Profile of the
"Portals of Discovery" Project

Directed by Dr. Rebecca Abler & Dr. Kitrina Carlson

University of Wisconsin-Manitowoc and University of Wisconsin-Stout
2009 Regents Diversity Award – Team Category

"Portals of Discovery" Synopsis:

- UW-Manitowoc and UW-Stout have developed a collaborative program of recruitment, mentoring, and engagement to increase the number of students entering into and retained in Science, Technology, Engineering, and Math (STEM) fields in Wisconsin.

- In the "Portals" model, students begin work on a collaborative research experience that has been integrated into the curriculum at the high school level and have the opportunity to continue this work at the two-year and four-year university level. This model ensures that, when students transfer, they have the opportunity to continue progressing and working on the *same* research program in their junior and senior years.

- Students are part of a research group composed of faculty and undergraduate students from both campuses. Therefore, rather than being "lost" upon transfer, students who participate in our program have an established mentoring network on their new campus.

- This model supports diversity by opening doors to underrepresented students in STEM, including underrepresented minorities, women in science, and socioeconomically disadvantaged students. Students in these groups often face challenges to education, including heavy work and family responsibilities. These students find themselves struggling to balance these needs with the rigor required in their academic programs. Research shows that these at risk students rely on strong social and institutional support networks to maintain their interest in STEM education (Lee, 2002). They often lack confidence in their abilities and need strong personal supportive relationships with faculty in order to persist (Seymour and Hewitt, 1997).

"Portals" Pilot Research Collaboration:

- Dr. Rebecca Abler and Dr. Kitrina Carlson have initiated a pilot research collaboration to implement the "Portals" model. Their joint research project, "Medicinal Plant Use by the Hmong People in Wisconsin," engages students in collaborative, cross-university research experiences.

- The research project itself serves as a mechanism to build a bridge between cultures: participating researchers are working closely with people from the Wisconsin Hmong Community to collect, preserve and share information on traditional Hmong plants for future generations.

- Further aspects of the research involve screening and characterization of plants for medicinal potential. This component of the research incorporates additional collaborators and has allowed several additional faculty and student researchers to become involved in the "Portals" model.

- Although in the pilot-stage, the "Portals" model for inclusive excellence has already moved students through the STEM pipeline.

"Portals" Dissemination:
Carlson, K., Luke, C., Koenig, B., Abler, R. (2008) *Evaluation of Medicinal Plant Use in the Wisconsin Hmong Population.* Botanical Society of America Annual Meeting, Vancouver BC.

Luke, C., E. Kurbanov, and B. Koenig* (K. Carlson, and R. Abler**,** faculty mentors**.)** *Evaluation of Medicinal Plants Used by the Hmong People of Wisconsin.* UW System Symposium on Undergraduate Research and Creative Activity, River Falls, WI, April 25, 2008.

Abler, R., Carlson, K. (2008) *Portals of Discovery: A Model for a Seamless Pipeline of STEM Education*. UW System Women and Science Program Spring Conference: Best Practices in Pedagogy and Outreach, Wisconsin Dells, WI, May 16, 2008.

"Portals" Team Funding:
- 2007: UW System Race and Ethnicity Grant: Hmong Medicinal Plant Research $4500
- 2008: WiscAMP Grant: Bridges to Baccalaureates
- 2009: National Science Foundation STEPS Proposal: Portals of Discovery (Pending)

In the Words of Colleagues:
- "The model program is transformative, including mentoring, ready access from area high schools to STEM education, and the cooperation of the Hmong community. It is expansive in that all students of color and ethnicity are welcome to participate in the research." *–Daniel Campagna, CEO and Dean, UW-Manitowoc*

- "Drs. Carlson and Abler have developed an innovative model for creating opportunities for underrepresented students to gain access to STEM (science, technology, engineering, and math) education. Their effort is centered on collaborative and integrative research experiences that bridge the high school, two-year campus, and four-year campus experience. In addition to research experiences, their model incorporates both faculty and peer mentoring components, which are proven to increase retention and success of underrepresented students." *–Ann Parsons, Chair, UW-Stout Biology Department*

In the Words of Participating Students:
- **"**Participating as a 'Portals of Discovery' student I was able to get paid to conduct research that is important to society and have that work presented at a national meeting. Having the faculty and peer mentorship helped me transition from UW-Manitowoc to UW-Stout. And this experience has also helped to give me the confidence to pursue a year-long study abroad experience in Scotland for the 2009-2010 academic year." *–Brooke Koenig, "Portals" student, junior at UW-Stout*

- "Doing this it allows me to gain further knowledge of the natural world around me." *–Larry Garcia, "Portals" student and WiscAMP Scholar, sophomore at UW-Manitowoc*