

# A Community Building Approach in Support of STEM Retention Efforts

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PRIMES  
Partnership for Retention Improvement  
in Mathematics, Engineering and Science



## PRIMES

- Partnership for Retention Improvement in Mathematics, Engineering and Science (PRIMES) has been active at the University of Louisville since fall semester 2012. **The project consists of Peer-Mentoring Strand and a Community Building Strand.**
- Both strands involve STEM majors in the College of Arts & Sciences and School of Engineering as well as expertise from the College of Education and Human Development. We reported on the progress of the Peer-Mentoring strand last year (Rich and Tretter 2012).
- **The focus of this presentation is the Community Building strand of the PRIMES.**

## Objectives

The Community Building strand aims at strengthening student-student, student-faculty and student-program ties in informal environments that encourages the emergence of

- character talents
- people skills
- STEM identity

## Community Building Strategies

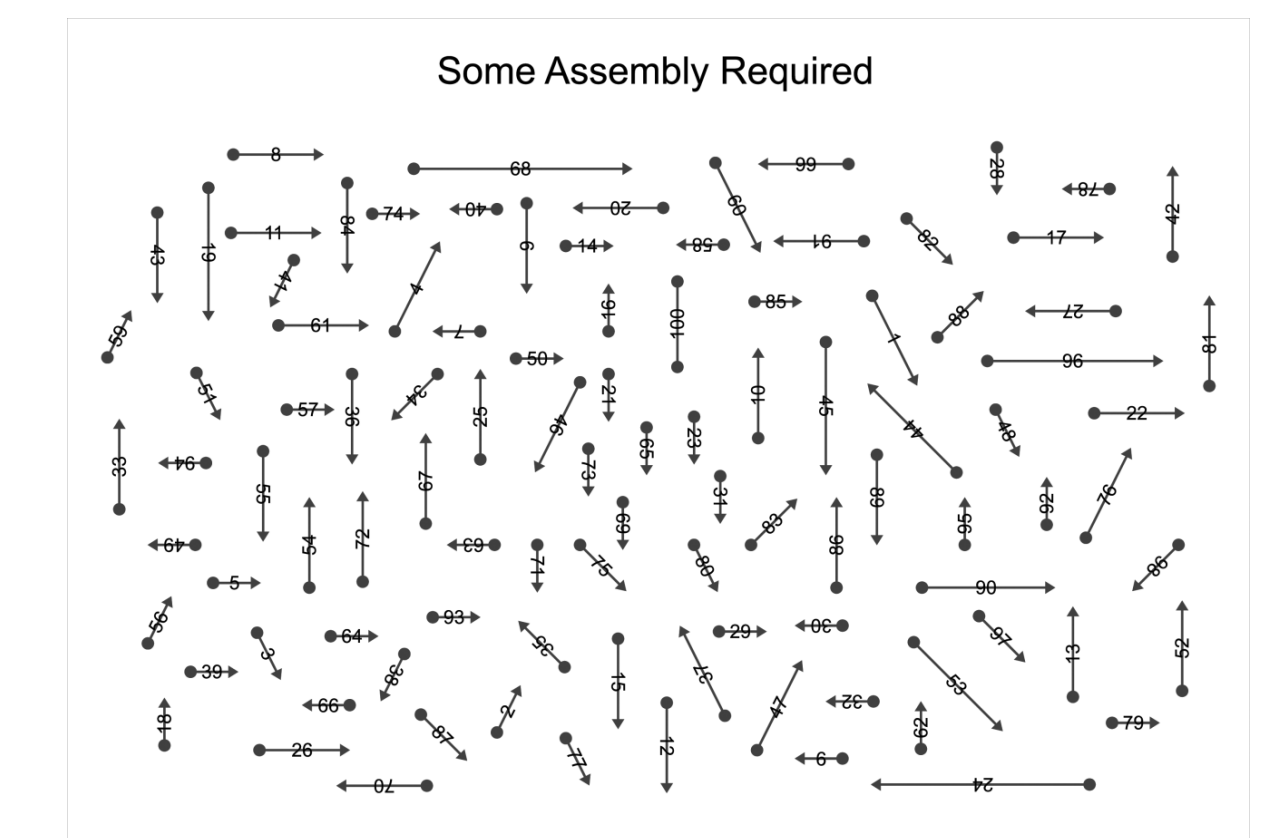
- The main strategy is to create activity environments in which the objectives of the project could be realized.
- Research shows that such environments in academic settings tend to support STEM retention efforts\*.
- The strategy recognizes, and factors in, the possibility that the type and nature of the community building activity may differ among different STEM academic units.
- Nevertheless, sense of belonging is central to the concept of community building regardless of the form of the activity.

## Challenges

- Implementing the community-building strand at our urban state institution has met with several challenges.
- The University of Louisville has a substantial percentage of both non-residential and non-traditional students. Thus many students find it difficult to juggle their desire to participate with
  - travel back-and-forth to campus
  - need for off-campus employment
  - family responsibilities
- Another challenge has been sustaining continued student interest in community activities that require an extended time for completion such as with this year's University-wide event?.

## University-wide activities

Fall kicked off the professionally designed, year-long series of STEM-based puzzles called “**The Great UofL PRIMES Puzzle and Scavenger Hunt**”. Over 15 teams of 3-6 STEM students across all the university STEM departments participated in the puzzle launch to compete for a grand prize to be awarded in late March. The event began with an afternoon long scavenger hunt in early October and has continued through the rest of the year with the release of puzzles every 3-4 weeks through a Facebook group setup for the Puzzle Hunt.



## Unit-Specific Activities

**At the department-specific level, STEM student organizations can request funds to support community-building activities specific to that department. To date, we have funded a total of 9 student-led events, which includes a post-survey by activity organizers to capture measures of impact. However, these data are still being processed and preliminary results are not yet available.**



## Student Response

Analysis of student comments related to the PRIMES peer-mentoring strand specifically points to opportunities for student-faculty interactions as being of high value to STEM students.

The following question was responded to by a cohort of 42 undergraduate teaching assistants in the Peer-Mentoring strand of the project in the spring of 2012:

➤ **For what reasons would you recommend or not recommend the PRIMES experience?**

- **I would tell them that it was a great experience, and that they learn so many tools and techniques that they will use outside of the classroom and further down the road. You will gain closer relationships with professors, and have a greater opportunity to be heard.**
- **In addition, the experience gives TAs a sense of pride and ownership in their own department, which is a positive outcome. And the ability to interact with the head instructors and develop better relationships with them as faculty in my major was really nice.**
- **I would recommend this experience, simply because I think it is important for undergraduates to become involved with the department**

## \* References Cited

- Maldonado D. E., Rhoads R. & Buenavista T. L. (2005). The Student-Initiated Retention Project: Theoretical Contributions and the Role of Self-Empowerment. *Amer. Educational Res.* 42, 605-638.
- Pascarella E.T. and Terenzini, P. T. (2005). *How college affects students: A third decade of research (2nd ed)*. San Francisco: Jossey-Bass.
- Tinto V. (1993). *Leaving college: Rethinking the causes and cures of student attrition*. 2nd edition, Chicago: University of Chicago Press.