

Project Name:	Wisconsin Collaboratory for Enhanced Learning (WisCEL)
MIU Round:	Round 2
Sponsor(s):	College of Engineering, College of Letters and Science, Math Department, Division of Information Technology (DoIT), Office of the CIO, General Library System, Language Institute
Coordinator(s):	John Booske (Electrical and Computer Engineering, WisCEL Director), Suzanne Smith (WisCEL Associate Director, Years 1 and 2) Sarah Mason (WisCEL Associate Director, Year 3)
Report Date:	Year 1, July 2011; Year 2, July 2012; Year 3, July 2013

Project Specific Goal and Measures

Project Impact Measure(s)	<ul style="list-style-type: none"> • Develop two WisCEL Centers (physical environment that provides multi-use spaces and technology) for the purpose of offering technology enhanced/instructor coached collaborative pedagogies spaces that allow students to build fundamental skill competencies, self-pace learning, receive immediate feedback and help on course work, and increase time on task. Permanent facilities were completed during November 2011. • Provide easier access to high-demand courses, particularly those where enrollments are restricted by grader FTE limits and course structure issues. • Maximize instructor/student contact by lessening labor intensive administrative functions like grading quizzes. • Aid curricular and pedagogical innovations by implementing technology-assisted learning, providing technical support for new course delivery proposals, and helping faculty and staff with the steep learning curve needed to move to a technology enhanced course delivery model. • Offer course access at non-traditional times.
Project Impact Data Source(s)	WisCEL Project Staff and APA (course enrollments and outcomes).
Baseline Measure(s)	Project did not exist prior to MIU funding. Year 1 enrollments and outcomes can be used as a baseline to measure future progress. One measure of impact is to compare outcomes in the WisCEL course sections to non-WisCEL course sections looking for evidence of at least similar (and ideally improved) outcomes and decreased achievement gaps.

General MIU Goals and Measures (applicable to project)

C	Increased capacity for high-impact practices	<ul style="list-style-type: none">• By using computer software to analyze and grade homework and tests, students receive immediate feedback and the opportunity to continue to improve grades on homework. Instructor/student contact is maximized and centered around the course content rather than course administrative issues.• WisCEL is piloting the use of peer tutors in Math and Engineering courses as a way of facilitating collaborative learning.
D	Increased student learning and teaching excellence	<ul style="list-style-type: none">• “Time-on-task” is associated with increased learning gains. In general, software facilitated instruction maximizes time-on-task and individualizes the task based on each individual student’s progress. The MyMathLab software that will be used in 2011-12 has built in time-on-task reports that will be available to instructors and others.• Structure centers with open and flexible space (moveable furniture, whiteboards, laptop desks, and tables), new technology, and on-site instructor office space to foster increased and informal interaction between students and instructors. Maximize learner time-on-task AND allow for increased course capacity.• Use computerized learning software to allow students to work at their own pace, get immediate and individual feedback, hold students accountable for learning mastery, and provide instructors with timely information on student performance.
F	Decreased achievement gaps	<p>It is expected that WisCEL will contribute to the reduction of achievement gaps, mainly by increasing the high impact practices known to increase student learning. In the pilot year (2010-11) the WisCEL students performed similarly students in the traditional sections even though the space was temporary and the software was being used for the first time by students and instructors (and changed three times). Once the math courses are fully implemented in 2011-12 in WisCEL and full review of the achievement gap in these courses will be conducted.</p>
G	Attention to diversity in new hires	<p>The search and screening committee for the project coordinator (Suzanne Smith) included staff from the General Library System, DoIT, Wendt Commons, Math Department, and College of Engineering. The committee also included an Equity Action monitor whose sole job was to ensure equity in the search and screen process. In addition to standard position announcements and the use of social networking sites (LinkedIn specifically), the position was specifically marketed through the Madison Times.</p>

- I Unintended Consequences
- The self-paced nature of these software facilitated courses does not completely fit into our fixed-length semesters/sessions. The WisCEL project has prompted discussions of how to offer modular credit for courses without a fixed length.
 - Instructors report feeling more engaged with students in the WisCEL sections and attribute it mainly to the increased interaction and opportunity for individualized help.
 - Because of the open nature of the classes, instructors noticed an increased occurrence of students gathering in the lab after class time to work on homework together and to utilize the instructor's help (the instructor was still present for another class). This is not usually possible in a traditional classroom due to immediate need for the space for a subsequent class.
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Progress Reports

Year 1, 2010-11

- Designed WisCEL spaces in Wendt Commons and Helen C. White Hall. Both permanent sites are scheduled for completion by October 2011. After using the temporary space for pilot Math sections, enhancements were made to the spaces including: increasing the table size to accommodate large computer monitors and desired student work space; increased storage space for instructors, addition of clocks.
 - Taught the following pilot sections of Math courses while testing software systems for course delivery: Math 95 (section 4, Fall 2010), Math 101 (sections 1 and 2, Fall 2010; sections 1-5, Spring 2011), Math 112 (section 23, Fall 2010; sections 14-17, Spring 2011).
 - Evaluated the following software systems: ALEKS (affiliated with the University of California and, at the time of the proposal, expected to be the "final" selection), Hawkes Learning System, Connect (McGraw Hill product), and MyMathLab (Pearson product). After evaluating the pilot sections, MyMathLab was selected at the software to use for Math in 2011-12. Engineering courses (ECE 230 and ECE 376) will use the McGraw Hill Connect product.
 - Began planning for delivery of ECE 230 and ECE 376 through WisCEL.
 - Began planning for delivery of EMA 201 through WisCEL.
 - Formed partnerships with other universities who are already up and running with a WisCEL-like facility (NC State, University of Minnesota, Virginia Tech).
 - Formed internal partnerships with Nursing and biological science faculty who are interested in using WisCEL technology.
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Year 2, 2011-12

- Formed a cross-functional WisCEL Advisory Committee.
- Appointed a WisCEL space usage work group to consider future proposals for new WisCEL courses, to enhance and expand center usage and to increase course access.
- Initiated work with evaluation experts to create tools to measure the effectiveness of newly implemented educational practices.
- Facilitated ongoing faculty-led WisCEL learning community where instructors share emergent best practices for instruction in the WisCEL environment.
- Worked with the Math Department to implement all sections of Math 95, 101 and 112 in WisCEL space beginning in Fall 2012. For Fall 2011, taught Math 95, four sections of Math 101, and four sections of Math 112 in WisCEL space. For Spring 2012, taught 2 sections of Math 101, 5 sections of Math 112, section 1 of ECE 230, 2 sections of EMA 201, and one section of Inter-EGR 103 in WisCEL space.
- Compared final grades in WisCEL and non WisCEL sections of the same course. Findings:
 - a) In Math 95, 101, and 112, WisCEL students perform equal to or better than those in non-WisCEL sections of the same course.
 - b) In ECE 230, students in WisCEL sections are more likely to earn a B or higher and are less likely to earn a D or lower.
 - c) In EMA 201, WisCEL students earned higher grades than the non WisCEL students and received fewer grades of BC or lower.
- Surveyed students about attendance, engagement and learning and compared the results between WisCEL students and non-WisCEL students. Findings:
 - a) WisCEL math students are more likely to agree that peer collaboration helps math learning.
 - b) WisCEL math students are more likely to agree that their class fostered collaboration.
 - c) WisCEL students in Math 112 were almost twice as likely as non-WisCEL students to “strongly agree” that they learned a lot from the class.
- Students in ECE 230 were asked to compare that course to other STEM courses of similar size and difficulty. Students in the WisCEL sections reported more emphasis on high engagement instructional practices and less emphasis on working alone.

Year 3, 2012-13

- Taught more than 2,300 students enrolled in 81 course sections taught by 23 different instructors in WisCEL spaces in either Wendt Commons or H.C White College Library.
- Supported instructional innovation/improvement by providing space and functionality for instructors to address diverse backgrounds and learning needs, develop learner content and conceptual mastery, increase instructor/student interaction, provide an environment that facilitates immediate feedback, greater time on task, an emphasis on problem solving, and self-pacing strategies.

Year 3, continued

- Supported best practices in instructional design, staging, and classroom pedagogy through Integration of on-line course content and materials, course management, technologies, and space; use of “flipped” instructional models; emphasis on mastery learning over norm-referenced evaluations; use of longer class periods; use of teaching and student assistants to improve instructor/student ratios; and facilitation of small-group collaboration, shown to benefit learning.
 - Assessment activities include:
 - a) Math 112. Comparison of D, F, Drop rates and B or Better rates for targeted minority and non-targeted students shows that the persistent gap in achievement between targeted and non targeted students closed.
 - b) Comparison of the percentage of “B or Better” grades in WisCEL courses over time. 11 of 13 courses in 2012-13 had increases in the percentage of students who earned a B or better compared to pre-WisCEL semesters.
 - c) Comparison of D, F, Drop rates and B or Better rates for targeted minority and non-targeted students taking Math 112, shows that the persistent gap in achievement between targeted and non-targeted students closed in Fall 2012.
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