The LEARN™ Consortium: A Three-Institution Initiative to Impact STEM Retention of Freshmen and Transfer Students through Research Communities

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With the national emphasis on promoting and increasing retention in STEM disciplines, there is a need to establish retention models designed to be adaptable to varying types of students and institutions. Faculty at Florida Atlantic University (FAU), University of Central Florida (UCF), and Western Carolina University (WCU) have created the LEARN Consortium, a three-institution initiative to directly address this national need, specifically targeting incoming transfer students and first time in college (FTIC) students. The Learning Environment and Academic Research Network (L.E.A.R.N.™) model for FTIC students was developed at the University of Central Florida (UCF) through prior NSF TUES support to reduce these barriers (F-LEARN; Schneider et al. 2015). The LEARN Consortium is expanding through NSF IUSE funding (2015-2020), to transfer students (T-LEARN) in partnership with Western Carolina University (WCU) and Florida Atlantic University (FAU).

Goals

1. Implement and evaluate the transferability of the LEARN at UCF retention model for FTIC students (F-LEARN) to WCU and FAU.
2. Adapt the current LEARN model to a transfer student population, T-LEARN, and implement through the LEARN Consortium.
3. Assess the impacts of LEARN on STEM retention and success for FTIC and Transfer students and at different institutions.
4. Disseminate the LEARN program models

Academics and Research

Introduction to Research Courses

Classes are taught over two semesters to introduce students to research and prepare them to engage in a research project. The students learn basic research skills with a capstone project in which they draft and present an original research proposal.

First Semester - What is science and academic research, lab tours (fig. 2), information fluency, working with faculty, research ethics

Second Semester - proposal development, technical writing, communicating research, graduate education, poster presentations (fig. 2)

Research Experience

Both F-LEARN and T-LEARN engaged in research for 12+ weeks.

Community

To build the community component, social, community service, and academic presentations are planned each semester. The numbers of each may vary for the two student audiences: Social events are structured around existing university activities; community service events are aimed at science education; and research presentations are given by students, faculty, and professionals from the field.

Mentoring and Support

LEARN participants are afforded many mentors to help with transitions into the lab environment, academic environment, and university:

- Peer Mentors are undergraduate researchers who meet one-on-one with each LEARN student and are involved with community activities.
- Research Mentors (graduate students in F-LEARN, faculty in T-LEARN) acquaint students into the lab environment and provide guidance on their research proposals.
- Coordinator holds office hours, helps teach the research courses, and coordinates day-to-day operations.
- Academic Advisor(s) provides one-on-one advisement to the LEARN group.

Assessment

LEARN Consortium Outcomes (NSF IUSE, 2015-2020)

- LEARN cohort GPA/retention compared to a comparison group
- LEARN cohort student learning outcomes (SLOs) evaluated
  • Critical Thinking Assessment Test (CAT);
  • SLO evaluation: Pre- and Post- test specific to program
  • Student perceptions of “added value” to their learning experiences and skills gained.
- Focus groups and surveys
- Continued engagement in other internal and external research activities
- Longitudinal post graduation activities

Accomplishments to date

- Kickoff meeting December 2015, Orlando, FL
- Fall 2016 implementation
  • T-LEARN: UCF and FAU
  • F-LEARN: WCU
- Fall 2017: T-LEARN and F-LEARN at all three institutions

F-LEARN at UCF Outcomes (NSF TUES, 2010-14)

- Program sustained internally by UCF since 2014
- Large pool of applicants with average participant cohorts that are 73% underrepresented and 48% first-generation
- Higher retention rates and higher GPAs compared to a match comparison group
- Coursework and research positively impacted critical thinking

References


