

EAST-2 Alliance

Background

Opportunities for students with disabilities have increased along with the rapid advancement and development of technology, and their enrollment in post-secondary institutions is slowly increasing. However, they continue to be underrepresented in comparison to their non-disabled peers (<http://www.washington.edu/doit/Faculty/Rights/Background/statistics.html>). The National Postsecondary Student Aid Study reports that approximately 45% of undergraduates with disabilities are enrolled at public two-year institutions (NCES, 2008). There also is a growing interest in research on accessibility of higher education for students with disabilities (Newman et al., 2010; Snyder & Dillow 2010).

The mission of the EAST-2 Alliance is to increase the number and quality of students with disabilities who enroll and receive degrees in science, technology, engineering, and mathematics (STEM), and ultimately enter STEM disciplines. EAST-2 achieves this mission by involving students, transforming the academic and professional environments in which they function, and catalyzing STEM activities in southern Maine. EAST-2 has designed a model that includes the creation of a pipeline of supports and services for high school and college students with disabilities as they successfully negotiate critical junctures. The EAST-2 pipeline focuses on undergraduate STEM research fellowships (URFs), mentoring and tutoring, weekly learning community events, accessible technologies, internships, individualized case management, high school summer STEM camps, transition services, and the development of capacity within high schools and the University of Southern Maine (USM) to fully support students with disabilities (SWD). Activities along our pipeline increase students' confidence in their STEM learning and give them the opportunity to participate in life-changing experiences. The EAST-2 pipeline model serves to broaden the participation of students with disabilities in STEM fields.

Documented Results

EAST-2 employs evidence-based practices. Both qualitative and quantitative data we have collected suggest that the support EAST-2 provides contributes to students' persistence in and eventual graduation from undergraduate STEM programs at USM (Langley-Turnbaugh et al., 2014). Analysis of data revealed that students who participated in URFs through EAST engaged fully in research processes, by and large were on track for completing their degrees, were more likely to enter graduate school and jobs in STEM fields than non-URF students, and enjoyed benefits that could be described as both personal and relational (Langley-Turnbaugh et al., 2014).

In an effort to examine the impact that EAST-2 activities have on students' enrollment and graduation, we compared the lengths of time, number of activities, and number of types of activities for three different groups of EAST-2 students: those who had graduated, those who are still enrolled, and those who are not enrolled. Students who had graduated and students who are still enrolled participated for a longer period of time in EAST-2 and in a larger number and variety of types of EAST-2 activities than students who are no longer enrolled. This data suggest that participation in EAST-2 contributes to students' persistence in and graduation from undergraduate STEM programs (Langley-Turnbaugh et al., 2014).

EAST-2 activities for students (including undergraduate research fellowships, learning community seminars, internships, transition sessions, STEM camps) are highly valued by participants and are successful in helping them achieve the desired learning outcomes.

Student outcomes include:

- improved research skills
- increased interest in, familiarity with, and confidence in pursuing specific STEM topics
- increased awareness of their level of academic preparation
- enhanced self-advocacy skills
- increased awareness of tools and support services available at the college level
- increased awareness of transition issues and engagement in transition activities
- increased interest in pursuing advanced coursework and careers in STEM

Potential Applications

The EAST-2 model is adaptable and adoptable; for guidelines on how to replicate models for students with disabilities, access DO-IT at

<http://www.washington.edu/doit/Brochures/Programs/adaptation.html>.

For More Information

- DO-IT <http://www.washington.edu/doit/>
- CAST <http://www.cast.org/>
- <http://fod.msu.edu/oir/universal-design-learning-udl>
- <http://www.ist.hawaii.edu/training/>
- <http://disabilities.temple.edu/programs/ds/hEd3udl.shtml>

Publications

Langley-Turnbaugh, S., Whitney, J., & Blair, M. (2014). Increasing accessibility of college STEM courses through faculty development. In *Universal Design in Higher Education: From Principles to Practice*. Harvard Education Press.

Langley-Turnbaugh, S., Whitney, J., Lovewell, L., & Moeller, B. (2014/In Press). Building and implementing a successful undergraduate research fellowship program for students with disabilities. *CUR Quarterly*.

Langley-Turnbaugh, S. J., Wilson, G. & Lovewell, L. (2009). Increasing the accessibility of science for all students. *Journal of Science Education for Students with Disabilities* 13, 1-8.

Stumbo, N. J., Martin, J. K., Nordstrom, D., Rolfe, T., Burgstahler, S., Whitney, J., ..., Misque, E. (2010). Evidence-based practices in mentoring students with disabilities: Four case studies. *Journal of Science Education for Students with Disability*, 14(1), 33-54.

Whitney, J., Langley-Turnbaugh, S., Lovewell, L., & Moeller, B. (2012). Building relationships, Sharing resources, and opening opportunities: A STEM learning community builds social capital for students with disabilities. *Journal of Postsecondary Education and Disability*, 25, 131-144.