How did they do that?
Successful Implementations of *Beyond Crossroads*

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AMATYC Annual Conference
November 20, 2008
Washington, DC
What is *Beyond Crossroads*?

*Beyond Crossroads: Implementing Mathematics Standards in the First Two Years of College* is the standards document of AMATYC, released in November 2006.
What is *Beyond Crossroads*?

A guiding theme is *embracing change for continuous improvement and professional development.*
What is *Beyond Crossroads*?

*Beyond Crossroads* lists five implementation standards: Student Learning and the Learning Environment, Assessment of Student Learning, Curriculum and Program Development, Instruction, and Professionalism.
What is *Beyond Crossroads*?

The *Implementation Cycle* is a model for making change and improvement in math education.

**Figure 1** The Implementation Cycle of *Beyond Crossroads*

1. **Define/Refine** goals and objectives of the activity or process to be improved with input from all stakeholders.

2. **Design** materials needed to implement the activity and develop the tools to measure their effectiveness.

3. **Implement** the activity or process and use assessment tools to collect data.

4. **Analyze** and evaluate the collected data.

5. **Identify** gaps between desired and actual results and determine what changes are needed.

6. **Document** results and use them to outline any needed changes.
Check it out!

At the *Beyond Crossroads Live!* site you can see an enhanced electronic version, download a pdf version, or order a free hard copy.
Forty math educators gathered at the Centennial campus of Pikes Peak Community College in Colorado Springs June 6-7, 2008.
The keynote speaker, Pat McKeague, provided many examples of slides and activities he uses to enhance the learning environment of his classes.
Pat's key messages

- Give yourself permission to use 5 minutes of any class session for anything you find interesting in and around mathematics.
- Share with your students what you like about mathematics.
- Don't let your lack of knowledge on a subject keep you from bringing it to class.
- Start slowly.
Pat's also provided links to websites he finds useful and links to his websites.
Rob Farinelli spoke about *Using Beyond Crossroads to Teach the Millennial Generation.*

(Rob is AMATYC's president-elect.)
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<th>Matures</th>
<th>Boomers</th>
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<td>Thrifty</td>
<td>Buy now/pay later</td>
<td>Save</td>
<td>Earn to spend</td>
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<tr>
<td>Work fast</td>
<td>Efficiency</td>
<td>Every job is a contract</td>
<td>Tech has all the answers</td>
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<td>Hard work</td>
<td>Personal fulfillment</td>
<td>Live with uncertainty</td>
<td>Work should be fun</td>
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Valerie Harris explained how students at Central Wyoming College are integrating Geology and Mathematics in her presentation, “Where in the World Am I?”
The students learn to use a compass, GPS, and the Universal Transverse Mercator (UTM) coordinate system.
Rob Kimball spoke on “Implementing Beyond Crossroads with the Right Stuff” and on “Implementing Promising Practices - doing the Right Thing with the Right Stuff”.

(Rob is the project director of The Right Stuff, an AMATYC project funded by the NSF.)
Rob provided examples of college algebra lessons designed not simply to help students master algorithms but rather to foster changes in the student’s way of thinking and/or habits of mind.

His BC wiki site includes links for his presentations and related resources.
The team of Holly Ashton, Jenny Dorrington, and Gwen Wiley gave two presentations.
Their first presentation explained how Pikes Peak Community College embraced the *Beyond Crossroads* implementation standard of Professionalism (Chapter 12).

The second presentation described how PPCC embraced the BC implementation standard of Assessment of Student Learning (Chapter 5).
A team of *Wyoming educators* have declared 2008-2009 the Year of Algebra.

The team hopes to...
1. Design a task that has multiple entry points and presents an engaging challenge for students at different levels in their education.

2. After gathering some student data on own campuses, complete with rubric that reflects our combined experience and the work.

3. Continue refining this first assessment task using the implementation cycle outlined in BC.
4. Have a work session in September to establish the rubric, a baseline of data, and to make plans for data to be collected Fall 2008.

5. Make plans for more tasks and the comparison of results at the February 2009 annual meeting, this year being hosted by Casper College.
In 2006-2007, the Los Medanos College Mathematics Department began an overhaul of their developmental math program.

Changes were based on research/effective practices of developmental education.

Department members embraced the Scholarship of Teaching and Learning (SoTL).
Meaningful Student Learning Outcomes:

Courses are designed to help students learn to solve problems in real world contexts that require more than algorithmic approaches and to use multiple representations of mathematical ideas in order to build quantitative literacy.
Collaborative investigations into student learning:

Teaching Communities meet weekly with the goal of developing effective curriculum and pedagogy that support our program's SLOs. Teaching Communities are based on the theory that idiosyncratic efforts, while sometimes brilliant and inspiring, cannot affect the same kind of sustainable innovation fostered by a community of practice.
Integration of research and best practices:

Major influences include Trends in International Mathematics and Science Study (TIMSS), the research into effective Developmental Education Programs outlined by Hunter Boylan in *What Works: Research-based Best Practices in Developmental Education*, the National Research Council’s *How Students Learn: Mathematics in the Classroom*. 
Los Medanos College

Integrated assessment of student learning for the purpose of program improvement:

*Holistic assessment of student achievement of program learning outcomes by analyzing a cross-section of final exams every semester.*
Los Medanos College

Integration of student support services:

*Math Lab, peer tutoring, and partnership with Counseling.*
Departmental commitment to developmental math:

Over 90% of the full-time math faculty teach developmental courses on a regular basis, with approximately 75% devoting the majority of their teaching load to developmental courses. (Still, adjuncts teach the majority of developmental sections.)
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Los Angeles Pierce College

5 new programs:
• Freshman Success
• ASAP
• Math Jam
• Math/Automotive
• MAP
Freshman Success

A learning community—new students concurrently enrolled in a 5-unit math class, 3-unit Personal Development class, and 1-unit directed math study for study skills.
Los Angeles Pierce College

Freshman Success

The 5-unit math class is non-transferable (pre-algebra, elementary algebra, or intermediate algebra).

The other 4 units are transferable.
Freshman Success issues

- Logistics of concurrent enrollment
- Counselor-math faculty collaboration
- Success rate in elementary algebra declined in one section.
Los Angeles Pierce College

ASAP: Algebra Success at Pierce

- 10 unit class covering both elementary and intermediate algebra.
- Combined with 3-unit personal development class.
- Students take no other units.
ASAP issues

- Ridiculous achievement by students may be attributed to herculean efforts of the instructor.
- Logistics of scheduling.
- Recruitment.
Los Angeles Pierce College

Math Jam

• One-week summer class just before the start of the fall semester
• Study skills, handling math anxiety
• All developmental math students are eligible.
Math Jam issues

• No data yet on effect of participation on future success
• Funding is temporary
Math/Automotive

- Elementary algebra section specifically for automotive students
- The automotive department funds the section and provides the students.
Los Angeles Pierce College

Math/Automotive issues

• No data (Fall 2008 is first semester).
• Initial feedback indicates that the course goes too fast for the students.
Los Angeles Pierce College

Mediated Algebra Project (MAP)

A comprehensive project to revamp the developmental mathematics curriculum at Pierce
Los Angeles Pierce College

MAP

• Reading component for students to complete before class
• Skill warm-ups for the upcoming lesson
• Classroom learning activities for each topic
• Concept questions (for “clickers”)
• Study skills section in each lesson
• Two-part homework: skills and in-depth
Los Angeles Pierce College

MAP issues

• In progress—only a few lessons have been prepared.
• Choice of electronic delivery system: free or open source vs commercial
• Faculty training
• Development time
Los Angeles Pierce College

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Initiatives from the Audience

Ideas?!
How did they do that?
Successful Implementations of Beyond Crossroads

Thank you!

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