolio are of much higher quality than statements written by students before the surveys soliciting such reflection were used.
Finite Mathematics and an Introduction to Calculus	The focus of this project was to encourage student involvement using personal response devices and determine the impact these devices had on the course.	In-class surveys were completed by students using the personal response systems. These surveys were conducted randomly and at several key points during the Fall 2005 semester.	Preliminary findings from the students in the Fall semester were: 71% of students surveyed liked the personal response system (PRS) as a learning tool; 56% of students felt that the PRS helped them retain material better and forced them to think about the subject matter as opposed to only 26% who used it only as a way to earn points; and 82% of students surveyed thought that PRS helped the instructor more effectively teach the course by identifying points that may need more emphasis.

4.2.2.3 Evaluation of Program Leadership

Data collection reveal a number of important issues relating to program leadership on the Duluth campus. During a focus group with grant participants, faculty reported that the greatest lesson they had learned through their participation in the grant this year was the importance of establishing set meeting times and schedules. These meetings helped keep everyone on track and focused. Faculty also agreed that the cross college participation was important because it developed partnerships and collaborative opportunities that otherwise would not have existed at UMD. Reflection logs and course profile data reveal that the majority of faculty at UMD agreed that high expectancy teachers equaled high expectancy learners. Lastly, they agreed that one of the major lessons they learned this year was that assessment of learning styles in the beginning helps teachers assess student performance and informs their teaching. On a countering note, faculty wonder if this assessment creates more comfortable learning and a less challenging environment for students. This is an issue they intend to explore more as the grant continues.

Campus leadership for the continuation of the Bush grant agreed with faculty. Not only did the meetings help to keep faculty on track with their research, but it helped her to maintain consistency among participants and their record keeping. The biggest concern is on the analysis of the data and what it means in terms of the course changes and impact on the learners.

Faculty all agreed that their biggest success during Year 1 was establishing research designs for each of their courses through their monthly collaboration. They all believed that faculty joining the grant in Year 2 would be more successful at the end of their first year due to the ground work they had laid. Most important, the problems on the campus have been defined and the methodology for implementing the grant on the UMD campus has been established. They all agreed that the campus coordinator also played a key role in keeping everyone informed through meeting minutes and up-to-date on workshops and grant activities. As a result, everyone remained on track.

According to the campus coordinator, and as previously reported by faculty, the biggest challenge that faced participants in Year 1 was the issue of time. Lack of time for research, assessment, and analysis due to other responsibilities was a huge concern. Unfortunately, grant participants and leaders believe this will continue to be an issue in Year 2. They reported that they just do not have the same resources to assist with analysis as other campuses do.

An interview conducted with the campus coordinator at UMD revealed that two of her biggest challenges were the diversity of the projects and bringing everyone together. Being new to the Bush program herself was also a challenge as she worked to ensure that faculty met together and had the resources they needed to conduct their research. She agreed with the faculty participants when they said their biggest obstacle was time. She would frequently hear complaints from participants regarding the large amounts of data they were collecting and the lack of time they had to devote to the analysis. She was concerned that this issue would inhibit faculty from making decisions regarding corrections and adjustments

in their research. She discovered that she was right on target with this concern and learned that faculty were not making as many mid-course changes as they normally would if there were more time in the day and semester. A lack of personnel resources on the Duluth campus was her biggest concern. She knew that other campuses were using consultants and students to assist with the research, and regretted that this was not an option utilized in Year 1 on the Duluth campus.

When discussing the successes at UMD for Year 1, the campus coordinator stated that the most important achievement was the collaboration and networking that occurred among the group. She agreed that without the Bush grant, this collaboration among colleges would probably not have been successful, if it had occurred at all. She believes that the group as a whole has laid the groundwork for future cohorts of faculty participants. Furthermore, almost all of the faculty are going to continue with the grant in Year 2. These faculty have agreed to serve as mentors to the second cohort as well.

Another success in Year 1 was the completion and approval of the IRB for the Duluth campus. At the beginning of the year, the coordinator was concerned about the application process and sought guidance from the grant PIs. After familiarizing herself with the process of completing the IRB for the systemwide grant evaluation, the coordinator tackled the difficult application and learned in November that it was approved. She feels more comfortable moving forward with the research on the Duluth campus with this approval.

The last success mentioned during discussions with the Duluth campus coordinator was the high level of interest among other faculty to participate in the Bush grant for Year 2. She mentioned that several of the faculty participating in Year 1 had done a remarkable job disseminating information on their work to their colleagues and this increased the interest level. In November, several of the participants presented at a Colloquium to share their experiences and research from Year 1. At the end of the presentations, faculty were given a call for proposals to participate in Year 2, and the coordinator received over 20 applications.

Reflecting on Year 1, the coordinator and participating faculty agree that in order to effectively manage the Bush grant, faculty need to meet regularly and have opportunities to collaborate on their research. Establishing a set schedule for these meetings proved to be more beneficial than sending emails to participants to ask about their availability. She believes that with more grant participants in Year 2, coordinating meetings will be even more difficult, and the set schedule will alleviate the associated stress.

Faculty were also very appreciative of the meeting and workshop minutes that were disseminated to them by the coordinator following each get-together. They felt that these notes and summaries kept them on track and the grant in the front of their minds. One faculty member commented that these notes kept him from allowing his research to slip to the back burner. As faculty moved through the year, these minutes helped them reflect on topics addressed and ideas for research.

4.2.3 Looking Forward to Year 2

Midway through Year 1 of the grant, faculty participants began to think that the research they were conducting on self-reflective learners would be most beneficial in the general college and liberal arts level courses. Using this approach would encourage students to be more responsible for their own learning and more aware of how they learned, enabling them to do better in their field of study.

Some faculty participants were also aware of how longitudinal evaluation outcomes would benefit the research and encouraged the first cohort to consider courses that would follow those impacted by the research from Year 1. For example, following physical chemistry, students usually enroll in biochemistry. As the faculty participants began recruitment efforts for the second cohort of faculty to join the team in Year 2, the focus was on these two efforts.

In November, several faculty participants presented a Colloquium on Creating Independent Learners that focused on their research and outcomes from Year 1 of the grant. The workshop was open to all faculty on the UMD campus. Following the workshop, faculty were given the call for proposals to apply for participation in the second cohort. Over 20 applications were submitted, and using the criteria outlined above, the following courses were selected for participation in Year 2.

- Health, Physical Education and Recreation (2);
- Music;
- Biology;
- Economics;
- Theatre;
- Sociology/Anthropology;
- Political Science;
- Art and Design; and
- Chemistry and Biochemistry.

An alternate was also selected in the event that one of the aforementioned faculty subsequently declined to participate.

As the cohorts move into Year 2 of the grant, nearly all of the first cohort will continue their participation. As a result, the faculty from Year 1 will serve as mentors for cohort 2. Using the lessons learned from Year 1, the faculty participants in Year 2 should be further along with their research at the end of the second year of the grant, since they can build upon the groundwork laid by cohort 1.

Faculty participants on the UMD campus will continue to meet regularly and focus more on the outcomes of their research and dissemination as the grant moves forward.

4.3 Morris

4.3.1 Issue to Be Addressed and Description of Project

The University of Minnesota, Morris (UMM) is focusing on two main goals in the development of the Bush grant projects:

1. Enhancing student learning by addressing diverse learning needs.
2. Creating an integrated, efficient, and responsive system for technology-enhanced learning.

Thus, an understanding of learning styles and the applications of technology to meeting the needs of diverse learners is central to the activities on this campus. To fulfill the first goal, the campus aims to increase (1) the number and quality of technology-enhanced diverse learning experiences and (2) student engagement in learning through delivery mechanisms that are tailored to students' needs. The second goal entails the creation of a seamless system that allocates an appropriate balance of resources among priorities while avoiding duplication, and, furthermore, provides adequate support at all levels of implementation.

In the first year, the grant projects addressed the following specific issues:

- **Technology Integration to Support Constructivist and Collaborative Learning:** Changing delivery from formal lecture formats to include visual, audio, and spatial forms of communications and other technologies that will engage students and promote constructivist and collaborative learning.
- **Forum for English Seminars:** Involves a web forum for English seminars that will enhance research, discussion, and debate.
- **Foreign Language Work Group:** Researching the application of various instructional methods in foreign language classrooms to accommodate for differences in learning styles through the use of various multimedia and interactive technologies.
- **Dynamic Web Page Teaching Tools:** Development of tools and applications to assist a diverse group of non-computer science major students that are interested in learning basic web-programming skills.
- **Using Mathematica on Teaching Calculus to Diverse Learners:** Adapting and updating Mathematica notebook files to allow for extended use in all calculus sections at UMM, extending the application and utility of technology in these courses and thereby accommodating diverse learning styles.

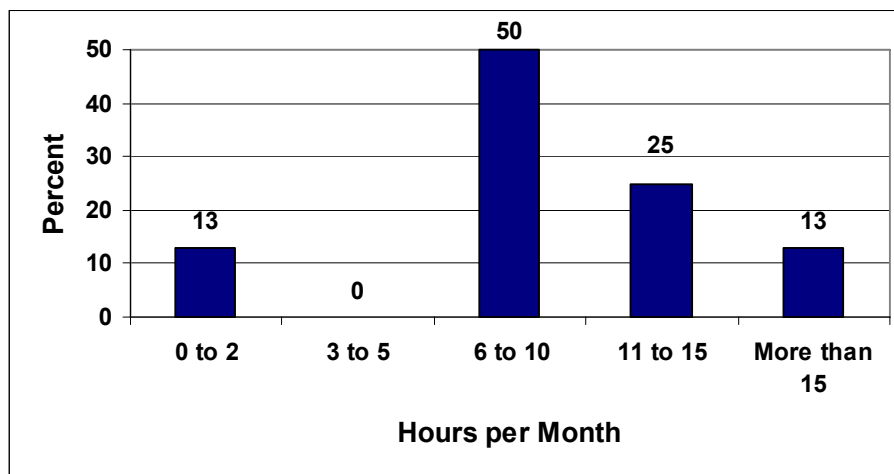
- **Computer Modeling of Materials in Physics:** Collaborating with the computer science department to develop software interface that will allow for visual computer modeling in selected physics courses.
- **Financial Management:** Integrating the use an online simulated portfolio into the course in order to give direct, collaborative experiences to students in real world concepts.
- **Horizontal Integration of Constitutional Law:** Introduction of online collaborative forum for case briefing that is intended to expand the potential learning opportunities, particularly for students that have not taken related coursework.

The following sections summarize data collected for these projects in relation to the research and evaluation questions for the systemwide Bush grant. More detail on each of the individual projects can be found in Appendix C of this report.

4.3.2 Research and Evaluation

Survey data reveal that of the eight respondents at the Morris campus, 71 percent were male and 29 percent were female. One hundred percent were tenured or tenure-track faculty that devote more than 50 percent of their time to teaching. Seventy-five percent of staff expected to invest between six and 15 hours per month on the Bush Foundation Grant. Faculty also reported an average of 5.19 years of experience teaching post-secondary students. When asked to define their role in the Bush grant, faculty responding to the survey appeared to fall into two basic groups: those involved in developing the courses and pedagogical software and those involved in enhancing the courses and teaching styles of faculty at Morris. Participants span many disciplines across the campus. Exhibit 4-11 shows the breakdown of faculty that anticipated investing in the ranges of hours per month on the grant.

**EXHIBIT 4-11
HOURS FACULTY ANTICIPATED INVESTING PER MONTH ON BUSH
FOUNDATION GRANT**



Source: MGT Survey, February 2005.

Data presented in this section are detailed by the research and evaluation questions for the grant.

4.3.2.1 Evaluation of the Program

The initial call for proposals for Bush grant projects was issued at the Morris campus in Fall 2004, and brief descriptions of projects (“statements of interest”) were due back to the IT Core Group by December. The IT Core Group successively worked with applicants to develop more detailed proposals, and though funding was only intended to cover five projects, the level of interest and willingness among participants to sacrifice individual reimbursement initiated the move to accept eight total projects for Year 1.

To support the grant projects, the Morris grant administration team hosted a number of faculty development opportunities such as computer and other training courses, social events, and several major productions, including a learning styles workshop in July 2005 and the systemwide Breeze Live session that took place in November 2005. Participation in development activities was consistently high across the campus. The goals of these activities were to assist and educate faculty on the main thrusts of the grant on the Morris campus, including subject areas of project content, information delivery, interaction and communication, and assessment and evaluation.

4.3.2.2 Evaluation of Program Participants

Project goals are clearly aligned with strategic campus initiatives on the Morris campus. As UMM is a liberal arts college, teaching is the primary focus of faculty; therefore, developing new ways to better reach these students has been readily embraced on the campus. Moreover, the coincidence of campus strategic planning with the Bush grant activities will ensure that the lessons and ideals that are learned from these projects will be thoroughly integrated into the campus identity. A recent survey on the Morris campus regarding student engagement revealed less than ideal results, and faculty are anxious to correct these deficiencies through implementation of the innovative teaching mechanisms associated with the Bush grant.

Over the three-year cycle, the projects were originally intended to directly impact and improve 12 to 15 courses, with faculty collaboration and dissemination of information allowing for a much broader, and hopefully campuswide, impact. After taking on eight projects in the first year, the campus seems likely to exceed its original goal of direct impact, and the spread of information about projects and teaching modalities to faculty not directly involved in projects has apparently been excellent.

Another facet of the relationship between the Bush grant and campus strategic initiatives is the development of an integrated Information Technology support structure to give faculty the resources they need to reach students. The classroom research on using various technological tools to reach diverse learners (Technology-Enhanced Learning, or TEL) has focused the efforts of the campus’s support structures towards more efficient and effective operations.

Finally, the Bush projects also support the campus initiatives to attract and retain high-quality students and faculty and improve campus diversity, as outlined in the UMM Three-Year Strategic Plan. The enhancement of teaching modalities increases both student achievement and satisfaction, which will make a significant contribution towards achieving these goals.

Survey data collected from grant participants indicate that in addressing the extent to which program participants used a collaborative and scholarly approach to teaching, 100 percent of respondents found that the desire to encourage students to spend more time on learning tasks, the desire to build on students' familiarity with technology, and the desire to increase students' access to course materials moderately or highly motivated them to change their course. Only half (50 percent) of faculty responding to the survey found that the desire to use technology simulations to teach topics that may previously have been too dangerous or expensive moderately or highly motivated them to change their course. All (100 percent) of the survey respondents intend to use new reflection strategies as part of the Bush Foundation grant. Eighty-eight percent of faculty reported they intend to use new technology-enhanced learning strategies as part of the Bush grant. Exhibit 4-12 shows the factors that have motivated faculty to change their course.

**EXHIBIT 4-12
FACTORS MOTIVATING COURSE CHANGES**

	None	Low	Moderate	High
Desire to address varied learning styles and needs (n=8)	0%	0%	13%	88%
Desire to encourage students to spend more time on learning tasks (n=8)	0	13	13	75
Desire to facilitate communication between students and instructors (n=8)	0	13	0	88
Desire to help students work more collaboratively (n=8)	0	13	38	50
Desire to build on students' familiarity with technology (n=8)	0	0	13	88
Desire to increase students' access to course materials (n=8)	0	0	0	100
Desire to use technology simulations to teach topics that may have been too dangerous or expensive previously (n=8)	38	13	25	25
Desire to teach my course more efficiently (n=8)	0	13	25	63
Desire to expect higher quality work from my students (n=8)	0	13	38	50

Source: MGT Survey, February 2005.

One hundred percent of faculty responding to the survey gave high priority to using examples or illustrations to clarify course material helping students and moderate or high priority to using active learning techniques such as small group discussions and team projects; using technology in their teaching; taking into account differences among students in how they learn; discussing with colleagues their course content, materials, and assessment techniques; and participating in conferences, seminars, or workshops on teaching or student learning.

Data collected from faculty interviews reveal that collaboration at the Morris campus occurred at many levels, though many faculty expressed a desire for more opportunities to interact with their colleagues. As outlined previously, a number of social and formal training opportunities were offered, but many felt as though increasing contacts between project participants would greatly assist their individual project efforts as well as helping to spread ideas and methods across the campus.

Faculty reported that for the most part, collaboration occurred within departments more than between, as highlighted by the three projects that involved multiple faculty from single departments. In some cases, as in the physics modeling project, the nature of projects required interaction between departments (physics and computer science, in that case), but most sharing of ideas occurred between faculty working together on joint projects.

The campus coordinator for UMM reported that the campus did take an initiative towards promoting inter-campus collaboration by hosting the Breeze Live session, as previously referenced. This opportunity was well received throughout the system and initiated conversations and sharing of ideas relating to methods and tools that were showcased in the event. The Morris campus plans to host more and more sessions of this nature in future years of the grant to attempt to foster further systemwide collaboration.

Scholarship was also emphasized at the Morris campus, as all faculty indicated in focus groups that some level of research was involved in designing their projects. Faculty also cited the assistance provided by the IT Core Group and student assistants as being very beneficial towards a scholarly approach to project design. Scholarship entailed research relating to the specifics of individual projects (conducted by faculty participants) as well as the broader research on learning styles that is playing a role in all projects. Additional resources will be added to the campuswide library of information on the broader subjects in the second year of the grant, while faculty will continue to investigate their particular subject areas.

Faculty indicated in focus groups that a lack of time was a significant impediment to course redesign. Much time and effort are involved in all phases of grant projects, from the initial research on their respective topics to the physical integration of the technologies and other enhancements to courses. Since faculty workload was not otherwise reduced to compensate for these additional responsibilities, many participants felt a strain on their time and resources. Some faculty felt that reflection logs, in particular, were a redundant and unnecessary addition to their workload. However, others countered this opinion that the regular and frequent reporting mechanism helped to keep them on track and progressing with their projects.

IT support also faced challenges in dealing with the heightened demand for their services from faculty engaged in Bush projects. This is why the campus administration feels that refining the overall IT support mechanism on campus will be a key component of the overall process, as the system should be able to adequately support the needs of faculty in an efficient and effective manner.

The campus coordinator revealed the emphasis on assessment and evaluation was minimized during the first year of the grant, but will be a primary emphasis in Year 2 (2006). At this stage, most grant participants are simply relying on qualitative student feedback to inform their research. However, some faculty have gone a step further by initially classifying the types of learning styles among the students in their courses and successively gauging their respective performance with and receptivity to certain instructional tools.

The IT Core Group is currently in the process of formalizing and standardizing such techniques through the development of evaluation matrices that will be used for projects in the upcoming year. Assessment and evaluation will ultimately entail a three-level approach, addressing individual projects, general areas of IT tools, and overall implementation.

Survey data reveal that in addressing the extent to which program participants assessed student learning in their courses, all participants (100 percent) found that using classroom assessment strategies to prompt student thinking during lecture or class discussion, motivating students to improve their study skills, getting a better sense of what the class as a group is learning, and using student feedback to evaluate the overall course were either somewhat important or very important in improving student learning based on classes taught in previous semesters. Collecting information to diagnose learning problems or identify individuals who need extra help was seen as the least important measure (76 percent) in improving student learning based on classes taught in previous semesters. One hundred percent of participants responding to the survey gave moderate or high priority to using a variety of techniques in assessing student learning in their courses. Exhibit 4-13 shows the importance faculty placed on student learning.

**EXHIBIT 4-13
IMPORTANCE PLACED ON STUDENT LEARNING**

	No Importance	Little Importance	Somewhat Important	Very Important
Collecting information to assess students' entry-level knowledge or abilities (n=8)	13%	0%	63%	25%
Collecting information to diagnose learning problems or identify individuals who need extra help (n=8)	13	13	38	38
Using classroom assessment strategies to prompt student thinking during lecture or class discussion (n=8)	0	0	25	75
Helping students learn to assess their own progress (n=8)	0	13	25	63
Motivating students to improve their study skills (n=8)	0	0	25	75
Getting a better sense of what the class as a group is learning (n=8)	0	0	13	88
Using assessment strategies to help make mid-course corrections in teaching strategies or materials (n=8)	0	13	38	50
Using feedback to improve mid-term or final exams (n=8)	0	13	25	63
Using student feedback to evaluate the overall course (n=8)	0	0	13	88

Source: MGT Survey, February 2005.

Survey data also show that in addressing the extent to which program participants used information gathered from assessment and evaluation to inform their course design, graded performance measures (100 percent), quantitative methods (100 percent), required measures of performance (92 percent), and graded performance measures (100 percent) were listed as the forms of assessment used often or very often in the past. Exhibit 4-14 shows the types of assessment faculty used in the past.

**EXHIBIT 4-14
TYPES OF ASSESSMENT USED IN THE PAST**

	Never	Sometimes	Often	Very Often
Interactive techniques (e.g., voting, debates, small group problem-solving) (n=8)	0%	25%	38%	38%
Qualitative methods (e.g., journals, reflection papers, essays, short answer) (n=8)	25	13	38	25
Quantitative methods (e.g., quizzes or tests, surveys) (n=8)	0	0	38	63
Anonymous student response techniques (n=8)	0	38	50	13
Identified student response techniques (n=8)	0	75	25	0
Ungraded performance measures (n=8)	13	25	38	25
Graded performance measures (n=8)	0	0	25	75
Voluntary measures of performance (n=8)	13	38	50	0
Required measures of performance (n=8)	0	0	88	13
Individual student performance (n=8)	0	13	50	38
Group performance (n=8)	13	38	50	0
Other learning style survey (1)				

Source: MGT Survey, February 2005.

One hundred percent of survey respondents gave moderate or high priority to working with an undergraduate to further inform their course design as it relates to their teaching while 75 percent gave moderate or high priority to inviting colleagues to review your syllabi or teaching materials and working with other faculty to further inform their course design.

When asked what criteria faculty would use at the end of the grant to determine whether their success in the grant was worthwhile, the two main criteria were identified—improved student performance and effective teaching strategies. Student performance will be measured by improvements in student enrollment, participation, engagement, achievement, and attitude. Participants expect to see a greater understanding and appreciation of the material by students and hope to see student interest in subject areas extend beyond the required courses. Grant participants also intend to:

- identify those teaching and assessment strategies used by faculty since the introduction of new technology;
- encourage more individualized strategies; and
- look for positive student evaluations of faculty.

Exhibit 4-15 highlights some of the key accomplishments and outcomes for each of the grant participants in Year 1. More detail on these projects can be found in the Appendix of this report.

**EXHIBIT 4-15
SUMMARY OF PARTICIPANT ACCOMPLISHMENTS AND OUTCOMES FOR YEAR 1 AT UMM**

Course Impacted by Project	Summary of Research Project	Evaluation Methods	Summary of Key Findings
Elementary Education 3102- Literacy and Language Instruction in the Elementary School	Changing delivery from formal lecture formats to include visual, audio, and spatial forms of communications and other technologies that will engage students and promote constructivist and collaborative learning.	Data collected for project includes information on students' learning styles, student reflections on course assignments and class presentations, student participation on the course discussion board, and assessment of student work on four examinations and two course projects. Interview data will be added to this when student interviews are completed at the beginning of the Spring semester.	Has been successful in finding and grasping technological resources to add to course content. Refining some methods based on initial feedback from students, but integration of curriculum targeting diverse learning styles appears effective at this stage.
ENG 4017- Tricksters and Conjurers in Native American and African American Literature	Involves a web forum for English seminars that will enhance research, discussion, and debate.	Students surveyed at beginning and end of term. The first indicated their familiarity and concerns with a web forum as part of the course. The second gave students the opportunity to evaluate the forums after a semester of use.	Increased participation via the online format was observed for about half of students that didn't typically participate in verbal discussions. Students found software easy to use and made use of forums, particularly around project deadlines.
ENGL 4019 - Research Seminar: Rewriting Shakespeare for Film and Stage (HUM)	Involves a web forum for English seminars that will enhance research, discussion, and debate.	No formal evaluation methods reported at this time.	Positive initial experience but uncomfortable with technology. Will seek IT support to hopefully increase role of technology in successive terms.
ENGL 4004 - Research Seminar: Old English Literature and Language (HUM)	Involves a web forum for English seminars that will enhance research, discussion, and debate.	Mid-term survey of students will be utilized as well as anecdotal reports by students. Participation in forums will also be monitored.	Forums have been set up for use and will be incorporated into courses in Spring 2006. Need IT support to adapt forums for future/alternate classes.

**EXHIBIT 4-15 (Continued)
SUMMARY OF PARTICIPANT ACCOMPLISHMENTS AND OUTCOMES FOR YEAR 1 AT UMM**

Course Impacted by Project	Summary of Research Project	Evaluation Methods	Summary of Key Findings
Fren 1001 and 1002	Researching the application of various instructional methods in foreign language classrooms to accommodate for differences in learning styles through the use of various multimedia and interactive technologies.	Feedback will be solicited by means of a tailored evaluation of the new approaches incorporated into course. Spring course will adopt a modular syllabus wherein students may tailor the ways they are assessed to their own strengths. Multiple modes of completion for assignments will also be allowed.	Will begin implementation of technologically driven UDI elements in Spring term. Very positive feedback from colleagues/peers at various forums in discussions about methods that will be incorporated.
ITAL 1301 - CE: Beginning Italian I (FL) and ITAL 1302 - CE: Beginning Italian II (FL)	Researching the application of various instructional methods in foreign language classrooms to accommodate for differences in learning styles through the use of various multimedia and interactive technologies.	Informal discussions with students at this stage.	Students have been receptive to initial online trials of "pop-up" vocabulary and grammar utility. However, standalone program is still in development.
GER 3041 New German Cinema, Beginning Chinese 1001	Researching the application of various instructional methods in foreign language classrooms to accommodate for differences in learning styles through the use of various multimedia and interactive technologies.	No formal evaluation methods reported at this time.	Students receptive to multimedia content. Learning about films has been an involved but rewarding process.
CSCI 1101- Dynamic Web Programming (M/SR)	Development of tools and applications to assist a diverse group of non-CS major students that are interested in learning basic web-programming skills.	No formal evaluation methods reported at this time.	Will be implemented in Spring 2006 semester. Have spent substantial time selecting appropriate software. Student assistants have been very helpful.
Dynamic Web Teaching Tools (to be implemented in 2006)	Development of tools and applications to assist a diverse group of non-CS major students that are interested in learning basic web-programming skills.	No formal evaluation methods reported at this time.	Will be implemented in Spring 2006 semester. Have spent substantial time selecting appropriate software. Student assistants have been very helpful.

**EXHIBIT 4-15 (Continued)
SUMMARY OF PARTICIPANT ACCOMPLISHMENTS AND OUTCOMES FOR YEAR 1 AT UMM**

Course Impacted by Project	Summary of Research Project	Evaluation Methods	Summary of Key Findings
MATH 1101 - Calculus I (M/SR) and MATH 1102 - Calculus II (M/SR)	Adapting and updating Mathematica notebook files to allow for extended use in all calculus sections at UMM, extending the application and utility of technology in these courses and thereby accommodating diverse learning styles.	No formal evaluation methods reported at this time.	Will be implemented in Spring 2006. Calculus I portion of project is complete and was used on a limited basis during . Modules will be revised and disseminated to other faculty. Calculus II modules expected to be completed by Summer 2006. Student assistants have been very helpful.
PHYS 3003 - Computer Modeling of Materials (SCI)	Collaborating with computer science department to develop software interface that will allow for visual computer modeling in selected physics courses.	Evaluation based on student feedback in conversation.	Will be implemented in Spring 2006. Substantial time has been invested in selecting appropriate software/platforms.
MGMT 4101 - Investment and Portfolio Analysis	Integrating the use an online simulated portfolio into course in order to give direct, collaborative experiences to students in real world concepts.	At this stage, evaluation/assessment limited to student performance and informal feedback.	To be fully implemented in Spring 2006. For project administered in Fall 2005, received positive feedback from students regarding use of real world experience. Difficulty balancing the level of participation among students in groups.
POL 3231 - Constitutional Law: Civil Liberties and Civil Rights (HDIV) and POL 3232 - Constitutional Law: Governmental Powers and Constraints (SS)	Introduction of online collaborative forum for case briefing that is intended to expand the potential learning opportunities, particularly for students that have not taken related coursework.	Supplemental evaluation form will be administered in Spring 2006.	Will be implemented in Spring 2006. Software (WIKI) has been identified and installed on UMM server. Testing was to be completed over winter break. Cited student assistants as very helpful resource.

4.3.2.3 Evaluation of Program Leadership

The UMM grant administration feels that the Bush grant has been a very positive experience for the campus and hopes for continued success in the coming years. Many lessons have been learned along the way, particularly about avoiding assumptions at all levels of implementation. An open-minded approach must be maintained in order to counter the difficulties and complications that arise. The introduction of new technologies and modalities to the classroom has proven to yield both unexpected benefits and problems.

Faculty involved with the Bush grant have reported great receptivity among students to the mechanisms that are being employed in courses. Though formal assessment is not yet in place in many cases, anecdotal feedback regarding the tools that are being used has been very positive. It appears as though students are being thoroughly engaged in the redesigned courses due to the broadening of the learning environment to reach a diverse population of learners. The integration of formalized assessment and evaluation techniques in Year 2 should allow for more efficient refinement of methodologies to best reach students.

Many individual faculty expressed difficulty in personally adapting to and learning the technologies involved with their projects and integrating them into courses. Since these methodologies and concepts were not only new to students, but in most cases were also new to faculty, a learning curve was often encountered in building the enhancements into the courses. This is another reason why the IT infrastructure on campus has to evolve and adapt on pace with, or even more quickly than, the classrooms.

Overall, the campus coordinator has been pleased with the efforts of faculty and staff on campus with regards to the Bush grant. Participants appear to have embraced the motivations behind the grant and taken personal ownership of the initiative, as reflected by the willingness to reduce individual compensation for their efforts in an attempt to yield a broader campus impact.

Likewise, grant participants have been pleased with the administration of the grant and the role played by the campus coordinator. While the support structure is not perfect and must continue to adapt to faculty needs, faculty appreciate the investments of time and resources and are confident in the direction of the leadership.

4.3.3 Looking Forward to Year 2

Based on the experience of the first year of the grant, the application process has been modified for the second round of proposals. First, initial statements of interest will be submitted by applicants. These statements will then be reviewed by the IT Core Group, who will successively interview the applicants. Finally, detailed proposals will be submitted, and the projects for the second year will be selected by the IT Core Group. This process is to be concluded by early February of 2006, and the revised format is intended to yield more thorough and detailed proposals that will be more easily translated into the classroom and better fulfill Bush grant criteria.

The second year of grant implementation will have a revised focus within the learning-teaching process, shifting to assessment and evaluation (from interaction and communication in the first year). As in the first year, a model for instructional support will be developed for the new projects and focus, and the campus leaders will continue to refine their roles with respect to informing, training, and supporting grant participants. Additionally, to foster dissemination of findings throughout the campus, the Inter-campus Communications on Innovative Teaching (IcCIT) will continue with enhancements, and up-to-date grant findings will be presented to non-participating UMM faculty at the 2006 Fall Faculty Retreat.

4.4 Twin Cities

4.4.1 Issue to Be Addressed and Description of Project

The learning issue that the University of Minnesota's Twin Cities (UMTC) campus focused on for the continuation of the Bush grant was promoting student learning in large classes.⁷ As reported in the application for continuation, 12 course teams⁸ would each focus their research on improving student learning in large classes through the use of innovative teaching and creative technology strategies.

Data analyzed from the Fall of 2003 on student outcomes for large classes on the Twin Cities campus reveal that students enrolling in large classes were almost twice as apt to be unsuccessful⁹ in their course work as when they enrolled in small classes. For example, of the 11,415 unsuccessful student experiences in the Fall 2003, 4,024 occurred in small classes, and nearly twice as many (7,388) occurred in large classes.

Other similar universities that rely on large classes as a cost-effective educational format for introductory and general education courses reported similar or higher non-success rates. However, this reality was not consistent with the goal to improve four-year graduation rates and overall retention rates on the UMTC campus.

For the past decade, the Twin Cities campus has shown a commitment to improving undergraduate education by targeting issues associated with class size. Yet issues concerning course size continue to exist. The everyday experience of teachers and students, as well as a growing body of research, corroborates that in large classes there is:

- less active student involvement in the learning process;
- reduced frequency and quality of instructor interaction with students;
- reduced student satisfaction with the frequency of assessment and quality of the feedback;
- reduced depth of student thinking inside the classroom;

⁷ For the purposes of this evaluation, large classes are defined as those with 50 or more students.

⁸ Course teams included at a minimum three individuals: a faculty member, a teaching specialist or teaching assistant, and an undergraduate.

⁹ Unsuccessful is defined as students receiving a final grade of D, F, Incomplete, or Withdrew (DFNW).

- reduced breadth and depth of course objectives and course assignments;
- reduced course-related learning strategies used by students outside the classroom;
- lower levels of academic achievement and performance; and
- reduced course instruction.¹⁰

At the same time that many are building an empirical case against large classes, others, like UMTC, are piloting efforts to use instructional technology and innovative teaching strategies to determine how best to offset the problems traditionally associated with large class size. Research has shown that faculty who adhere to the “Seven Principals for Good Practice in Undergraduate Education” use email correspondence, online journals, and chat rooms to promote faculty-student contact, or experiment with online peer editing to promote cooperation among students.¹¹ However, as indicated by the continuation proposal, much of the research on large class size suggests that there is still more to learn about teaching large classes, and that achieving cost savings and improving learning at the same time may be difficult.

Each of the 12 participating course teams on the Twin Cities campus is focusing on redesigning a particular, regularly offered course to study the impact of innovative teaching and technology strategies on student learning. The collaborative research projects will include six courses at the 1000 level and six at the 3000 level, and will include a range of large class environments. All teams participating in the three-year project will work to enhance student learning by engaging students actively in the learning process and encouraging them to be reflective and responsible learners. At the beginning of Year 1, each course team chose the particular strategies they wanted to use to achieve the aforementioned goals, with an understanding that at the end of Year 1 they could propose to address additional variable(s) associated with learning issues in large classes.

Courses impacted by the Bush grant continuation on the Twin Cities campus and their learning/teaching issues include the following:

- **General College-1135 Human Anatomy and Physiology:** Increasing students’ understanding of the course, their time-on-task, and engagement (What do I study?).
- **Dance 1401 - Introduction to Dance:** Improving writing ability for the course, creating new opportunities for structured group assignments, increasing student interest in small and large group discussion, and easing the flow of digital video in lecture to facilitate discussion.

¹⁰ Cuseo, J. (2004). *The Empirical Case Against Large Class Size: Adverse Effects on the Teaching, Learning, and Retention of First-year Students.*

<http://www.brevard.edu/fyc/listserv/remarks/cuseoclasssize.htm>

¹¹ Chickering, A. and Gamson, Z. (1999). “Development and Adaptations of the Seven Principles for Good Practice in Undergraduate Education.” *New Directions for Teaching and Learning*, no. 80, 75-91.

- **Computer Science 1901:** Increasing student engagement, attendance, retention of material for females, and decreasing the non-success rate.
- **Biology 1001:** Increasing student engagement, attendance, and preparation.
- **Geology 1001:** Increasing student abilities to read maps for geology classes.
- **Agronomy 1101 - Biology of Plant Food Systems and the Environment:** Increasing student engagement and attendance.
- **Architecture 3401 - Environmental Design and Sociocultural Context:** Improve learning outcomes, positively impacting course experience, and helping students see all aspects of the course as a coherent whole.
- **Theatre 3171 - Theatre History and Drama I:** Increasing student engagement with material while overcoming classroom limitations with innovative teaching strategies.
- **Business Statistics 2550:** Increasing attendance at discussion sections, addressing inconsistency across discussion sections by achieving a single voice between instructor and teaching assistant.
- **HMED 3001 - History of Medicine:** Increasing students' reading and writing skills in a course in which they must process unfamiliar, foreign, and historical vocabulary words, complex sentences, and sophisticated arguments; and increasing their ability to think critically about academic texts and evaluate the merits of historical arguments in the contexts of medicine and biology.
- **Personal and Family Finances 3101:** Increasing student engagement, attendance, and integration of all aspects of the course material.
- **Marketing 3001 - Principals of Marketing:** Enhancing, or maintaining, student satisfaction in a weeder course while increasing the enrollment count across all 30 sections per year.

By the end of the three-year continuation grant, outcomes of this project will include the following:

- an increased understanding of student learning in large classes at UMTC;
- knowledge of particular strategies, approaches, or tools that positively impact student learning in large courses;

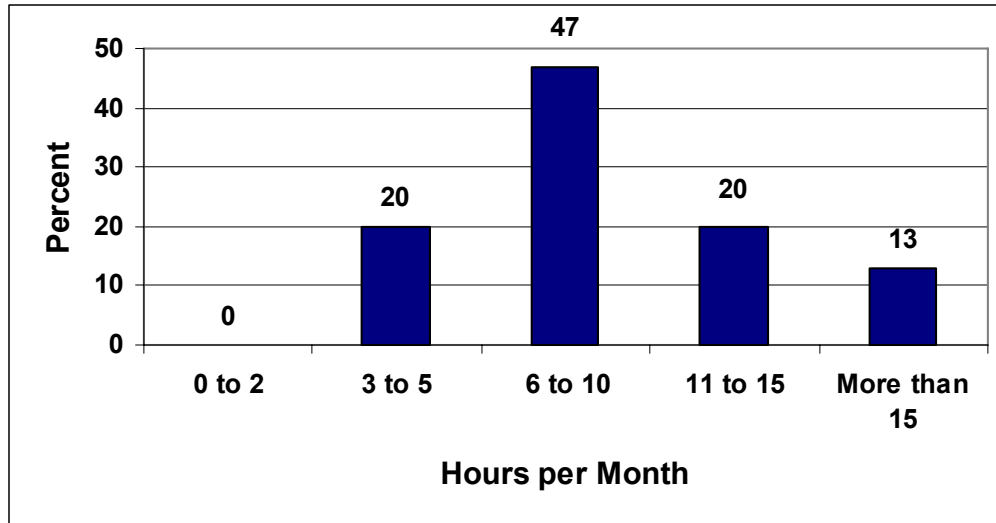
- principles of good practice for promoting student learning in large lectures;
- dissemination of research-supported findings about student learning in large classes;
- the professional development of UMTC campus leaders who use innovative teaching and technology strategies to address teaching and learning challenges associated with large classes; and
- The design and implementation of a UMTC campus model that bring together working teams from various disciplines to address an institutional problem through a scholarly approach to teaching and learning.

Data collected for the aforementioned projects for the systemwide Bush grant are summarized in the following sections. More detail on each of the individual projects can be found in Appendix C of this report.

4.4.2 Research and Evaluation

Sixteen grant participants from course teams responded to an MGT baseline survey conducted in the first month of the grant. Of these respondents from the Twin Cities campus, 47 percent were male and 53 percent were female. Fifty-one percent were tenured or tenure-track faculty, and 49 percent were full-time or part-time non-regular faculty or professional academic staff. Sixty-seven percent devoted more than 50 percent of their time to teaching, while 33 percent devoted 50 percent or less of their time. Eighty percent of staff expected to invest more than five hours per month on the Bush Foundation Grant. Respondents reported an average of 14.81 years of experience teaching post-secondary students. When asked to define their role in the Bush grant, faculty responding to the survey appeared to fall into three basic groups: those involved in redesigning the classes, team members leading faculty, and those faculty teaching the courses. It is important to note that some faculty may fall into more than one of the aforementioned groups. Exhibit 4-16 shows the breakdown of faculty that anticipated investing in the ranges of hours per month on the Bush Foundation Grant.

**EXHIBIT 4-16
HOURS FACULTY ANTICIPATED INVESTING PER MONTH ON BUSH
FOUNDATION GRANT**



Source: MGT Survey, February 2005.

Data presented in the following sections are detailed by the research and evaluation questions for the grant, and were collected from a variety of evaluation tools, such as faculty reflection logs, focus groups, course profiles, and workshop minutes.

4.4.2.1 Evaluation of the Program

Course teams with support from their department chair and college dean applied to participate in the research projects. Preference was given to course teams who:

- proposed to work with large 1000- and 3000-level courses that were taught regularly;
- included courses that showed evidence of a need for improvement (i.e., with significant DFNW rates); and
- included courses that were offered in multiple sections.

As previously mentioned, 12 course teams consisting of at least three individuals—a faculty member, a teaching specialist or assistant, and an undergraduate—were selected for participation in the continuation grant. Six of these teams focused on 1000-level courses that impacted approximately 1,400 students each semester and the other six on 3000-level courses that impacted about 600 students. As exhibited earlier, these course teams represented a variety of colleges across the UMTC campus.

Four consultants were identified to work with this continuation grant. Two consultants were assigned to each course team and worked closely with them as they implemented their research and experimental designs. One of the

consultants was responsible for focusing on the research and evaluation aspects of the course redesign, while the other offered advice and guidance on experimental and innovative technologies that could be implemented in the large class environment. In some cases, consultants also worked with the course teams to provide them with background research. Throughout the year, consultants also conducted classroom observations of strategies being implemented and offered technology support as needed during classroom implementations.

UMTC established a campus coordinating team to assist the course teams with their research projects. The coordinating team was made up of an individual identified as the project manager or campus coordinator, the consultants, two faculty team leads, and the grant's principal investigators. It was the primary responsibility of this team to work with the course teams as they defined and implemented their research projects, in addition to supplying them with professional development opportunities and support.

The 12 course teams met monthly for about an hour and a half to work together as a group. During the Spring 2005 semester, approximately half of this workshop was focused on professional development, and the remaining time was spent discussing specific learning issues teams were experiencing. During the Fall 2005 semester, the focus of these workshops shifted to evaluation and outcomes. Beginning in October, two course teams presented their projects and preliminary findings during the workshop, thus allowing the teams to get a "quick" look into what others were doing.

Guest speakers were also invited to course team meetings. These speakers were identified by campus leaders to assist course team members with understanding that they are part of an institutional culture that seeks to enhance student learning and values their growth as teachers. In the Spring semester, Karl Smith delivered a workshop on "Engaging Faculty and Students in Talking about Teaching and Learning." During the Fall semester, UMTC grant leaders brought in Dr. Richard Tiberius, who presented an hour-long presentation on the "Nine Ways to Design and Deliver Engaging Lectures." In order to continue to address the goals of the grant, one of the UMTC consultants is researching literature on responsible and reflective learners so that grant leaders can bring in a speaker for this issue at the beginning of Year 2.

In addition to the aforementioned workshop, course teams were required to meet monthly with the consultants assigned to their research projects. During the Spring semester, consultants reported they assisted many of the teams in conducting research and defining the roles of the team members. There were challenges in establishing the roles of the undergraduate and teaching assistant/specialist in the research and course redesign. Consultants also reported spending large amounts of time working with course teams to develop an evaluation design to measure student outcomes and the tools necessary for data collection. During the Fall semester, the focus of these meetings shifted toward understanding the data and making course adjustments. It is important to note that not all classes were taught during the Fall semester. In some cases, faculty

continued to conduct research and prepared to implement their course redesign in the Spring of Year 2.

The course team members admitted that if it were not for the monthly course team workshops, they would not typically collaborate with the faculty participating in the Bush grant. Several faculty even lamented that they do not collaborate with faculty within their own college. They agreed that these workshops were very valuable to the work they were doing for the continuation grant. The networking and debating has led to more in-depth research and the implementation of more innovative strategies. Team members also admitted that other than those who had presented during the course team workshops or the Bush grant Breeze session, they had not done a good job of disseminating the outcomes of their research to date. Many felt this was because they were in the very early stages of their research, but agreed that others may be able to use, or build upon, strategies they were using.

Team members that participated in the Bush grant Breeze session that was held online in November were very excited to learn about the projects being conducted on other campuses. Again, teams admitted that they felt this session helped them feel more comfortable with the stage they were at in their research.

Team members reported using a variety of research to guide their course redesign and evaluation; however, it appears to them that a record of the research being used has not been kept. After hearing the presentations of other teams, team members agreed that having a library of the research or resources used would be helpful to everyone participating in the grant. Campus coordinators and consultants reported that a library of these resources is being kept; however, they agreed they needed to communicate this with faculty.

Team members reported that the consultants were very helpful with the development of classroom assessment tools and identifying techniques that could be used for various teaching strategies. At the end of Year 1, consultants reported that about seven of the teams would have data that would enable them to understand the outcomes of these strategies and assist them in making adjustments to their course designs in Year 2. Again, it is important to note that not all redesigned courses were taught during the Fall semester. In some cases, teams continued to conduct research and prepare to implement their course redesign in the Spring of Year 2. Ten of the projects will collect data during the Spring 2006 semester.

The majority of team members reported that they found the workshops and consultant meetings very helpful. Several mentioned that they had felt they were slipping behind in their research until they began seeing the presentations of other course teams. They all agreed that UMTC offered them a wealth of workshops, but that they needed encouragement to participate. The majority of faculty admitted that they did not seek out workshops or professional development opportunities on their own.

4.4.2.2 Evaluation of Program Participants

Given the financial situation at most large institutions, large classes continue to be a reality. At UMTC, the goal is to determine what innovative teaching and technology use approaches can change these large courses in ways that will benefit both teachers and students. In the 2003-2004 "Accountable to U" report, UMN President Robert Bruininks and Board of Regents Chair David Metzen stated that one of the four over-arching goals for the upcoming year was to improve the educational life of students by "enhancing teaching and learning, promoting better progress and improved graduation rates, and maintaining and improving student satisfaction levels."

Since the grant continuation proposal was written, the university has promoted a new strategic initiative, its goal of making the University of Minnesota one of the world's top three public research institutions. UMTC grant leaders believe that at their broadest, the activities of the first year of the grant were designed to align the Bush grant with this current strategic initiative. In a column for *The Minnesota Daily*, President Bruininks wrote that the strategic initiative task force developed "a plan to stimulate cutting-edge research, as well as teaching" (December 5, 2005). Though research forms the thrust of the initiative, teaching remains part of Bruininks's vision of a better university. As a result, UMTC grant leaders envision the Bush grant, which emphasizes student learning and teaching, as an important corollary to the university's strategic initiative, particularly at a time when the university is research oriented and focused.

Each of the course teams has worked in Year 1 to focus on promoting better student learning in large classes by implementing innovative teaching and learning strategies. These research projects are directly aligned with the initiative stated above; however, during the faculty focus groups at both the 1000- and 3000-level, faculty reported that they are unclear as to the direction in which their colleges are going. Many colleges are facing strategic redevelopment that will be implemented within the next two years and some courses and colleges may be eliminated. Faculty said they were attempting to move forward with their research as if nothing were going on, but it was difficult.

Survey data from UMTC reveal that 94 percent of respondents found that the desire to expect higher quality work from their students highly or moderately motivated them to change their course, while 87 percent found that the desire to teach their course more efficiently and the desire to encourage students to spend more time on learning tasks moderately or highly motivated them to change their course. Only 26 percent of respondents found that the desire to build on students' familiarity with technology highly or moderately motivated them to change their course. Eighty-seven (87) percent of respondents intend to use new technology-enhanced learning strategies and new ways to address student learning styles as part of the Bush Foundation grant. Over three-fourths of respondents (80 percent) intended to use new instructional strategies and new collaborative strategies as part of the Bush grant. Exhibit 4-17 shows the factors that have motivated faculty to change their courses.

EXHIBIT 4-17
FACTORS MOTIVATING COURSE CHANGES

	None	Low	Moderate	High
Desire to address varied learning styles and needs (n=16)	13%	25%	25%	38%
Desire to encourage students to spend more time on learning tasks (n=16)	0	13	19	69
Desire to facilitate communication between students and instructors (n=16)	0	19	50	31
Desire to help students work more collaboratively (n=16)	19	25	25	31
Desire to build on students' familiarity with technology (n=16)	13	63	13	13
Desire to increase students' access to course materials (n=16)	13	19	50	19
Desire to use technology simulations to teach topics that may have been too dangerous or expensive previously (n=16)	44	13	19	25
Desire to teach my course more efficiently (n=15)	0	13	27	60
Desire to expect higher quality work from my students (n=16)	0	6	6	88

Source: MGT Survey, February 2005.

Almost all (94 percent) participants responding to the survey gave moderate or high priority to using examples or illustrations to clarify course material, setting high expectations for all students, and providing syllabi with course objectives, assignments, and grading procedures. Most respondents gave moderate or high priority to providing prompt feedback to students about their exam results and assignments (88 percent), discussing with colleagues their course content, materials, assessment techniques (88 percent), and relating concepts in their courses to real life, such as through problem-based or service learning (86 percent). Only 37 percent gave moderate to high priority to implementing team teaching or other collaborative approaches in courses and presenting on their discipline in a colleague's class.

Course team members reported throughout the year on their collaboration activities through monthly reflection logs, and again during the focus groups held during the evaluation site visit in November. Team members consistently reported that for the most part, the monthly course team meetings and the regular meetings with consultants constituted the extent of their collaboration. The majority of team members admitted that collaboration among faculty within and between colleges was rare. Consultants noticed that at the beginning of Year 1, they worked harder to build trust with several of the course teams. Team dynamics also created some barriers to collaboration. In some cases faculty did not understand the roles and responsibilities of the teaching assistant and undergraduate. Once consultants established themselves with the teams and roles were defined, the research progressed more smoothly, though for a few teams this took longer than expected. Teaching assistants and undergraduates agreed that for the most part their role within their individual teams was to provide faculty with the analysis and outcome data, to conduct student focus groups, and to respond to student ideas and

questions. It is important to note that this participation varied from team to team. In some instances, teaching assistants and undergraduates were deeply involved in the course redesign and offered comments and suggestions to lead faculty.

Course profiles show that collaboration happens in the classroom itself. Many of the professors report that they believe the collaborative approach to teaching begins with the students in the classes they are redesigning. The professors have used feedback gained from students through discussions, surveys, and focus groups to help in the redesign of the course. The professors state that this collaboration was central to their intervention.

Consultants on the UMTC campus assisted course teams with fostering a scholarly approach to teaching by conducting literature reviews of the scholarship on teaching and learning, specific to the teams with which they were consulting. They presented these findings to the teams and they ended the year by collecting articles and web sites for an annotated literature review pertaining to the scholarship of teaching in general. Grant leaders also assisted course teams with understanding this grant focus by addressing the goal in the monthly course team workshops.

As indicated earlier, team members reported that, other than the presentations during the course team workshops or the Bush grant Breeze session, teams had not done a good job of disseminating the outcomes of their research to date. Many felt this was because they were in the very early stages of their research, but agreed that others may be able to use, or build upon, strategies they were using. Likewise, teams reported using a variety of research to guide their course redesign and evaluation; however, it appears that a record of the research and resources being used has not been kept. After hearing the presentations of other teams, team members agreed that having a library of the research or resources used would be helpful to everyone participating in the grant.

Course profiles show that each of the course teams has defined the meaning of a scholarly approach to teaching in a manner that, perhaps, reflects their own discipline. For example, one faculty member wrote that for her a scholarly approach means treating teaching like any other experimental science, one that presents a hypothesis, designs an experiment to prove or disprove the thesis, and analyzes the results. Another faculty member believes that a scholarly approach to teaching means going beyond her own instincts and what she has absorbed as good teaching practices from those people she found to be effective teachers by looking at the research on teaching across disciplines and being willing to consider more than “end-of-the-year student evaluations” in assessing her own teaching.

Furthermore, team members agreed that it would be beneficial not only to collaborate more with others from the UMTC campus, but also with Bush grant participants on the other three campuses. As reported, those who participated in the Breeze session found the research of others enlightening and in some cases beneficial to their own work.

As mentioned previously, evaluation data show that, while many of the UMTC faculty and team members understand collaboration and all that it means, they do not have the same understanding of what it means to use a scholarly approach to

teaching. As with other campuses, faculty would like to use a common definition of these terms as the grant moves into Year 2. With a unified definition, the impact of collaboration and using a scholarly approach to teaching would be more measurable and meaningful to grant participants.

Analysis of reflection log data, course profiles, and participant focus group information reveal that course teams were using a variety of different data collection techniques to assess the impact of their research, and that each of the teams has engaged evaluation to varying degrees. These methods included, but were not limited to:

- surveys;
- test questions;
- web hits;
- time-on-task;
- student focus groups;
- concept inventories;
- attendance records;
- pre and post exams; and
- online journaling and discussion forums.

Faculty have all identified their specific teaching challenges, and many of these involve engaging students with the material, improving attendance, connecting lab work or homework with the key concepts of the course, and overcoming physical classroom limitations. In terms of specific research questions, many center around new teaching strategies and their impact on student engagement. For example, course teams have articulated the following research questions:

- How do assessments have to change to accommodate case study methodology?
- Can stereo projection be used to better engage the “at-risk” portion of the class without lowering class standards?
- How will each of the interventions impact learner engagement with the course?
- How will the series of teaching interventions taken as a whole affect scores on the SETS?

Survey data collected at the beginning of the grant reveal that in assessing student learning in their courses, respondents found that motivating students to improve their study skills (100 percent) and using student feedback to evaluate the overall course (88 percent) were either somewhat important or very important in improving student learning based on classes taught in previous semesters. Collecting information to diagnose learning problems or identify individuals who need extra help (38 percent) was seen as the least important measure in improving student learning based on classes taught in previous semesters. Eighty-two (82) percent of participants surveyed allocated moderate or high priority to using a variety of techniques in assessing student learning in their

courses. Exhibit 4-18 shows the importance faculty placed on various means of enhancing student learning.

**EXHIBIT 4-18
IMPORTANCE PLACED ON STUDENT LEARNING**

	No Importance	Little Importance	Somewhat Important	Very Important
Collecting information to assess students' entry-level knowledge or abilities (n=16)	38%	19%	19%	25%
Collecting information to diagnose learning problems or identify individuals who need extra help (n=16)	31	31	19	19
Using classroom assessment strategies to prompt student thinking during lecture or class discussion (n=16)	19	6	44	31
Helping students learn to assess their own progress (n=16)	13	38	25	25
Motivating students to improve their study skills (n=16)	0	0	75	25
Getting a better sense of what the class as a group is learning (n=16)	0	25	31	44
Using assessment strategies to help make mid-course corrections in teaching strategies or materials (n=16)	19	19	38	25
Using feedback to improve mid-term or final exams (n=14)	7	29	43	21
Using student feedback to evaluate the overall course (n=16)	6	6	25	63

Source: MGT Survey, February 2005.

Survey data also reveal that in addressing the extent to which program participants used information gathered from assessment and evaluation to inform their course design, graded performance measures (94 percent), quantitative methods (87 percent), and individual student performance (81 percent) were listed as the forms of assessment often or very often used in the past. Exhibit 4-19 shows the types of assessment faculty used in the past.

**EXHIBIT 4-19
TYPES OF ASSESSMENTS USED IN THE PAST**

	Never	Sometimes	Often	Very Often
Interactive techniques (e.g., voting, debates, small group problem-solving) (n=16)	6%	50%	31%	13%
Qualitative methods (e.g., journals, reflection papers, essays, short answer) (n=16)	19	25	19	38
Quantitative methods (e.g., quizzes or tests, surveys) (n=16)	13	0	31	56
Anonymous student response techniques (n=15)	13	67	20	0
Identified student response techniques (n=15)	60	33	7	0
Ungraded performance measures (n=15)	20	53	20	7
Graded performance measures (n=16)	0	6	44	50
Voluntary measures of performance (n=14)	71	7	14	7
Required measures of performance (n=14)	21	14	36	29
Individual student performance (n=16)	19	0	31	50
Group performance (n=15)	20	47	13	20

Source: MGT Survey, February 2005.

Additionally, 82 percent of faculty responding to the survey gave moderate or high priority to working with an undergraduate to further inform their course design, while 75 percent gave moderate or high priority to making their course syllabi available to anyone on the Internet or through other public sources and working with a teaching assistant to further inform their course design.

When asked what criteria faculty would use at the end of the grant to determine whether their success in the grant was worthwhile, the two main criteria were identified—improved student performance and effective teaching strategies. Student performance will be measured by improvements in student enrollment, attendance, engagement, achievement, and attitude. Participants expect to see a greater understanding of the material by students (not strictly an improvement in grades) and a stronger correlation between labs, lectures, and assignments. Participants also intend to identify effective and efficient teaching and assessment strategies, add more active learning and individualized strategies, and improve student evaluations of faculty.

Faculty who taught the redesigned course in the Fall reported that they did use data throughout the semester to make minor adjustments to their courses. Such adjustments included which teaching tools to use or not to use, and where they needed to focus instructional time. They agreed that if it were not for the work of the teaching assistants, undergraduates, and consultants they would not have had time to properly analyze the outcome data. They also admitted that more in-depth data analysis would be required to make major adjustments in the course redesign for the next semester the course would be taught. All faculty and course team members agreed that lack of time was a huge barrier to the grant

implementation—time not just for data analysis, but for proper research and development of experimental designs as well.

When asked how their definition and attitude toward the importance of a scholarly and collaborative approach to teaching changed over the course of Year 1, faculty agreed that they did not fully anticipate the time needed to successfully implement their research. They all did agree that collaboration and networking were key to progressing from point A to Z.

Exhibit 4-20 highlights some of the key accomplishments and outcomes for each of the course teams in Year 1. More detail on these projects can be found in the Appendix of this report.

**EXHIBIT 4-20
SUMMARY OF PARTICIPANT ACCOMPLISHMENTS AND OUTCOMES FOR YEAR 1 AT UMTC**

Course Impacted by Project	Summary of Research Project	Evaluation Methods	Summary of Key Findings
Agronomy 1101: Biology of Plant Food Systems and the Environment	How do we make explicit connections between lecture and lab? Strategy—Instructor attends varying lab sections. Instructor makes explicit connections between lab and lecture orally in lecture. How do we help students better prepare for lab? Strategy—Introduce pre-lab quizzes online. How do we improve group work assignments? Strategy—Mandate student roles (using best practices) in early group project; make the roles elective for subsequent projects. How do we stabilize attendance? Strategy—Record attendance. How can we make the problem based learning (PBL) experience more meaningful and intensive? Strategy—Expand and enrich the content of three case studies and reduce the number of cases from 3 to 4. How can we improve scientific reasoning skills?	Surveys, Focus Group (attempted but cancelled; lack of enrollment in group), content analysis of questions, student representation comments.	Data has not yet been analyzed.
Biol 1001	Interventions/strategies: In-class reading quizzes, in-class group and individual learning activities, online reading questions, in-class groupwork supported by group folders.	Nonequivalent comparison group design using surveys of students in several different classes along with performance data from exams and quizzes. Focus groups. Confidence logs.	Reading quizzes have a substantial impact on student attendance. Self-reported degree of student preparation higher in treatment group than in comparison groups. In-class activities may be associated with improved student performance on targeted quiz/exam questions.

EXHIBIT 4-20 (Continued)
SUMMARY OF PARTICIPANT ACCOMPLISHMENTS AND OUTCOMES FOR YEAR 1 AT UMTC

Course Impacted by Project	Summary of Research Project	Evaluation Methods	Summary of Key Findings
CSci 1901	This is the first course for computer science majors. The course does not assume any programming knowledge. Some familiarity with Unix is useful. The course teaches how to use a programming language as a formal way of expressing ideas. Strong emphasis is on recursion, data abstractions to hide program details, and modularity to manage complexity. The programming language Scheme is taught as part of the course. In addition, the fundamental aspects of Python are presented to ease the transition to other programming languages.	<p>Interventions/strategies: Using small group work of some sort. The room in which the class is taught presents a barrier here, since the chairs can't be moved, so the groups couldn't be larger than three or maybe four. The hope is to increase attendance in class, improve students' preparation for class, and to help students to keep up with the material. Trying different configurations of lab teams, picking partners for students for the first few labs, and later letting them choose their own partners.</p> <p>A group project which could be split into parts so that different students would do different parts and then try to fit them together. This could help students to learn how real software engineering works. Simulation was mentioned as a possibility here. Encouraging the stronger students to take an active hand in running the online bulletin.</p>	Student surveys, class observations.
GC 1135: Human Anatomy and Physiology	Do students' use of online quizzes improve their understanding of anatomy as measured on test performance? Do students' use of games (the newly constructed "Anatomy Bowl") improve their understanding of anatomy as measured on test performance? Does the use of the Anatomy Bowl increase student engagement?	Completed this semester: Course opinion surveys. Data analysis of exam scores. Data analysis of Vista quizzes. (In the future: If we can get data from the game, we'll look at game use and performance data. Possible focus groups, interviews, and CATS.)	Exam scores were higher for those who used Vista quizzes compared to students who didn't use the quizzes in the same semester. The Vista quiz users showed improved exam performance over previous years. There is a correlation of total attempts of quizzes and both final grades and final exams.

EXHIBIT 4-20 (Continued)
SUMMARY OF PARTICIPANT ACCOMPLISHMENTS AND OUTCOMES FOR YEAR 1 AT UMTC

Course Impacted by Project	Summary of Research Project	Evaluation Methods	Summary of Key Findings
Dance 1401: Introduction to Dance	Will online journals in the day class help students 1) with their writing? 2) with articulating their personal connection to dance? Strategy—Assign journals in the day section; make this writing task happen online on Vista. Do online group assignments help improve student engagement? Will this assignment encourage student collaboration? Strategy—Assign a structured group writing task, defining and assigning key roles to each group member. Does Dance 1401 have any long-term effect on students? Will they attend and participate in future dance experiences? Strategy—Survey students a semester after the class is over to find out what kinds of dance activities they might have engaged in. Tell students before the end of the current class that this survey will happen. How can we increase student engagement in lecture? Strategy—Increase small group work in lectures to approximately one activity per week. How, exactly, do students' conceptions of "Dance" change? How do I get more student input into the class on an ongoing basis?	Content analysis of journals, particularly beginning/end of term question on "what is dance to you?" Developing scoring rubric to be used for the analysis. Beginning of term survey to gather info on student experience with dance, reasons for taking the class, student demographic info, etc. Currently uses open-ended questions exclusively. Mid-term survey regarding changes made to the class this term. End-of-term survey focusing on online group assignment, role of TA, etc. Longitudinal survey to test how students integrated dance into their lives a semester after they finished the class.	Data has not yet been analyzed.
Geo 1001	How can we overcome student pre/misconceptions when it comes to map use? Are anaglyph maps better tools for helping students to overcome these problems than traditional topo or grayscale maps? Can anaglyph maps be used to increase student engagement in Geo 1001? How can stereo projection best be integrated into large lectures? Can stereo projection be used to better engage the "at-risk" portion of the class without lowering class standards? Interventions/strategies: We will use anaglyph images developed for the labs in lecture to try to engage students more effectively early in the semester and will try to incorporate more active learning strategies into the lecture portion of the course. An important part of the Spring plans will be to more directly address problems students have had with the course from the first day forward to decrease the number of "at-risk" students.	We are using pre- and post-instructional exercises to gauge changes in student learning along with a number of surveys on the course. Out of class, extra-credit sessions also allow us to quantify changes in student learning and understanding of mapped surfaces using different educational technologies. To date, over 500 students have completed these exercises.	Students not only strongly prefer anaglyph maps to topo maps, but seeing the land surface in stereo significantly improves their understanding of that surface as measured by their accuracy in answering test questions about that surface. Students not only rate the revised GEO 1001 lab program as being more effective than other comparable 1000-level geology lab programs, but their performance on pre- and post-instruction surveys shows that these labs are more effective than the non-initiative lectures at preparing students to interpret geology. The lecture approach associated with the initiative, which focuses on past and present interactions between geological processes and human society, appears to be far more effective at engaging students than traditional approaches to the teaching of introductory geology.

EXHIBIT 4-20 (Continued)
SUMMARY OF PARTICIPANT ACCOMPLISHMENTS AND OUTCOMES FOR YEAR 1 AT UMTC

Course Impacted by Project	Summary of Research Project	Evaluation Methods	Summary of Key Findings
ARCH 3401: Environmental Design and the Sociocultural Context	Our design-based research plan involves designing, implementing and testing a series of diverse educational interventions. The interventions and surveys occur together within a “spiral” of interventions and assessments. The research questions are: How will each of the interventions impact learner engagement with the course? How will the series taken as a whole affect scores on the SETS? The interventions include: Refining class exercises to incorporate informal writing; Rewriting assignments to create a more learning-based approach; Reducing readings to address only question for the week; Applying the Writing Rubric and the Critical Paper Grading Criteria; and others.	We will collect both qualitative and quantitative data, including short learner surveys, with responses aggregated in the form of tables and pie charts. Provided consent of the professor and grad students are obtained, ethnographic notes of class observations, qualitative notes of course team meetings and notes of interviews may also be used. Qualitative findings will be triangulated across methods and respondents. A constant comparison approach to analyzing data from various sources will be used. In this way, multiple forms of evidence will be analyzed to obtain a comprehensive assessment of how well the redesigned course functions, and the impact on student engagement.	The course has been redesigned from a traditional master-apprentice model to a collaborative design-based model. By collecting data from students, there is communication between the professor and the students, which may influence the interventions. This kind of transformation is revolutionary in the field of architecture, which has not been based on a teaching model. Based on the survey results so far, the interventions are having the intended effects.
FSoS 3101: Personal and Family Finances	Questions are centered around the introduction of a new textbook that makes case studies a central strategy in the course. How best to integrate case studies into the course? How frequently to set aside lecture time to support collaborative work on case studies? How do assessments have to change to accommodate case study methodology? An added dimension: This course will be taught by the instructor and her graduate assistant respectively simultaneously in a face-to-face environment and a distance learning environment. We will explore the use and impact of CATS in an online environment, and consider issues of case study facilitation across these two environments.	Surveys, focus groups, CATS, analysis of online interactions, and records of attendance under different treatment conditions.	

EXHIBIT 4-20 (Continued)
SUMMARY OF PARTICIPANT ACCOMPLISHMENTS AND OUTCOMES FOR YEAR 1 AT UMTC

Course Impacted by Project	Summary of Research Project	Evaluation Methods	Summary of Key Findings
HMED 3001: History of Medicine	How can technology-based reading and writing modules be designed to teach critical academic reading and writing within a meaningful and authentic context? How will these modules affect student engagement and short essay writing performance?	The data collection techniques will include some or all of the following: Diagnostic analysis of written assignments, student engagement surveys, scores and annotated feedback on essay writing assignments, survey similar to Writing Center's (2005) mid-semester feedback form, ethnographic data from classroom observations, written records of meetings and interviews.	The ethnographic notes of classroom observations show that Professor Shackelford has adopted several strategies from the Bush grant in his lectures, including video clips, connecting lecture points to readings and previous lectures, flagging main ideas, using powerful images and graphics such as historical icons and histograms, and summing up main points at the end. The students appeared to be fully engaged during the lecture we observed.
MKTG 3001: Principles of Marketing	Research project focuses on staffing costs and staff/student ratios and the impact on student satisfaction and engagement. In Spring 06, there will be two sections of the course taught, with one section having 2PAs (undergraduate peer assistants) and one having 4PAs.	Mixed methods quasi-experimental design. Data will consist of: Survey data from two treatment groups, costs of two vs. four peer assistants, self-evaluation of progress notes and taped interviews with peer assistants about the teaching and learning process. In addition, the same survey instrument will be administered in the other (smaller enrollment size) course sections.	Student learning outcomes: Large enrollment sections compared to small enrollment sections. Effectiveness of peer advisors as opposed to traditional teaching assistants. Student satisfaction with the instructional environment: Large sections compared to small sections.
OMS 2550: Business Statistics	The revisions to the course are to eliminate the discussion sections and include active learning and classroom assessment techniques (ALT-CAT's) in the lectures. The ALT-CAT's are small group activities which require students to apply statistical concepts to authentic problem-solving contexts.	A pre- and post-test design will be used in the Spring of 2006. The first instrument is an attitude survey that measures the impact of ALT-CATS, on several dimensions, including usefulness, confidence, enjoyment, and motivation. This survey was pilot-tested in OMS 2550H and in MBA 6120 courses, and revised before it was distributed. Secondly, to measure outcomes, the Test of Statistical Literacy will be used. This test consists of both subject matter and confidence level items. Thirdly, Professor Huchendorf's ALT-CATS test will be used after each ALT-CAT activity.	On the pre-test of the Test of Statistical Literacy, the mean score was 10.0, out a total of 20. In contrast, the post-test mean was 17.8, an improvement of from 50.45% to 85.9%. On the attitude scale, the pre-test mean was 10%, and the post-test mean was 81.1%. Finally, the ALT-CATS Test was also given (N=39). 84% agreed or strongly agreed that the ALT-CATS were helpful for learning the material.

**EXHIBIT 4-20 (Continued)
SUMMARY OF PARTICIPANT ACCOMPLISHMENTS AND OUTCOMES FOR YEAR 1 AT UMTC**

Course Impacted by Project	Summary of Research Project	Evaluation Methods	Summary of Key Findings
<p>TH 3171: Theatre History and Drama I</p>	<p>This semester has been exploratory for Branislav. He has been using several techniques drawn from his experience in the Bush grant, including CATS (classroom assessment techniques such as one-minute papers), mid-term evaluations from the Bush grant template, and collaborative student presentations. Branislav thinks all of these interventions are having a positive impact on the course. Students revised, worked on clear thesis statement, and resubmitted their papers for extra credit. The student presentations were also very effective. They gave him a chance to hear people who don't talk in class. Students delved into the content and raised questions he would never think of. Moving forward, we'll: Determine an evaluation strategy more closely linked to Branislav's interventions to gain some objective sense of the impact on student engagement, reflection, and responsibility. Devise a rubric for student presentations. Determine the next round of innovations in the Fall. Consider focus groups. Explore multi-media options for content delivery (images/video clips).</p>	<p>As indicated on the course profile and summary of research, Branislav has used a variety of assessment strategies. Our aim is to become more formal in the evaluation of his interventions as we move forward.</p>	<p>Anecdotal evidence at this point that the interventions have increased engagement substantially.</p>

4.4.2.3 Evaluation of Program Leadership

When grant participants and program leaders on the UMTC campus were asked about the lessons they had learned through participating in the grant this year, they reported that the greatest lesson they had learned in Year 1 was that the course team and consultant meetings are crucial to the success of the project. Grant participants admitted that at the beginning of the year they did not understand the need for this type of networking. They felt they were educated and could conduct research on their own. The team meetings and insight of the consultants were enlightening and beneficial to keeping them on track with their research projects. Furthermore, with the unknown status of several of the campus programs and colleges, faculty agreed that had these meetings not occurred, they may have just dropped their research to focus on other responsibilities and issues. Course team members also felt these meetings helped to hold them more accountable.

On another note, the grant participants were pleased with the leadership on the campus. They felt they were kept informed and up-to-date on all grant activities. They would, however, like to have some input into the professional development section of the course team meetings. Several faculty are aware of staff and speakers that would be beneficial to the grant participants, and they would like to have the opportunity to provide these suggestions.

In addition to the aforementioned, grant participants agreed that faculty have numerous opportunities to network together, but that teaching assistants and undergraduates participating in the grant do not. Teaching assistants and undergraduates reported that there is large turnover within their group due to graduations and students moving forward. Consequently, networking opportunities would assist new team members as they came on board, particularly in understanding their role and responsibilities in the grant team.

Grant participants and program leaders also discussed their successful experiences with the grant over the past year. These included the following:

- Participants had access to funding to develop new classroom assessment and resource tools.
- New course designs and syllabi have made courses more productive and focused.
- Instructors have noticed higher levels of student engagement and attendance.
- Some faculty have been able to sell the idea of large classroom expansions to their deans, given that more innovative teaching strategies are being used.
- Networking of faculty and teams has created a synergy that grant participants believe will continue beyond Year 3 of the grant.

While grant participants experienced the successes above, many of the lessons they learned came directly from the challenges they faced. UMTC grant participants experienced turnover among the grant leaders during Year 1. While this did not directly impact the course teams, the campus leadership experienced some slippage with regard to processes and communication. For example, during the Spring semester, the campus coordinating team leader was responsible for ensuring that grant participants completed monthly data collection forms for the local and systemwide evaluation as well as disseminating the minutes of the course team meetings. With the replacement of this individual and the time needed to bring new staff up to speed, this communication was not very consistent during the Fall semester.

Grant participants unanimously agreed that the lack of time worked against them significantly in Year 1 of the grant. Many grant participants felt that due to other job responsibilities, they were not able to devote the necessary time to conduct their research adequately. For example, one faculty member stated that he wished he had more time to ensure he had developed a research design that would yield scientifically based results. Faculty did acknowledge that once the course teams had defined the roles and responsibilities of the teaching assistants and undergraduates, and as these individuals became knowledgeable in the research, they felt more comfortable relying on them to analyze data and look for trends. Faculty are concerned that as the grant moves into Years 2 and 3, there will be some slippage in this area due to the turnover of these individuals, and suggested that campus leaders look at developing networking or mentoring opportunities for these team members.

Lastly, grant participants agreed that using technology was also a challenge for them in Year 1. A quick faculty poll taken during a focus group revealed that grant participants are at varying levels of technology proficiency. Some faculty are novice users of technology, while others are experts. Consultants found that in some cases they were spending larger amounts of time teaching faculty how to use the equipment or helping them devise innovative teaching strategies. In several instances, faculty even conducted “dress rehearsals” for their lectures.

Overall the campus leaders have done a good job of getting the grant off the ground and implemented in Year 1. The challenge as the grant moves into Years 2 and 3 will be in ensuring that course teams are collecting outcome data on the innovative strategies they are implementing so as to meet their goal of understanding particular strategies, approaches, or tools that positively impact student learning in large courses.

As previously mentioned, grant participants have come to realize that a critical component of their success has been the monthly course team and consultant meetings. These must continue to ensure grant participants remain on track with their research. To keep the collection of outcome data on track, these meetings should focus on the interpretation of data and what course adjustments should or should not be made.

Another challenge mentioned by course team members that the grant leaders should review is the issue some faculty are experiencing with the individual

colleges' processes for reimbursing grant expenditures. Grant leaders should meet with course team members to discuss specific issues they are having and address these by creating more consistent procedures for grant participants.

4.4.3 Looking Forward to Year 2

As the 12 course teams continue to implement their research and course redesigns in Year 2, it is critical that teams recognize the importance of data collection and the analysis of specific outcomes, particularly with regard to individual innovative strategies teams are implementing. As previously mentioned, the goal of UMTC is to gain the following by the end of Year 3:

- an increased understanding of student learning through assessment of innovative teaching strategies used in large classes at the University of Minnesota, Twin Cities (UMTC);
- knowledge of particular strategies, approaches, or tools that positively impact student learning in large courses;
- principles of good practice for promoting student learning in large lectures;
- dissemination of research-supported findings about student learning in large classes;
- the professional development of UMTC campus leaders who use innovative teaching and technology strategies to address teaching and learning challenges associated with large classes; and
- the design and implementation of a UMTC campus model that brings together working teams from various disciplines to address an institutional problem through a scholarly approach to teaching and learning.

Outcome data on the impact of these innovative teaching strategies will assist with addressing the objectives cited above.

In addition, regardless of the status of the course teams' research, the grant leaders should focus more efforts in Year 2 on encouraging course teams to disseminate their findings. These efforts, along with establishing a common definition of a collaborative and scholarly approach to teaching, will help to develop more measurable outcomes for this goal of the grant.

In Year 1, campus leaders helped course teams understand the division between teaching and research by approaching the grant with an image of the classroom as a laboratory in which the object of study is the teaching itself. Utilizing this approach, the research focuses not only on faculty members' specific areas of specialty, but also on their teaching. In the second and third year of the grant, UMTC leaders hope that this research on teaching will lead to conference presentations and articles.

CHAPTER 5.0:

Year 1 Evaluation Summary

5.0 YEAR 1 EVALUATION SUMMARY

As mentioned, each of the four campuses reviewed their 2001-2004 grant efforts in light of the lessons learned. In response to the evaluation findings, each campus group determined specific ways to extend and/or adapt its efforts to enhance student learning through instructional technology and other innovative teaching strategies as detailed in Chapter 4.0.

Using the three proposed goals for the grant continuation efforts, the campus coordinators worked diligently in Year 1 to implement their individual program activities among faculty on their campuses. As mentioned in Chapter 2.0, the goals for the 2004-2007 grant are as follows.

- **Goal 1:** Align grant efforts with current campus initiatives to keep student learning in the forefront.
- **Goal 2:** Foster a scholarly and collaborative approach to addressing student learning issues.
- **Goal 3:** Integrate the assessment of student learning and the evaluation of student learning initiatives into the campus mainstream.

While Chapter 4.0 detailed the efforts of each of the campuses in Year 1 in relation to the evaluation guidelines and research questions, the following section outlines the efforts of the campuses to meet the aforementioned goals for the Bush grant during this implementation year.

5.1 Goal 1: Aligning Grant Efforts with Campus Initiatives

Each of the four campuses focused on learning issues that aligned with a variety of campus initiatives. Since one campus had experienced a change in these initiatives since the grant proposal was written, the campus coordinator made some minor modifications to the focus of their grant activities. The campus initiatives addressed through the continuation grant are identified below.

- **Crookston:** At UMC the focus is on efforts to enhance the learning experience of students in terms of achievement and satisfaction. In addition, among the campus “core components”—defined as dominant themes, transferable skills, and abilities essential to an individual’s success in any occupation or life setting—is a focus on the development of teamwork skills among students. As a result, the faculty on the Crookston campus embraced this focus as they developed their research projects, and the primary goals of the Bush grant mesh well with the pre-existing campus ideals. In Year 1 the Bush grant involved four faculty and approximately 300 students.

- **Duluth:** Bush grant activities at UMD were aligned with ongoing campus initiatives in advising, retention, and mentoring. In addition, the project was designed to be aligned with several of the campus faculty development and student learning initiatives—Classroom Assessment Techniques and Strategies (CATS), Technophytes Cohort, Tech Talk, ePortfolio, and Academy of Distinguished Teachers.

Each of the faculty projects and grant activities implemented on the UMD campus during Year 1 focused on student development and promoting success, and thus related indirectly to the campus initiative outlined above. The focus of all projects is to assist students with reflecting on how they learn, and to promote the qualities of the self-reflective learner so all students become more successful. During Year 1, the Bush grant involved nine faculty and approximately 2,000 students.¹

- **Morris:** The UMM strategic three-year plan states two main objectives to strengthen the UMM community—o attract and retain high-quality students, faculty, and staff with a continuing effort to improve campus diversity; and to improve student satisfaction and retention by providing excellent and innovative classroom instruction, careful and responsive academic advising, high-quality academic support services, and meaningful co-curricular opportunities.

The project on the UMM campus aims to improve faculty’s abilities to address diverse learning styles of students and to create an integrated, coherent support structure for Technology Enhanced Learning (TEL) that will make continued innovations in this area more successful. As a result, the project on the UMM campus will create an environment that will not only increase the engagement of students in the learning process by addressing multiple learning styles, but will in turn improve student satisfaction and retention. During Year 1, the Bush grant involved 13 faculty and approximately 1,050 students.

- **Twin Cities:** When the grant continuation proposal was written, the Twin Cities campus intended to address the issue of improving student learning in large classes by focusing on the campus’s initiative to keep student learning in the forefront, thus addressing one of the four overarching goals established by the University President and Board of Regents Chair—”to improve the educational life of students by enhancing teaching and learning, promoting better progress and improved graduation rates, and maintaining and improving student satisfaction levels.” During Year 1, the Bush grant involved 15 faculty across 12 course teams and nearly 4,000 students.

¹ Ten faculty were projected to participate in Year 1 of the grant at UMD; however, one faculty participant went on leave prior to the grant award.

Since the grant proposal was written, the university has promoted a new strategic initiative, a goal of making the University of Minnesota one of the world's top three public research institutions. As stated by the University President, a strategic initiative task force developed a plan to stimulate cutting-edge international research, as well as teaching. Evidence from Year 1 of the grant reveals that the activities of the Bush grant, at their broadest, are emphasizing students and learning, thus supporting the President's vision of a better university.

During site visits conducted in November, MGT consultants facilitated focus groups and interviews with faculty participants on the four campuses. A challenge repeatedly expressed by participating faculty was the demands placed on their time. Faculty felt there is not enough awareness among deans regarding grant activities and how they relate to the campus initiatives. They believe that if there were more communication, deans would assist with alleviating some of the demands and other responsibilities placed upon them. While evaluation data show that information on the grant activities is being communicated to campus leaders, this seems to occur at varying degrees and is not consistent among the campuses. As the grant moves forward into Years 2 and 3, grant leaders and participants can facilitate this communication by focusing on disseminating information about grant activities and outcomes to faculty and campus leaders more regularly.

Goal 1 of the grant also states that faculty need to know that they belong to an institutional culture that seeks to enhance student learning and values their growth as teachers. As reported throughout Chapter 4.0, campus coordinators have done a good job stimulating this culture on each of the campuses through the faculty development opportunities that have been made available through grant resources. Plans to continue offering these opportunities to faculty participants are envisioned by each campus. Participants on each of the campuses could benefit from sharing these resources and opportunities, and campus coordinators should work together to organize these opportunities.

In addition to the aforementioned professional development opportunities, evaluation data reveal that grant leaders are meeting regularly with faculty participants to provide guidance and assistance. Though meeting schedules vary from campus to campus, these meetings ensure that faculty have the resources necessary for their research and that they stay on track with their project schedules.

Survey data collected at the beginning of the grant reveal faculty opinions on the factors motivating them to change their courses.² Almost all (97 percent) of respondents found that the desire to expect higher quality work from their students moderately or highly motivated them to change their course, while 95 percent said that the desire to encourage students to spend more time on learning tasks was a moderate to high motivating factor. Ninety-three (93) percent revealed that the desire to teach their course more efficiently moderately or highly motivated them to change their course. Only half (50 percent) of the respondents said that the desire to use technology simulations to teach topics that previously may have been too dangerous or expensive

² Almost all (93 percent) of faculty participating in the Bush grant for Year 1 responded to the baseline survey in February.

previously moderately or highly motivated them to change their course. Exhibit 5-1 shows factors that motivated faculty to change their course.

**EXHIBIT 5-1
MOTIVATING FACTORS FOR COURSE CHANGE**

	None	Low	Moderate	High
Desire to address varied learning styles and needs (n=63)	3%	19%	37%	41%
Desire to encourage students to spend more time on learning tasks (n=63)	0	5	29	67
Desire to facilitate communication between students and instructors (n=63)	0	13	35	52
Desire to help students work more collaboratively (n=63)	5	24	40	32
Desire to build on students' familiarity with technology (n=63)	3	35	32	30
Desire to increase students' access to course materials (n=63)	5	18	41	37
Desire to use technology simulations to teach topics that may have been too dangerous or expensive previously (n=63)	25	25	30	19
Desire to teach my course more efficiently (n=61)	0	7	23	71
Desire to expect higher quality work from my students (n=63)	0	3	14	83

Source: MGT Survey, February 2005.

Almost all (95 percent) of the faculty responding to the survey stated that they intended to use new technology-enhanced learning strategies as part of the Bush Foundation Grant. Over three-fourths (86 percent) intend to use new instructional strategies and new grading techniques as part of the Bush grant.

Ninety-six (96) percent of participants surveyed reported a moderate or high priority to using examples or illustrations to clarify course material and setting high expectations for all students. Almost all (94 percent and 92 percent, respectively) respondents stated that they placed a moderate or high priority for providing syllabi with course objectives, assignments, and grading procedures, and providing prompt feedback to students about their exam results and assignments. Only 35 percent placed moderate or high priority for implementing team teaching or other collaborative approaches in courses.

As demonstrated by the evaluation data, campus coordinators have done a good job in Year 1 with promoting and coordinating grant activities that show faculty on each of the campuses that they belong to an institutional culture that seeks to enhance student learning and values their growth as teachers. However, faculty reported they are aware of research projects being conducted on other campuses and would like to know more about what is going on. Uniting all grant participants would go a step further in uniting the campuses and their initiatives for the benefit of the university system as a whole.

5.2 Goal 2: Fostering a Scholarly and Collaborative Approach to Student Learning

As stated in the grant proposal, a key characteristic of a learning organization is the ability of its members to learn together and to add value to the organization by converting individual information into organizational knowledge. In each of the program components, campus coordinators designed grant programs and activities that brought faculty and instructional staff together to reflect on their research and experiences as teachers. These opportunities also allowed grant participants to discuss their insights into teaching with colleagues, read literature to inform their thinking, and use the classroom as a laboratory to systematically investigate questions about enhancing student learning.

5.2.1 Fostering a Scholarly Approach to Student Learning

All campus coordinators seemed to define fostering a scholarly approach to student learning as using research to inform course redesigns and make decisions about project outcomes and adjustments, in addition to disseminating the research outcomes. However, faculty “defined” a scholarly approach more as disseminating research outcomes more so than using resources to inform project implementation or course redesign.

Analysis of evaluation data collected from grant stakeholders reveal that while many grant participants are using literature and articles to inform their course redesigns and grant research, the amount of this type of research varies from project to project and campus to campus. On the UMTC and UMM campuses, consultants are working to provide grant participants with literature and articles to help them make more informed decisions. However, faculty and faculty teams on the UMC and UMD campuses did not work with consultants in Year 1, and implemented research projects independently. Data also reveal that faculty seemed to define a scholarly approach to teaching in a manner that, perhaps, reflects their individual discipline.

Survey data collected from grant participants at the beginning of Year 1 reveal that nearly half (44 percent) of grant participants believed that using assessment strategies to help make mid-course corrections in teaching strategies or materials was very important. Over one-third (38 percent) also stated that using feedback to improve mid-term or final exams was very important. Similarly, over two-thirds (67 percent) of faculty participants responding to the survey found it was very important to use student feedback to evaluate their overall course.

Over half (57 percent) of the faculty responding to the survey stated it was a high priority for them to use information from recent articles, books, or topics in their courses. Thirty-six (36) percent said that it was a high priority for them to informally study the effects of their teaching on student learning. Forty (40) percent of grant participants revealed that participating in conferences, seminars, or workshops on teaching or student learning was a high priority, and 41 percent stated this was a moderate priority for them. Nearly one-fourth (23 percent) believed preparing a portfolio or dossier to support their teaching performance was a high priority, and 29 percent said this was a moderate priority. Exhibit 5-2 shows the priorities of grant participants with regard to scholarship.

**EXHIBIT 5-2
SCHOLARLY APPROACH TO TEACHING**

In previous semesters when you taught the course that you are now targeting for improvement, how important have the following been for improving student learning?				
	No Importance	Little Importance	Somewhat Important	Very Important
Using assessment strategies to help make mid-course corrections in teaching strategies or materials (n=63)	8%	16%	32%	44%
Using feedback to improve mid-term or final exams (n=60)	3	17	42	38
Using student feedback to evaluate the overall course (n=63)	5	3	25	67
Please indicate the priority you give to the following policies and/or practices as they relate to your teaching.				
	None	Low	Moderate	High
Using information in your course(s) from recent articles, books, or topics. (n=63)	2%	19%	22%	57%
Informally studying the effects of your teaching on student learning (n=62)	3	18	44	36
Participating in conferences, seminars, or workshops on teaching or student learning (n=63)	2	18	41	40
Preparing a portfolio or dossier to support your teaching performance (n=62)	19	29	29	23

Source: MGT Survey, February 2005.

Evaluation data collected from faculty and course team members also reveal that libraries of the resources being used by grant participants to inform their research decisions were not being kept consistently among the campuses. Campus coordinators noted they are keeping these libraries; however, this varies from campus to campus. Such a list of resources would be beneficial to all grant stakeholders as the grant moves forward and new cohorts of faculty agree to participate.

Likewise, evaluation data reveal that grant participants among the four campuses are at varying stages in their research. As a result, few have felt comfortable with disseminating information on their research and the outcomes. Faculty admitted they would feel more comfortable once they had more reliable longitudinal data for reporting purposes. In addition, many feel they are just now beginning to understand the impact of their research on teaching and learning, and what course redesign means. On the other hand, a few faculty have begun to present their findings and research designs. Examples of these presentations are detailed in Chapter 4.0 for each campus.

5.2.2 Fostering a Collaborative Approach to Student Learning

Evaluation data collected through interviews and focus groups indicate that all grant stakeholders believe that collaboration is vital to the success of the Bush grant. Each campus coordinator has worked diligently to ensure that faculty participants have plenty

of opportunities to network and collaborate together. As reported, many faculty admitted that collaboration was not something they did on a regular basis. Many reported that the extent of their collaboration with colleagues was within their own colleges on their campuses. The Bush grant has forced more interaction between colleges.

Survey data collected at the beginning of the grant reveal that over three-fourths (76 percent) of grant participants intended to use new collaborative strategies as a part of their work with the Bush grant. Only 10 percent felt that it was a high priority to implement team teaching or other collaborative approaches in their courses, and 25 percent reported this was a moderate priority for them. However, 21 percent of grant participants believe it is a high priority for them to invite colleagues to review their syllabi or teaching materials. Nearly half (43 percent) believe it is a high priority to discuss their course content, materials, assessment techniques, and the like with colleagues. Less than a tenth (8 percent) believe that presenting their discipline in a colleague's class is a high priority, while 34 percent said it is a moderate priority.

When examining survey questions that focused on extending collaboration to include working with other stakeholders to further inform course design, one-fourth (25 percent) considered it a high priority to work with an undergraduate in this capacity, and an additional 30 percent believed it is a moderate priority. Sixteen (16) percent considered it a high priority to work with a teaching assistant in this capacity, and 21 percent said it was a moderate priority. One-third (33 percent) of the faculty responding to the survey stated it was a high priority for them to work with other faculty to further inform their course design, and about the same percentage (34 percent) said it was a moderate priority. Sixteen (16) percent of faculty said it was a high priority for them to work with consultants in this capacity, and an additional 21 percent indicated it was a moderate priority. Exhibit 5-3 shows the priorities of grant participants with regard to collaboration.

**EXHIBIT 5-3
COLLABORATIVE APPROACH TO TEACHING**

Please indicate the priority you give to the following policies and/or practices as they relate to your teaching.				
	None	Low	Moderate	High
Implementing team teaching or other collaborative approaches in courses (n=63)	30%	35%	25%	10%
Discussing with colleagues your course content, materials, assessment techniques, and the like (n=62)	2	14	41	43
Presenting on your discipline in a colleague's class (n=62)	19	39	34	8
Inviting colleagues to review your syllabi or teaching materials (n=62)	16	19	44	21
Working with an undergraduate to further inform your course design (n=61)	27	20	30	25
Working with a Teaching Assistant to further inform your course design (n=61)	41	21	21	16
Working with other faculty to further inform your course design (n=61)	10	23	34	33
Working with consultants to further inform your course design (n=61)	34	28	21	16

Source: MGT Survey, February 2005.

Examples of collaboration among the campuses are summarized below.

- **Crookston:** As a result of the explicit institutional goals on the Crookston campus, collaboration is readily apparent in all projects in terms of both student and faculty interaction. The requirement of partnered research projects, in conjunction with the small campus size, has dictated interdisciplinary collaboration. A further example of intra-campus collaboration is the cooperation and sharing of technologies in conducting the projects. In addition, the campus has established a Faculty Learning Community to facilitate grant activities and efforts.
- **Duluth:** Grant participants on the UMD campus meet bi-weekly to report on the status of their research and implementation. These meetings have encouraged faculty to work together. Some grant participants have emerged on the campus as mentors for the grant, and an informal mentoring program has developed. Faculty reported that they are also get together informally between grant meetings to gather feedback from each other.
- **Morris:** Grant activities on the UMM campus were designed to encourage faculty participants to collaborate in a variety of ways. The first was within their discipline through the work of three projects with multiple participants from a single college. The second involved inter-disciplinary collaboration, with participants sharing information and experiences through various events and meetings, and a third, inter-unit collaboration, with faculty coming together as an integrated unit to implement joint projects and research. Lastly, there was inter-campus collaboration, which encouraged faculty from all campuses to come together and share their experiences.
- **Twin Cities:** The UMTC campus worked to encourage faculty to focus on a collaborative approach to addressing student learning in several ways. The first was through the actual structure of the grant itself. The first level of collaboration occurred within the course teams themselves, which were designed to bring students, professors, and staff members together in a collaborative effort. Faculty on the UMTC campus believe that collaboration at this level begins in the classroom with their students. The second level is with the consulting team and monthly course team meetings. Two consultants meet with each team monthly to strategize course redesign efforts and provide assistance as needed. In addition, the 12 teams meet together on a monthly basis to share findings and solicit feedback from their colleagues. The last level of collaboration is uniting the four UMN campuses.

Evaluation data reveal that many activities and opportunities for faculty to collaborate together on their own campuses are being provided. However, other than the inter-campus Breeze session that was organized by campus coordinators in November, little is being done to facilitate collaboration between campuses. One faculty member

reported during a focus group that until the Breeze session, he had felt the campuses were participating in the grant as individual silos and had not understood the connection between the projects. Many faculty felt this opportunity to network together was worthwhile to them, not only in disseminating information on projects from other campuses, but in reassuring faculty participants that they were on target with their own research efforts.

In addition to the aforementioned, campus coordinators met via monthly ITV conference calls to report on grant activities and upcoming events. To further expand on these activities, coordinators also met via conference call with the outside evaluator. Following both meetings, grant activities were summarized in a monthly progress report submitted to grant leaders.³

5.3 Goal 3: Integrating the Assessment of Student Learning and the Evaluation of Student Learning Initiatives into the Campus Mainstream

Assessment of student learning has become an important and highly visible component of higher education institutional improvement, accountability, and accreditation. Faculty are employing both informal classroom assessment techniques and course assessment procedures to understand what their students are learning, with the intent of using these findings to shape their teaching. In the grant continuation proposal, all campuses proposed to use assessment to create better conditions for teaching and learning.

Survey data on assessment collected from faculty participants at the beginning of the grant reveal that in regards to assessing student learning, motivating students to improve their study skills (92 percent), getting a better sense of what the class as a group is learning (96 percent), and using student feedback to evaluate the overall course (92 percent) were either somewhat important or very important in improving student learning based on classes taught in previous semesters. Collecting information to diagnose learning problems or identify individuals who need extra help (63 percent) was identified by respondents as the least important measure in improving student learning based on classes taught in previous semesters. Eighty-six (86) percent of participants surveyed gave moderate or high priority to using a variety of techniques in assessing student learning in their courses. Exhibit 5-4 shows the importance faculty placed on various means of enhancing student learning.

³ Monthly video and telephone calls did not occur during the Summer, nor were progress reports submitted during this time.

**EXHIBIT 5-4
IMPORTANCE PLACED ON STUDENT LEARNING**

	No Importance	Little Importance	Somewhat Important	Very Important
Collecting information to assess students' entry-level knowledge or abilities (n=63)	16%	18%	37%	30%
Collecting information to diagnose learning problems or identify individuals who need extra help (n=63)	13	24	36	27
Using classroom assessment strategies to prompt student thinking during lecture or class discussion (n=63)	10	6	35	49
Helping students learn to assess their own progress (n=63)	6	29	27	38
Motivating students to improve their study skills (n=63)	3	5	35	57
Getting a better sense of what the class as a group is learning (n=63)	3	11	29	57
Using assessment strategies to help make mid-course corrections in teaching strategies or materials (n=63)	8	16	32	44
Using feedback to improve mid-term or final exams (n=60)	3	17	42	38
Using student feedback to evaluate the overall course (n=63)	5	3	25	67

Source: MGT Survey, February 2005.

Survey data reveal that in addressing the extent to which survey respondents used information gathered from assessment and evaluation to inform their course design, graded performance measures (94 percent), quantitative methods (89 percent), and individual student performance (89 percent) were identified as the forms of assessment used often or very often in the past. Exhibit 5-5 shows the types of assessment faculty used in the past.

**EXHIBIT 5-5
TYPES OF ASSESSMENT USED IN THE PAST**

	Never	Sometimes	Often	Very Often
Interactive techniques (e.g., voting, debates, small group problem-solving) (n=63)	10%	48%	19%	24%
Qualitative methods (e.g., journals, reflection papers, essays, short answer) (n=63)	19	27	32	22
Quantitative methods (e.g., quizzes or tests, surveys) (n=63)	6	5	32	57
Anonymous student response techniques (n=62)	15	55	23	8
Identified student response techniques (n=62)	35	38	23	3
Ungraded performance measures (n=63)	19	45	24	11
Graded performance measures (n=63)		6	30	64
Voluntary measures of performance (n=60)	43	32	22	3
Required measures of performance (n=60)	8	10	42	40
Individual student performance (n=63)	8	3	35	54
Group performance (n=62)	19	39	23	19

Source: MGT Survey, February 2005.

When asked on the annual survey what criteria faculty would use at the end of the grant to determine whether their success in the grant was worthwhile, the two main criteria were identified—improved student performance and effective teaching strategies. Faculty responding to the survey indicated that student performance will be measured by improvements in student achievement, retention of knowledge, engagement, attendance, participation, enrollment, attendance, and attitude. Participants expect to see a greater understanding and appreciation of the material by students, improved performance on exams and project work, improved study skills, more motivation and willingness to take responsibility for their learning, willingness to explore subject areas beyond the required courses, and a stronger correlation between labs, lectures, and assignments.

Additionally, faculty responding to the survey intend to identify and implement effective and diversified teaching and assessment strategies, encourage and add more active learning and individualized strategies, and improve student evaluation results of faculty.

Analysis of reflection log, focus group, and course profile data collected from grant participants in Year 1 demonstrate that each of the projects on the four campuses is engaged in evaluating outcomes, though at varying degrees. At a minimum, all grant participants have identified their specific teaching challenges or issues for their research. Many grant participants hit the ground running with their research and evaluation designs during the Spring semester and were ready to implement various innovative teaching strategies or methods as the Fall semester rolled around. At the same level, some faculty also began their research in the Spring, but could not implement in the Fall because their course would not be taught again until the following Spring. The third level of faculty participants seemed to be overwhelmed by the idea of implementing research designs that provided specific outcomes on innovative teaching techniques and strategies. As a result, they needed more support from other faculty or consultants.

While over half of the grant participants were collecting data during the Fall semester, faculty reported that they did not have enough time for proper analysis of the data to implement mid-course corrections or report findings on specific intervention strategies. Data on specific research projects and their outcomes for each campus are reported in Chapter 4.0 and in the course profiles in Appendix C.

5.4 Summary

The focus of the grant for Year 1 was on implementing the grant and getting everyone up and running. From the perspective of the grant's Principal Investigators, the greatest successes this year were the strong participation from faculty on each campus; the establishment of good communication across the campuses, facilitated by the monthly ITV meetings; and the establishment of protocols for the Breeze session for collaboration among campuses. Evaluation data collected confirms these successes, along with the university's efforts to mobilize everyone so they could hit the ground running once the grant was awarded.

With every grant implementation and activity also come challenges. Some of the challenges the grant leaders experienced this year centered around mainstreaming evaluation. There are actually three levels to the evaluation of the Bush grant. The first is the evaluation that occurs by faculty at the course level. The second occurs by campus coordinators at the campus level. Lastly, is the system level evaluation being conducted by MGT. Evaluation data from Year 1 reveal that more communication and evaluation protocols are needed to more effectively communicate expectations for mainstreaming these evaluations and report outcome data among grant participants.

Processes that emerged as critical to managing the Bush grant and should thus continue include:

- monthly ITV meetings;
- utilization of the listservs to disseminate information about campus activities and workshops;
- monthly evaluation conference calls; and
- monthly status reports.

All grant leaders agree that Year 1 was a success in terms of developing and establishing roles and responsibilities for all stakeholders. As the grant moves into Years 2 and 3, the focus should shift to evaluation and dissemination.

CHAPTER 6.0:

***Year 1 Accomplishments and
Challenges***

6.0 YEAR 1 ACCOMPLISHMENTS AND CHALLENGES

6.1 Accomplishments

Although the University of Minnesota has benefited from grant funding received from the Bush Foundation since 2001, it has realized a number of significant accomplishments during the first year of the continuation grant. While this was an implementation year for the grant, these accomplishments are directly related to the lessons learned by the university during the 2001-2004 funding. To better illustrate their relationship to the grant outcomes, these accomplishments have been divided into two sections—Student and Faculty Learning and Grant Processes and Procedures.

Student and Faculty Learning

- **Changing the Views of Faculty.** One of the more significant developments that occurred later in Year 1 was the grant's impact on faculty opinions and research. More faculty members found themselves experimenting with technology and reported that they were comfortable implementing research in their courses through the support and resources made available through the Bush grant. As reported in Chapters 4.0 and 5.0, analysis of evaluation data from the baseline survey conducted at the beginning of Year 1 to the focus groups conducted with grant participants at the end of Year 1 also supported this change in the faculty.
- **Enhancing Student Learning.** Course profile and focus group data collected from faculty reveal that faculty participating in the Bush grant are focusing their projects on enhancing student learning through implementing innovative teaching techniques and strategies. Moreover, faculty are implementing their research using a more interdisciplinary focus, thus impacting students across multiple courses. At various levels, each faculty or faculty team has embraced evaluation and outcomes for measuring the success of innovative teaching strategies and their impact on student learning. Outcome and evaluation data collected by participants thus far is summarized in Chapter 4.0 and presented in detail Appendix C of this report.
- **Implementing Educational Research Processes.** All faculty participating in the Bush grant have identified their specific teaching challenges or issues for their research. Furthermore, these faculty have developed research designs and processes for implementing the various teaching strategies into their courses. While course profile and focus group data reveal that the faculty are at various stages with evaluating the impact of these strategies on students, the majority of faculty participants and grant leaders agree the focus of their projects as they move into Year 2 will be on evaluation.

Grant Processes and Procedures

- **Pre-grant Planning.** In anticipation of the grant being awarded, the grant PIs and campus coordinators came together and met with external evaluators to discuss the learning focus each campus would be researching and their local evaluation. During this meeting the campus coordinators were able to outline an implementation approach that would meet the needs of their campuses and explore data elements that would be required from grant participants for evaluation. Grant leaders and coordinators also established regular meetings, reporting schedules, and timelines. In some cases, campus coordinators drafted participant applications that included the required evaluation components. This pro-active planning, allowed campuses to hit the ground running when the grant was awarded.

- **Effective Operational Procedures.** The Principal Investigators for the 2004-2007 Bush grant established formal operating procedures that have facilitated the implementation of the grant and in the future can be used to enhance networking among grant participants as well as assist with the sharing of resources across campuses. Campus coordinators participate in a monthly video conference call, which is followed up with individual conference calls with the external evaluator. In turn, the PIs have required the local evaluator to submit monthly status reports on campus activities. These processes have not only kept everyone informed, but have also helped to alleviate grant-related obstacles as they arise. This approach has funneled down to the campus level as well, as evidenced by the fact that all campuses are holding monthly meetings for grant participants. In one instance, grant participants are meeting bi-weekly.

- **Improved Working Relationships and Inter-campus Collaboration Among Grant Leaders.** The four University of Minnesota campuses have much in common and share many of the same concerns. The new Bush grant has allowed them to improve communications and develop closer working relationships. The monthly video conference calls have enabled campus coordinators to highlight activities more regularly and discuss concerns. One significant example of this collaboration was that the campuses were able to create a model for completing IRB applications for local evaluation efforts thanks to the lessons learned from filing for IRB approval for the systemwide evaluation.

- **Stronger Collaboration Among Faculty Participants.** The campus coordinator from the Morris campus worked closely with grant leadership to organize an interactive, web-based video conference so that grant participants across all four campuses could network together. A grant participant from each campus presented data on his/her research efforts and outcomes. As learned through

interviews and focus groups with faculty, grant participants found the session to be very interesting and enlightening. Participants enjoyed hearing about the work on other campuses and reported that they felt better about the status of their own research.

6.2 Challenges

Throughout Year 1 of the Bush grant, MGT identified challenges that the university would face in the coming year. The intent was to identify areas that the grant PIs and campus coordinators should address in order to reduce the effect of the challenges to the extent possible. The challenges stated here are intended to reinforce the Bush grant efforts to reduce their impact for Years 2 and 3, as well as in the months ahead. It should be noted that these challenges are listed in no particular order, but have been divided into two sections—Student and Faculty Learning and Grant Processes and Procedures.

Student and Faculty Learning

- **Data Collection and Evaluation/Compelling Evidence.** One of the most significant concerns of the Bush Foundation is the evaluation of student achievement and the impact the research is having on student learning. While grant participants are collecting data on student outcomes, some of that data is not being captured and reported for the evaluation. Faculty reported that they have collected so much data that some of it is not being analyzed due to time constraints and lack of resources. In other cases, the faculty are using the data for their own research and not reporting the key findings through the various data collection opportunities available, such as the faculty reflection logs, or monthly campus meetings. This issue challenge is that much greater because three levels of evaluation are involved—course level, campus level, and system level. This will continue to be a challenge for the university in Year 2 if these issues are not addressed.
- **Promoting a Scholarly Approach to Teaching.** One of the goals of the Bush grant continuation is for the university to foster a scholarly approach to teaching. Faculty participating in the grant have defined scholarly approach in a manner that reflects their individual disciplines. As a result, faculty are working under many different definitions.

While many of the grant participants are utilizing research to inform their decisions, a library of this research and the associated resources is not being maintained. Furthermore, while some faculty are continuously presenting their research at workshops and other events, others are not as comfortable since it is only Year 1 of the grant. Campus coordinators and grant leaders should encourage participating faculty to publish articles and present at conferences.

Grant Processes and Procedures

- **Team Development.** One of the more significant challenges faced by grant recipients that include multiple partners is the ability to remove barriers within their own organization to create a cohesive unit. Perhaps the greatest barrier impacting the Bush grant is the belief among faculty participants that the campuses are operating and individual silos. The grant leaders began to remove these assumptions towards the end of Year 1 through more intercampus collaboration; however, these efforts must continue so the leaders are effective in carrying out the administrative functions of the Bush grant. Another challenge related to team development that faces multi-year grants is the potential for staff turnover, as was the case this year. The monthly video conference calls will continue to enhance this collaboration and address these challenges.

- **Coordination with Other Campus Initiatives.** Evaluation data reveal that the four campuses have directly related their research for the Bush continuation grant to the strategic campus initiatives underway on their campuses. However, grant participants do not recognize the significance of this relationship and at times see their participation in the Bush grant as an added responsibility. For example, when program participants were asked how the Bush grant was related to or aligned with other campus initiatives, the majority of participants responded by asking, what other campus initiatives? There is a need to strategically integrate these initiatives with the campus strategies for the grant. As a result, the Bush grant would become a strategy for the campuses as they addressed their own initiatives.

- **Networking and Cross-campus Collaboration.** Data collected during site visits show that there is considerable overlap among grant activities on the various campuses. As stated previously, many of the grant participants across all four campuses found the interactive video conference conducted in November to be quite beneficial for their own research. With the focus of Year 1 on grant implementation, the focus of the grant in Year 2 should turn to collaboration and networking activities for faculty across all campuses.

- **Resource Sharing.** As the campuses implemented the Bush grant in Year 1, they acquired many resources and in-depth knowledge of research available to support grant initiatives. The campuses also organized many professional development and training opportunities for staff that included bringing in experts for workshops and presentations. Due to the nature of the grant activities across the four campuses, many of these resources and training opportunities would have been beneficial for all grant participants. While the logistics of travel across campuses may prove to be difficult for

faculty due to time constraints and funding, the grant leaders should find ways to share these resources in Year 2 of the grant.

- **Dissemination of Grant Activities and Information.** Evaluation data collected reveal that while dissemination of grant activities and research outcomes was occurring on the four campuses with campus administrators and non-grant participating faculty, it was not consistent. Data indicate that the smaller campuses had established a more detailed process that enabled them to more effectively disseminate outcomes than the larger campuses.

CHAPTER 7.0:

Year 1 Recommendations

7.0 YEAR 1 RECOMMENDATIONS

This chapter presents recommendations for Year 1 that the evaluation team believes will improve the university's ability to continue to implement the Bush Foundation Grant effectively. Most of these recommendations are designed to address the challenges identified in Section 6.2 of Chapter 6.0. It should be noted that these recommendations are in no particular order, but are divided into two categories—Student and Faculty Learning and Grant Processes and Procedures.

7.1 Recommendations: Student and Faculty Learning

1. **Establish processes and procedures for collecting and communicating evaluation data from local evaluation activities.**

The formal plan developed for the systemwide evaluation included collecting data from grant participants on the outcomes for each of the initiatives addressed by the four campuses in relation to the three goals and research questions identified in the grant continuation proposal. One of the more significant goals of the evaluation is to collect and analyze data that relates to student outcomes and the impact of the research on student learning. During the analysis of the reflection log and site visit data, MGT learned that many faculty members are not reporting the data they are collecting. As indicated earlier in this report, this has occurred for several reasons. The first of these is that faculty have collected so much data that they do not have sufficient time or resources to complete the analysis. In other instances, the faculty are using the data for their own research but not reporting it through the various data collection opportunities available.

In his article, "*Mainstreaming Evaluation or Building Evaluation Capacity? Three Key Elements*," Dr. Paul Duigan states that the three key aspects of mainstreaming evaluation are: (1) using an appropriate evaluation model; (2) developing evaluation skills appropriate for each participating level/organization; and (3) each level/organization strategizing to identify priority evaluation questions, rather than just relying on evaluation planning at the individual levels.

The evaluation of the Bush grant already has these three components in place; however, there is not consistency among the communication and dissemination of the outcomes across the campuses. To address the concerns of the Bush Foundation, the grant PIs, in collaboration with the external evaluator, should establish a process for ensuring that this local evaluation data is collected and reported each semester at a minimum.

Furthermore, the grant PIs, in collaboration with the external evaluator, should establish quantitative requirements to satisfy each of the evaluation questions and goals of the grant wherever possible and appropriate. By focusing earlier in Year 2 on evaluation data and outcomes for projects that have solid evaluation designs and data collection, grant leaders will ensure that data are available at the end of the year. At the end of Year 2, it is expected that at least 25 percent of the

projects being conducted on each campus will have outcome data, and by the end of Year 3, at least 60 to 75 percent of the projects should have outcome data.

2. Establish a process that will promote a scholarly approach to teaching among grant participants.

The second goal of the grant continuation proposal states that the university will foster a scholarly and collaborative approach to addressing student learning. When talking with faculty members during the site visits, evaluation consultants learned that each faculty participating in the grant defines “scholarly approach” in a manner that reflects his/her own discipline.

As reported by John Dearn, the Pro Vice-Chancellor from the University of Canberra, in his article “*Sustaining a Scholarly Approach to Teaching*,” one of the perennial issues in higher education is the tension between teaching and research. The concept of research is particularly problematical. On one hand, it can be viewed as a process of systematic, sustained inquiries, a particular way of thinking and interacting with the world. On the other hand, research is conceived by many as a specific activity involving considerable resources and support and the expectation of tangible outcomes in the form of peer-refereed publications. Between these two extremes sit a diversity of activities often described by the term “scholarship.” Dearn goes on to say that universities should focus research efforts on the few areas that clearly represent their particular strengths. However, finding ways of nurturing scholarship across all areas of a university is equally important if faculties are to ensure their teaching is of the highest quality.

In addition, in their book, “*Scholarship Assessed: An Evaluation of the Professoriate*,” Charles Glassick, Mary Taylor Huber, and Gene Maeroff report that when people praise the work of scholarship, they usually mean that the project in question has been guided by the following qualitative standards.

- a. **Clear Goals.** Does the scholar state the basic purpose of his or her work clearly? Does the scholar define objectives that are realistic and achievable? Does the scholar identify important questions in the field?
- b. **Adequate Preparation.** Does the scholar show an understanding of existing scholarship in the field? Does the scholar bring the necessary skills to his or her work? Does the scholar bring together the resources necessary to move the project forward?
- c. **Appropriate Methods.** Does the scholar use methods appropriate to the goals? Does the scholar apply effectively the methods selected? Does the scholar modify procedures in response to changing circumstances?
- d. **Significant Results.** Does the scholar achieve the goals? Does the scholar’s work add consequentially to the field? Does the scholar’s work open additional areas for further exploration?

- e. **Effective Presentation.** Does the scholar use a suitable style and effective organization to present his/her work? Does the scholar use appropriate forums for communicating work to its intended audiences? Does the scholar present his/her message with clarity and integrity?
- f. **Reflective Critique.** Does the scholar critically evaluate his/her own work? Does the scholar bring an appropriate breadth of evidence to his/her critique? Does the scholar use evaluation to improve the quality of future work?

The grant PIs and campus coordinators should come to an agreement on what the university's definition of "scholarly approach to teaching" is and communicate that to faculty and grant participants. As a result, faculty could still define scholarly approach in a manner that reflects their individual disciplines, but everyone would be creating a working definition from an overarching one.

As grant participants continue to conduct and inform their research, they should report their resources to their campus coordinators so that a library of these resources can be created. Furthermore, the grant PIs and campus coordinators should encourage faculty to present their research and findings not only to other participating faculty, but also at conferences and through publications.

7.2 Recommendations: Grant Processes and Procedures

3. Formulate a plan for molding the grant leaders into a cohesive administrative support team.

As stated earlier, two of the more significant challenges facing grants that have multiple partners and span multiple years are removing the barriers within the participating organizations and coping with staff turnover. One of the biggest barriers impacting the Bush grant is the belief among faculty participants that the campuses are operating and individual silos. The grant leaders began to remove these assumptions towards the end of Year 1 through more intercampus collaboration; however, efforts must continue, especially in the event of staff turnover. Bringing new staff up to speed on grant processes and initiatives is much faster when there is a cohesive administrative team. Furthermore, as a more cohesive administrative team, grant participants will receive more support and resources.

While many of the recommendations, if implemented, will foster cohesiveness, the grant PIs must ensure that grant leaders continue to collaborate. It may prove helpful for the grant PIs to foster collaboration among the campuses by holding individual conference calls with campus coordinators periodically as the external evaluators do. This would provide grant leaders with more opportunities to address challenges and obstacles as well as to share lessons learned.

4. Devise a strategy for more closely integrating the Bush grant goals and objectives into various campus-related initiatives and communicating these efforts to campus administrators and grant participants.

The first goal of the grant continuation proposal states that the university will align grant efforts with current campus initiatives to keep student learning in the forefront. While interviews with campus coordinators revealed that the focus of the Bush continuation grant on each of the campuses is aligned with the current strategic initiatives established for each campus, faculty reported during focus groups that they were unclear as to how the Bush grant addressed their campus initiatives. In some instances, faculty did not know what their campus initiatives were.

Evaluation data also reveal that though each campus was keeping campus administrators informed of grant activities and outcomes, it was not consistent from campus to campus. Data show that the smaller campuses had developed a set of procedures to ensure this communication occurred consistently.

Campus coordinators should work together with campus administrators to strategically integrate the goals and objectives of the Bush grant with their campus initiatives to maximize grant funding and resources. Furthermore, the coordinators should be more consistent in communicating this alignment with grant participants and other faculty to raise the level of awareness. As a result, the Bush grant will become a strategy for the campuses as they address their respective initiatives.

5. Devise a plan to create more networking opportunities for grant participants and formalized information sharing channels to promote internal and cross-campus collaboration.

On each campus, faculty reported that through their monthly meetings, they have been able to learn from one another and maximize grant funding by sharing data collection techniques and other resources. Furthermore, evaluation data show that faculty on the smaller campuses are disseminating information on their research more with non-participating faculty and campus administrators than is occurring on the larger campuses.

During the interviews and focus groups with faculty, MGT consultants recognized that many of the research projects being implemented on the four campuses are similar in nature even if they are addressing different outcomes. With the exception of the Breeze session held in November, this cross-campus collaboration seems to have stopped at the boundaries of each campus. One of the faculty members who presented at the Breeze session reported that he had received numerous e-mails from faculty at other campuses regarding his research and the outcomes.

The grant PIs and campus coordinators should explore the possibilities of networking grant participants together more frequently as the grant moves into Year 2. Two options would be bi-monthly Breeze sessions and a summer conference for faculty to present their research.

6. Develop a more collaborative approach to enable campuses to share grant-related resources and staff development opportunities.

During the monthly video conference calls and site visits, consultants learned of many resources that are available to support faculty as they implement their research projects. Some campuses have an abundance of resources, while others are more limited. In addition, some campuses are organizing workshops for faculty that include presentations from field experts. While all of these opportunities are beneficial for the grant implementations on each of the four campuses, these resources would, in most instances, benefit faculty from all campuses. For example, some campuses already have staff who can share knowledge systemwide, such as the evaluation consultant(s) on the Twin Cities and Morris campuses; if these resources were shared among campuses there would be no need to outsource them to external parties.

The grant PIs and campus coordinators should collaborate each semester, at a minimum, on training and staff development offerings to see where workshops would be beneficial. As stated previously, the logistics of travel across campuses may be difficult for faculty due to time constraints and funding; however, the grant leaders have proven to be creative when addressing these types of challenges. Utilizing technology, as they did for the Breeze session, is one possible solution while another could be video taping workshops and guest speakers.

APPENDICES

APPENDIX A:

Data Collection Instruments

**UNIVERSITY OF MINNESOTA
ENHANCING STUDENT LEARNING THROUGH INNOVATIVE
TEACHING AND TECHNOLOGY STRATEGIES
A BUSH FOUNDATION GRANT**

MONTHLY REFLECTION LOG

Team members should complete these logs by the last day of each month during the academic year (September-May). Please include only new information since your last entry.

Faculty Name: _____

Date: _____

- 1. Describe the activities/work you have completed.**

- 2. Describe successes you have experienced with your work.**

- 3. Describe any challenges you have encountered. What has not worked as well as you had hoped or expected?**

4. What feedback from students or colleagues have you received about what you are trying in your course?

5. Is there anything else you would like to note at this time?

**UNIVERSITY OF MINNESOTA
ENHANCING STUDENT LEARNING THROUGH INNOVATIVE
TEACHING AND TECHNOLOGY STRATEGIES
A BUSH FOUNDATION GRANT
Annual Evaluation Survey
Year 1**

Dear Bush Foundation Grant participant:

Again, thank you in advance for completing this survey. You have entered the electronic version of the "Enhancing Student Learning through Innovative Teaching and Technology Strategies" survey. Use your mouse to click on the responses you choose for each question.

For text response items, position your mouse in the box for the response and type your answer. You will not need to hit "enter" or "tab" after you input responses. At the end of the survey, please remember to click on the "submit" button so your information will be sent to MGT of America, Inc. MGT will aggregate the data by campus and share the data with the grant PIs and Campus Coordinators.

Please answer all items to the best of your ability. The information you provide is extremely useful and will generate valuable feedback for your campus and the grant evaluation.

If you experience any problems with this electronic survey, please contact Sean Friend with MGT at sfriend@mgtamer.com or 850-386-3191.

We thank you in advance for your cooperation.

Carol Carrier, Vice President of Human Resources
Linda Jorn, Director, Digital Media Center, Office of Information Technology
Joyce Weinsheimer, Director, Center for Teaching and Learning Services, Human Resources

SECTION A: BACKGROUND INFORMATION

Name: _____
 (MGT assures you that all survey data received will remain anonymous)

Campus: _____ (this will be a drop down box with each campus listed)

1. Gender:

- ₍₁₎ Female ₍₅₎ Male

2. Appointment Type:

- ₍₁₎ Tenured Faculty
₍₃₎ Tenure-track Faculty
₍₅₎ Full-time non-regular faculty or professional academic staff
₍₇₎ Part-time non-regular faculty or professional staff

3. Percent of time devoted to teaching in current position:

- ₍₁₎ 25% or less
₍₃₎ Between 26% and 50%
₍₅₎ Between 51% and 75%
₍₇₎ More than 76%

4. Number of years you have been teaching post-secondary students

_____ Years

5. Faculty members vary in their ability to devote time to Bush grant programs. How much time do you expect to invest in the program?

- ₍₁₎ 0 to 2 hours per month
₍₃₎ 3 to 5 hours per month
₍₅₎ 6 to 10 hours per month
₍₇₎ 11 to 15 hours per month
₍₉₎ more than 15 hours per month

6. Please describe your role as a Bush Foundation Grant Participant?

SECTION B: PROJECT ACTIVITIES AND OUTCOMES

7. In previous semesters when you taught the course that you are now targeting for improvement, how important have the following been for improving student learning?

	No Importance	Little Importance	Somewhat Important	Very Important
a. Collecting information to assess students' entry-level knowledge or abilities	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
b. Collecting information to diagnose learning problems or identify individuals who need extra help	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
c. Using classroom assessment strategies to prompt student thinking during lecture or class discussion	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
d. Helping students learn to assess their own progress	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
e. Motivating students to improve their study skills	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
f. Getting a better sense of what the class as a group is learning	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
g. Using assessment strategies to help make mid-course corrections in teaching strategies or materials	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
h. Using feedback to improve mid-term or final exams	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
i. Using student feedback to evaluate the overall course	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎

8. How often have you used the following forms of assessment in the past?

	Never	Sometimes	Often	Very Often
a. Interactive techniques (e.g., voting, debates, small group problem-solving)	<input type="checkbox"/> (1)	<input type="checkbox"/> (3)	<input type="checkbox"/> (5)	<input type="checkbox"/> (7)
b. Qualitative methods (e.g., journals, reflection papers, essays, short answer)	<input type="checkbox"/> (1)	<input type="checkbox"/> (3)	<input type="checkbox"/> (5)	<input type="checkbox"/> (7)
c. Quantitative methods (e.g., quizzes or tests, surveys)	<input type="checkbox"/> (1)	<input type="checkbox"/> (3)	<input type="checkbox"/> (5)	<input type="checkbox"/> (7)
d. Anonymous student response techniques	<input type="checkbox"/> (1)	<input type="checkbox"/> (3)	<input type="checkbox"/> (5)	<input type="checkbox"/> (7)
e. Identified student response techniques	<input type="checkbox"/> (1)	<input type="checkbox"/> (3)	<input type="checkbox"/> (5)	<input type="checkbox"/> (7)
f. Un-graded performance measures	<input type="checkbox"/> (1)	<input type="checkbox"/> (3)	<input type="checkbox"/> (5)	<input type="checkbox"/> (7)
g. Graded performance measures	<input type="checkbox"/> (1)	<input type="checkbox"/> (3)	<input type="checkbox"/> (5)	<input type="checkbox"/> (7)
h. Voluntary measures of performance	<input type="checkbox"/> (1)	<input type="checkbox"/> (3)	<input type="checkbox"/> (5)	<input type="checkbox"/> (7)
i. Required measures of performance	<input type="checkbox"/> (1)	<input type="checkbox"/> (3)	<input type="checkbox"/> (5)	<input type="checkbox"/> (7)
j. Individual student performance	<input type="checkbox"/> (1)	<input type="checkbox"/> (3)	<input type="checkbox"/> (5)	<input type="checkbox"/> (7)
k. Group performance	<input type="checkbox"/> (1)	<input type="checkbox"/> (3)	<input type="checkbox"/> (5)	<input type="checkbox"/> (7)
l. Other _____	<input type="checkbox"/> (1)	<input type="checkbox"/> (3)	<input type="checkbox"/> (5)	<input type="checkbox"/> (7)

9. To what degree does each of the following factors motivate you to change your course?

	None	Low	Moderate	High
a. Desire to address varied learning styles and needs	<input type="checkbox"/> (1)	<input type="checkbox"/> (3)	<input type="checkbox"/> (5)	<input type="checkbox"/> (7)
b. Desire to encourage students to spend more time on learning tasks	<input type="checkbox"/> (1)	<input type="checkbox"/> (3)	<input type="checkbox"/> (5)	<input type="checkbox"/> (7)
c. Desire to facilitate communication between students and instructors	<input type="checkbox"/> (1)	<input type="checkbox"/> (3)	<input type="checkbox"/> (5)	<input type="checkbox"/> (7)
d. Desire to help students work more collaboratively	<input type="checkbox"/> (1)	<input type="checkbox"/> (3)	<input type="checkbox"/> (5)	<input type="checkbox"/> (7)
e. Desire to build on students' familiarity with technology	<input type="checkbox"/> (1)	<input type="checkbox"/> (3)	<input type="checkbox"/> (5)	<input type="checkbox"/> (7)
f. Desire to increase students' access to course materials	<input type="checkbox"/> (1)	<input type="checkbox"/> (3)	<input type="checkbox"/> (5)	<input type="checkbox"/> (7)
g. Desire to use technology simulations to teach topics that may have been too dangerous or expensive previously	<input type="checkbox"/> (1)	<input type="checkbox"/> (3)	<input type="checkbox"/> (5)	<input type="checkbox"/> (7)
h. Desire to teach my course more efficiently	<input type="checkbox"/> (1)	<input type="checkbox"/> (3)	<input type="checkbox"/> (5)	<input type="checkbox"/> (7)
i. Desire to expect higher quality work from my students	<input type="checkbox"/> (1)	<input type="checkbox"/> (3)	<input type="checkbox"/> (5)	<input type="checkbox"/> (7)

10. Which items below describe the work you intend to do as part of the Bush grant?

	Yes	No
a. New course syllabus, readings or materials	<input type="checkbox"/> (1)	<input type="checkbox"/> (5)
b. New website	<input type="checkbox"/> (1)	<input type="checkbox"/> (5)
c. New presentation tools	<input type="checkbox"/> (1)	<input type="checkbox"/> (5)
d. New communication tools	<input type="checkbox"/> (1)	<input type="checkbox"/> (5)
e. New student assignments	<input type="checkbox"/> (1)	<input type="checkbox"/> (5)
f. New instructional strategies	<input type="checkbox"/> (1)	<input type="checkbox"/> (5)
g. New technology-enhanced learning strategies	<input type="checkbox"/> (1)	<input type="checkbox"/> (5)
h. New reflection strategies	<input type="checkbox"/> (1)	<input type="checkbox"/> (5)
i. New collaborative strategies	<input type="checkbox"/> (1)	<input type="checkbox"/> (5)
j. New ways to address student learning styles	<input type="checkbox"/> (1)	<input type="checkbox"/> (5)
k. New classroom assessment methods or instruments	<input type="checkbox"/> (1)	<input type="checkbox"/> (5)
l. New grading techniques	<input type="checkbox"/> (1)	<input type="checkbox"/> (5)
m. New software or tailored application	<input type="checkbox"/> (1)	<input type="checkbox"/> (5)
n. Other _____	<input type="checkbox"/> (1)	<input type="checkbox"/> (5)

SECTION C: SCHOLARSHIP AND COLLABORATION

Please indicate the priority you give to the following policies and/or practices as they relate to your teaching.

	None	Low	Moderate	High
11. Using active learning techniques such as small group discussions and team projects.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
12. Using information in your course(s) from recent articles, books, or topics.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
13. Using technology in your teaching.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
14. Overseeing student independent research or creative work.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
15. Informally studying the effects of your teaching on student learning.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
16. Taking into account differences among students in how they learn.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
17. Using interdisciplinary knowledge to inform your course design.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
18. Implementing team teaching or other collaborative approaches in courses.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
19. Updating your knowledge of your discipline.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
20. Including multicultural perspectives in appropriate courses.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
21. Using comments from students to alter teaching practices or materials.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
22. Helping students make connections between their prior learning and new knowledge.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
23. Using a variety of techniques in assessing student learning in your courses.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
24. Relating concepts in your courses to real life, such as through problem-based or service learning.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
25. Making connections to other disciplines for students.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
26. Meeting informally with students outside of class, labs, or studios.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
27. Providing written comments to students on their assignments and exams.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
28. Providing prompt feedback to students about their exam results and assignments.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
29. Using examples or illustrations to clarify course material.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
30. Setting high expectations for all students.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
31. Providing syllabi with course objectives, assignments, and grading procedures.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
32. Discussing with colleagues your course content, materials, assessment techniques, and the like.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
33. Participating in conferences, seminars, or workshops on teaching or student learning.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
34. Presenting on your discipline in a colleague's class.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
35. Inviting colleagues to review your syllabi or teaching materials.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
36. Making your course syllabi available to anyone on the Internet or other public sources.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
37. Preparing a portfolio or dossier to support your teaching performance.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎
38. Working with an undergraduate to further inform your course design.	<input type="checkbox"/> ₍₁₎	<input type="checkbox"/> ₍₃₎	<input type="checkbox"/> ₍₅₎	<input type="checkbox"/> ₍₇₎

Appendix A: Data Collection Instruments

	None	Low	Moderate	High
39. Working with a Teaching Assistant to further inform your course design.	<input type="checkbox"/> (1)	<input type="checkbox"/> (3)	<input type="checkbox"/> (5)	<input type="checkbox"/> (7)
40. Working with other faculty to further inform your course design	<input type="checkbox"/> (1)	<input type="checkbox"/> (3)	<input type="checkbox"/> (5)	<input type="checkbox"/> (7)
41. Working with consultants to further inform your course design.	<input type="checkbox"/> (1)	<input type="checkbox"/> (3)	<input type="checkbox"/> (5)	<input type="checkbox"/> (7)

42. At the end of the three years, what criteria will you use to determine whether your participation in the grant was worthwhile?

Thank you very much for your cooperation!

MGT of America, Inc. expresses appreciation to JA Centa/Syracuse University for their permission to modify their Inventory on the Scholarship of Teaching and Learning.

**BUSH FOUNDATION GRANT
SYSTEM WIDE GRANT ADMINISTRATOR INTERVIEW GUIDE
FALL 2005**

Date: _____ Interviewer: _____

1. To what extent have program participants throughout the system aligned their projects with strategic campus initiative(s)?

2. To what extent have faculty utilized collaboration in their approach to teaching? Explain.

3. To what extent, in your opinion, have faculty utilized scholarly approached to teaching? Explain.

4. What forms of assessment/evaluation have you learned faculty were using to gauge student learning?

5. To what extent do you believe faculty has utilized data from assessment and evaluation to make adjustments to their teaching and/or course design? What adjustments did they make?

6. What changes have you noticed in the faculty's definitions and attitudes towards the importance of a scholarly and collaborative approach to teaching during the past year?

7. To what extent do you believe faculty development activities have assisted faculty with using scholarly and collaborative approaches to address student learning issues? To what extent have those development activities assisted faculty with assessment and evaluation?

8. What were the greatest successes this past year for the grant? Greatest challenges?

9. As the grant PIs, what obstacles did you face and how did you overcome them?

10. What lessons did you and the campus coordinators learn?

11. What processes emerged that were critical in managing the program?

12. Do you believe the campuses were effective with engaging the desired number of instructional staff and students in grant-related projects? Were they effective in involving the desired number and types of courses?

13. What changes will you make for the administration of the grant as you go into Year 2?

14. Additional Comments.

**BUSH FOUNDATION GRANT
CAMPUS COORDINATOR INTERVIEW GUIDE
FALL 2005**

Date: _____ Campus: _____

Interviewer: _____

1. To what extent have program participants on your campus aligned their projects with strategic campus initiative(s)?

2. To what extent have faculty utilized collaboration in their approach to teaching? Explain.

3. To what extent have faculty utilized scholarly approaches to teaching? Explain.

4. What forms of assessment/evaluation have faculty utilized to gauge student learning?

5. To what extent have faculty utilized data from assessment and evaluation to make adjustments to their teaching and/or course design? What adjustments did you notice they made?

6. What are some of the major challenges you have faced as you work to mainstream local evaluation for the Bush Grant on your campus?

7. What changes have you noticed in the faculty's definitions and attitudes towards the importance of a scholarly and collaborative approach to teaching during the past year?

8. What faculty development activities have been provided on your campus to assist faculty with the research projects? To what extent do you believe these activities met their needs?

9. To what extent did these activities assist faculty with using scholarly and collaborative approaches to address student learning issues?

10. How did these faculty development activities assist faculty with using classroom assessment techniques and course evaluation findings to shape their teaching?

11. What were the faculty's greatest successes this past year? Greatest challenges?

12. As the campus coordinator, what obstacles did you face and how did you overcome them?

13. What lessons did the faculty learn?

14. How did you go about engaging the desired number of instructional staff and students in grant-related projects? How were you able to involve the desired number and types of courses?

15. What changes will you make for the administration of the grant as you go into Year 2? Do you have any recommendations for changes for the grant administration at the system level?

16. How would you rate the support you received at the system level from the Grant PIs? Do you have any recommendations for changes for the grant administration at the system level?

17. Additional Comments.

**BUSH FOUNDATION GRANT
CONSULTANT FOCUS GROUP GUIDE
FALL 2005**

Date: _____ Campus: _____

Interviewer: _____ Number of Consultants: _____

1. How would you define your role as a consultant? What types of activities do you most often perform?

2. To what extent have program participants on your campus aligned their projects with strategic campus initiative(s)?

3. To what extent have faculty utilized collaboration in their approach to teaching? Explain.

4. To what extent have faculty utilized scholarly approaches to teaching? Explain.

5. What forms of assessment/evaluation have faculty utilized to gauge student learning?

6. To what extent have faculty utilized data from assessment and evaluation to make adjustments to their teaching and/or course design? What adjustments did they make?

7. What changes have you noticed in the faculty's definitions and attitudes towards the importance of a scholarly and collaborative approach to teaching during the past year?

8. What faculty development activities have been provided on your campus to assist faculty with the research projects? To what extent do you believe these activities met their needs?

9. To what extent did these activities assist faculty with using scholarly and collaborative approaches to address student learning issues?

10. How did these faculty development activities assist faculty with using classroom assessment techniques and course evaluation findings to shape their teaching?

11. What were the faculty's greatest successes this past year? Greatest challenges?

12. What lessons did the faculty learn?

13. How would you rate your campus in terms of engaging the desired number of instructional staff and students in grant-related projects? In involving the desired number and types of courses?

14. Do you have any recommendations for changes to the grant administration as the campus level? At the system level?

15. Additional Comments.

**BUSH FOUNDATION GRANT
FACULTY FOCUS GROUP GUIDE
FALL 2005**

Date: _____ Campus: _____

Interviewer: _____ Number of Faculty: _____

1. How did you decide on the focus of your research project?

2. With what strategic campus initiative(s) does your project align?

3. To what extent have you utilized collaboration in your approach to teaching? Explain.

4. To what extent have you utilized a scholarly approach to teaching? Explain.

5. What forms of assessment/evaluation have you utilized to gauge student learning in your courses?

6. To what extent have you utilized data from assessment and evaluation to make adjustments to your teaching and/or course design? What adjustments did you make?

7. How has your definition and attitude towards the importance of a scholarly and collaborative approach to teaching changed during the past year?

8. What faculty development activities have been provided on your campus to assist you with your research project? To what extent did these activities meet your needs?

9. To what extent did these activities assist you with using scholarly and collaborative approaches to address student learning issues?

10. How did these faculty development activities assist you with using classroom assessment techniques and course evaluation findings to shape your teaching?

11. What were your greatest successes this past year? Greatest challenges?

12. What lessons did you learn?

13. How did you learn of the Bush Foundation Grant projects? Do you feel your campus coordinator did enough to engage instructional staff and students in grant related projects?

14. Do you have any recommendations for changes to the grant administration?

15. Additional Comments.

**BUSH FOUNDATION GRANT
GRADUATE STUDENT FOCUS GROUP GUIDE
FALL 2005**

Date: _____ Campus: _____

Interviewer: _____ Number of Graduate Students: _____

1. How were you chosen to participate with the Bush Foundation Grant research projects?

2. What activities are you involved in for the research project(s)?

3. What forms of assessment/evaluation is your project utilizing?

4. To what extent is that data utilized to make adjustments to the teaching and/or course design? What adjustments were made?

5. How has your definition and attitude towards the importance of a scholarly and collaborative approach to teaching changed during the past year?

6. What faculty development activities have you participated in on your campus to assist you with your research project? To what extent did these activities meet your needs?

7. What were your greatest successes this past year? Greatest challenges?

8. What lessons did you learn?

9. How did you learn of the Bush Foundation Grant projects? Do you feel your campus coordinator did enough to engage instructional staff and students in grant related projects?

10. Do you have any recommendations for changes to the grant administration?

11. Additional Comments.

**University of Minnesota
Bush Foundation Grant
Course Profiles**

Faculty Member or instructor: _____

Number of people involved in course redesign team (e.g., teaching specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational Technology consultants)

Campus: _____

Course Name: e.g. Theatre History and Drama I (TH 3171) _____

Number of Students Impacted by Course: _____ X per semester _____

Student Learning/Teaching Issue: e.g., student engagement with course material; overcoming physical classroom limitations with innovative teaching strategies _____

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur:

Course Description: (Please provide the course overview that appears in course bulletins)

Description of Research Project: (Include specific research question and teaching and/or technology intervention strategies, e.g. learning style tests, new case studies, use of web forum, use of games)

Data Collection Techniques (e.g., surveys, CATs, focus groups, data analysis of online discussions):)

Summary of up to three key findings from data collected (bulleted list is acceptable):

What course adjustments were made this semester/year, or are planned, based on the data analysis, student reactions, feedback from consultants, etc.?

Course redesign team member's definitions of what it means to take a scholarly approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Course redesign team members' definitions of what it means to take a collaborative approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

APPENDIX B:

Survey Analysis

**UNIVERSITY OF MINNESOTA
 ENHANCING STUDENT LEARNING THROUGH INNOVATIVE
 TEACHING AND TECHNOLOGY STRATEGIES
 A BUSH FOUNDATION GRANT
 Annual Evaluation Survey
 Year 1
 Survey Analysis**

Aggregate Analysis for All Campuses (93% response rate)

SECTION A: BACKGROUND INFORMATION

Campus: Aggregate Analysis for All Campuses (93% response rate)

1. Gender: n=62

45	Female ⁽¹⁾
55	Male ⁽⁵⁾

2. Appointment Type: n=64

42	Tenured Faculty ⁽¹⁾
36	Tenure-track Faculty ⁽³⁾
19	Full-time non-regular faculty or professional academic staff ⁽⁵⁾
3	Part-time non-regular faculty or professional staff ⁽⁷⁾

3. Percent of time devoted to teaching in current position: n=62

7	25% or less ⁽¹⁾
11	Between 26% and 50% ⁽³⁾
32	Between 51% and 75% ⁽⁵⁾
50	More than 76% ⁽⁷⁾

4. Number of years you have been teaching post-secondary students: n=64

2 yrs	Minimum
37 yrs	Maximum
16.2 yrs	Mean

5. Faculty members vary in their ability to devote time to Bush grant programs. How much time do you expect to invest in the program? n=63

8	0 to 2 hours per month ⁽¹⁾
32	3 to 5 hours per month ⁽³⁾
35	6 to 10 hours per month ⁽⁵⁾
16	11 to 15 hours per month ⁽⁷⁾
10	more than 15 hours per month ⁽⁹⁾

6. Please describe your role as a Bush Foundation Grant Participant?

As a whole, BFG participants surveyed appear to fall into five basic groups: who are developing the projects, those involved in redesigning the classes, team members leading faculty, those responsible for acting as resources and/or assessing/evaluating the results, and those faculty implementing the projects/teaching the courses. It is important to note that some faculty may fall into more than one of the basic groups.

SECTION B: PROJECT ACTIVITIES AND OUTCOMES

7. In previous semesters when you taught the course that you are now targeting for improvement, how important have the following been for improving student learning?

	No Importance	Little Importance	Somewhat Important	Very Important
a. Collecting information to assess students' entry-level knowledge or abilities (n=63)	16	18	37	30
b. Collecting information to diagnose learning problems or identify individuals who need extra help (n=63)	13	24	36	27
c. Using classroom assessment strategies to prompt student thinking during lecture or class discussion (n=63)	10	6	35	49
d. Helping students learn to assess their own progress (n=63)	6	29	27	38
e. Motivating students to improve their study skills (n=63)	3	5	35	57
f. Getting a better sense of what the class as a group is learning (n=63)	3	11	29	57
g. Using assessment strategies to help make mid-course corrections in teaching strategies or materials (n=63)	8	16	32	44
h. Using feedback to improve mid-term or final exams (n=60)	3	17	42	38
i. Using student feedback to evaluate the overall course (n=63)	5	3	25	67

8. How often have you used the following forms of assessment in the past?

	Never	Sometimes	Often	Very Often
a. Interactive techniques (e.g., voting, debates, small group problem-solving) (n=63)	10	48	19	24
b. Qualitative methods (e.g., journals, reflection papers, essays, short answer) (n=63)	19	27	32	22
c. Quantitative methods (e.g., quizzes or tests, surveys) (n=63)	6	5	32	57
d. Anonymous student response techniques (n=62)	15	55	23	8
e. Identified student response techniques (n=62)	35	38	23	3
f. Un-graded performance measures (n=63)	19	45	24	11
g. Graded performance measures (n=63)		6	30	64
h. Voluntary measures of performance (n=60)	43	32	22	3
i. Required measures of performance (n=60)	8	10	42	40
j. Individual student performance (n=63)	8	3	35	54
k. Group performance (n=62)	19	39	23	19
l. Other				

9. To what degree does each of the following factors motivate you to change your course?

	None	Low	Moderate	High
a. Desire to address varied learning styles and needs (n=63)	3	19	37	41
b. Desire to encourage students to spend more time on learning tasks (n=63)		5	29	67
c. Desire to facilitate communication between students and instructors (n=63)		13	35	52
d. Desire to help students work more collaboratively (n=63)	5	24	40	32
e. Desire to build on students' familiarity with technology (n=63)	3	35	32	30
f. Desire to increase students' access to course materials (n=63)	5	18	41	37
g. Desire to use technology simulations to teach topics that may have been too dangerous or expensive previously (n=63)	25	25	30	19
h. Desire to teach my course more efficiently (n=61)		7	23	71
i. Desire to expect higher quality work from my students (n=63)		3	14	83

10. Which items below describe the work you intend to do as part of the Bush grant?

	Yes	No
a. New course syllabus, readings or materials (n=62)	65	36
b. New website (n=62)	71	29
c. New presentation tools (n=61)	54	46
d. New communication tools (n=61)	61	39
e. New student assignments (n=62)	61	39
f. New instructional strategies (n=62)	86	15
g. New technology-enhanced learning strategies (n=62)	95	5
h. New reflection strategies (n=61)	72	28
i. New collaborative strategies (n=62)	76	24
j. New ways to address student learning styles (n=61)	72	28
k. New classroom assessment methods or instruments (n=62)	71	29
l. New grading techniques (n=62)	86	15
m. New software or tailored application (n=62)	42	58
n. Other		

SECTION C: SCHOLARSHIP AND COLLABORATION

Please indicate the priority you give to the following policies and/or practices as they relate to your teaching.

	None	Low	Moderate	High
11. Using active learning techniques such as small group discussions and team projects. (n=63)	3	22	27	48
12. Using information in your course(s) from recent articles, books, or topics. (n=63)	2	19	22	57
13. Using technology in your teaching. (n=62)	2	13	32	53
14. Overseeing student independent research or creative work. (n=63)	18	29	30	24
15. Informally studying the effects of your teaching on student learning. (n=62)	3	18	44	36

	None	Low	Moderate	High
16. Taking into account differences among students in how they learn. (n=63)	5	19	41	35
17. Using interdisciplinary knowledge to inform your course design. (n=63)	8	24	40	29
18. Implementing team teaching or other collaborative approaches in courses. (n=63)	30	35	25	10
19. Updating your knowledge of your discipline. (n=62)	10	13	8	69
20. Including multicultural perspectives in appropriate courses. (n=63)	13	35	24	29
21. Using comments from students to alter teaching practices or materials. (n=63)	3	11	41	44
22. Helping students make connections between their prior learning and new knowledge. (n=63)		10	30	60
23. Using a variety of techniques in assessing student learning in your courses. (n=63)	3	11	32	54
24. Relating concepts in your courses to real life, such as through problem-based or service learning. (n=62)	2	11	27	60
25. Making connections to other disciplines for students. (n=63)	8	19	43	30
26. Meeting informally with students outside of class, labs, or studios. (n=62)	18	23	32	27
27. Providing written comments to students on their assignments and exams. (n=62)	5	21	34	40
28. Providing prompt feedback to students about their exam results and assignments. (n=62)	3	5	23	69
29. Using examples or illustrations to clarify course material. (n=61)	2	2	14	83
30. Setting high expectations for all students. (n=61)	2	2	12	85
31. Providing syllabi with course objectives, assignments, and grading procedures. (n=62)	3	3	7	87
32. Discussing with colleagues your course content, materials, assessment techniques, and the like. (n=62)	2	14	41	43
33. Participating in conferences, seminars, or workshops on teaching or student learning. (n=63)	2	18	41	40
34. Presenting on your discipline in a colleague's class. (n=62)	19	39	34	8
35. Inviting colleagues to review your syllabi or teaching materials. (n=62)	16	19	44	21
36. Making your course syllabi available to anyone on the Internet or other public sources. (n=62)	15	19	32	34
37. Preparing a portfolio or dossier to support your teaching performance. (n=62)	19	29	29	23
38. Working with an undergraduate to further inform your course design. (n=61)	27	20	30	25
39. Working with a Teaching Assistant to further inform your course design. (n=61)	41	21	21	16
40. Working with other faculty to further inform your course design (n=61)	10	23	34	33
41. Working with consultants to further inform your course design. (n=61)	34	28	21	16

42. At the end of the three years, what criteria will you use to determine whether your participation in the grant was worthwhile?

Across all campuses, the two main criteria identified were improved student performance and effective teaching strategies.

Student performance will be measured by improvements in student achievement, retention of knowledge, engagement, attendance, participation, enrollment, attendance, and attitude. At Duluth, student performance will be measured by conducting surveys, including control groups. Participants expect to see a greater understanding and appreciation of the material by students, improved performance on exams and project work, improved study skills, more motivation and willingness to take responsibility for their learning, willingness to explore subject areas beyond the required courses, and a stronger correlation between labs, lectures, and assignments. Participants also intend to identify and implement effective and diversified teaching and assessment strategies, encourage and add more active learning and individualized strategies, and improve student evaluation results of faculty.

**UNIVERSITY OF MINNESOTA
 ENHANCING STUDENT LEARNING THROUGH INNOVATIVE
 TEACHING AND TECHNOLOGY STRATEGIES
 A BUSH FOUNDATION GRANT
 Annual Evaluation Survey
 Year 1
 Survey Analysis**

Crookston Campus (85% Response Rate)

SECTION A: BACKGROUND INFORMATION

1. Gender: n=28

32	Female ⁽¹⁾
68	Male ⁽⁵⁾

2. Appointment Type: n=28

54	Tenured Faculty ⁽¹⁾
39	Tenure-track Faculty ⁽³⁾
7	Full-time non-regular faculty or professional academic staff ⁽⁵⁾
0	Part-time non-regular faculty or professional staff ⁽⁷⁾

3. Percent of time devoted to teaching in current position: n=28

4	25% or less ⁽¹⁾
7	Between 26% and 50% ⁽³⁾
18	Between 51% and 75% ⁽⁵⁾
71	More than 76% ⁽⁷⁾

4. Number of years you have been teaching post-secondary students: n=28

2	Minimum
37	Maximum
19.43	Mean

5. Faculty members vary in their ability to devote time to Bush grant programs. How much time do you expect to invest in the program? n=28

7	0 to 2 hours per month ⁽¹⁾
50	3 to 5 hours per month ⁽³⁾
36	6 to 10 hours per month ⁽⁵⁾
7	11 to 15 hours per month ⁽⁷⁾
0	more than 15 hours per month ⁽⁹⁾

6. Please describe your role as a Bush Foundation Grant Participant?

BFG participants surveyed appear to fall into three basic groups: those involved in redesigning the classes, team members leading faculty, and those faculty teaching the courses. It is important to note that some faculty may fall into more than one of the basic groups.

SECTION B: PROJECT ACTIVITIES AND OUTCOMES

7. In previous semesters when you taught the course that you are now targeting for improvement, how important have the following been for improving student learning?

	No Importance	Little Importance	Somewhat Important	Very Important
a. Collecting information to assess students' entry-level knowledge or abilities (n=28)	4	18	43	36
b. Collecting information to diagnose learning problems or identify individuals who need extra help (n=28)	4	18	46	32
c. Using classroom assessment strategies to prompt student thinking during lecture or class discussion (n=28)	7	4	36	54
d. Helping students learn to assess their own progress (n=28)	4	21	39	36
e. Motivating students to improve their study skills (n=28)	4	0	21	75
f. Getting a better sense of what the class as a group is learning (n=28)	4	0	36	61
g. Using assessment strategies to help make mid-course corrections in teaching strategies or materials (n=28)	0	14	29	57
h. Using feedback to improve mid-term or final exams (n=28)	0	7	54	39
i. Using student feedback to evaluate the overall course (n=28)	4	0	29	68

8. How often have you used the following forms of assessment in the past?

	Never	Sometimes	Often	Very Often
a. Interactive techniques (e.g., voting, debates, small group problem-solving) (n=28)	11	61	11	18
b. Qualitative methods (e.g., journals, reflection papers, essays, short answer) (n=28)	18	29	43	11
c. Quantitative methods (e.g., quizzes or tests, surveys) (n=28)	0	7	32	61
d. Anonymous student response techniques (n=28)	32	50	18	11
e. Identified student response techniques (n=28)	32	32	36	0
f. Un-graded performance measures (n=28)	11	54	25	11
g. Graded performance measures (n=28)	0	11	29	61
h. Voluntary measures of performance (n=28)	25	46	25	4
i. Required measures of performance (n=28)	4	14	36	46
j. Individual student performance (n=28)	4	4	32	61
k. Group performance (n=28)	18	39	21	21
l. Other				

9. To what degree does each of the following factors motivate you to change your course?

	None	Low	Moderate	High
a. Desire to address varied learning styles and needs (n=28)	0	11	50	39
b. Desire to encourage students to spend more time on learning tasks (n=28)	0	0	29	71
c. Desire to facilitate communication between students and instructors (n=28)	0	11	32	57
d. Desire to help students work more collaboratively (n=28)	0	18	57	25
e. Desire to build on students' familiarity with technology (n=28)	0	29	46	25
f. Desire to increase students' access to course materials (n=28)	4	14	54	29
g. Desire to use technology simulations to teach topics that may have been too dangerous or expensive previously (n=28)	18	32	32	18
h. Desire to teach my course more efficiently (n=27)	0	4	19	78
i. Desire to expect higher quality work from my students (n=28)	0	0	11	89

10. Which items below describe the work you intend to do as part of the Bush grant?

	Yes	No
a. New course syllabus, readings or materials (n=28)	71	29
b. New website (n=28)	82	18
c. New presentation tools (n=28)	50	50
d. New communication tools (n=28)	71	29
e. New student assignments (n=28)	71	29
f. New instructional strategies (n=28)	96	4
g. New technology-enhanced learning strategies (n=28)	100	0
h. New reflection strategies (n=28)	75	25
i. New collaborative strategies (n=28)	71	29
j. New ways to address student learning styles (n=28)	79	21
k. New classroom assessment methods or instruments (n=28)	79	21
l. New grading techniques (n=28)	93	7
m. New software or tailored application (n=28)	46	54
n. Other		

SECTION C: SCHOLARSHIP AND COLLABORATION

Please indicate the priority you give to the following policies and/or practices as they relate to your teaching.

	None	Low	Moderate	High
11. Using active learning techniques such as small group discussions and team projects. (n=28)	4	21	39	36
12. Using information in your course(s) from recent articles, books, or topics. (n=28)	0	14	21	64
13. Using technology in your teaching. (n=28)	0	11	36	54
14. Overseeing student independent research or creative work. (n=28)	14	32	32	21
15. Informally studying the effects of your teaching on student learning. (n=28)	0	11	57	32

	None	Low	Moderate	High
16. Taking into account differences among students in how they learn. (n=28)	0	25	46	29
17. Using interdisciplinary knowledge to inform your course design. (n=28)	4	14	54	29
18. Implementing team teaching or other collaborative approaches in courses. (n=28)	25	36	29	11
19. Updating your knowledge of your discipline. (n=28)	0	11	14	75
20. Including multicultural perspectives in appropriate courses. (n=28)	7	36	29	29
21. Using comments from students to alter teaching practices or materials. (n=28)	0	4	61	36
22. Helping students make connections between their prior learning and new knowledge. (n=28)	0	0	39	61
23. Using a variety of techniques in assessing student learning in your courses. (n=28)	0	11	32	57
24. Relating concepts in your courses to real life, such as through problem-based or service learning. (n=28)	0	7	32	61
25. Making connections to other disciplines for students. (n=28)	11	11	46	32
26. Meeting informally with students outside of class, labs, or studios. (n=28)	14	11	36	39
27. Providing written comments to students on their assignments and exams. (n=28)	0	18	46	36
28. Providing prompt feedback to students about their exam results and assignments. (n=28)	0	4	21	75
29. Using examples or illustrations to clarify course material. (n=28)	0	0	25	75
30. Setting high expectations for all students. (n=28)	0	0	14	86
31. Providing syllabi with course objectives, assignments, and grading procedures. (n=28)	0	4	4	93
32. Discussing with colleagues your course content, materials, assessment techniques, and the like. (n=28)	0	14	43	43
33. Participating in conferences, seminars, or workshops on teaching or student learning. (n=28)	0	11	36	54
34. Presenting on your discipline in a colleague's class. (n=28)	14	25	50	11
35. Inviting colleagues to review your syllabi or teaching materials. (n=28)	11	18	54	18
36. Making your course syllabi available to anyone on the Internet or other public sources. (n=28)	21	21	36	21
37. Preparing a portfolio or dossier to support your teaching performance. (n=28)	18	25	29	29
38. Working with an undergraduate to further inform your course design. (n=28)	32	32	32	4
39. Working with a Teaching Assistant to further inform your course design. (n=27)	63	19	19	0
40. Working with other faculty to further inform your course design (n=27)	11	22	48	19
41. Working with consultants to further inform your course design. (n=28)	25	43	32	0

42. At the end of the three years, what criteria will you use to determine whether your participation in the grant was worthwhile?

The two main criteria identified were improved student performance and effective teaching strategies. Student performance will be measured by improvements in student achievement, retention of knowledge, engagement, and attitude. Participants expect to see a greater understanding of the material by students and improved performance on exams and project work. Participants also intend to identify and implement effective and diversified teaching and assessment strategies (including colleague review) and improve student evaluation results of faculty.

**UNIVERSITY OF MINNESOTA
ENHANCING STUDENT LEARNING THROUGH INNOVATIVE
TEACHING AND TECHNOLOGY STRATEGIES
A BUSH FOUNDATION GRANT
Annual Evaluation Survey
Year 1
Survey Analysis**

Duluth Campus (100% Response Rate)

SECTION A: BACKGROUND INFORMATION

1. Gender: n=11

64	Female ⁽¹⁾
36	Male ⁽⁵⁾

2. Appointment Type: n=11

46	Tenured Faculty ⁽¹⁾
27	Tenure-track Faculty ⁽³⁾
27	Full-time non-regular faculty or professional academic staff ⁽⁵⁾
0	Part-time non-regular faculty or professional staff ⁽⁷⁾

3. Percent of time devoted to teaching in current position: n=10

10	25% or less ⁽¹⁾
20	Between 26% and 50% ⁽³⁾
30	Between 51% and 75% ⁽⁵⁾
40	More than 76% ⁽⁷⁾

4. Number of years you have been teaching post-secondary students: n=11

4	Minimum
32	Maximum
18.64	Mean

5. Faculty members vary in their ability to devote time to Bush grant programs. How much time do you expect to invest in the program? n=11

18	0 to 2 hours per month ⁽¹⁾
27	3 to 5 hours per month ⁽³⁾
9	6 to 10 hours per month ⁽⁵⁾
18	11 to 15 hours per month ⁽⁷⁾
27	more than 15 hours per month ⁽⁹⁾

6. Please describe your role as a Bush Foundation Grant Participant?

Surveyed BFG participants appear to fall into three basic groups: those who are developing the projects, those faculty (including the campus coordinator) implementing the projects, and those responsible for acting as resources and/or assessing/evaluating the results.

SECTION B: PROJECT ACTIVITIES AND OUTCOMES

7. In previous semesters when you taught the course that you are now targeting for improvement, how important have the following been for improving student learning?

	No Importance	Little Importance	Somewhat Important	Very Important
a. Collecting information to assess students' entry-level knowledge or abilities (n=11)	18	27	27	27
b. Collecting information to diagnose learning problems or identify individuals who need extra help (n=10)	10	40	30	20
c. Using classroom assessment strategies to prompt student thinking during lecture or class discussion (n=11)	9	18	27	46
d. Helping students learn to assess their own progress (n=11)	9	46	0	46
e. Motivating students to improve their study skills (n=11)	9	27	18	46
f. Getting a better sense of what the class as a group is learning (n=11)	9	27	18	46
g. Using assessment strategies to help make mid-course corrections in teaching strategies or materials (n=11)	18	18	27	36
h. Using feedback to improve mid-term or final exams (n=10)	10	30	20	40
i. Using student feedback to evaluate the overall course (n=11)	9	9	27	55

8. How often have you used the following forms of assessment in the past?

	Never	Sometimes	Often	Very Often
a. Interactive techniques (e.g., voting, debates, small group problem-solving) (n=11)	18	27	9	46
b. Qualitative methods (e.g., journals, reflection papers, essays, short answer) (n=11)	18	36	18	27
c. Quantitative methods (e.g., quizzes or tests, surveys) (n=11)	18	9	27	46
d. Anonymous student response techniques (n=11)	9	64	18	9
e. Identified student response techniques (n=9)	33	33	11	22
f. Un-graded performance measures (n=11)	46	27	18	9
g. Graded performance measures (n=11)	0	0	18	82
h. Voluntary measures of performance (n=10)	80	20	0	0
i. Required measures of performance (n=10)	10	0	30	60
j. Individual student performance (n=11)	9	0	36	55
k. Group performance (n=11)	27	27	18	27
m. Other <u>Student Portfolios</u> (n=1)				

9. To what degree does each of the following factors motivate you to change your course?

	None	Low	Moderate	High
a. Desire to address varied learning styles and needs (n=11)	0	46	36	18
b. Desire to encourage students to spend more time on learning tasks (n=11)	0	0	55	45
c. Desire to facilitate communication between students and instructors (n=11)	0	9	46	46
d. Desire to help students work more collaboratively (n=11)	0	46	18	36
e. Desire to build on students' familiarity with technology (n=11)	0	36	36	27
f. Desire to increase students' access to course materials (n=11)	0	36	27	36
g. Desire to use technology simulations to teach topics that may have been too dangerous or expensive previously (n=11)	9	36	46	9
h. Desire to teach my course more efficiently (n=11)	0	0	27	73
i. Desire to expect higher quality work from my students (n=11)	0	0	18	82

10. Which items below describe the work you intend to do as part of the Bush grant?

	Yes	No
a. New course syllabus, readings or materials (n=11)	36	64
b. New website (n=11)	45	55
c. New presentation tools (n=10)	20	80
d. New communication tools (n=11)	64	36
e. New student assignments (n=11)	45	55
f. New instructional strategies (n=11)	82	18
g. New technology-enhanced learning strategies (n=11)	100	0
h. New reflection strategies (n=11)	55	45
i. New collaborative strategies (n=11)	100	0
j. New ways to address student learning styles (n=11)	45	55
k. New classroom assessment methods or instruments (n=11)	64	36
l. New grading techniques (n=11)	91	9
m. New software or tailored application (n=11)	36	64
n. Other		

SECTION C: SCHOLARSHIP AND COLLABORATION

Please indicate the priority you give to the following policies and/or practices as they relate to your teaching.

	None	Low	Moderate	High
11. Using active learning techniques such as small group discussions and team projects. (n=11)	9	27	9	55
12. Using information in your course(s) from recent articles, books, or topics. (n=11)	0	27	9	64
13. Using technology in your teaching. (n=11)	0	18	36	46
14. Overseeing student independent research or creative work. (n=11)	9	36	36	18
15. Informally studying the effects of your teaching on student learning. (n=10)	0	40	30	30

	None	Low	Moderate	High
16. Taking into account differences among students in how they learn. (n=11)	9	27	27	36
17. Using interdisciplinary knowledge to inform your course design. (n=11)	9	27	36	27
18. Implementing team teaching or other collaborative approaches in courses. (n=11)	27	46	9	18
19. Updating your knowledge of your discipline. (n=11)	18	18	0	64
20. Including multicultural perspectives in appropriate courses. (n=11)	9	55	9	27
21. Using comments from students to alter teaching practices or materials. (n=11)	0	27	27	46
22. Helping students make connections between their prior learning and new knowledge. (n=11)	0	18	36	46
23. Using a variety of techniques in assessing student learning in your courses. (n=11)	0	27	27	46
24. Relating concepts in your courses to real life, such as through problem-based or service learning. (n=11)	0	18	18	64
25. Making connections to other disciplines for students. (n=11)	9	36	18	36
26. Meeting informally with students outside of class, labs, or studios. (n=10)	30	40	20	10
27. Providing written comments to students on their assignments and exams. (n=10)	10	40	20	30
28. Providing prompt feedback to students about their exam results and assignments. (n=10)	0	10	10	80
29. Using examples or illustrations to clarify course material. (n=11)	0	9	9	82
30. Setting high expectations for all students. (n=9)	0	0	22	78
31. Providing syllabi with course objectives, assignments, and grading procedures. (n=10)	0	10	0	90
32. Discussing with colleagues your course content, materials, assessment techniques, and the like. (n=11)	9	27	27	36
33. Participating in conferences, seminars, or workshops on teaching or student learning. (n=11)	0	36	27	36
34. Presenting on your discipline in a colleague's class. (n=10)	20	70	10	0
35. Inviting colleagues to review your syllabi or teaching materials. (n=10)	20	20	30	30
36. Making your course syllabi available to anyone on the Internet or other public sources. (n=10)	10	10	10	70
37. Preparing a portfolio or dossier to support your teaching performance. (n=10)	40	40	10	10
38. Working with an undergraduate to further inform your course design. (n=9)	67	11	11	11
39. Working with a Teaching Assistant to further inform your course design. (n=10)	50	30	10	10
40. Working with other faculty to further inform your course design (n=10)	20	20	30	30
41. Working with consultants to further inform your course design. (n=9)	44	33	11	11

42. At the end of the three years, what criteria will you use to determine whether your participation in the grant was worthwhile?

The two main criteria identified were improved student performance and effective teaching strategies. Student performance will be measured by conducting surveys, including control groups, and monitoring changes in student grades. Participants expect to see improvement in student grades, study skills, motivation, and the willingness to take responsibility for their learning. Participants also intend to identify effective teaching strategies and make improvements on those strategies deemed less successful.

**UNIVERSITY OF MINNESOTA
 ENHANCING STUDENT LEARNING THROUGH INNOVATIVE
 TEACHING AND TECHNOLOGY STRATEGIES
 A BUSH FOUNDATION GRANT
 Annual Evaluation Survey
 Year 1
 Survey Analysis**

Morris Campus (100% Response Rate)

SECTION A: BACKGROUND INFORMATION

1. Gender: n=7

71	Female ⁽¹⁾
29	Male ⁽⁵⁾

2. Appointment Type: n=8

13	Tenured Faculty ⁽¹⁾
88	Tenure-track Faculty ⁽³⁾
0	Full-time non-regular faculty or professional academic staff ⁽⁵⁾
0	Part-time non-regular faculty or professional staff ⁽⁷⁾

3. Percent of time devoted to teaching in current position: n=8

0	25% or less ⁽¹⁾
0	Between 26% and 50% ⁽³⁾
75	Between 51% and 75% ⁽⁵⁾
25	More than 76% ⁽⁷⁾

4. Number of years you have been teaching post-secondary students: n=8

3	Minimum
11	Maximum
5.19	Mean

5. Faculty members vary in their ability to devote time to Bush grant programs. How much time do you expect to invest in the program? n=8

13	0 to 2 hours per month ⁽¹⁾
0	3 to 5 hours per month ⁽³⁾
50	6 to 10 hours per month ⁽⁵⁾
25	11 to 15 hours per month ⁽⁷⁾
13	more than 15 hours per month ⁽⁹⁾

6. Please describe your role as a Bush Foundation Grant Participant?

BFG participants surveyed appear to fall into two basic groups: those involved in developing the courses and its pedagogical software and those involved in enhancing the courses and teaching styles of faculty at Morris. Participants span many disciplines across the campus.

SECTION B: PROJECT ACTIVITIES AND OUTCOMES

7. In previous semesters when you taught the course that you are now targeting for improvement, how important have the following been for improving student learning?

	No Importance	Little Importance	Somewhat Important	Very Important
a. Collecting information to assess students' entry-level knowledge or abilities (n=8)	13	0	63	25
b. Collecting information to diagnose learning problems or identify individuals who need extra help (n=8)	13	13	38	38
c. Using classroom assessment strategies to prompt student thinking during lecture or class discussion (n=8)	0	0	25	75
d. Helping students learn to assess their own progress (n=8)	0	13	25	63
e. Motivating students to improve their study skills (n=8)	0	0	25	75
f. Getting a better sense of what the class as a group is learning (n=8)	0	0	13	88
g. Using assessment strategies to help make mid-course corrections in teaching strategies or materials (n=8)	0	13	38	50
h. Using feedback to improve mid-term or final exams (n=8)	0	13	25	63
i. Using student feedback to evaluate the overall course (n=8)	0	0	13	88

8. How often have you used the following forms of assessment in the past?

	Never	Sometimes	Often	Very Often
a. Interactive techniques (e.g., voting, debates, small group problem-solving) (n=8)	0	25	38	38
b. Qualitative methods (e.g., journals, reflection papers, essays, short answer) (n=8)	25	13	38	25
c. Quantitative methods (e.g., quizzes or tests, surveys) (n=8)	0	0	38	63
d. Anonymous student response techniques (n=8)	0	38	50	13
e. Identified student response techniques (n=8)	0	75	25	0
f. Un-graded performance measures (n=8)	13	25	38	25
g. Graded performance measures (n=8)	0	0	25	75
h. Voluntary measures of performance (n=8)	13	38	50	0
i. Required measures of performance (n=8)	0	0	88	13
j. Individual student performance (n=8)	0	13	50	38
k. Group performance (n=8)	13	38	50	0
n. Other <u>learning style survey (1)</u>				

9. To what degree does each of the following factors motivate you to change your course?

	None	Low	Moderate	High
a. Desire to address varied learning styles and needs (n=8)	0	0	13	88
b. Desire to encourage students to spend more time on learning tasks (n=8)	0	13	13	75
c. Desire to facilitate communication between students and instructors (n=8)	0	13	0	88
d. Desire to help students work more collaboratively (n=8)	0	13	38	50
e. Desire to build on students' familiarity with technology (n=8)	0	0	13	88
f. Desire to increase students' access to course materials (n=8)	0	0	0	100
g. Desire to use technology simulations to teach topics that may have been too dangerous or expensive previously (n=8)	38	13	25	25
h. Desire to teach my course more efficiently (n=8)	0	13	25	63
i. Desire to expect higher quality work from my students (n=8)	0	13	38	50

10. Which items below describe the work you intend to do as part of the Bush grant?

	Yes	No
a. New course syllabus, readings or materials (n=8)	75	25
b. New website (n=8)	75	25
c. New presentation tools (n=8)	75	25
d. New communication tools (n=8)	38	63
e. New student assignments (n=8)	63	38
f. New instructional strategies (n=8)	63	38
g. New technology-enhanced learning strategies (n=8)	88	13
h. New reflection strategies (n=7)	100	0
i. New collaborative strategies (n=8)	50	50
j. New ways to address student learning styles (n=7)	57	43
k. New classroom assessment methods or instruments (n=8)	75	25
l. New grading techniques (n=8)	50	50
m. New software or tailored application (n=8)	13	88
n. Other		

SECTION C: SCHOLARSHIP AND COLLABORATION

Please indicate the priority you give to the following policies and/or practices as they relate to your teaching.

	None	Low	Moderate	High
11. Using active learning techniques such as small group discussions and team projects. (n=8)	0	0	25	75
12. Using information in your course(s) from recent articles, books, or topics. (n=8)	13	0	25	63
13. Using technology in your teaching. (n=8)	0	0	25	75
14. Overseeing student independent research or creative work. (n=8)	0	13	38	50
15. Informally studying the effects of your teaching on student learning. (n=8)	0	13	25	63

	None	Low	Moderate	High
16. Taking into account differences among students in how they learn. (n=8)	0	0	25	75
17. Using interdisciplinary knowledge to inform your course design. (n=8)	13	50	13	25
18. Implementing team teaching or other collaborative approaches in courses. (n=8)	25	50	25	0
19. Updating your knowledge of your discipline. (n=8)	13	0	0	88
20. Including multicultural perspectives in appropriate courses. (n=8)	13	13	50	25
21. Using comments from students to alter teaching practices or materials. (n=8)	13	0	0	88
22. Helping students make connections between their prior learning and new knowledge. (n=8)	0	13	0	88
23. Using a variety of techniques in assessing student learning in your courses. (n=8)	0	0	25	75
24. Relating concepts in your courses to real life, such as through problem-based or service learning. (n=8)	0	25	25	50
25. Making connections to other disciplines for students. (n=8)	13	13	50	25
26. Meeting informally with students outside of class, labs, or studios. (n=8)	13	13	38	38
27. Providing written comments to students on their assignments and exams. (n=8)	13	13	0	75
28. Providing prompt feedback to students about their exam results and assignments. (n=8)	13	0	13	75
29. Using examples or illustrations to clarify course material. (n=8)	0	0	0	100
30. Setting high expectations for all students. (n=8)	0	13	0	88
31. Providing syllabi with course objectives, assignments, and grading procedures. (n=8)	13	0	13	75
32. Discussing with colleagues your course content, materials, assessment techniques, and the like. (n=8)	0	0	63	38
33. Participating in conferences, seminars, or workshops on teaching or student learning. (n=8)	0	0	88	13
34. Presenting on your discipline in a colleague's class. (n=8)	13	63	25	0
35. Inviting colleagues to review your syllabi or teaching materials. (n=8)	13	13	50	25
36. Making your course syllabi available to anyone on the Internet or other public sources. (n=8)	0	38	25	38
37. Preparing a portfolio or dossier to support your teaching performance. (n=8)	0	38	38	25
38. Working with an undergraduate to further inform your course design. (n=8)	0	0	63	38
39. Working with a Teaching Assistant to further inform your course design. (n=8)	25	25	25	25
40. Working with other faculty to further inform your course design (n=8)	0	25	38	38
41. Working with consultants to further inform your course design. (n=8)	88	13	0	0

42. At the end of the three years, what criteria will you use to determine whether your participation in the grant was worthwhile?

The two main criteria identified were improved student performance and effective teaching strategies. Student performance will be measured by improvements in student enrollment, participation, engagement, achievement, and attitude. Participants expect to see a greater understanding and appreciation of the material by students and hope to see student interest in subject areas extend beyond the required courses. Participants also intend to identify those teaching and assessment strategies used by faculty since the introduction of new technology, encourage more individualized strategies, and look for positive student evaluation results of faculty.

**UNIVERSITY OF MINNESOTA
 ENHANCING STUDENT LEARNING THROUGH INNOVATIVE
 TEACHING AND TECHNOLOGY STRATEGIES
 A BUSH FOUNDATION GRANT
 Annual Evaluation Survey
 Year 1
 Survey Analysis**

Twin Cities Campus (55% Response Rate)

SECTION A: BACKGROUND INFORMATION

1. Gender: n=15

47	Female ⁽¹⁾
53	Male ⁽⁵⁾

2. Appointment Type: n=16

38	Tenured Faculty ⁽¹⁾
13	Tenure-track Faculty ⁽³⁾
38	Full-time non-regular faculty or professional academic staff ⁽⁵⁾
13	Part-time non-regular faculty or professional staff ⁽⁷⁾

3. Percent of time devoted to teaching in current position: n=15

13	25% or less ⁽¹⁾
20	Between 26% and 50% ⁽³⁾
40	Between 51% and 75% ⁽⁵⁾
27	More than 76% ⁽⁷⁾

4. Number of years you have been teaching post-secondary students: n=16

5	Minimum
29	Maximum
14.81	Mean

5. Faculty members vary in their ability to devote time to Bush grant programs. How much time do you expect to invest in the program? n=15

0	0 to 2 hours per month ⁽¹⁾
20	3 to 5 hours per month ⁽³⁾
47	6 to 10 hours per month ⁽⁵⁾
20	11 to 15 hours per month ⁽⁷⁾
13	more than 15 hours per month ⁽⁹⁾

6. Please describe your role as a Bush Foundation Grant Participant?

BFG participants surveyed appear to fall into three basic groups: those involved in redesigning the classes, team members leading faculty, and those faculty teaching the courses. It is important to note that some faculty may fall into more than one of the basic groups.

SECTION B: PROJECT ACTIVITIES AND OUTCOMES

7. In previous semesters when you taught the course that you are now targeting for improvement, how important have the following been for improving student learning?

	No Importance	Little Importance	Somewhat Important	Very Important
a. Collecting information to assess students' entry-level knowledge or abilities (n=16)	38	19	19	25
b. Collecting information to diagnose learning problems or identify individuals who need extra help (n=16)	31	31	19	19
c. Using classroom assessment strategies to prompt student thinking during lecture or class discussion (n=16)	19	6	44	31
d. Helping students learn to assess their own progress (n=16)	13	38	25	25
e. Motivating students to improve their study skills (n=16)	0	0	75	25
f. Getting a better sense of what the class as a group is learning (n=16)	0	25	31	44
g. Using assessment strategies to help make mid-course corrections in teaching strategies or materials (n=16)	19	19	38	25
h. Using feedback to improve mid-term or final exams (n=14)	7	29	43	21
i. Using student feedback to evaluate the overall course (n=16)	6	6	25	63

8. How often have you used the following forms of assessment in the past?

	Never	Sometimes	Often	Very Often
a. Interactive techniques (e.g., voting, debates, small group problem-solving) (n=16)	6	50	31	13
b. Qualitative methods (e.g., journals, reflection papers, essays, short answer) (n=16)	19	25	19	38
c. Quantitative methods (e.g., quizzes or tests, surveys) (n=16)	13	0	31	56
d. Anonymous student response techniques (n=15)	13	67	20	0
e. Identified student response techniques (n=15)	60	33	7	0
f. Un-graded performance measures (n=15)	20	53	20	7
g. Graded performance measures (n=16)	0	6	44	50
h. Voluntary measures of performance (n=14)	71	7	14	7
i. Required measures of performance (n=14)	21	14	36	29
j. Individual student performance (n=16)	19	0	31	50
k. Group performance (n=15)	20	47	13	20
l. Other				

9. To what degree does each of the following factors motivate you to change your course?

	None	Low	Moderate	High
a. Desire to address varied learning styles and needs (n=16)	13	25	25	38
b. Desire to encourage students to spend more time on learning tasks (n=16)	0	13	19	69
c. Desire to facilitate communication between students and instructors (n=16)	0	19	50	31
d. Desire to help students work more collaboratively (n=16)	19	25	25	31
e. Desire to build on students' familiarity with technology (n=16)	13	63	13	13
f. Desire to increase students' access to course materials (n=16)	13	19	50	19
g. Desire to use technology simulations to teach topics that may have been too dangerous or expensive previously (n=16)	44	13	19	25
h. Desire to teach my course more efficiently (n=15)	0	13	27	60
i. Desire to expect higher quality work from my students (n=16)	0	6	6	88

10. Which items below describe the work you intend to do as part of the Bush grant?

	Yes	No
a. New course syllabus, readings or materials (n=15)	67	33
b. New website (n=15)	67	33
c. New presentation tools (n=15)	73	27
d. New communication tools (n=15)	53	47
e. New student assignments (n=15)	53	47
f. New instructional strategies (n=15)	80	20
g. New technology-enhanced learning strategies (n=15)	87	13
h. New reflection strategies (n=15)	67	33
i. New collaborative strategies (n=15)	80	20
j. New ways to address student learning styles (n=15)	87	13
k. New classroom assessment methods or instruments (n=15)	60	40
l. New grading techniques (n=15)	87	13
m. New software or tailored application (n=15)	53	47
n. Other <u>Improved Exam Preparation</u> (n=1)		

SECTION C: SCHOLARSHIP AND COLLABORATION

Please indicate the priority you give to the following policies and/or practices as they relate to your teaching.

	None	Low	Moderate	High
11. Using active learning techniques such as small group discussions and team projects. (n=16)	0	31	19	50
12. Using information in your course(s) from recent articles, books, or topics. (n=16)	0	31	31	38
13. Using technology in your teaching. (n=15)	7	20	27	47
14. Overseeing student independent research or creative work. (n=16)	38	25	19	19
15. Informally studying the effects of your teaching on student learning. (n=16)	13	19	38	31

Appendix B: Survey Responses

	None	Low	Moderate	High
16. Taking into account differences among students in how they learn. (n=16)	13	13	50	25
17. Using interdisciplinary knowledge to inform your course design. (n=16)	13	25	31	31
18. Implementing team teaching or other collaborative approaches in courses. (n=16)	44	19	31	6
19. Updating your knowledge of your discipline. (n=15)	20	20	7	53
20. Including multicultural perspectives in appropriate courses. (n=16)	25	31	13	31
21. Using comments from students to alter teaching practices or materials. (n=16)	6	19	38	38
22. Helping students make connections between their prior learning and new knowledge. (n=16)	0	19	25	56
23. Using a variety of techniques in assessing student learning in your courses. (n=16)	13	6	38	44
24. Relating concepts in your courses to real life, such as through problem-based or service learning. (n=15)	7	7	27	60
25. Making connections to other disciplines for students. (n=16)	0	25	50	25
26. Meeting informally with students outside of class, labs, or studios. (n=16)	19	38	31	13
27. Providing written comments to students on their assignments and exams. (n=16)	6	19	38	38
28. Providing prompt feedback to students about their exam results and assignments. (n=16)	6	6	38	50
29. Using examples or illustrations to clarify course material. (n=16)	6	0	6	88
30. Setting high expectations for all students. (n=16)	6	0	6	88
31. Providing syllabi with course objectives, assignments, and grading procedures. (n=16)	6	0	13	81
32. Discussing with colleagues your course content, materials, assessment techniques, and the like. (n=16)	0	13	38	50
33. Participating in conferences, seminars, or workshops on teaching or student learning. (n=16)	6	25	38	31
34. Presenting on your discipline in a colleague's class. (n=16)	31	31	31	6
35. Inviting colleagues to review your syllabi or teaching materials. (n=16)	25	25	31	19
36. Making your course syllabi available to anyone on the Internet or other public sources. (n=16)	13	13	44	31
37. Preparing a portfolio or dossier to support your teaching performance. (n=16)	19	25	38	19
38. Working with an undergraduate to further inform your course design. (n=16)	6	13	19	63
39. Working with a Teaching Assistant to further inform your course design. (n=16)	6	19	31	44
40. Working with other faculty to further inform your course design (n=16)	6	25	13	56
41. Working with consultants to further inform your course design. (n=16)	19	6	19	56

42. At the end of the three years, what criteria will you use to determine whether your participation in the grant was worthwhile?

The two main criteria identified were improved student performance and effective teaching strategies. Student performance will be measured by improvements in student enrollment, attendance, engagement, achievement, and attitude. Participants expect to see a greater understanding of the material by students (not strictly an improvement in grades) and a stronger correlation between labs, lectures, and assignments. Participants also intend to identify effective and efficient teaching and assessment strategies, add more active learning and individualized strategies, and improve student evaluation results of faculty.

APPENDIX C:
Course Profiles

**University of Minnesota
Bush Foundation Grant
Course Profiles**

Faculty Member or instructor: Ken Myers

Number of people involved in course redesign team (e.g., teaching specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational Technology consultants) Ken Myers, Associate Professor of Hotel, Restaurant and Institutional Management, Business Department; Sue Brorson, Associate Professor of Management and Business Department Head

Campus: Crookston

Course Name: HRI 3900 Internship

Number of Students Impacted by Course: 15 students

Student Learning/Teaching Issue: Promoting High-Quality Collaborative Learning

While at the university, students learn theory, concepts and principles we hope they will be able to apply on the job. During their internship experience students witness or are involved in many daily situations. Some situations involve the guests directly (fire alarms sound in the middle of the night), others have the potential of directly impacting the guest if not managed properly (not checking and recording temperatures on coolers). When situations take place, interns do not appear to regularly analyze and reflect on the situations and learn as much as they possibly could in order to prepare for future situations. By having interns identify situations while on the job, write the story (case), identify the key or critical points, reactions of the participants, the final outcome, and have a reflective opportunity, contemplate alternative outcomes, how each participant might have handled the situation differently, the goal is to provide a more in-depth learning experience that might help the intern be more prepared for future experiences (seeing options, managing situations, faster resolve, etc.).

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur:

Data collected, analysis is occurring. Additional data will be collected from students enrolled in this course Summer 2006. Comprehensive evaluation or assessment data will be available sometime in 2006.

Course Description: (Please provide the course overview that appears in course bulletins)

HRI 3900 Internship
Supervised professional work experience at selected sites. Reports/consultation with faculty adviser/employer.

Description of Research Project: (Include specific research question/s. Also include the teaching and/or technology intervention strategies, e.g. learning style tests, new case studies, use of web forum, use of games)

Project Title:

“Situational Learning or Assessing and developing student skills in synthesizing information from an on-the-job situation and reflective problem solving.”

Research Questions:

How well the student is able to (when an on-the-job situation takes place) identify the peripheral information vs. key facts and issues of a situation and write a reflective analysis of what happened as well as showing choices (options) and there strengths and weaknesses.

Data Collection Techniques (e.g., surveys, CATs, focus groups, data analysis of online discussions):

I took the list of students that are registered for HRI xxx Internship and identified those students who would be able to participate in this project (example: eliminating those that won't have internet connections) and then randomly selected from those the students will be participating in this activity. Participating students were divided into 3 Web Chat/Discussion Groups of 4 – 6 students.

I developed the web posting site for the Situational Reflective Form postings and as a chat room. Students were placed into small Web Discussion Groups (the same groups discussed in the above paragraph) so that they only had a limited number of cases to read and respond to. I wrote two case examples to help students understand how to write a situational review or how to complete the Situational Reflective Form.

Students were required to write one Situational Review each week for a minimum of eight weeks. These reviews were sent to me each week (Monday) via email. The Situational Reviews were posted on the web.

Students were also asked on the Situational Reflective Form: What did you learn from this experience?

I responded via email or phone with feedback (questions, comments) based on what the student submitted on the Situational Documentation Form.

Student names were not used on the posted case reviews, nor did the situations identify the name of the establishment or the actual names of those involved for this part of the activity.

Students reviewed those cases posted in their Web Discussion Groups and were

required to post comments on at least one of the cases each week.

At the beginning of fall semester, students met as a group with me and each student presented one (1) case that they felt was their most significant learning experience and why. Participants had an opportunity to ask questions and discuss the situation. Students completed a brief survey regarding the situational learning experience they participated in.

A calendar was developed to help students understand what activity they need to do each week. This is an example of the schedule for 8 cases during this 10 week summer course.

Week 1: Student (Sunday – Saturday) observes / experiences situation #1

Week 2:

- A) Student submits (Monday) case #1 review
- B) Student (Sunday – Saturday) observes / experiences situation #2
- C) Faculty reads case #1 (Wednesday) and gives feedback to student
- D) Faculty posts case #1 (Friday) on web

Week 3:

- A) Student submits (Monday) case #2 review
- B) Student goes to web, reads posted cases in their Web Discussion Group (about 4-6 cases) (Case #1) and posts comments on a minimum of one case (Monday – Wednesday)
- C) Student (Sunday – Saturday) observes / experiences situation #3
- D) Faculty reads case #2 (Wednesday) and gives feedback to student
- E) Faculty posts case #2 (Friday) on web

Data Analysis Methods:

I am utilizing a qualitative research method - cross case analysis method. The goal is to be able to group together responses from different individuals to common questions, and then compare each of the participant's perspectives on the same issues.

Summary of up to three key findings from data collected (bulleted list is acceptable):

I am still developing a cross referencing table.

Feedback from students has been positive. A couple students were very fired up and appear to have enjoyed reading the experiences of others and have said it helped them in how they viewed their own experiences, not to mention motivation as they wrote their next situational for the chat room.

What course adjustments were made this semester/year, or are planned, based on the data analysis, student reactions, feedback from consultants, etc.?

The newer developments that have taken place are:

- 1- Most of the students that were involved in the internship activity would like to have a compiled copy of the situations. They only had an opportunity to read a portion of them (those that were posted in their individual chat group).
- 2- Several of the situationals will work well as part of the Cases and Trends course (capstone course) as well as the Restaurant Operational Management course.

To meet these two new opportunities I am working on compiling the situationals, giving each of them a title (The case of the...) that will give a little preview of the mini case topic, giving each a "star" rating (1 – 3 stars, representing the uniqueness of the situation), developing a cross referencing table that will allow an individual to identify the various departments within the hotel, resort, or restaurant that the situation relates to (that way if you desire to view situations that relate to the Marina, you can quickly identify which ones to view), plus last but not least, I am going to link each of the titles in the table of contents to the actual situation (this way when you identify a situation that you desire to read, say situation #65, you simply click on it and it will jump to that situation). Currently I would estimate that the compilation will be about 90+ pages long because there are 85 situations from my internship students. By the time I add next summers situationals to it and I hope the ones done by the management students, it will become very large (possibly 225+ pages). I may need to look at limiting the number, but for this initial project, I don't want to exclude any. At the moment, I believe I will develop it as a pdf file, but I am still investigating the best way to meet this need using technology. This will allow the final product to be made available to the students that did the internship, those that will be in the classes that I plan to use selected situationals in, as well as students that will do future internships as it will provide them many examples from previous students. I hope that this work may also serve as a small tool that may help change internship experiences on this campus and possibly other campuses as well.

Course redesign team members' definitions of what it means to take a scholarly approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Two immediate parts of the definition include 1) discussing and looking at theory so students have broader view of theory; and 2) theory application for study. It's important to understand different learning styles and make sure that multiple activities allow all students reasonable opportunity to gain from a class.

Course redesign team members' definitions of what it means to take a collaborative approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Sharing of thought, ideas, and styles so that students walk away better than with only one person's ideas.

**University of Minnesota
Bush Foundation Grant
Course Profiles**

Faculty Member or instructor: Behrooz Sedaie

Number of people involved in course redesign team (e.g., teaching specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational Technology consultants.) Behrooz Sedaie, Assistant Professor of Economics; David DeMuth, Associate Professor of Physics and Math, Science, and Technology Department Head

Campus: Crookston

Course Name: Econ 2101 Microeconomics (3 sections)

Number of Students Impacted by Course: 58 students Fall 2005 Semester

Student Learning/Teaching Issue: Promoting High-Quality Collaborative Learning

Do students learn more with a technology enhanced collaborative learning method than under a technology enhanced lecture system? What are the course content areas which students learn better with collaborative learning? Does collaborative learning increase student confidence in their learning and improve their attitude toward the course subject ?

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur: Data has been collected this Fall 2005. Data will continue to be collected in Spring 2006 from new students enrolled in the same course (Econ 2101 Microeconomics). Therefore, analysis will begin in Summer 2006.

Course Description: *(Please provide the course overview that appears in course bulletins)*

Econ 2101 Microeconomics Basic economic principles of pricing, resource allocation, and consumption. Supply/demand, cost of production, consumer behavior. Competition and influences of market structure.
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Description of Research Project: (Include specific research question/s. Also include the teaching and/or technology intervention strategies, e.g. learning style tests, new case studies, use of web forum, use of games)

Project Title:

“The Effect of Technology Enhanced Collaborative Learning on Student Achievement In College Level Introductory Microeconomics and Physics Courses”

Research Questions:

Is technology enhanced collaborative learning more effective in teaching introductory microeconomics and introductory physics than a technology enhanced lecture (non-collaborative) method? Are there any content areas that are more suitable for collaborative learning than others? Does collaborative learning result in higher student confidence in their learning and cause them to have a better attitude toward the course subject?

Technology Intervention:

A computer polling system which is part of UMC Web Tools has been in use in the Physics lecture since 2001. It is well developed and functional, although additional features are needed. I started developing and incorporating economic questions into the polling system.

Summary of Study Purpose:

The aim of this study is to measure gain in learning by comparing pre/post testing and overall grades for the two populations (collaborative learners versus non-collaborative learners). The fluency in the reasoning provided in each question will also provide a gauge.

Data Collection Techniques (e.g., surveys, CATs, focus groups, data analysis of online discussions):

Data Collection Techniques:

A web-based polling system is being used as the principal data acquisition device throughout this study. Questions are presented to students randomly throughout each lecture. Question types include multiple choice, true/false, survey, and ranking. Answers for the numerical based questions are randomized in some cases. Students also record their level of confidence in their solution and provide written reasoning.

During this first semester (F 2005), students were asked to work independently on the questions. In subsequent semesters (2), students will be asked to work in structured groups of three; they will be trained on collaborative learning techniques and assigned roles, for example, recorder/checker, time-keeper, and skeptic.

Data is collected in three ways: 1) Data on student knowledge of the course content at the beginning of the course and at the end of the course is being collected by administering pre and post standardized tests to students in each course in each semester. 2) Data on other variables that affect student learning (such as gender, ethnic background, and student effort) and on student confidence and attitude toward the course is being collected by surveying students using computer technology. 3) Other data, such as students' ACT scores, is being collected from the University records.

Data Analysis Methods:

In order to probe the effect of collaborative learning on student achievement and at the same time to control for the effect of other variables (such as student ability and effort) an educational production function will be specified in which student achievement will be the output and the variables influencing student learning (such as student ability, effort, and the teaching method, etc.) will be the inputs. Then the parameters of this educational production function will be estimated using regression analysis. Statistical significance of the estimated parameters will be verified by performing statistical tests of significance such as T tests and F tests.

For identifying course content categories that students learn better with collaborative learning test item analysis together with tables, charts, and matrices will be used. Tables and matrices will also be used to analyze the effect of collaborative learning on student confidence and attitude toward the course subject.

Summary of up to three key findings from data collected (bulleted list is acceptable):

The first phase of research, in which I treated my microeconomics students during this past Fall (2005) semester as the control group, has been completed successfully. The polling system has been adapted to the microeconomics course and has been incorporated into the classroom instruction.

The Test of Understanding in College Economics (TUCE) was successfully administered to my students this fall as both a pre-test and post-test. This test is used to measure students' knowledge of economics both at the beginning and at the end of each semester. Student's scores on pretest TUCE and on posttest TUCE are among the variables that will be used in the analysis of data. The pre-survey and post-survey questionnaires were also successfully administered to students in my microeconomics classes.

Data has not been analyzed yet, therefore, key findings not available to report.

What course adjustments were made this semester/year, or are planned, based on the data analysis, student reactions, feedback from consultants, etc.?

Adapting the web-based polling system to economics has been completed. By the end of December I had 81 multiple choice questions incorporated into the system. The use of the system in classroom has also been a success and students seem to like it.

Course redesign team members' definitions of what it means to take a scholarly approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Scholarly approach to teaching means to practice the principles of good teaching proven to be effective by scholarship of teaching, to follow and use the latest findings of research on teaching, and engage in research in order to find more effective ways of teaching in one's discipline.

Course redesign team members' definitions of what it means to take a collaborative approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Collaborative approach to teaching means the exchange of ideas with other teachers in order to learn and improve one's teaching skills, have discussion with other teachers about specific teaching issues, engage in scholarship of teaching with other teachers, and where appropriate, jointly teaching a course.

**University of Minnesota
Bush Foundation Grant
Course Profiles**

Faculty Member or instructor: Bilin P. Tsai

Number of people involved in course redesign team (e.g., teaching specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational Technology consultants) 1

Campus: UMD

Course Name: Chem 4632 Physical Chemistry

Number of Students Impacted by Course: 28

Student Learning/Teaching Issue: Teaching students to think explicitly (reflection) about their study habits and methods and then to modify them (self-regulation) to be more successful .

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur:

Course Description: *(Please provide the course overview that appears in course bulletins)*

Chem 4632. Physical Chemistry.
Properties of gases, liquids, and solutions; thermodynamics and equilibria;
electrochemistry; chemical kinetics; quantum mechanics; spectroscopy.

Description of Research Project: *(Include specific research question/s. Also include the teaching and/or technology intervention strategies, e.g. learning style tests, new case studies, use of web forum, use of games)*

I asked the students to fill out reflection surveys three times during the semester (see attached for Exam 1, Exam 2 and Quiz 5. These surveys asked students to describe how they studied for the exam or quiz and how they think they did. Then students reflected on their actual score and if they would change their study strategies.

Data Collection Techniques (e.g., surveys, CATs, focus groups, data analysis of online discussions):)

Three surveys.

Summary of up to three key findings from data collected (bulleted list is acceptable):

The students in this class are third year biochemistry majors. I observed them to be very motivated, competent, hard working and having a good attitude about the course.

Based on the surveys,

1. Most of the students had good study skills, realistically assessed their mastery of the material and were willing to spend time studying as needed.
2. The students with the lowest grades did not realistically assess their mastery. They thought they were doing better than they were (even after the exam); this possibly lead them to not study enough.
3. Homework is a focal point for studying.

What course adjustments were made this semester/year, or are planned, based on the data analysis, student reactions, feedback from consultants, etc.?

After the first reflection survey, I tried to emphasize concepts as well as problem solving. Next year, would ask more of the Exam 1 Reflection questions at the end of the semester. Also I would integrate shorter surveys more frequently during the semester.

Course redesign team members' definitions of what it means to take a scholarly approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

NA

Course redesign team members' definitions of what it means to take a collaborative approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

.NA

**University of Minnesota
Bush Foundation Grant
Course Profiles**

Faculty Member or instructor: Mark Harvey

Number of people involved in course redesign team (e.g., teaching specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational Technology consultants) 3

Campus: Duluth

Course Name: Introduction to Theatre Arts I (TH 1001)

Number of Students Impacted by Course: 65 per semester

Student Learning/Teaching Issue: Lack of group discussion

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur:

Not sure how to collect data

Course Description: *(Please provide the course overview that appears in course bulletins)*

Appreciation of theatre arts. Developing sensitivity and critical sophistication as articulate, discriminating theatre goers. Play viewing, play reading, critiques, and term projects.

Description of Research Project: *(Include specific research question/s. Also include the teaching and/or technology intervention strategies, e.g. learning style tests, new case studies, use of web forum, use of games)*

Course was moved to a hybrid structure with on line discussion forums.

Data Collection Techniques (e.g., surveys, CATs, focus groups, data analysis of online discussions):

End of the semester course evaluations

Summary of up to three key findings from data collected (bulleted list is acceptable):

- On line discussions have increased in class discussion activity.
- Students prefer the limited lecture style of course delivery.
- Students prefer guest speakers for the course.

What course adjustments were made this semester/year, or are planned, based on the data analysis, student reactions, feedback from consultants, etc.?

- .Provide as many guest speakers as possible.
- Move on line portion of course from Web Crossing to WebCT for better course information integration.

Course redesign team members' definitions of what it means to take a scholarly approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

.Mark Harvey, faculty
Bruce Reeves, tech support
Barb Johnson, tech support

Course redesign team members' definitions of what it means to take a collaborative approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

.Faculty explains to tech support what he is attempting to do with the course. Tech support provide instruction to accomplish specific tasks for the course instructor.

**University of Minnesota
Bush Foundation Grant
Course Profiles**

Faculty Member or instructor: Chad Pierson

Number of people involved in course redesign team (e.g., teaching specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational Technology consultants) none

Campus: UMD

Course Name: Finite Mathematics and an Introduction to Calculus (M 1160)

Number of Students Impacted by Course: 144 per semester

Student Learning/Teaching Issue: encouraging student involvement using personal response devices

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur:

Some data collected fall 05 more to be collected spring 06

Course Description: *(Please provide the course overview that appears in course bulletins)*

This course introduces the concepts of mathematics used in business, social sciences, and life sciences. It covers functions, matrices, determinants, graphical and algebraic methods for solving systems of linear equations and inequalities, an introduction to linear programming and an abbreviated treatment of calculus.

Description of Research Project: *(Include specific research question/s. Also include the teaching and/or technology intervention strategies, e.g. learning style tests, new case studies, use of web forum, use of games)*

What effect does a Personal Response System have on the course?
-Response Card/Turning Point personal response system

Data Collection Techniques *(e.g., surveys, CATs, focus groups, data analysis of online discussions):*

In class surveys using personal response systems (PRS).

Summary of up to three key findings from data collected (bulleted list is acceptable):

-71% of students surveyed liked the PRS as a learning tool for this course.
-56% of students surveyed felt that the PRS helped them retain material better and forced them to think about the subject matter as opposed to only 26% who used it only as a way to earn points.
-82% of student surveyed thought that PRS helped me to more effectively teach the course as a way of identifying points that I may need to emphasize more.

What course adjustments were made this semester/year, or are planned, based on the data analysis, student reactions, feedback from consultants, etc.?

I want to share more information about how the PRS benefits teaching and learning with the students to encourage a more positive outlook on in class participation earlier in the semester and implement a better plan to realize the effect that the PRs has on student performance.

Course redesign team members' definitions of what it means to take a scholarly approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Course redesign team members' definitions of what it means to take a collaborative approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

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**University of Minnesota
Bush Foundation Grant
Research Project Profiles**

Faculty Member: JAMES ALLERT Campus: UMD

Course Impacted by Research: CS-1511 and CS-1121

Description of Research Project: (Include specifics about your project such as your goals and objectives, the implementation timeline, etc.)

This project seeks to improve the learning environment in several large lecture classes by introducing a series of reflective opportunities that students can use to 1) come to understand themselves as learners, 2) state their initial goals and strategies for the course, 3) determine whether their strategy was effective after each exam and allow them to reformulate a new one based on dropping unproductive methods, 4) reflect back on the course as a whole and their growth as learners.

Evaluation Methods Used/Planned:

The four areas listed above are served by four measurement tools:

- 1) An online learning styles survey
- 2) A first week statement of goals and strategies
- 3) Post-exam reflective papers (one page, done after each exam)
- 4) A final reflective paper (one page)

Summary of data collected:

Soloman-Felder ILS Learning Styles survey
Statement of course goals and strategy
Midterm reflections
Final course reflection paper

What project adjustments were made this year based on the data analysis?

Multiple short, post-exam reflection opportunities were introduced into the course along with a final course reflection.

What project adjustments were made this year based on student reactions and feedback?

Group work was allowed for the first time in CS-1511. Also, a number of in-class activities were utilized (think-pair-share, jigsawing, simulations) that have not been utilized before.

How were collaboration and a scholarly approach to teaching used within your project?

There were many collaborative scholarly opportunities this semester. I had the opportunity to conduct an Instructional Development Service workshop for about 50 UMD faculty in October in which I shared my approach to learning styles and some of my data. I also participated in another IDS workshop in which many of the Bush grant researchers shared what they are learning. Finally, we (the Bush researchers) have had a number of opportunities to meet as a group of researchers to share our projects with one another and discuss issues related to learning.

**University of Minnesota
Bush Foundation Grant
Course Profiles**

Faculty Member or instructor: Jill D. Jenson

Number of people involved in course redesign team (e.g., teaching specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational Technology consultants) 4 Graduate Instructors observed the course but were not actively involved in the study.

Campus: UMD

Course Name: Comp 1120: College Writing (Freshman Composition)

Number of Students Impacted by Course: 28 in my course (but there are 30-35 sections of the course with approximately 25-28 students in each section both fall and spring semesters)

Student Learning/Teaching Issue: The issue I studied was how to help the students reflect more intentionally and more thoughtfully on what they learned, particularly in terms of writing reflection statements to accompany work uploaded into their ePortfolios

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur:

I collected data this year (and am still in the process of doing so).

Course Description: *(Please provide the course overview that appears in course bulletins)*

Instruction and practice in writing argumentative prose for academic situations with integrated work processing lab.

Description of Research Project: *(Include specific research question/s. Also include the teaching and/or technology intervention strategies, e.g. learning style tests, new case studies, use of web forum, use of games)*

My research project centered on these questions:

1. Can students be taught to write high quality reflection statements regarding their work for Comp 1120 through answering straight-forward survey questions about their writing process?
2. Will students be able to independently change the process they use for completing a writing assignment by identifying what that process was as well as what did and did not work well for them in using that process?
3. Will students make connections between the writing they do for a first-year writing course and the writing they will do in other college courses by reflecting on specific lessons learned by completing a particular assignment?

4. Will students make connections between the writing they do for a first-year writing course and the writing they will do beyond college by reflecting on specific lessons learned by completing a particular assignment?

We used ePortfolio, surveys, and written reflection statements in the course.

Data Collection Techniques (e.g., surveys, CATs, focus groups, data analysis of online discussions):

At several points during the semester, students filled out a survey after writing a paper but prior to getting it returned with a grade on it. They answered questions such as these: What was the most important goal you had for this assignment? In preparing to write this paper, how much of the assigned reading did you do? How did you approach completing the draft you brought for peer review? They also completed questions that dealt with the extent to which they revised the paper, the extent to which they had been reading the teacher's as well as a peer's comments on the paper, the effort put into getting questions answered prior to submitting the paper, and the number of points (i.e., the grade) they predicted they would get on the paper. After they received the graded papers, they were then asked to write about what they learned in terms of the assigned material, what they learned about the process they each used to complete the assignment, and what they might keep or change in that process for future assignments.

Summary of up to three key findings from data collected (bulleted list is acceptable):

I am still in the process of collecting data and have not yet begun to analyze it yet; however, results seem to point to these preliminary findings:

- Most students are overly optimistic as to the grade they believe they will receive on any given assignment.
- While most students seem to be able to make a connection between the process they used and the grade they ultimately received on a paper as well as ways that process could be improved for subsequent papers, those alterations in the process were often not made.
- Students' reflection statements as recorded in ePortfolio are of much higher quality than statements written by students prior to the time when the surveys soliciting such reflection were used.

What course adjustments were made this semester/year, or are planned, based on the data analysis, student reactions, feedback from consultants, etc.?

While it is still early for me to predict what changes will be made, I anticipate some changes in the surveys themselves as well as in the timing of when they are given. I may also make some changes in regard to ways written commentary is done on papers.

Course redesign team members' definitions of what it means to take a scholarly approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

NA

Course redesign team members' definitions of what it means to take a collaborative approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

NA

**University of Minnesota
Bush Foundation Grant
Research Project Profiles**

Faculty Member: Duane Millslage Campus: UMD

Course Impacted by Research: Fall/2005 Exercise Adherence & Psychology of Injured Athlete; Spring 2006 Motor Learning & Development

Description of Research Project: *(Include specifics about your project such as student learning issue being addressed, your goals and objectives, the implementation timeline, etc.)*

Introduction

The basic assumption of self-regulation are:

1. Academic success and achievement is related to the student's degree of self-regulation.
2. Most learners acquire particular strategies to manage their own cognitive processes. Instructor-imposed strategies that are not perceived by the student as important and/or are not integrated in learning will not positively affect learning (e.g., lab not related to the principles covered in class or reading).
3. Successfully self-regulated learners seem to have common metacognitive strategies that are not held by unsuccessful self-regulated learner

What are metacognitive strategies?

“Learning strategies designed to do the right thing with minimal effort.” (Zimmerman, 2004). Learning strategies that are under the student's control. “Tools” that students use to become highly successful self-regulated learners.

The purposes of my project involves three steps:

Step 1 was to determine what common metacognitive strategies are used by my students (Spring of 2005).

Step 2 is an in-depth investigation of student differences in their use of the common metacognitive strategies (Fall of 2005)

Step 3 Will be to use Zimmerman's social cognitive model of self-regulation to promote self-regulation in my students. (Spring and Fall of 2006)

Evaluation Methods Used/Planned:

During Step 1:

An open ended inventory was developed to identify the common metacognitive strategies used by my student across 3 courses involves 76 students.

In Step 2:

Two inventories were developed that assessed the student use of the metacognitive strategies in one course throughout the fall semester.

In Step 3: A microanalytical approach will be adopted to assess student learning involving a three phase self regulation model developed by Zimmerman. Assessment will be inventories and class discussions.

Forethought Phase

- Use of goals to motivate the students
- Strategy choice & student success

Performance Control Phase

- Use of strategies & Performance

Self-reflection Phase

- Students self-evaluate their strategies and reasons for success or failure
- Reflection in teaching

Summary of key findings from data collected (bulleted list is acceptable):

Step 1: Finding about the common metacognitive strategies used by students across 3 undergraduate courses.

The common metacognitive strategies identified were:

- Note taking
- Power point presentations
- Reading & comprehension
- Study habits
- Goal setting
- Study guide

Step 2: Assess how the students used the metacognitive strategies across one semester.

A. Notetaking Strategy

- Used as one of the primary strategies for test preparation.
- Referred to them while reading the assigned materials.
- Used them to clarify the readings.

B. Reading and Comprehension

- 75% of the students read the assigned materials.
- 75% read the assigned materials after the lecture was given.
- While reading 80% underlined key sentences and phrases while reading.
- While reading 80% looked for key definitions while reading.
- 45% of the students only read the material once.
- Average level of comprehension of reading was rated as 7 out of 10.
- 80% of the students read in a quiet place, in their bedroom, in the evening.
- 60% of the students reported reading with time out breaks.

Summary of key findings from data collected (bulleted list is acceptable): (Continued)

C. Use of a study guide

- 95% used the study guide to prepare for the upcoming test
- They used the study guide to get a better grade on the test
- 80% of the students did not memorize study guide answers to get a better grade on the test.
- 80% found the answers to the study guide by reading the assigned materials and by reviewing the power point presentations.

D. Study Habits

- All the students studied primarily at home.
- 80% of the student studied 8-10 hours for a written test.
- 55% of the students studied in the evening.
- 50% used the power points presentations and study guide as the primary resources in preparing for the test

E. Planning & Goal Setting

- Only 35% student set daily or weekly study goals for the test.
- 80% of the students indicated that taking good notes, use of the study guide, and reviewing the notes frequently were their primary goals.
- 85% of the student major planning for next test was to set aside time in their schedule to study was their primary plan.

Examining the student's outcome grade (A&B = successful; D & Fs = unsuccessful) the following profile was indicated:

Successful Students

Used notes as key points

Reviewed notes then read readings

Reviewed notes weekly

Read all the readings at least twice

Underlined key phases and terms while reading

Completed the study guide

Did not memorize

Study time 8-10 hours

Studied at home, study groups, and alone.

Set routine to study in my schedule

Studied frequently

Felt he or she could do better on the next test.

High perceived control

Major strategy for next test was to change how they will read the assigned reading.

Unsuccessful Students

Studied the notes as primary strategy

Did not read the assigned readings.

Read the study guide only once before the test.

Study time 8-10 hours.

Did not set daily study goals.

Blamed the test for the bad grade.

Primary strategy for next test is study sooner, set aside time to study.

Grade on the test was perceived as negative.

Did compare their grade to others.

Do not feel they have control over their grade.

Major strategy for next test was to study longer.

Summary of key findings from data collected (bulleted list is acceptable): (Continued)

What was interesting was that the unsuccessful student spent the same time studying for the test when compared to the successful student. The unsuccessful student planned to study more where as the successful student is willing to alter their strategies in reading the assigned materials. The unsuccessful student planning strategy is flawed because more in not better where as becoming more efficient as in the use of the metacognitive strategies would be a better plan. Also, the unsuccessful student attributed their failure to unstable factors such as task difficulty where as successful student contributed their success was due their ability.

In the next phase of this project, I will attempt to due intervention training with the student by making them aware that specific metacognitvie strategies if uses promotes learning not only in my class but others.

What project adjustments were made this semester/year based on the data analysis, student reactions, feedback from consultants, etc.?

The consultant that came last fall semester provided clarity about the Bush Grant outcome criteria. From that meeting, I became more focused on collaboration and outcomes of my project.

How was collaboration used within your project?

The first year cohort members have shared their project with bi-monthly meetings. Discussion have resulted in allot of self-reflection. We gain an insight in how self-regulation and reflective teaching can be approached from many perspectives.

How was a scholarly approach to teaching used within your project? (i.e. research collected for your research project, presentations to faculty or at conferences, articles written, etc.)

I presented my project in the fall 2005 Busch seminar to the UMD community that included other bush fellows, faculty, and administrators.

My project has made me more self-aware of what metacognitive strategies student use to become successful students, and how successful and unsuccessful students use them. Also, their feedback during the semester has reinforced the importance of how use the metacognitive strategies in enhancing student learning.

**University of Minnesota
Bush Foundation Grant
Research Project Profiles**

Faculty Member: A. Maureen O'Brien

Campus: University of Minnesota, Duluth

Course Impacted by Research: Econ 2030. Applied Statistics for Business and Economics

Description of Research Project: (Include specifics about your project such as student learning issue being addressed, your goals and objectives, the implementation timeline, etc.)

Background: Fall, 2004 I attended an IDS workshop in which the GAMES survey was introduced. Students typically have difficulty on the second exam given in our statistics course. After that test I administered the GAMES survey. A striking result to me was that very few students indicated that they tried to make the connections between concepts. Understanding the relationship between concepts is a key to understanding statistics. I wanted to find some means to help students reflect on the matter being covered and how it fits into the bigger picture. The tool I settled on was concept maps. After some investigation I discovered that concept maps have been used increasingly in science education and to some extent in statistics. According to various sources, concept maps can be used to:

- Develop an understanding of a body of knowledge
- Explore new information and relationships
- Access prior knowledge
- Share knowledge and information generated

Throughout the course I developed concepts maps as we were reviewing old material and introducing new material. After presenting the students with several examples they were asked to develop concept maps as a part of a cooperative learning exercise on hypothesis testing. The students were divided into random groups and asked to develop a concept map illustrated the concepts involved in hypothesis testing. After the students had completed a rough draft of their maps one student from each group was selected at random to move to another group to explain their own group map and received feedback. Then each group was allowed time to revise their maps based on the feedback received. The maps were then displayed for the whole class to view. There was a vote taken to determine which concept map was most useful in learning the material.

Evaluation Methods Used/Planned:

The evaluation of this project is threefold. First, the concept maps were reviewed to evaluate the thoroughness, the appropriateness of the concepts included and the complexity or depth of the analysis. Second, after completing the exercise the students were given a quiz on hypothesis testing. Students had been told that there would be bonus points for any group in which all members scored at least 80% on the quiz. Third, on the final exam the students will be asked to explain the idea behind hypothesis testing to a friend. Often students can memorize the mechanics of solving a problem without necessarily understanding what they are doing or why. My goal is that, through reflection, students will have developed a deeper understanding of the material. It is by internalizing the material that students will retain it for a longer period. This is important because concepts developed in this course will be used in their upper division course but they may not see this material again for a year or so.

Summary of key findings from data collected (bulleted list is acceptable):

General observations:

- There was a correlation between the level of complexity in the concept maps developed by the groups and individual performance on the post exercise quiz. The two groups with the most detailed concept maps were also the two groups that received the bonus points on the quiz. The group with the least detailed map also had the lowest group average on the quiz.
- Although there was variability among the groups in terms of quiz scores, overall the class average was higher than similar quizzes given in class. The main differences were that other quizzes were announced in advance and were often open book. This quiz was closed-book and students were not given any notice in advance.

What project adjustments were made this semester/year based on the data analysis, student reactions, feedback from consultants, etc.?

This was a formal exercise that was planned for towards the end of the term which did not allow for much in the way of adjustments. In the future I would have students develop concept maps much earlier in the term and keep building on them as we progress through the material.

I think that concept maps are a useful tool for students to use as they access prior knowledge and explore new information. In class, we did discuss other uses of concepts maps such as outlining term papers or answering compare/contrast questions. My hope is that students will see this as a tool that can be used in all of their classes as they pursue higher-ordered learning. It might have been helpful if I had asked students how they might use concept maps in the future or even if they planned to use this tool again.

How was collaboration used within your project?

The main collaboration was among student in the group project. I must say that one of the most satisfying things for me was to when I listened in on the conversations as representatives of the groups reported on their map to other groups and received feedback. The students were teaching themselves and each other and did it well. I think a number of students gained a great deal of confidence in themselves and their understanding of the material through this process. More students responded to questions posed in class after the exercise than had been the case prior to the exercise.

I have also been collaborating with a colleague who also teaches the course. He plans to introduce a similar approach in his sections of statistics next term making revisions based on what I learned this term.

How was a scholarly approach to teaching used within your project? (i.e. research collected for your research project, presentations to faculty or at conferences, articles written, etc.)

As noted above, the plan is for a colleague to expand on this project next term (I am not teaching the course). We are planning a more detailed evaluation process and hope to present our results at a conference next summer. Ideally, an article will be an outcome of our efforts.

**University of Minnesota
Bush Foundation Grant
Research Project Profiles**

Faculty Member: Lynn Bye Campus: Duluth

Course Impacted by Research: SW8331 Organization and Community Practice

Description of Research Project: (Include specifics about your project such as your goals and objectives, the implementation timeline, etc.)

The objective of my study is to gain a better understanding of the impact of reflection using web-x discussion on: 1) student learning, and 2) student satisfaction with the course. The hypothesis is that students who share reflection papers with each other using the web-x discussion format will report that they learned more and are more satisfied with the course than students who simply turn written reflections into me for feedback.

Students in the control group will be asked to complete weekly written reflections on the course reading which they will turn into me at the start of each class session. I will provide the control group with individual written feedback on each of their reflection papers. The experimental group will be asked to write a written reflection on the reading but rather than turning the papers into me they will post their papers in web-x groups of three. Students in each group will be asked to read and respond to the other reflection papers posted in their group of three. Students in the experimental group will post their reflection papers one week and then use the following week to post their responses to each other's reflection paper. This means that students in the experimental group will be posting their reflection papers every other week and their responses to the posted papers on the alternate weeks.

The study was implemented the first day of fall semester 2005 and will be completed on the last day of the same semester.

Evaluation Methods Used/Planned:

All students agreed to participate in my study. The research design is experimental. This fall semester I am teaching two sections of the same course. To select the experimental group I randomly selected one of the course sections out of a hat. The other section served as the control group. All students in both section of the course take a pre (the first day of class) and post (the last day of class) self assessment regarding how much they feel they know about specific course content. At the end of the semester course evaluations will be used to evaluate differences in student satisfaction between the experimental and control groups. In addition, students in both sections were asked to generate a list of what they hoped to gain from the course. At midterm and again at the end of the semester students will be asked to rate on a scale of one to ten the extent to which each hope had been accomplished.

Summary of data collected:

At this point (11-28-05) I have collected pre-test data on students self assessment regarding how much they feel they know about specific course content. I have also collected data on student hopes and midterm data on the extent to which those hopes are being accomplished. Similar data will be collected the last day of the course in each section.

What project adjustments were made this year based on the data analysis?

At midterm when I discovered that the hopes of the students in one of my sections (the non-web-discussion section) rated the accomplishment of their hopes lower than the other section I held a class discussion about what we could do to increase the likelihood of accomplishing their hopes for this course. Students generated several suggestions which I promptly implemented including guest speakers who could bring insight and information on specific issues related to the course content.

What project adjustments were made this year based on student reactions and feedback?

The answer to this question is the same at the previous answer.

How were collaboration and a scholarly approach to teaching used within your project?

Members of the UMD Bush Grant were very helpful in the initial design of my research project and they gave valuable guidance as I process the midterm results. They raised questions I had not thought of and made suggestions for ways to tighten my study. The meetings with my Bush Grant colleagues gave me the opportunity to stop and critically reflect upon what I was trying to accomplish in the two sections of my SW8331 course and how best to assess outcomes. They also provided me with literature and research articles on reflective and self-directed learning that have been very helpful to me. I am certain that without this collaboration that I would not have undertaken this study this semester.

**University of Minnesota
Bush Foundation Grant
Research Project Profiles**

Faculty Member: Carmen Latterell

Campus: UMD

Course Impacted by Research: Stat 3611: Introduction to Probability and Statistics

Description of Research Project: (Include specifics about your project such as your goals and objectives, the implementation timeline, etc.)

Goal One: Increase Study Skills

First Day: I give a list of study tips.

Read the textbook.

Have a study plan (give mine: attend the lecture, read the corresponding text, reread the class notes, work exercises, study--I would do this between each lecture).

Work exercises.

Go back over notes.

Attend all classes.

Then ask: What are yours?

Second Week: Assignment: How do you study for mathematics courses? Describe in detail what you do.

Third Week: Assignment: How should you study for mathematics courses? Describe in detail what you could do.

First Test: After the first test, they must answer questions about how they did on the test.

How do you think you did on this test?

How did you study for this test?

Did that studying work out?

If not, how could you study differently?

Return First Test: They must answer the questions again.

How did you do on this test?

How did you study for the test?

Did that studying work out?

If not, how could you study differently?

One Week After Return of First Test: Assignment: Reflect (in writing) on how your studying helped or didn't help and how it could be changed.

Second Test: Repeat Above Process.

Third Test: Do not repeat above process. However, we use some of the class period to discuss how each person studies, how each person wishes he/she studied, and how

he/she might change. Warn students ahead of time that each will be expected to address this issue for at least 5 minutes.

Fourteenth Week: Assignment: Reflect (in writing) on how your study skills have changed and how you might still change them. In particular, did this study skill emphasis do any good?

Goal Two: Increase Problem-solving Skills

Every Thursday, have students solve problems in class, while modeling their problem-solving skills.

Throughout the semester, I will model my problem-solving skills as I solve problems.

Fourth Week: Assignment: Write a paper that reflects on your problem-solving skills and on how to improve your problem-solving skills.

Twelfth Week: Assignment: Write a paper that reflects on how your problem-solving skills have changed and on how they could still be improved. In particular, did it do any good to have all this attention to problem-solving skills?

Evaluation Methods Used/Planned:

Quantitatively:

- Compare test scores this year with other years.
- Compare test scores for students across the semester.

Qualitatively:

- Compare problem-solving skills for students across the semester.
- Analyze the papers from the students.

Summary of data collected:

I have collected all data as described above (that is, I've kept copies of all assignments collected). I have the logs. And I have notes that I wrote after doing things in class (a personal set of journal notes that is more detailed than the logs).

What project adjustments were made this year based on the data analysis?

I have not begun the data analysis.

What project adjustments were made this year based on student reactions and feedback?

I have adjusted the number of problems that students must work on the board.

How were collaboration and a scholarly approach to teaching used within your project?

My PhD is in mathematics education. Thus, I have a hard time separating scholarly approaches to teaching from my every day approach to teaching. I certainly gained ideas by being part of the Bush Group, however.

**University of Minnesota
Bush Foundation Grant
Research Project Profiles**

Faculty Member or Instructor: Pam Solvie

Number of people involved in course redesign team (e.g., teaching, specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational, Technology consultants) 4 students, 3 faculty, 2 professional staff (IT Consulting Group)

Campus: UMM

Course Name: Elementary Education 3102-Literacy and Language Instruction in the Elementary School

Number of Students Impacted by Course thirty one students

Student Learning/Teaching Issue: Technology Integration to Support Constructivist and Collaborative Learning

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur:

Course Description: *(Please provide the course overview that appears in course bulletins)*

ELED 3102 – Literacy and Language Instruction in the Elementary School Beginning and advanced reading instruction in the elementary grades. Includes study of theory, issues, literacy frameworks, assessment, materials, organization, and instructional strategies to scaffold children's literacy development.
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Description of Research Project: (Include specifics about your project such as your goals and objectives, the implementation timeline, etc.)

Technology Integration to Support Constructivist and Collaborative Learning

Feeling confident about the content of my courses, I want to integrate technology to support constructivist and collaborative learning experiences within courses in a way that will support the content. I would like to use meaning-making or visualization tools to scaffold and clarify concepts during class instruction, changing delivery from formal lecture formats. I would like to investigate and use technology tools during class presentations to communicate in more effective ways by engaging students with information. I believe students will benefit from the inclusion of visual, audio, and spatial modes into what has been mainly a linguistic framework involving written and spoken language.

Additionally I envision using technology as a collaboration tool to communicate with students more effectively outside of class as well, which may mean access to and use of the visualization tools used within class sessions on course web pages along with tools to react to, reflect on, and share understandings about course content.

Activities/Work completed:

- I have reviewed the learning style resources/articles Molly has posted on the grant website and on my own project resource site. I have made suggestions for further articles, read selected articles, and have searched out further information on a number of learning style models. I have selected those that fit my project best to use as directives in my project and course work. I have reviewed video clips and suggested a possible organization of the clips. Matt has developed a plan for capturing and accessing these clips. I have reviewed conceptual mapping software with Aaron and chosen the software I will make use of to construct conceptual maps in my project work. I have learned about Flash animation and how to proceed with this part of my project using tutorials created by Aaron for this. I have applied for and received approval from The IRB: Human Subjects Committee to begin research as described in my IRB application.
- This month I have met with Professors from Augsburg to discuss the MN Statute regarding reading instruction in that the course my project focuses on involves reading instruction. Learning more about the new legislative requirements, I have begun to revise my syllabus to address the statute as well as my Bush Grant goals. With Molly and Matt's work I have multiple video clips to incorporate into my course. Molly and Matt have found a way to make these very accessible for instruction. I have had my webpage moved to the www server so that I can make use of a discussion board. Aaron has spent considerable time helping me with the discussion board and has helped me set up and practice use of the VNC connection in the classroom where I will be teaching (so that I can make use of cooperative learning groups and technology). I have reviewed Moodle and would like to learn more about it. I have made use of project resources Molly has posted on use of PowerPoint to gain more information on effective use of PP to engage learners. I have practiced with some features of PP that I hope will engage my students in learning.

Scholarly approach:

- I researched, read, and reread information on creation of a constructivist learning environment. I also researched and reread information on a variety of learning style models before I settled on use of Kolb's theory to guide my work in this project. I experimented with technology tools, selecting those that would benefit students' understanding of course content. I benefited greatly from the resources provided and posted on the TEL webpage for all of the projects.
- Collaboration was important and beneficial to work on my project. Learning about technology tools, learning how to incorporate these tools into my course, and sharing ideas about them through E-mail correspondence, at workshops, and through desk-side assistance is evidence of this collaborative work. I learned more about Flash animation, wikis, discussion boards, BreezeLive and BreezePresenter as a result of this collaboration. I was able to present information to and lead discussion on learning styles with other project participants at a summer workshop as well.
- A very good example of how collaboration and a scholarly approach to teaching were important to my project is the use of a wiki. A number of project participants were interested in tools that might allow use of a wiki in our courses. Discussion with others, research on wiki tools by the grant workers, and experimentation with some possibilities led to my use of a wiki assignment to be completed through our course discussion board. The assignment proved to be beneficial in a number of ways both for developing understanding of course content and for effective, efficient use of technology tools.

Successes/Challenges Encountered:

- All of the above activities have been successful for me.
- All of the above have been successful, but planned work is not yet completed on these components at this point. I am very excited about use of my discussion board as version of a 'wiki'! This will serve the purposes I have for use of a wiki but will also be secure. A success for me continues to be the excellent help Aaron, Molly, and Matt are providing.
- Time continues to be a challenge. I understand how much time is going to be required to complete the activities that are a part of my project in preparation for implementation during fall semester.
- I need an SQL data base in order to set up my discussion board in the manner I would like it set up. I hope this can be taken care of this coming week. I would like to learn more about Moodle and investigate further its uses for the future.

Assessment/Evaluation of the project:

- Data was collected in two sections of Elementary Education 3102. Students signed permission forms as per Institutional Review Board procedures, agreeing to formally participate in this study and have their work reviewed. The data I collected for my project includes information on students' learning styles, student reflections on course assignments and class presentations, student participation on the course discussion board, and assessment of student work on four examinations and two course projects. Interview data will be added to this when student interviews are completed at the beginning of spring semester.
- Thirty one students participated in this study.
- Tools used to collect this data included a learning style inventory (a version of Kolb's learning style inventory); two course questionnaires (one completed at midterm and one completed at the end of the semester), reflection logs, discussion board posts, essay examinations, and project rubrics. Random interviews will also be conducted. These are planned for the beginning of spring semester.
- The data will be evaluated to look for connections between technology tools used and student learning over time in Elementary Education 3102. Careful analysis will be made to determine if the technology tools used proved beneficial to particular students in terms of their learning styles. Both quantitative and qualitative analysis will be done. Statistical analysis will be done using information from the two course questionnaires that made use of a five point Likert scale. Statistical analysis will also be done in review of students' examination, discussion board posts, and course project scores based on learning style. Qualitative analysis will be used to look carefully at students' written reflections for themes that may emerge in terms of learning styles and technology tools that supported or did not support students' learning as evidenced in the self report documents.
- I used the student questionnaires that were completed at midterm to make adjustments in class presentations as well as course assignments. I spoke with students in class, about the results of the questionnaire. As a result of the feedback provided on the questionnaire I reduced the reading load, worked to clarify assignments, worked to be more explicit about the purpose of class activities, and explained use of technology tools. I also changed the questions used as prompts for the discussion board to encourage reflection, comprehension, and engagement. I increased the use of video clips in class presentations and changed the way I made use of these clips.
- As a result of the course questionnaire completed at midterm I also worked to ensure that all four of Kolb's stages of the learning cycle were in place in my class presentations and course assignments.
- These adjustments were acknowledged by my students who indicated appreciation. I recognize that further work is still needed. Though data analysis is not complete I am already noting changes that would benefit course content delivery and student engagement in learning for the upcoming session of this course.

Assessment/Evaluation of the project: (Continued)

- Students indicated they benefited from explicit descriptions, modeling, and examples. As a result I worked to improve the way I made use of video clips and analysis of these in class. I showed shorter clips to point out specific theories and instructional strategies. I worked to link these to reading assignments and class discussions. Using Kolb's learning cycle, I found showing these brief clips and or modeling at the beginning of class helped students 'grasp' the information. Discussion, role play, and writing helped students to 'transform' the experience.
- Students indicated they benefited from instruction that directly explained the course reading assignments. Students expressed some frustration in being expected to read and discuss these reading assignments in class. They indicated they did not enjoy learning using a constructivist approach. This was not clearly stated but was evidenced in class discussion following completion of the course questionnaire and was evidenced from observations of their approaches in completing class assignments and activities. As a result I placed much less attention on creating a constructivist learning environment and focused more attention on how I might use technology tools in the course assignments and class presentations more explicitly to support the four learning styles and the four-stage model as identified by Kolb.
- Students indicated they appreciated the resources available on the course webpage and used these to follow up on class activities. As a result I added further pieces used in class for their use outside of class. Further adjustments are needed in how these resources might best be organized and accessed.
- I worked to be more clear about the learning styles (four-type definition of Kolb's model) the technology tools, class assignments, and class activities were designed to address. I hoped this would help students see value in the varied tools used and choose those that would help them learn effectively and efficiently. More work is needed to help students make use of their learning style information both to make these choices and to see how various tools support understanding of content.

Feedback received:

I have received very positive feedback from Scott, Matt, Aaron, and Molly as well as others on the Consultative Committee.

Other Notes:

The assistance and expertise provided has been wonderful!

Additional Assistance needed to advance work:

- I would like help locating Kolb Learning Style Inventories that might be less costly than \$85/10. Is there a source that might provide them for less money? I believe I will need to meet with Aaron regarding Flash again. I would also like to begin work on setting up the discussion board, and creation of a Wiki. Can I create a spot for these on my course webpage or link to them from there? I have an idea for how these might look. Do they have to be structured in a specific manner?
- Final setup of the discussion board and assistance in reviewing administration of it. Continued work with Flash.

**University of Minnesota
Bush Foundation Grant
Research Project Profiles**

Faculty Member or Instructor: Becca Gercken-Hawkins

Number of people involved in course redesign team (e.g., teaching, specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational, Technology consultants) 4 students, 3 faculty, 2 professional staff (IT Consulting Group)

Campus: UMM

Course Name: ENG 4017 Tricksters and Conjurers in Native American and African American Literature

Number of Students Impacted by Course twelve students

Student Learning/Teaching Issue: Forum for English Seminars

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur: semester, year

Course Description: *(Please provide the course overview that appears in course bulletins)*

ENGL 4017 - Research Seminar: Tricksters-Conjurers in Native American and African American Literature (HDIV) Study of tricksters and conjurers in Native American and African American literature, in particular their ability to maintain traditional practices and subvert the dominant culture and imposed cultural norms. Special attention given to cultural and historical contexts and questions of power, identity, cultural difference, and assimilation.

Description of Research Project: (Include specifics about your project such as your goals and objectives, the implementation timeline, etc.)

This project seeks to enhance student learning through the development of a web forum for all English seminars. Our discipline requires all majors to take a research seminar. This course is designed to foster not only written research, but also dialogue regarding primary and secondary readings and student-generated research. Because discussion is such a vital part of the class, enrollment is capped at 12 students. While the small class size does aid in discussion, we believe that a web forum will dramatically enhance the debate and thus the learning that takes place in our research seminars. The primary enhancement will be in the opportunity for students to continue class discussion outside of the seminar. Students will have time to respond to comments made in class, to discuss concepts and texts in greater detail, and in general to expand the conversation beyond class time constraints. In addition, this discussion format benefits those students who feel less comfortable speaking in class and will lead to a more balanced discussion that allows all students an equal opportunity to participate.

We are requesting that two permanent forums be established on the English Discipline Website. Each semester these forums could be tailored to the two Research Seminars offered, giving faculty with little or no experience in web-based teaching practices the opportunity to make IT-supported learning part of their pedagogy.

This project will benefit the entire English discipline and its majors. However, we are including only the names of myself, Gretchen Minton, and Janet Schrunk Ericksen as the core faculty for this project because Gretchen Minton and I are teaching Research Seminars in the fall and Janet Shrunken-Ericksen is the discipline coordinator.

Activities/Work completed:

- So far Janet and I have only done a brief review of what the forums look like, how we and our students can access them, etc. Because our project is entirely about the forums, we are very much in a holding pattern until we generate information and feedback from our students when classes begin. We are planning to arrange a training session this week to further familiarize ourselves with the forum options.
- Starting with the second week of classes, I and/or one of my students posts a new topic for discussion--this is the base requirement for participation in the web forum.

Scholarly approach:

Successes/Challenges encountered:

- So far my students have done a great job responding to posts and participation seems to be fairly even among the students. I am pleased that several students have taken the web forum beyond the base course requirement of responding to at least 1 specific post/topic generated by me or a student. Students seem to expand the topic beyond its origins in a way we often can't accommodate in class time.
- It is not a challenge or a disappointment, but it has been a bit difficult to adequately participate in TEL activities thus far since we need student input in the forums before we really have a lot to say. I have never used a web forum before, so I will be learning along with my students in the fall and will have much more to say about this project once classes get going.
- I struggle with finding topics for the forum that are different from what I want to cover in class and also I am not sure how much to pull forum comments into class discussion. Sometimes if there's a thread that seemed fruitful but didn't get far or only a few students commented, I do bring that into class discussion.

Assessment/Evaluation of the project:

- For my course, Tricksters and Conjurers in Native American and African American Literature, student response was generally positive.
- Students expressed a desire to have a set number of responses over the course of the semester rather than a weekly participation requirement.
- Students found the software (SMF) easy to use.
- Students especially liked the forum as a communication tool as they neared the end of the semester and the due date of their large research projects.
- In terms of evaluating student response to the forum, I had my students take surveys at the beginning and end of the semester. The first indicated their familiarity and concerns with a web forum as part of the course. The second gave students the opportunity to evaluate the forums after a semester of use.
- In terms of evaluating student participation, I will consider the quantity and quality of posts on the forum.
- I had hoped that students who had limited participation in class discussion would participate more actively on the forum; I saw this result from 50% of the students. For the other 50%, their participation level on the forum was similar to their participation level in class.
- It is still too early in our project to make any department-wide adjustments.

Feedback received:

- I have gotten helpful info from both Gretchen Minton and Nic McPhee regarding strategies for making the forums a valuable and workable part of class. Both had recommendations for ensuring appropriate and adequate student participation and methods for evaluating participation.
- At the suggestion of Chris Scruton, I surveyed my students on the first day of class about any previous experience with web forums. I really appreciated the suggestion because the feedback I got from my students helped me shape the way I presented our class forum to them. About half of my students had previous experience, mostly with Web CT which they had SERIOUS problems with. The issue seemed to be primarily format rather than the actual concept of a web discussion, so I focused on how different our software was from Web CT and emphasized that we had chosen software specifically to counter many of the problems associated with Web CT. Thus far students are extremely pleased with our software--they find it easy to negotiate the options and access what they need. I think my students are doing a great job of extending our class discussion via the forum.

Additional Assistance needed to advance work:

The forums need to be password protected and we need to address FERPA issues. The TEL group at the Twin Cities Campus has raised concerns over student privacy.

**University of Minnesota
Bush Foundation Grant
Research Project Profiles**

Faculty Member or Instructor: Gretchen Minton

Number of people involved in course redesign team (e.g., teaching, specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational, Technology consultants) 4 students, 3 faculty, 2 professional staff (IT Consulting Group)

Campus: UMM

Course Name: ENGL 4019 - Research Seminar: Rewriting Shakespeare for Film and Stage (HUM)

Number of Students Impacted by Course twelve students

Student Learning/Teaching Issue: Forum for English Seminars

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur: Spring 2006

Course Description: *(Please provide the course overview that appears in course bulletins)*

ENGL 4019 - Research Seminar: Rewriting Shakespeare for Film and Stage (HUM)
Study of plays and films from the Restoration until today that involves a rewriting or revision of a Shakespearean play. Through detailed analysis of these revisions, students explore questions about the authenticity of the Shakespearean "original" and how people from other time periods have appropriated his plays for their own purposes.

Description of Research Project: (Include specifics about your project such as your goals and objectives, the implementation timeline, etc.)

This project seeks to enhance student learning through the development of a web forum for all English seminars. Our discipline requires all majors to take a research seminar. This course is designed to foster not only written research, but also dialogue regarding primary and secondary readings and student-generated research. Because discussion is such a vital part of the class, enrollment is capped at 12 students. While the small class size does aid in discussion, we believe that a web forum will dramatically enhance the debate and thus the learning that takes place in our research seminars. The primary enhancement will be in the opportunity for students to continue class discussion outside of the seminar. Students will have time to respond to comments made in class, to discuss concepts and texts in greater detail, and in general to expand the conversation beyond class time constraints. In addition, this discussion format benefits those students who feel less comfortable speaking in class and will lead to a more balanced discussion that allows all students an equal opportunity to participate.

We are requesting that two permanent forums be established on the English Discipline Website. Each semester these forums could be tailored to the two Research Seminars offered, giving faculty with little or no experience in web-based teaching practices the opportunity to make IT-supported learning part of their pedagogy.

This project will benefit the entire English discipline and its majors. However, we are including only the names of myself, Gretchen Minton, and Janet Schrunk Ericksen as the core faculty for this project because Gretchen Minton and I are teaching Research Seminars in the fall and Janet Shrunck-Ericksen is the discipline coordinator.

Activities/Work completed:

Training session with Scott and Aaron on Tuesday to set up the web discussion forum for my fall class.

Scholarly approach:

Successes/Challenges encountered:

- Last year I began implementing a web forum for my seminar, and found it very useful, but was unfamiliar enough with the technology to believe that I did not use it in the best way. I am looking forward to trying again with more assistance, hoping for a more thorough inclusion of it in my class this year.
- Because I have just returned from a summer away, I have not yet been able to devote the needed time to this project, and have not been able to complete the requested reflections.

Assessment/Evaluation of the project:

Feedback received:

My colleagues are generally excited about this project. Last year my students were somewhat resistant to the web forum as a major component of the class, so I am hoping for more success this year.

Additional Assistance needed to advance work:

- More short training sessions that give me a sense of the range of options available for this project.

**University of Minnesota
Bush Foundation Grant
Research Project Profiles**

Faculty Member or Instructor: Janet Ericksen

Number of people involved in course redesign team (e.g., teaching, specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational, Technology consultants) 4 students, 3 faculty, 2 professional staff (IT Consulting Group)

Campus: UMM

Course Name: ENGL 4004 - Research Seminar: Old English Literature and Language (HUM)

Number of Students Impacted by Course Twelve Students

Student Learning/Teaching Issue: Forum for English Seminars

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur: Spring semester 2006

Course Description: *(Please provide the course overview that appears in course bulletins)*

ENGL 4004 -Research Seminar: Old English Literature and Language (HUM) Prose and poetry of early medieval England (650-1100) in translation and in Old English (which is studied), with attention to material (manuscripts) and cultural contexts and to reception history.
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Description of Research Project: (Include specifics about your project such as your goals and objectives, the implementation timeline, etc.)

This project seeks to enhance student learning through the development of a web forum for all English seminars. Our discipline requires all majors to take a research seminar. This course is designed to foster not only written research, but also dialogue regarding primary and secondary readings and student-generated research. Because discussion is such a vital part of the class, enrollment is capped at 12 students. While the small class size does aid in discussion, we believe that a web forum will dramatically enhance the debate and thus the learning that takes place in our research seminars. The primary enhancement will be in the opportunity for students to continue class discussion outside of the seminar. Students will have time to respond to comments made in class, to discuss concepts and texts in greater detail, and in general to expand the conversation beyond class time constraints. In addition, this discussion format benefits those students who feel less comfortable speaking in class and will lead to a more balanced discussion that allows all students an equal opportunity to participate.

We are requesting that two permanent forums be established on the English Discipline Website. Each semester these forums could be tailored to the two Research Seminars offered, giving faculty with little or no experience in web-based teaching practices the opportunity to make IT-supported learning part of their pedagogy.

This project will benefit the entire English discipline and its majors. However, we are including only the names of myself, Gretchen Minton, and Janet Schrunk Ericksen as the core faculty for this project because Gretchen Minton and I are teaching Research Seminars in the fall and Janet Shrunck-Ericksen is the discipline coordinator.

Activities/Work completed:

- We have set up the forums for use, and I have begun planning how to incorporate them into my spring seminar course.
- I met with staff last summer to help me understand how to run the system.

Scholarly approach:

Student collaboration or faculty collaboration? On the student side, the forums will facilitate collaboration in the learning of the language (Old English) and its literature. I hope students will use the forums to ask both specific translation questions and to raise issues that we can continue to discuss in class or that we began in class but did not have time to pursue. On the faculty side, because three of us are trying out these forums, we are also collaborating on ideas for incorporating them into the classes and on improving use of the forums.

Successes/Challenges encountered:

- None for me individually, yet, although the possibility of having forums is something in which students I've talked to about it are interested.
- Until I actually put the forums into use in my spring course, I won't have much to comment on here, although I'd like to have more of my colleagues interested in using the forums.
- Maintaining, updating the forums. Without ongoing technical support, the forums will quickly disappear, because faculty simply have neither the skills nor the time to acquire the skills to adapt the system in any large ways. We have, for instance, no knowledge of and no instructions about how to add a new class to the forums.

Assessment/Evaluation of the project:

- I have collected none yet, as I do not begin using the forums until spring semester.
- With any major new element in a class, I use mid-term written evaluations as well as trying to talk to students on a regular basis, inside class and out of it, about the innovation. Though the conversations do not yield data, they are often the most helpful means of learning about what problems and successes students are encountering, so I do plan to continue them. With the forum set-up, I can also monitor participation and apply this to evaluation of the success of the technology.
- This is the first year of the project.
- While I have no data from my own class yet, I do plan to adapt to the responses to this technology from students in other classes. I have been told by my colleagues that the postings must be required to get students initially involved in the system.

Feedback received:

- Positive responses to the idea have been received, although none of the faculty not directly involved in the grant have yet incorporated the forums. As I plan next semester's class, I have consulted my colleagues who have used the forums, and they've offered useful guidance on incorporating the system into my class.
- One significant problem that has emerged lies in our ability to adjust the forums. One colleague who was interested in using the technology but who was not part of the grant team has now been told that the forums are not recommended by our computer services department, and we have, moreover, no way of adding her class into the list of classes initially set up for the forums, so her feedback has been negative.

Additional Assistance needed to advance work:

- More web training would be helpful, so that I felt more comfortable running the forum (and related things)--but this is an issue of time, and my schedule is full.
- I've partially addressed this above, but it bears repeating: we need ongoing technical support. We need someone to call when we have questions, someone to provide instructions (easy to use ones!) for making changes to what was initially set up, someone to tell us about technical updates and so on. We do not seem to have that, and this will severely limit the life of the forums.

**University of Minnesota
Bush Foundation Grant
Research Project Profiles**

Faculty Member or Instructor: Tammy Berberi

Number of people involved in course redesign team (e.g., teaching, specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational, Technology consultants) 4 students, 3 faculty, 2 professional staff (IT Consulting Group)

Campus: UMM

Course Name: Fren 1001 and 1002

Number of Students Impacted by Course fifty students

Student Learning/Teaching Issue: Foreign Language Workgroup

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur: Spring Semester, 2006

Course Description: *(Please provide the course overview that appears in course bulletins)*

FREN 1001 - Beginning French I (FL)
An introduction to oral and written French, its basic structure, and to French culture.

FREN 1002 - Beginning French II (FL)
Continuation of 1001.

Description of Research Project: *(Include specifics about your project such as your goals and objectives, the implementation timeline, etc.)*

Tammy Berberi is researching universal design in learning as its principles might be applied in the foreign language classroom. She is co-editing a collection of essays devoted to this topic, which is under contract with Yale UP and has also begun creating multimedia materials based on the principles of UDI to present the first-year French textbook.

Activities/Work completed:

- I am coming at the work from a variety of different angles, developing the research component (in the form of an Introductory chapter to the book) while I work to develop multimedia tools that are attentive to the principles of Universal design
- I am already involved in a MAP with a student to create interactive course materials to supplement instruction in the first-year, required sequence and engage the best practices of Universal Design in Instruction. However, this project was too ambitious for one academic year, and the project will not be complete by the end of this AY. Somewhat of a setback: our discipline adopted a different text for the coming year, so the part of the project that I had already developed needs to be reworked
- Molly has been great about gathering research resources for my project.

Scholarly approach:

- I really appreciated collaborating with the student assistants that were available over the summer, and especially the extensive help of Molly Kloek. I also collaborated with two students for a MAP. Of course, the book under contract with Yale UP. *Worlds Apart: Disability and Foreign Language Learning*, is also collaborative: My co-editors are from Oberlin C and Gallaudet U. Our work may lead to new collaborations with experts in the field of Universal design in learning

Successes/Challenges encountered:

- I have had a very successful mentoring relationship with one student who plans to become a HS French teacher. Together, she and I created 5 chapters of lesson plans and PowerPoint presentations to accompany them. Together, we presented at the Foreign Language Conference of the Red River (12/04) and she authored a brief article based on our experiences together for the FLARR newsletter (a non-refereed publication) I was also invited to present work based upon the collection of essays under contract at Macalester College, and spoke there in early October.
- I would really like to incorporate French popular songs into the tool I am building. It has been difficult to find the songs I am looking for to download.
- Well, we in French have switched textbooks for the coming year, so I have had to begin anew, at least in part (Chapter 4 of 10 was complete in May, with the older textbook). To teach with a new FL textbook is a daunting prospect (prep is very intensive at beginning level of acquisition). I will teach 1002 in the spring and use the materials I develop as I can. Once I have a strong sense of the rhythm of the textbook and how best to use it, I will adjust and complete these IT materials and request to teach the full-year sequence 2006-07 (the following year). This is a lengthier timeline than I imagined, of course, and means that I will not be able to evaluate the effectiveness of these materials for some time.

Assessment/Evaluation of the project:

- I have been on Single Semester Leave this year and so have been unable to collect data.
- I plan to solicit feedback by means of a tailored evaluation of the new approaches I have incorporated. The research I have done on UDI and learning styles has transformed the way I think about evaluating student progress. This spring for the first time I will adopt a modular syllabus wherein students may tailor the ways they are assessed to their own strengths. I will also allow for multiple modes of completion for assignments (that is, students can opt to complete the same assignment in a variety of different ways.
- I did not teach this semester, so I have not been able to try this new approach

Feedback received:

- Colleagues have been very enthusiastic about this, both at the FLARR conference and at Macalester; besides those students who have been involved in developing these materials, students don't know about this, yet

Additional Assistance needed to advance work:

This project has gone quite well, but it is a small fraction of the potential for transformation in the classroom. I intend to apply for a TEL grant to expand this project

**University of Minnesota
Bush Foundation Grant
Research Project Profiles**

Faculty Member or Instructor: Viktor Berberi

Number of people involved in course redesign team (e.g., teaching, specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational, Technology consultants) 4 students, 3 faculty, 2 professional staff (IT Consulting Group)

Campus: UMM

Course Name: ITAL 1301 - CE: Beginning Italian I (FL) and ITAL 1302 - CE: Beginning Italian II (FL)

Number of Students Impacted by Course Fifty-three students

Student Learning/Teaching Issue: Foreign Language Work Group

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur: Spring Semester, 2006

Course Description: *(Please provide the course overview that appears in course bulletins)*

ITAL 1301 - CE: Beginning Italian I (FL)

Introduction to Italian as it is presently spoken and written. Basic sounds, structures, and vocabulary of Italian. Understanding, reading, and writing the language and communicating in Italian about everyday situations. Relationship between culture and language.

ITAL 1302 - CE: Beginning Italian II (FL)

Continuation of 1301

Description of Research Project: *(Include specifics about your project such as your goals and objectives, the implementation timeline, etc.)*

Along with the CSci major and Italian student Michael Anderson, Viktor Berberi proposes to develop the Italian content for a pop-up program that Michael is designing. This program would present users with a vocab word or grammatical structure at regular intervals, and could be adapted for use with any foreign language.

Activities/Work completed:

I have organized the content for the pop-up program into three categories for each the chapters in our first-year text. These include vocabulary and grammar exercises that follow two formats, multiple-choice and another that require the student to generate the correct response. I am also including feedback for incorrect responses. As the pop-up program is not yet complete, I have used some of the content in on-line exercises, which lack, however, the ability to function as a stand-alone program running in the background as students use the computer for other tasks.

Scholarly approach:

I have used collaboration and a scholarly approach only in a broad sense, discussing approaches to teaching with other instructors and attending conference sessions addressing issues of pedagogy. Through this project I have done a certain amount of mentoring with the undergraduate working on the pop-up program.

Successes/Challenges encountered:

- The on-line resources that Molly put together for Tammy have helped me think about making this project respond to students' needs, particularly in terms of flexibility and ease of use.
- I think I have been successful in using on-line exercises to improve students' mastery of vocabulary and to contextualize language.
- The greatest challenge is certainly that of finding the time to prepare additional materials.

Assessment/Evaluation of the project:

- I haven't yet made these adjustments, but based on student reactions I would be inclined to streamline the computer work required of students, as they already have a significant amount, and much of it could be better focused to address specific needs.

Feedback received:

Once I have a working version of the pop-up program, I will try it out with my content. At that point I'm sure I'll want some feedback.

**University of Minnesota
Bush Foundation Grant
Research Project Profiles**

Faculty Member or Instructor: Min Zhou

Number of people involved in course redesign team (e.g., teaching, specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational, Technology consultants) 4 students, 3 faculty, 2 professional staff (IT Consulting Group)

Campus: UMM

Course Name: GER 3041 New German Cinema, Beginning Chinese 1001.

Number of Students Impacted by Course forty-five students

Student Learning/Teaching Issue: New German Cinema

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur: Spring Semester 2006

Course Description: *(Please provide the course overview that appears in course bulletins)*

GER 3041 - New German Cinema (IP)

Same as Hum 3041. Traces the development of New German Cinema, which began in the 1960s, and continues in the post-unification period. Introduction to films by both East and West German directors who define this national cinema; the cultural, political, and economic context of its production; reference to theories and critiques to provide an overview of German film and culture of the period. Film presentations are in German with English subtitles. Readings and lectures are in English. Final papers are either in German (for German credit) or English (for Humanities credit).

Description of Research Project: (Include specifics about your project such as your goals and objectives, the implementation timeline, etc.)

We propose a foreign language workgroup comprised of the following faculty members: Min Zhou (German), Viktor Berberi (Italian) and Tammy Berberi (French). We are developing different IT projects that would be geared toward exploring different learning styles and priorities. Tammy Berberi is already involved in a MAP with a student to create interactive course materials to supplement instruction in the first-year, required sequence and engage the best practices of Universal Design in Instruction. However, this project was too ambitious for one academic year, and the project will not be complete by the end of this AY. Along with the CSci major and Italian student Michael Anderson, Viktor Berberi proposes to develop the Italian content for a pop-up program that Michael is designing. This program would present users with a vocab word or grammatical structure at regular intervals, and could be adapted for use with any foreign language. Finally, Min Zhou plans to learn how to edit and compress short film clips for previewing activities for a film course she will teach in fall 05. These ideas all deserve further explanation and development, but the best part of this proposal is the opportunity to work with faculty members across languages, to share ideas, resources, and skills.

Activities/Work completed:

- I ordered video tapes and read through books I will use for my film course next year. I also replaced an out-of-print book with recently published one
- I watched films, read through related secondary literature, wrote down specialties of each individual film in regard to camera work, sound, and other visual effects, and recorded those parts I would like to record in August into clips.

Scholarly approach:

- Without a scholarly approach, the project would not have been carried out since it all depends on my understanding of the films.

Successes/Challenges encountered:

- It is very rewarding to find out the specialty of camera work in each of the films, how it is related to the director's intention and the film's content.
- It was difficult to find video tapes I wanted to purchase - some of them have no English subtitles, some of them were unavailable.
- It is not always easy to make myself aware of the camera work. Sometimes, it takes lots of readings and screenings to find them

Assessment/Evaluation of the project:

- After I sent my reflection note, I received an email from the assistant student group. We set up a time to meet and to talk about my project. After the first meeting, we went to meet with the media Service people, and to my surprise, Roger told me that he could help me copying and editing tape clips, which, as it turned out, saved me so much time and efforts.
- What I did not know is that because of the copy rights, only 10% of a tape is allowed to be copied. This limited my initial plan, and I wish I had known more about it.

Feedback received:

- I talked to a couple of friends about their experience working on films, and received valuable advices

Other Notes:

- I just hope that we will have the equipment to record video clips next month.

Additional Assistance needed to advance work:

- I will need to work with students next month, and finish the project.

**University of Minnesota
Bush Foundation Grant
Research Project Profiles**

Faculty Member or Instructor: Elena Machkasova

Number of people involved in course redesign team (e.g., teaching, specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational, Technology consultants) 4 students, 3 faculty, 2 professional staff (IT Consulting Group)

Campus: UMM

Course Name: CSCI 1101 Dynamic Web Programming (M/SR)

Number of Students Impacted by Course thirty-five students.

Student Learning/Teaching Issue: Dynamic Web Page Teaching Tools

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur: Spring semester 2006

Course Description: *(Please provide the course overview that appears in course bulletins)*

CSCI 1101 - Dynamic Web Programming (M/SR)

Basics of dynamic web design; programming and problem-solving using web languages, such as PHP and HTML, and languages for data storage and manipulation, such as SQL and XML; introduction to client/server model; aspects of online privacy and security. Hands-on experience with creating and maintaining interactive web pages. No previous programming knowledge or experience required.

Description of Research Project: *(Include specifics about your project such as your goals and objectives, the implementation timeline, etc.)*

As web technologies have progressed, the possibilities and expectations have increased to the point where simple, static web pages constructed with HTML are no longer sufficient for many applications. Many important applications require the ability to manage significant collections of data and provide users with dynamic, customized access to information as well as the ability to add new content (like posting to a bulletin board). Students are familiar with such applications and are interested in creating their own. This interest can bring a diverse student population to a course that teaches algorithms and problem solving through development of dynamic web pages.

Our goal in this grant would be to create a set of tools we can use to teach a variety of students fundamental programming concepts and algorithm through development and maintenance of dynamic web presences. These tools would be initially used in support of a new course for non-majors that will provide an opportunity for a broad spectrum of students to learn the basics of dynamic web page creation.

Once that course is established, we would also like to explore the possibilities of bringing these ideas into earlier stages of UMM's computing curriculum (e.g., CSci 1301 and CSci 2101).

Activities/Work completed:

- We studied open-source PHP-based blogging software to be used as a sample large-scale project in the course and system requirements for each software. Thanks to Matt Justin for investigating this.
- We have identified HTML/CSS features we plan to teach in the course and created series of examples to introduce these features step-by-step. We identified and installed the versions of PHP and MySQL that we will use for the course.
- We created a prototype of a blog-like web site that we expect students to build during the course.

Scholarly approach:

- We plan to incorporate some elements of methodology of team work and of software design, known as agile software development, into the course. We are also looking into use of tools for project collaboration for students during the course.

Successes/Challenges encountered:

- At this point it looks like we will go with either WordPress (likely) or bBlog for blogging software. Both require PHP 4.1 or higher and MySQL 3 or higher.
- We have identified HTML/CSS features we plan to teach in the course and created series of examples to introduce these features step-by-step. We identified and installed the versions of PHP and MySQL that we will use for the course.
- While the blogging software seems to be compatible with either PHP 4 or PHP 5, it seems to be less flexible in switching between different versions of MySQL (there is a difference in password setup between different versions of MySQL and in the corresponding PHP modules. We have to decide on the setup in this respect. Matt Justin is currently studying database features used in WordPress and bBlog and at the relevant security issues.
- We had a minor issue with setting up a web-based administrator interface for the database (PHPAdmin).

Assessment/Evaluation of the project:

- The course is scheduled to be taught in the Spring 2006, no data has been collected yet.

Other Notes:

- We worked with a student (Matthew Justin) to investigate various options of the software and to create a prototype of a blog-like web site that the students will construct in the class.

**University of Minnesota
Bush Foundation Grant
Research Project Profiles**

Faculty Member or Instructor: Nic McPhee

Number of people involved in course redesign team (e.g., teaching, specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational, Technology consultants) 4 students, 3 faculty, 2 professional staff (IT Consulting Group)

Campus: UMM

Course Name: _____

Number of Students Impacted by Course not implemented

Student Learning/Teaching Issue: Dynamic Web Page Teaching Tools

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur: Spring Semester 2006

Course Description: *(Please provide the course overview that appears in course bulletins)*

Description of Research Project: (Include specifics about your project such as your goals and objectives, the implementation timeline, etc.)

As web technologies have progressed, the possibilities and expectations have increased to the point where simple, static web pages constructed with HTML are no longer sufficient for many applications. Many important applications require the ability to manage significant collections of data and provide users with dynamic, customized access to information as well as the ability to add new content (like posting to a bulletin board). Students are familiar with such applications and are interested in creating their own. This interest can bring a diverse student population to a course that teaches algorithms and problem solving through development of dynamic web pages.

Our goal in this grant would be to create a set of tools we can use to teach a variety of students fundamental programming concepts and algorithm through development and maintenance of dynamic web presences. These tools would be initially used in support of a new course for non-majors that will provide an opportunity for a broad spectrum of students to learn the basics of dynamic web page creation.

Once that course is established, we would also like to explore the possibilities of bringing these ideas into earlier stages of UMM's computing curriculum (e.g., CSci 1301 and CSci 2101).

Activities/Work completed:

Elena and I have gotten a number of necessary resources (a MySQL database, apache, php4, and phpmyadmin) up and running in the CSci lab so that our student (Matt Justin) can continue to work on developing labs. After considerable exploration and discussion, we've decided to use the idea of a blog as the key idea to built the projects around. We're using WordPress as a rough approximation of the "target" for the course project. Matt's also been able to

Successes/Challenges encountered:

- Got some tools up and running as mentioned above. Matt's made considerable success in simplifying the HTML and CSS for the blog to help construct the early labs and exercises.
- The biggest challenge for me is simply the time required to work through the many issues. We've got a nice overall structure worked out, but sorting out the details is taking quite a while.

Feedback received:

Very little beyond the conversations with Elena and Matt Justin.

Additional Assistance needed to advance work:

I could use an extra month somewhere? :-)

**University of Minnesota
Bush Foundation Grant
Research Project Profiles**

Faculty Member or Instructor: Byungik Kahng

Number of people involved in course redesign team (e.g., teaching, specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational, Technology consultants) 4 students, 3 faculty, 2 professional staff (IT Consulting Group)

Campus: UMM

Course Name: MATH 1101 - Calculus I (M/SR) and MATH 1102 - Calculus II (M/SR)

Number of Students Impacted by Course seventy students

Student Learning/Teaching Issue: Using Mathematica on Teaching Calculus to Diverse Learners

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur: Spring 2006

Course Description: *(Please provide the course overview that appears in course bulletins)*

MATH 1101 - Calculus I (M/SR)

Limits and continuity; the concepts, properties, and some techniques of differentiation, antidifferentiation, and definite integration and their connection by the Fundamental Theorem. Partial differentiation. Some applications. Students learn the basics of a computer algebra system.

MATH 1102 - Calculus II (M/SR)

Techniques of integration. Further applications involving mathematical modeling and solution of simple differential equations. Taylor's Theorem. Limits of sequences. Use and theory of convergence of power series. Students use a computer algebra system.

Description of Research Project: (Include specifics about your project such as your goals and objectives, the implementation timeline, etc.)

The purpose of this project is to revise Mathematica notebook files that are currently being used in some calculus sections in UMM. The project has two main objectives. The first is to update the Mathematica programs so that they support recent additions to the software, such as traditional mathematical symbols, colored graphics, animation, etc. This is long overdue, because our current notebook files did not go through significant update since they were created in 1993.

The second goal is to reorganize the notebooks so that each chapter can be taught and used independently. This will enable all calculus instructors to adopt any part of the notebook files and incorporate them in their teaching, without having to change their curricula and class schedules. The investigator believes that the latter aspect is particularly important. For past 5 years, UMM has been offering at least 13 sections of calculus courses each academic year. Therefore, the incorporation of information technology in majority of those sections, if not all, will contribute substantially to UMM's effort to enhance students learning through innovative teaching and technology.

Activities/Work completed:

I have finished Calculus I part of the project. Current students had several computer-based home-works and had one final project. After the fall semester, I plan to revise and correct the Calculus I modules and release them to other mathematics faculty members so that they can incorporate the modules in their classes.

The final project is not due yet. When I get all the projects back from the students and finish grading them, I will have better picture about the students' proficiency in Mathematica.

Calculus II modules are scheduled to be completed by the summer of 2006 so that its pilot program can start in the following fall semester.

Successes/Challenges encountered:

- The first success was the interaction with students assistants. They are learning a lot while helping me with the project.
- I am spending a bit more time of my own than expected. It turned out that some part of my project that I originally set aside for student assistants weren't suitable for students.

Feedback received:

The feed back I have so far is only between myself and students assistants, because the actual implementation did not begin yet.

Additional Assistance needed to advance work:

Just more time. In time, everything that I set out to do will be done.

**University of Minnesota
Bush Foundation Grant
Research Project Profiles**

Faculty Member or Instructor: Sylke Boyd

Number of people involved in course redesign team (e.g., teaching, specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational, Technology consultants) 4 students, 3 faculty, 2 professional staff (IT Consulting Group)

Campus: UMM

Course Name: PHYS 3003 - Computer Modeling of Materials (SCI)

Number of Students Impacted by Course twelve students

Student Learning/Teaching Issue: Computer Modeling of Materials in Physics

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur: Spring semester, 2006

Course Description: *(Please provide the course overview that appears in course bulletins)*

PHYS 3003 - Computer Modeling of Materials (SCI)

The description of materials as assemblies of microscopic particles. The various approximations for interparticular forces and their use in order to gain insight into the behavior of the macroscopic system. Aspects of molecular dynamics simulations and Monte Carlo simulations in various statistical ensembles. Projects include questions from experimental research.

Description of Research Project: *(Include specifics about your project such as your goals and objectives, the implementation timeline, etc.)*

Course, "Computer-Modeling of Materials" in Spring 2006

We need to set up a software environment on our existing cluster of Macs in the Physics Lab, which has to enable students to do the following:

- visualize and manipulate structures (GopenMol)
- use existing modeling software (Gaussian, self-written programs)
- write, compile and run code (Fortran, C)

Activities/Work completed:

- Outlined detailed plan of work and forwarded it to the student participants
- The Macs in the physics lab can be used for the modeling class after all, however, have been reduced to mere terminal status. All class activities will take place on SB's Beowulf cluster, and pull X -applications over. Alternatively, a linux lab of computer science has been discussed as location for the class.
- The software interface is installed and ready to run for next semester (Spring 2006)

Scholarly approach:

- The project entailed collaboration with the computer science department, in order to get the graphical interfaces to work. The course will use a modular approach, allowing students to proceed with any module and develop it into a personal programming code. Various visualization techniques will be available.

Successes/Challenges encountered:

- Class docs for the first few weeks have been written, as well as sample programs.
- Instead of gopenmol, xmakemol will be used.
- There is still no way to use gopenmol for the class. Tcl on the cluster and the Macs does not cooperate.

Assessment/Evaluation of the project:

- Student feedback in conversation.

Feedback received:

All installations should work. Received input from division chair.

Other Notes:

The course will be taught in Spring 2006, therefore there is no feedback from students yet.

**University of Minnesota
Bush Foundation Grant
Research Project Profiles**

Faculty Member or Instructor: Minh Vo

Number of people involved in course redesign team (e.g., teaching, specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational, Technology consultants) 4 students, 3 faculty, 2 professional staff (IT Consulting Group)

Campus: UMM

Course Name: Mgmt 4101, Investment and Portfolio Analysis

Number of Students Impacted by Course 20 students, 7 groups

Student Learning/Teaching Issue: Financial Management

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur: Spring 2006

Course Description: *(Please provide the course overview that appears in course bulletins)*

MGMT 4101 - Investment and Portfolio Analysis (SS)

The institutional environment of investment, techniques used to price financial products, and how to design a portfolio of many assets.

Description of Research Project: *(Include specifics about your project such as your goals and objectives, the implementation timeline, etc.)*

Objectives: The purpose of this project is to enhance teaching financial management skills through direct experience. Students will gain insights by applying several investment concepts covered in Investment and Portfolio Analysis course to building and managing a dynamic real-world portfolio over a semester. These concepts include:

- 1) Portfolio Balance and Diversification: Students will understand how to construct a well-diversified portfolio to minimize risk given the vagaries of the market.
- 2) Margin Trading: Students will understand the mechanics, risks and requirements when investors borrow money to invest.
- 3) Trading Orders: Students will learn the mechanics of trading in NYSE, AMEX and NASDAQ and how to use various kinds of trading orders to profit from market declines as well as market increases.

Methodology: Simulation will be done using simulators such as the Online Trading and Investment Simulator of the Wharton School of Business, the StockTrak of McGraw-Hill Publisher, or the virtualstockexchange.com. Real-world market data will be used in the simulation.

Students will form groups of 2 or 3. Each group will build and manage a \$1 million portfolio during the semester. There will be an investment competition among groups

Activities/Work completed:

- Select the simulation software STOCKTRAK and incorporate it into the course
- System selection and incorporating the practical component into the course.
- The project was implemented the first time in Spring semester 2005 in the course "Investment and Portfolio Analysis" and will be incorporated into the course.

Scholarly approach:

- This project
- Within groups, students work together to manage their portfolio.
- There is a competition among groups to get 5% bonus points

Successes/Challenges encountered:

- I have learned various features of the simulation from different types of software which I will use to expand my proposed simulation
- Partly incorporated the simulation into the course as a project
- Find a way to incorporate the competition component into to the course.
- The challenge I have encountered is how to motivate everyone to be involved in the process. It seems that only 1 or 2 students got involved into the project.

Assessment/Evaluation of the project:

- The project was implemented in spring 2005 in the following context:
 - o Class size: 20 students
 - o Number of group: 7
 - o Duration: 13 weeks
- Return of group portfolio is evaluated based on the return of the market (S&P500) in the same period.
- Each portfolio should have clear objectives and a strategy to achieve those objectives.
- The group with the best investment return got 5% bonus grade.
- Among 7 groups, 6 underperformed the S&P500 and 1 outperformed the S&P500 during the project period.
- To encourage students to be more aggressive in their investment, a negative bonus (-3%) will be given to the group with lowest return on investment.

Feedback received:

- Positive feedback from the students who took the course "Investments and Portfolio Analysis" in spring 2005 in terms of great real experience in a classroom context.

Other Notes:

- Given a period of 16 weeks, we cannot see the results of long-term investment strategies.

**University of Minnesota
Bush Foundation Grant
Research Project Profiles**

Faculty Member or Instructor: Greg Thorson

Number of people involved in course redesign team (e.g., teaching, specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational, Technology consultants) 4 students, 3 faculty, 2 professional staff (IT Consulting Group)

Campus: UMM

Course Name: POL 3231 - Constitutional Law: Civil Liberties and Civil Rights (HDIV) and POL 3232 -Constitutional Law: Governmental Powers and Constraints (SS)

Number of Students Impacted by Course thirty eight students

Student Learning/Teaching Issue: Horizontal Integration of Constitutional Law

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur: Spring Semester 2006

Course Description: *(Please provide the course overview that appears in course bulletins)*

POL 3231 - Constitutional Law: Civil Liberties and Civil Rights (HDIV)
Examination of major Supreme Court opinions in the areas of freedom of religion, speech, assembly, and the press. Topics include the definitions of obscenity and libel, the Court's struggle with the right to privacy, and civil rights.

POL 3232 - Constitutional Law: Governmental Powers and Constraints (SS)
Examination of major Supreme Court opinions in the areas of congressional, executive, and judicial authority; nation-state relations, and economic liberties. Topics include substantive vs. procedural due process, the Takings Clause, the contract clause, and the powers to tax and spend.

Description of Research Project: (Include specifics about your project such as your goals and objectives, the implementation timeline, etc.)

My problem stems from the fact that I teach two constitutional law classes that alternate every other year. Neither course is a prerequisite for the other. Each year, roughly half of the class has previously taken the other constitutional law class, and that group enjoys a large advantage in that they have previously read and interpreted literally hundreds of Supreme Court decisions. In this project, I propose to level the playing field a bit by offering all students the opportunity to collaboratively brief cases prior to class. At this point, I am still uncertain which product I will use to facilitate this process (WebCT's Discussion Board, collaborative online writing functions available through Microsoft Word, etc.) If my proposal is accepted, I will use the Bush Foundation support to examine the available options, be trained on them, and adjust my course so as to incorporate this change. I welcome any assistance from the IT Core group in this process.

The expected benefits include both providing a forum, that rewards student cooperation in studying, as well as reducing the disadvantage that has frequently occurred by students who not taken the other constitutional law courses.

Activities/Work completed:

Working with the technical staff, I have now identified the software that will allow students to collectively write (WIKI) and installed it on UMM's web server. I am still experimenting with formats. I am planning to complete this testing during the Winter Break.

Scholarly approach:

Successes/Challenges encountered:

- I spoke with one of the student researchers today and it appears that we have some good collaborative writing tools available. He is creating a demo site so that he can show me the features. That test software has now been installed on the UMM server and I am actively experimenting with it.
- Nothing, I am progressing as I have planned.

Assessment/Evaluation of the project:

- None, as the class does not begin until Spring Semester.
- Supplemental Evaluation Form in Spring 2006.

Feedback received:

As soon as I finish my testing, I will ask students for additional feedback on the ease of use.

Additional Assistance needed to advance work:

Continued assistance from the student workers. Thanks!

**University of Minnesota
Bush Foundation Grant
Course Profiles**

Faculty Member or instructor: Kevin P. Smith

Number of people involved in course redesign team (e.g., teaching specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational Technology consultants) 5

Campus: Twin Cities (St. Paul)

Course Name: Agronomy 1101: Biology of Plant Food Systems and the Environment

Number of Students Impacted by Course: 55-112

Student Learning/Teaching Issue: E.g., student engagement with course material; overcoming physical classroom limitations with innovative teaching strategies

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur:

Data has been collected but not yet analyzed. Data collection will be revised and start again in Fall 2006.

Course Description: *(Please provide the course overview that appears in course bulletins)*

This course is designed for students who are not in a life science program, but who wish to acquire a better understanding of biology as it relates to their lives. This course fulfills the University's CLE requirement for a biology course with lab. Using a problem-based learning approach, students will investigate fundamental concepts including the chemical basis of life, the nature of inheritance, and functions of ecosystems. Students will work in small groups to research problems related to food and nutrition, the use of gene technology in food systems, and environmental concerns arising from food production practices. Students will design and propose solutions to problems, present their analysis and participate in evaluation of proposed solutions. Hands-on investigations in the laboratory and a greenhouse project are designed to enhance students understanding of concepts, encourage intellectual curiosity and promote understanding of science as a process of learning. Course outcomes are knowledge of biological concepts, skills in complex problem analysis, and an appreciation for the role of science in society.

Description of Research Project: (Include specific research question/s. Also include the teaching and/or technology intervention strategies, e.g. learning style tests, new case studies, use of web forum, use of games)

- How do we make explicit connections between lecture and lab? **Strategy**—Instructor attends varying lab sections. Instructor makes explicit connections between lab and lecture orally in lecture.
- How do we help students better prepare for lab? **Strategy**—Introduce pre-lab quizzes online.
- How do we improve group work assignments? **Strategy**—Mandate student roles (using best practices) in early group project; make the roles elective for subsequent projects.
- How do we stabilize attendance? **Strategy**—Record attendance.
- How can we make the problem based learning (PBL) experience more meaningful and intensive? **Strategy**—Expand and enrich the content of three case studies and reduce the number of cases from 3 to 4.
- How can we improve scientific reasoning skills?

Data Collection Techniques (e.g., surveys, CATs, focus groups, data analysis of online discussions):

- Surveys
- Focus Group (attempted but cancelled; lack of enrollment in group)
- Content analysis of questions
- Student representative comments

Summary of up to three key findings from data collected (bulleted list is acceptable):

Data has not yet been analyzed.

What course adjustments were made this semester/year, or are planned, based on the data analysis, student reactions, feedback from consultants, etc.?

Present Steps:

- All of the strategies listed under “Description of Research Project” have been implemented in Fall 2005.

Future Steps:

- Investigating critical thinking inventories (similar to the GALT) and deciding whether or not one would be appropriate for this class.
- Assessing the group instruction task. (Asking students to work in groups with not guidelines on the first project. Asking them to work with guidelines on the second project. Asking them to choose how they want to do it (with or without guidelines) the third time and measure the effects.)

Course redesign team members' definitions of what it means to take a scholarly approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Kevin Smith, Instructor-- A scholarly approach to teaching takes into consideration the literature and experience of professionals related to teaching and learning. Seeks to assess and evaluate teaching approaches in the classroom and use information gained from assessments to modify teaching.

Mary Brakke, Instructor--1.- Values principles of teaching and learning which have previously been studied and shown to be effective and attempts to utilize these principles whenever possible.

2. – Values a systematic approach to studying the teaching process and the learning that ensues and uses knowledge based on evidence to inform teaching practices.

3. - Values the exchange of ideas regarding teaching and seeks the input of other informed and experienced individuals in evaluating ideas related to teaching and learning,

Seth Zeigler, Undergraduate Student -- For me, scholarly refers to degree and depth. Teaching can be relaxed, informal, even apparently accidental and haphazard, and these approaches are entirely effective in some situations, but at some times a scholarly approach, which pushes the learner to her or his very limits, is best. The scholarly approach to teaching is founded upon both pre and reflection and relentlessly strives towards some well defined goal, like an understanding of ecology, in a methodic and scientific manner.

Course redesign team members' definitions of what it means to take a collaborative approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Kevin Smith, Instructor-- Involving a broad spectrum of colleagues, support staff, students in the design and implementation of teaching. This includes sharing experience with fellow teachers, consultation with technical experts, feedback from current or past students, as well as working with TAs and co-instructors in the classroom.

Mary Brakke, Instructor --Teaching is collaborative when all individuals involved in teaching the course are contributing ideas and have a role in making decisions pertaining to all aspects of the course.

Seth Zeigler-- All true educators have the same overarching goal, learning, and the collaborative simply allies educators with differing strengths together to help learners realize a far more holistic understanding of the subject matter. Teachers from the same subject area can collaborate and compare what has and has not worked and speed their personal and group growth, while teachers across subject areas can interweave their topics to make them far more realistic and relevant

**University of Minnesota
Bush Foundation Grant
Course Profiles**

Faculty Member or instructor: Professor Julia W. Robinson

Number of people involved in course redesign team (e.g., teaching specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational Technology consultants) 5

Campus: TC

Course Name: ARCH 3401: Environmental Design and the Sociocultural Context

Number of Students Impacted by Course: 90 per semester

Student Learning/Teaching Issues:

The goals of the redesigned course are:

- improve learning outcomes
- positively impact affective experience of course
- help students see all aspects of the course as a coherent whole

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur:

Data on learner response to several interventions has been collected and aggregated this year.

Course Description: *(Please provide the course overview that appears in course bulletins)*

ARCH 3401 addresses how the built environment affects everyday life and how cultural perspectives affect the way environments are constructed. Students examine the responsibility of the design professional to the human community and its shared context—global, local, political and ethnic. The course also develops skills in studying written texts, environments and professional institutions from a cultural perspective. As it is a writing intensive class, students will learn to write essays that identify important issues, take a position and make an argument using evidence.

Description of Research Project: (Include specific research question/s. Also include the teaching and/or technology intervention strategies, e.g. learning style tests, new case studies, use of web forum, use of games)

Our design-based research plan involves designing, implementing and testing a series of diverse educational interventions. The interventions and surveys occur together within a “spiral” of interventions and assessments. The research questions are: How will each of the interventions impact learner engagement with the course? How will the series taken as a whole affect scores on the SETS?

The interventions include:

- Refining class exercises to incorporate informal writing
- Rewriting assignments to create a more learning-based approach
- Reducing readings to address only question for the week
- Applying the Writing Rubric and the Critical Paper Grading Criteria

Other interventions are listed in the Course Adjustment section below.

Data Collection Techniques (e.g., surveys, CATs, focus groups, data analysis of online discussions):

We will collect both qualitative and quantitative data, including short learner surveys, with responses aggregated in the form of tables and pie charts. Provided consent of the professor and grad students are obtained, ethnographic notes of class observations, qualitative notes of course team meetings and notes of interviews may also be used. Qualitative findings will be triangulated across methods and respondents. A constant comparison approach to analyzing data from various sources will be used. In this way, multiple forms of evidence will be analyzed to obtain a comprehensive assessment of how well the redesigned course functions, and the impact on student engagement.

Summary of up to three key findings from data collected (bulleted list is acceptable):

The course has been redesigned from a traditional master-apprentice model to a collaborative design-based model. By collecting data from students, there is communication between the professor and the students, which may influence the interventions. This kind of transformation is revolutionary in the field of architecture, which has not been based on a teaching model. Based on the survey results so far, the interventions are having the intended effects.

What course adjustments were made this semester/year, or are planned, based on the data analysis, student reactions, feedback from consultants, etc.?

The course adjustments include:

- Requiring students to take notes on readings and put in course notebook
- Introducing web postings on readings- "insightful questions & responses"
- Requiring students to put notes on exercises done in class in course notebook
- Refining website to incorporate PowerPoint lectures (last year used for lecture notes, course assignments and handouts)
- Instituting a Student Advisory Board
- Replacing quizzes, midterms and finals with a course notebook
- Revamping lectures to include:
 - Two weeks of introduction
 - Clarification of content of course segments
 - Questions to be addressed each week
 - Explicit instruction on writing critical papers
 - Explicit modeling of analysis to prepare students for projects

Course redesign team members' definitions of what it means to take a scholarly approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Professor Robinson has been a leader in implementing a research-based approach to the field of architecture. She has now turned her passion for scholarship towards her teaching. There are several scholarly articles which have informed her model of teaching and our model of evaluation, including:

Hickey, D.T. & Zuiker, S. J. (2005). Engaged participation: A sociocultural model of motivation with implications for educational assessment. *Educational Assessment*, 10(3), 277-305.

Cobb, P. Confrey, J. diSessa, A., Lehrer, R. & Schauble, L. (2003). Design experiments in educational research, *Educational Researcher*, 32(1), p. 9-13.

The Design-based Research Collective (2003). Design-based research: An emerging paradigm for educational inquiry. *Educational Researcher*, 32(1), p. 9-13.

Shavelson, R.J., Phillips, D.C., Towne, L., Feuer, M.J. (2003). On the science of education design research, *Educational Researcher*, 32(1), p. 25-28.

Course redesign team members' definitions of what it means to take a collaborative approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

A collaborative approach to teaching refers to implementing a "spiral" of interventions based on student survey findings about how well these interventions are helping their learning. The data from surveys and conversations with the TA's are a way of communicating with the learners and implementing new interventions to respond to their concerns. The redesigned course is therefore a collaborative approach to teaching which may be unprecedented in the field of architecture.

Description of Research Project: (Include specific research question/s. Also include the teaching and/or technology intervention strategies, e.g. learning style tests, new case studies, use of web forum, use of games)

Interventions/strategies:

- * in-class reading quizzes
- * in-class group and individual learning activities
- * online reading questions
- * in-class groupwork supported by group folders

Data Collection Techniques (e.g., surveys, CATs, focus groups, data analysis of online discussions):

Nonequivalent comparison group design using surveys of students in several different classes along with performance data from exams and quizzes. Focus groups. Confidence logs.

Summary of up to three key findings from data collected (bulleted list is acceptable):

- Reading quizzes have a substantial impact on student attendance.
- Self-reported degree of student preparation higher in treatment group than in comparison groups.
- In-class activities may be associated with improved student performance on targeted quiz/exam questions.

What course adjustments were made this semester/year, or are planned, based on the data analysis, student reactions, feedback from consultants, etc.?

See interventions/strategies above.

Course redesign team members' definitions of what it means to take a scholarly approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Sue Wick: I see a scholarly approach to teaching as being an approach that essentially sets up experiments with control groups (in our case, that can be past offerings of the course) and analyzes data on student performance and student attitudes in sections of the course offered with and without new course design features. A final piece of this is to re-iterate the process, incorporating effective measures and reconsidering ones that are not apparently effective.

Course redesign team members' definitions of what it means to take a collaborative approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Sue Wick: In a collaborative approach to teaching, I see various members of the team adding opinion and input, and different instructors sharing what was successful in their sections.

Description of Research Project: (Include specific research question/s. Also include the teaching and/or technology intervention strategies, e.g. learning style tests, new case studies, use of web forum, use of games)

How can we: increase student engagement with course material; increase class attendance; improve retention of women in the class?

Interventions/strategies:

- * using small group work of some sort. The room in which the class is taught presents a barrier here, since the chairs can't be moved, so the groups couldn't be larger than three or maybe four. The details of this have yet to be worked out, but the group work might sometimes take the form of a pair-share activity and sometimes involve larger groups.
- * using "bonus quizzes", which would be relatively easy quizzes based on the readings and presented to students as a reward, not a punishment. The hope is to increase attendance in class, improve students' preparation for class, and to help students to keep up with the material. We thought about 10 quizzes would be a good number; they could be graded on a coarse-grained three-point scale to keep the grading burden to a minimum.
- * trying different configurations of lab teams, picking partners for students for the first few labs, and later letting them choose their own partners.
- * a group project, which could be split into parts, so that different students would do different parts and then try to fit them together. This could help students to learn how real software engineering works. Simulation was mentioned as a possibility here.
- * creating student management groups – these might be a way of giving more challenges to the stronger students.
- * bringing the Sony robo-dogs into class and using Scheme to pass commands to them.
- * setting up extra office hours to be used as a gathering place for women students, to create a sense of community among them.
- * encouraging the stronger students to take an active hand in running the online bulletin board.

Data Collection Techniques (e.g., surveys, CATs, focus groups, data analysis of online discussions)

Student surveys, class observations.

Summary of up to three key findings from data collected (bulleted list is acceptable):

- students believe homeworks, practice problems, labs, and quizzes help them to understand course material.
- students find working with partners in labs to be useful, and want to do more of it.

What course adjustments were made this semester/year, or are planned, based on the data analysis, student reactions, feedback from consultants, etc.?

See interventions/strategies above.

Course redesign team members' definitions of what it means to take a scholarly approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Maria Gini, Instructor: A scholarly approach to teaching to me means that we treat teaching like any other experimental science. We set up hypotheses, come up with experiments to prove/disprove them, conduct the experiments, and analyze the results.

John Chilton, Graduate Assistant: I believe that a scholarly approach to teaching is an active and goal oriented approach. Its active in the sense that a scholarly approach involves reading others research as well as conducting your own throughout the learning process, before a course, during a course, and after a course. And its goal oriented because this research has a definite purpose, improving the learning experience of the students.

Course redesign team members' definitions of what it means to take a collaborative approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Maria Gini, Instructor: A collaborative approach to teaching to me means two things:

- (1) there is a team of faculty/teaching assistants who collaborate to design and conduct the class;
- (2) teaching is done by creating an environment where the team which teaches the class collaborates with the students who are taking the class. By making the students collaborators, they take an active role in their own learning.

John Chilton, Graduate Assistant: A collaborative approach is recognizing that people from other fields as well as from other levels in the classroom hierarchy (students, teaching assistants, instructors, etc.) may well have insights that could help improve your own teaching and taking steps to obtain these insights as well as apply these insights.

**University of Minnesota
Bush Foundation Grant
Course Profiles**

Faculty Member or instructor: Heidi Geier

Number of people involved in course redesign team (e.g., teaching specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational Technology consultants) 5

Campus: Twin Cities

Course Name: Dance 1401: Introduction to Dance

Number of Students Impacted by Course: 50-99; max enrollment is 100

Student Learning/Teaching Issue:

- Improve writing assignments and the general level of writing in the course.
- Help create new opportunities for structured group assignments.
- Increase interest in small and large group discussion.
- Ease the flow of digital video in lecture presentation to facilitate discussion.

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur:

This course is taught Fall and Spring semesters. We've begun collecting data in Fall 2005 using several instruments. We'll be devising new surveys and rubrics beginning next semester, Spring 2006. At the end of Spring semester, we'll begin a longitudinal study of previous Dance 1401 students to see the long-term impact of the class.

Course Description: *(Please provide the course overview that appears in course bulletins)*

This course is an introduction to global dance forms in art and society. Dance is a vibrant mode of artistic expression and an important part of cultural experience, the course presents international perspectives on how dance functions in specific cultural contexts and how dance traditions influence each other as they come into close contact with one another. In addition to looking at a variety of dance forms from around the world, the course also explores how different dance traditions come into the United States contributing to the fusion forms that make up American art and entertainment dance traditions. Dance forms are explored through lecture, discussion, the viewing of live and taped performances, guest artists and movement experiences. A main objective is for students to develop the aesthetic, cultural and historical awareness needed to form and articulate, verbally and in writing, ideas and opinions about the art of dance. By the end of the course students will be able to recognize a variety of dance forms and place them in the context of important social, political, historical and aesthetic movements and ideas.

Description of Research Project: (Include specific research question/s. Also include the teaching and/or technology intervention strategies, e.g. learning style tests, new case studies, use of web forum, use of games)

- Will online journals in the day class help students 1) with their writing, 2) with articulating their personal connection to dance? **Strategy**—Assign journals in the day section; make this writing task happen online on Vista.
- Do online group assignments help improve student engagement? Will this assignment encourage student collaboration. **Strategy**—Assign a structured group writing task, defining and assigning key roles to each group member.
- Does Dance 1401 have any long-term effect on students? Will they attend and participate in future dance experiences. **Strategy**—Survey students a semester after the class is over to find out what kinds of dance activities they might have engaged in. Tell students before the end of the current class that this survey will happen.
- How can we increase student engagement in lecture. **Strategy**—Increase small group work in lectures to approximately one activity per week.
- How, exactly, do students conception of “Dance” change?
- How do I get more student input into the class on an ongoing basis? (Student advisory groups).
- What is the best way to integrate video into lecture?

Data Collection Techniques (e.g., surveys, CATs, focus groups, data analysis of online discussions):

- Content analysis of journals, particularly beginning/end of term question on "what is dance to you?" Developing scoring rubric to be used for the analysis.
- Beginning of term survey to gather info on student experience with dance, reasons for taking the class, student demographic info, etc. Currently uses open-ended questions exclusively.
- Midterm survey regarding changes made to the class this term.
- End-of-term survey focusing on online group assignment, role of TA, etc.
- Longitudinal survey to test for how students integrated dance into their lives a semester after they finished the class.

Summary of up to three key findings from data collected (bulleted list is acceptable):

Data has not yet been analyzed.

What course adjustments were made this semester/year, or are planned, based on the data analysis, student reactions, feedback from consultants, etc.?

Present Steps:

All of the strategies listed under “Description of Research Project” have been implemented in Fall 2005.

Future Steps:

- Redefine use of PowerPoint in lectures. Reduce number of bulleted text slides, retain pictures/graphics.
- Incorporate *more* active learning techniques into lectures. These may involve getting students to move and to learn kinesthetically.
- Revise supporting materials for paper assignment.
- Provide direct instruction for students on how to take notes.
- Possibly add a pre/post survey that tries to quantify students' preconceptions of dance and changes in them over the term (e.g., is dance political? Is dance religious? Is Indian/Japanese/etc dance difficult?)
- Develop and deliver a survey for follow up with Dance 1401 students after a semester or more has passed, to discover whether the class has increased their engagement with the dance world outside the classroom.
- Create a student advisory group, to be led by team member, Rachel, which will meet on a regular basis over the semester and provide feedback about the class.

Course redesign team members' definitions of what it means to take a scholarly approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Heidi Geier, Instructor--For me a "scholarly approach to teaching" means going beyond my own instincts and what I have absorbed as good teaching practices from those

people I found to be effective teachers. When I began teaching academics at the University level there was very little guidance on what to teach let alone ideas for how to teach. I modeled my early teaching mostly from the ways that the teachers I admire went about working with students and on my own instincts for what was helpful to students. While I still think this is a fine place to start, it relies mostly on my sense of what is useful and no matter how open I work to be, I represent only one perspective. A scholarly approach to teaching is about expanding your tools as a teacher through looking at the research in teaching being done cross disciplines. Everything from teaching with writing to expanding the range of student learning styles I am addressing both in lecture and in how I teach to assignments is extremely useful to reaching a broader range of students. A scholarly approach to teaching also means finding ways to evaluate the success of my own teaching beyond the required end of year bubblesheet evaluations. This gives more concrete data that either can confirm or deny my sense of what I think students are getting out of a class. It also is about being open to perpetual change; to see change as a positive and even exciting component of teaching.

Jonah Winn-Lenetsky, Graduate Student-- I define scholarly as a specific approach to thought and learning. The scholar is one who investigates, thinks, probes and does not settle for superficiality, or unreasoned argument. In teaching a scholar must try to ask difficult questions and to get her or his students to move beyond their comfortable patterns of thinking and behaving. It is also a style of teaching that is not too fast paced, but that allows for rumination and thought from the students.

Rachel Brammer-Shlay, Undergraduate Student-- Putting the students first before anything else; that is, identifying the various learning styles of the students and catering to them as much as possible. Collaboration (with faculty and if appropriate, students)in terms of course content in order to meet everyone's expectations and needs.

Course redesign team members' definitions of what it means to take a collaborative approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Heidi Geier, Instructor--A collaborative approach means that as the instructor I am open to the ideas and thoughts from everyone on the team. I see the process to be much like when I direct dance work. I am the director and ultimate I make decisions about how I deliver a lecture or what goes on an exam. However, in the creation phase the floor is open and everyone contributes their thoughts to the pot, which creates a much richer stew than I could come up with all on my own. The trick to being the director of a collaboration is how to create an open playing field and yet be able to clearly synthesize the results in ways that are ultimately productive for the overall project. I certainly don't have all the answers, which is why I have always liked collaborations. Collaborative approaches can take more time and have their 'messy' moments, but in the end I think the end product is much stronger.

Jonah Winn-Lenetsky, Graduate Student-- Collaborative teaching means seeing your job on the team as essentially interactive. You are open to the feedback of others and have long discussions about the structure and purpose of the class. It means establishing a relationship with uncertainty in the classroom and allowing for that uncertainty to unfold. The team gives you a network of peers to bounce things off of and to be connected to. However, collaboration also takes more time and demands that everyone's opinions are heard and taken into account.

Rachel Brammer-Shlay, Undergraduate Student--Constantly asking for and reflecting on feedback given and incorporating it into changes being implemented into the course content. However, at the same time, the expectations of the course and instructor must be upheld. Basically, there should be continuous dialogue about what the course is doing and where the course is going.

**University of Minnesota
Bush Foundation Grant
Course Profiles**

Faculty Member or instructor: _____ Virginia Zuiker _____

Number of people involved in course redesign team (e.g., teaching specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational Technology consultants) _____ 5 _____

Campus: _____ TC _____

Course Name: _____ FSoS 3101: Personal and Family Finances _____

Number of Students Impacted by Course: _____ typically 100 per semester _____

Student Learning/Teaching Issue: _____ student engagement, attendance, and integration of aspects of course _____

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur:

_____ Spring '06 _____

Course Description: *(Please provide the course overview that appears in course bulletins)*

Analysis of personal and family financial management principles. Financial planning of savings; investments; credit; mortgage and taxation; life, disability, health, and property insurance; public, private pensions; and estate planning.

Description of Research Project: *(Include specific research question/s. Also include the teaching and/or technology intervention strategies, e.g. learning style tests, new case studies, use of web forum, use of games)*

Questions are centered around the introduction of a new textbook that makes case studies a central strategy in the course. How best to integrate case studies into the course? How frequently to set aside lecture time to support collaborative work on case studies? How do assessments have to change to accommodate case study methodology?

An added dimension: this course will be taught by the instructor and her graduate assistant respectively simultaneously in a face-to-face environment and a distance learning environment. We will explore the use and impact of CATs in an online environment, and consider issues of case study facilitation across these two environments.

Data Collection Techniques (e.g., surveys, CATs, focus groups, data analysis of online discussions):

Surveys, focus groups, cats, analysis of online interactions, and records of attendance under different treatment conditions.

Summary of up to three key findings from data collected (bulleted list is acceptable):

NA

What course adjustments were made this semester/year, or are planned, based on the data analysis, student reactions, feedback from consultants, etc.?

Integration of case studies has emerged as a key change to make. The textbook was a happy accident, as was the offering of an online version of the course at the same time in the spring. Virginia will also begin working to substitute more active learning experiences into the lecture environment and move away from PPT delivery model. Student portfolios have been used in the past, but the book offers its own. Some blending of the two is likely.

Course redesign team members' definitions of what it means to take a scholarly approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Virginia Zuiker, faculty member: Taking a scholarly approach to teaching means that you study the research and methods related to teaching and then incorporate them into your teaching and reflect on their effectiveness.

Course redesign team members' definitions of what it means to take a collaborative approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Virginia Zuiker, faculty member: Taking a collaborative approach to teaching means that you are not doing this alone. You are working with a team to incorporate teaching strategies into the classroom setting and seeing whether the strategy worked or not and why.

**University of Minnesota
Bush Foundation Grant
Course Profiles**

Faculty Member or instructor: Murray Jensen

Number of people involved in course redesign team (e.g., teaching specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational Technology consultants) 5

Campus: Twin Cities

Course Name: GC 1135: Human Anatomy and Physiology

Number of Students Impacted by Course: 30-170 per semester

Student Learning/Teaching Issue: E.g., student engagement with course material; overcoming physical classroom limitations with innovative teaching strategies

- Increases students' understanding of anatomy and physiology.
- Increase students' time on task.
- Increased focus—"What do I study?", Increase students' engagement.

Course Description: *(Please provide the course overview that appears in course bulletins)*

GC 1135, Human Anatomy and Physiology, is a developmental education course intended for freshmen in General College. The course has three components: First, a traditional lecture where students are expected to take notes and take exams, second, a computer lab where students engage in cooperative quizzes and activities such as a "do something cool" project, and third, a laboratory component where students dissect eyes, brains, hearts, etc., and participate in many other hands-on activities. The course is organized around body systems, e.g., the skeletal system, the nervous system, etc., and focus on many common diseases such as diabetes, cancer, and atherosclerosis. All students enrolled in GC 1135 will be required to read at least one book, such as "When the Air Hits Your Brain," outside of regular class time. This course makes considerable use of Web Vista and a course internet site. Do not take this course if you do not enjoy using computers or if you do not have access to a fast and reliable internet connection. Please look up the GC 1135 website for more details:
<http://www.ms Jensen.gen.umn.edu/1135/>

Description of Research Project: (Include specific research question/s. Also include the teaching and/or technology intervention strategies, e.g. learning style tests, new case studies, use of web forum, use of games)

- Do students' use of online quizzes improve their understanding of anatomy as measured on test performance?
- Do students' use of games (the newly constructed "Anatomy Bowl") improve their understanding of anatomy as measured on test performance?
- Does the use of the Anatomy Bowl increase student engagement?

Data Collection Techniques (e.g., surveys, CATs, focus groups, data analysis of online discussions):

Completed this semester: Course opinion surveys. Data analysis of exam scores. Data analysis of Vista quizzes.

(In the future: If we can get data from the game, we'll look at game use and performance data. Possible focus groups, interviews, and CATs.)

Summary of up to three key findings from data collected (bulleted list is acceptable):

- Exam scores were higher for those who used Vista quizzes compared to students who didn't use the quizzes in the same semester.
- The Vista quiz users showed improved exam performance over previous years.
- There is a correlation of total attempts of quizzes and both final grades and final exams.

What course adjustments were made this semester/year, or are planned, based on the data analysis, student reactions, feedback from consultants, etc.?

- Positive results suggest we continue to use Vista quizzes in the manner we are already using them.
- Implementation of The Anatomy Bowl developed this past semester.

Course redesign team members' definitions of what it means to take a scholarly approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Murray Jensen, Instructor--Reviewing findings from articles and research and discussion to modify course curriculum to better accommodate student learning styles.

Jennifer Connor, Graduate Assistant--Implement course redesign with data-driven decision making.

Course redesign team members' definitions of what it means to take a collaborative approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Murray Jensen, Instructor--What we're doing in the group actually happens in the classroom. It's not a dictatorship. The instructor of record uses the ideas from the group to modify course curriculum and instruction.

Jennifer Connor, Graduate Assistant--Using conversations between people of power differentials to both mentor and learn from each other.

Description of Research Project: (Include specific research question/s. Also include the teaching and/or technology intervention strategies, e.g. learning style tests, new case studies, use of web forum, use of games)

How can we overcome student pre/misconceptions when it comes to map use? Are anaglyph maps better tools for helping students to overcome these problems than traditional topo or grayscale maps? Can anaglyph maps be used to increase student engagement in Geo 1001? How can stereo projection best be integrated into large lectures? Can stereo projection be used to better engage the “at-risk” portion of the class without lowering class standards?

Interventions/strategies:

We will use anaglyph images developed for the labs in lecture to try to engage students more effectively early in the semester and will try to incorporate more active learning strategies into the lecture portion of the course. An important part of the spring plans will be to more directly address problems students have had with the course from the first day forward to decrease the number of “at-risk” students.

Data Collection Techniques (e.g., surveys, CATs, focus groups, data analysis of online discussions):

We are using pre- and post-instructional exercises to gauge changes in student learning along with a number of surveys on the course. Out of class, extra-credit sessions also allow us to quantify changes in student learning and understanding of mapped surfaces using different educational technologies. To date over 500 students have completed these exercises.

Summary of up to three key findings from data collected (bulleted list is acceptable):

- Students not only strongly prefer anaglyph maps to topo maps, but seeing the land surface in stereo significantly improves their understanding of that surface as measured by their accuracy in answering test questions about that surface.
- Students not only rate the revised GEO 1001 lab program as being more effective than other comparable 1xxx-level geology lab programs, but their performance on pre- and post-instruction surveys shows that these labs are more effective than the non-initiative lectures at preparing students to interpret geology.
- The lecture approach associated with the initiative, that focuses on past and present interactions between geological processes and human society, appears to be far more effective at engaging students than traditional approaches to the teaching introductory geology.

What course adjustments were made this semester/year, or are planned, based on the data analysis, student reactions, feedback from consultants, etc.?

See interventions/strategies above.

Course redesign team members' definitions of what it means to take a scholarly approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Kent Kirkby (faculty) and Rebecca Clotts (graduate student):

Although we are reviewing educational literature in our field, as physical scientists we tend to rely more on direct experimentation and observation when trying to gauge the effectiveness of educational initiatives. We are developing/revising a number of instruments to quantify changes in student learning as a result of varied teaching strategies and new educational technologies.

Course redesign team members' definitions of what it means to take a collaborative approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Kent Kirkby (faculty) and Rebecca Clotts (graduate student):

We are taking a variety of approaches to collaboration, with the first and foremost being the recognition that student play as crucial a role in learning as the instructors and are actually remarkably astute judges of what helps them to learn. Although we can never expect a large diverse student body to speak with a unified voice on class surveys, their consensus and dissenting views hold a wealth of insight into ways to improve class instruction.

On a larger scale, we are also collaborating with a number of other departments, colleges and even national institutions to develop new educational technologies and materials. At this point materials and technologies developed as by this collaboration have been adopted by hundreds of teaching institutions ranging from elementary to graduate level.

**University of Minnesota
Bush Foundation Grant
Course Profiles**

Faculty Member or instructor: Professor Jole Shackelford

Number of people involved in course redesign team (e.g., teaching specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational Technology consultants) 4

Campus: TC

Course Name: HMED 3001 (History of Medicine)

Number of Students Impacted by Course: 96 per semester

Student Learning/Teaching Issue:

- Reading and writing skills, in particular, processing unfamiliar, foreign and historical vocabulary, complex sentences and sophisticated arguments.
- Thinking critically about academic texts, and evaluating the merits of historical arguments in the contexts of medicine and biology.

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur:

Ethnographic data from classroom observations and written records of meetings have been collected this year. Permission is needed from Professor Shackelford before these data can be used. Diagnostic data based on an analysis of written assignments to generate a list of writing problems is required in order to design the modules. Diagnostic data will be collected in the spring of 2006. Survey data will be collected in the fall of 2006.

Course Description: *(Please provide the course overview that appears in course bulletins)*

HMED 3001 is the first semester of a year-long survey course that covers the history of medicine in Western civilization from its earliest history into the 20th century. There are currently 6 sections of undergraduate students of mixed standing (HMED3001W), and also a section of freshman honors students (HMED3001V). Most students perceive themselves to be headed toward a health care related career. The course is a writing-intensive course with an emphasis on essential academic skills.

Description of Research Project: (Include specific research question/s. Also include the teaching and/or technology intervention strategies, e.g. learning style tests, new case studies, use of web forum, use of games).

How can technology-based reading and writing modules be designed to teach critical academic reading and writing within a meaningful and authentic context? How will these modules affect student engagement and short essay writing performance?

Data Collection Techniques (e.g., surveys, CATs, focus groups, data analysis of online discussions):

The data collection techniques will include some or all of the following:

- Diagnostic analysis of written assignments
- Student engagement surveys
- Scores and annotated feedback on essay writing assignments
- Survey similar to Writing Center's (2005) mid-semester feedback form
- Ethnographic data from classroom observations
- Written records of meetings and interviews

Summary of up to three key findings from data collected (bulleted list is acceptable):

The ethnographic notes of classroom observations show that Professor Shackleford has adopted several strategies from the Bush grant in his lectures, including video clips, connecting lecture points to readings and previous lectures, flagging main ideas, using powerful images and graphics such as historical icons and histograms, and summing up main points at the end. The students appeared to be fully engaged during the lecture we observed.

What course adjustments were made this semester/year, or are planned, based on the data analysis, student reactions, feedback from consultants, etc.?

The course adjustments have been mentioned above, and the graduate TA's have been working with Vista. Professor Shackleford has defined the issues as reading and writing. The course team plans to construct a series of modules to teach these essential academic skills. Next term, our attention will turn towards diagnosing and listing the teaching points for these modules, finding authentic and engaging source materials and writing the modules.

In designing the evaluation plan and survey instruments, the course team may follow Liss and Hanson's (2003) evaluation and assessment model, as described in their technical report on writing to learn in Anatomy, produced for the U Minnesota's Writing Center.

Course redesign team members' definitions of what it means to take a scholarly approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Professor Shackelford's theory of pedagogy is that reading, assimilating, and questioning complex verbal arguments is an essential, foundational component of higher education in a pluralistic society. Undergraduates have had little exposure to this kind of education, which they need to become not only engaged learners, but also engaged citizens. Moreover, Professor Shackelford's views of student reading and writing skills are supported by national statistics, which show that the percentage of literacy proficient college students declined from 40% in 1992 to 31% in 2003 (Dillon, 2005), with literacy proficiency defined as the ability to process complex sentences and draw complex inferences.

The literature used to inform our work with HMED 3001 includes:

Behrens, L., Rosen, L.J., Beedles, B. (2005). A Sequence for Academic Writing. 2nd Ed.

Dillon, S. (Dec. 16, 2005). Literacy falls for graduates from college, testing finds. New York Times, p. A. 28.

Hacker, D. (2002). The Bedford handbook. 6th Ed. Boston: Bedford/St. Martins.

Iles, R.L. & Volkland, D. (2003). Guidebook to better medical writing. Olathe, KS: Iles, R.L.

Johnson, K. (2004). Student writing guide. [Online]. Available at: <http://writing.umn.edu/docs/sws/swgpdf.pdf>

Liss, J. & Hanson, S. (2003). Writing to learn in anatomy and physiology of the speech and hearing mechanisms. Technical Report Series No. 25. University of Minnesota: Center for interdisciplinary writing. [Online]. Available at: <http://writing.umn.edu/isw/publications.htm>

Writing Center (2005). Mid-semester feedback form. [Online]. Available at: http://writing.umn.edu/docs/tww/mid-sem_form.pdf

Course redesign team members' definitions of what it means to take a collaborative approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

All course team members will contribute to the design, implementation and delivery of the modules.

**University of Minnesota
Bush Foundation Grant
Course Profiles**

Faculty Member or instructor: Kevin Upton

Number of people involved in course redesign team (e.g., teaching specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational Technology consultants) 4

Campus: TC

Course Name: MKTG 3001 Principles of Marketing

Number of Students Impacted by Course: 120. This is double the usual registration and reflects the College's intent to increase all core courses to more than 100 students.

Student Learning/Teaching Issue: how to enhance or at least maintain student satisfaction in a weeder course while increasing the enrollment count across all 30 sections per year.

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur:

Spring 06

Course Description: *(Please provide the course overview that appears in course bulletins)*

Introduction to terms, concepts and skills for analyzing marketing problems. Factors outside the organization affecting its product, pricing, promotion, and distribution decisions. Examples from actual organizations are used.

Description of Research Project: *(Include specific research question/s. Also include the teaching and/or technology intervention strategies, e.g. learning style tests, new case studies, use of web forum, use of games)*

Research project focuses on staffing costs and staff/student ratios and the impact on student satisfaction and engagement. In Spring 06, there will be two sections of the course taught, with one section having 2PAs (undergraduate peer assistants) and one having 4PAs.

Data Collection Techniques (e.g., surveys, CATs, focus groups, data analysis of online discussions):

Mixed methods quasi- experimental design. Data will consist of: survey data from two treatment groups, costs of two vs. four peer assistants, self-evaluation of progress notes and taped interviews with peer assistants about the teaching and learning process.

In addition, the same survey instrument will be administered in the other (smaller enrollment size) course sections.

Summary of up to three key findings from data collected (bulleted list is acceptable):

1. Student learning outcomes: Large enrollment sections compared to small enrollment sections.
2. Effectiveness of peer advisors as opposed to traditional teaching assistants.
3. Student satisfaction with the instructional environment: large sections compared to small sections.

What course adjustments were made this semester/year, or are planned, based on the data analysis, student reactions, feedback from consultants, etc.?

Added Peer Assistant. Phased out teaching assistant. Piloted learning outcome survey instrument.

Course redesign team members' definitions of what it means to take a scholarly approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Gaining knowledge from the experience of successful instructors. Collecting and trying best practices. Sharing experiences. Collaborating within the course team.

Collective response.

Course redesign team members' definitions of what it means to take a collaborative approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Sharing ideas, listening to student feedback, acknowledging student feedback, being willing to adjust based on discussions and feedback, respecting each other and each other's roles.

Collective response.

**University of Minnesota
Bush Foundation Grant
Course Profiles**

Faculty Member or instructor: Professor Steve Huchendorf

Number of people involved in course redesign team (e.g., teaching specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational Technology consultants) 4

Campus: TC

Course Name: OMS 2550 (Business Statistics)

Number of Students Impacted by Course: 90 per semester

Student Learning/Teaching Issue: Lack of attendance at discussion sections, inconsistency across discussion sections, professor wanted to achieve a "single voice" between the himself and the TA.

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur:

Data has been collected this year. More data will be collected in the spring of 2006.

Course Description: *(Please provide the course overview that appears in course bulletins)*

Business Statistics: Data Sources, Presentation, and Analysis

Data analysis, basic inferential procedures, statistical sampling/design, regression/time series analysis. How statistical thinking contributes to improved decision making.

Description of Research Project: *(Include specific research question/s. Also include the teaching and/or technology intervention strategies, e.g. learning style tests, new case studies, use of web forum, use of games).*

The revisions to the course are to eliminate the discussion sections and include active learning and classroom assessment techniques (ALT-CAT's) in the lectures. The ALT-CAT's are small group activities which require students to apply statistical concepts to authentic problem-solving contexts.

Data Collection Techniques (e.g., surveys, CATs, focus groups, data analysis of online discussions):

A pre- and post-test design will be used in the spring of 2006. The first instrument is an Attitude survey that measures the impact of ALT-CATs, on several dimensions, including usefulness, confidence, enjoyment and motivation. This survey was pilot-tested in OMS 2550H and in MBA 6120 courses, and revised before it was distributed. Secondly, to measure outcomes, the Test of Statistical Literacy will be used. This test consists of both subject matter and confidence level items. Thirdly, Professor Huchendorf's ALT-CAT's test will be used after each ALT-CAT activity.

Summary of up to three key findings from data collected (bulleted list is acceptable):

On the pre-test of the Test of Statistical Literacy, the mean score was 10.0, out a total of 20. In contrast, the post-test mean was 17.8, an improvement of from 50.45% to 85.9%.

On the attitude scale, the pre-test mean was 10%, and the post-test mean was 81.1%.

Finally, the Alt-Cats Test was also given (N=39). 84% agreed or strongly agreed that the Alt-Cats were helpful for learning the material.

What course adjustments were made this semester/year, or are planned, based on the data analysis, student reactions, feedback from consultants, etc.?

Active learning techniques were incorporated into the lectures. Students were surveyed on their attitudes, a test of statistical literacy and the ALT-CAT's. An experimental design will be implemented with two sections in the spring of 2006.

Course redesign team members' definitions of what it means to take a scholarly approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Based on his review of the literature, Professor Hutchendorf's theory is that the learning of statistics, as well as attitudes towards statistics, is enhanced with active group discussions in which statistical concepts and principles are used to solve problems in authentic contexts. The literature includes:

Teaching Tips, 2002, 11th ed.

Hutchendorf, S. (2004). OMS Department PACE* Program. University of Minnesota: Carlson School of Management.

Macnaughton, D. (Dec. 1, 1996). How Should We *Motivate* Students in Intro Stat? Posted to EdStat-L mail list and sci.stat.edu newsgroup. [Online]. Available at: <http://www.matstat.com/teach/p0015.htm>

Macnaughton, D. B. (1996), "The Introductory Statistics Course: A New Approach." [Online]. Available at <http://www.matstat.com/teach/>

Course redesign team members' definitions of what it means to take a collaborative approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Students work in groups on the ALT-CAT's. They are then surveyed on their attitudes towards statistics and statistical literacy. The graduate assistant will collect, compile and analyze the data on these tests, and represent them as bar charts.

**University of Minnesota
Bush Foundation Grant
Course Profiles**

Faculty Member or instructor: Branislav Jakovljevic

Number of people involved in course redesign team (e.g., teaching specialists, Graduate TAs, Undergrad TAs, technical support undergrads, Educational Technology consultants) 5

Campus: TC

Course Name: Theatre History and Drama I (TH 3171)

Number of Students Impacted by Course: 74 per semester

Student Learning/Teaching Issue: student engagement with course material; overcoming physical classroom limitations with innovative teaching strategies

If assessment of student learning or evaluation data was not collected this year, please indicate when this will occur:

Course Description: *(Please provide the course overview that appears in course bulletins)*

In this course we explore the formative periods of theater: the ancient Greek and Roman, Medieval and Renaissance theaters, as well as Neo-classical and Restoration drama. In other words, the subject of this course is the classical theater. The classical age, its art and culture, was traditionally seen as standard-setting, primary, more of the first order. We will depart from this traditional thinking in several ways. First, our study of classical theater will not be reduced to the chronological procession of great names and their works. Instead, it is our responsibility to assess critically these works, and try to understand how and why the notion of the "classical" became indispensable in our culture. Second, we will keep in mind that these "ageless" works are being read in a very specific historical moment, in our case at the beginning of the twenty-first century. Therefore, it is also our responsibility to see how these works speak to us: how they were transformed over time, and what are the limits of our understanding of these works. And finally, even though our primary focus is on Western theater, it is not limited to it. Perhaps more than anything else, it is our responsibility to acknowledge the complexity of cultural exchange by looking at theatrical forms of other cultures, such as Sanskrit drama and Kabuki theater.

Description of Research Project: (Include specific research question/s. Also include the teaching and/or technology intervention strategies, e.g. learning style tests, new case studies, use of web forum, use of games)

This semester has been exploratory for Branislav. He has been using several techniques drawn from his experience in the BUSH grant, including CATs (classroom assessment techniques such as one-minute papers), mid-term evaluations from the Bush grant template, and collaborative student presentations. Branislav thinks all of these interventions are having a positive impact on the course.

Students revised, worked on clear thesis statement, and resubmitted their papers for extra credit. The student presentations were also very effective. They gave him a chance to hear people who don't talk in class. Students delved into the content and raised questions he would never think of.

He'll be teaching the course again next fall semester. Moving forward, we'll:

1. Determine an evaluation strategy more closely linked to Branslav's interventions to gain some objective sense of the impact on student engagement, reflection and responsibility.
2. Devise a rubric for student presentations.
3. Determine the next round of innovations in the fall.
4. Consider focus groups. Will we do focus groups? With who and for what purpose? When? Questions?
5. Explore multi-media options for content delivery (images/video clips).

Data Collection Techniques (e.g., surveys, CATs, focus groups, data analysis of online discussions):

As from comments above, Branislav has used a variety of assessment strategies. Our aim is to get more formal in the evaluation of his interventions as we move forward.

Summary of up to three key findings from data collected (bulleted list is acceptable):

NA—anecdotal evidence at this point that the interventions have increased engagement substantially.

What course adjustments were made this semester/year, or are planned, based on the data analysis, student reactions, feedback from consultants, etc.?

see above

Course redesign team members' definitions of what it means to take a scholarly approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

To me, scholarly approach to teaching consists first and foremost in provoking, inspiring, inciting students to reflect upon ideas and phenomena that surround them. If vocational training focuses on practical know-how, that is to say, on using the world that surrounds us, the scholarly approach to teaching focuses on understanding the world.

Branislav Jakovljevic
Assistant Professor
Theatre Arts and Dance
Team Leader

Scholarly approach: This approach has to do with the presentation of concepts as something exterior, which students can objectively contemplate, adjudicate, and then implement.

Wade Hollingshaus, Graduate Assistant

Course redesign team members' definitions of what it means to take a collaborative approach to teaching? (Please obtain definition from each course redesign team member and list their role – e.g., faculty, graduate assistant, technical support person, etc.)

Having just finished a class in Design Collaboration and Composition, I can say that collaborative teaching is involved teaching: involved in the sense that it is not only centered on the transmission of knowledge from professor to student, but on the exchange between co-teachers, and even more important, between teacher and students. Whether we like it or not, we learn from students. Collaborative teaching underlines this aspect of the classroom dynamics rather than repressing it. I tried to introduce collaborative agenda into my Theatre History classes by asking students to give oral presentations.

Branislav Jakovljevic
Assistant Professor
Theatre Arts and Dance
Team Leader

Collaborative approach: This approach has to do with an instructor and his/her students delving into a shared engagement with specific materials and identifying knowledge that is generated by that engagement. This approach begins with the implementation of concepts and the struggle that accompanies it. The knowledge emerges from the struggle and is already internalized by both the instructor and student.

Wade Hollingshaus, Graduate Assistant