A “Universally Designed” Environment to Advance Hispanics

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Strategies for creating an environment and culture that support Hispanic student success and advance higher-education accessibility
Changing Nation
Percent Hispanic of the U.S. Population: 1980-2050

Representation of Hispanics and All Others Earning Credentials in STEM: 2013
Excelencia in Education
Total Number of STEM Credentials Earned by Hispanics by Academic Level (thousands)

UTEP’s Strategies
Student Demographics

80% of students are Hispanic
60% of graduates are the first in their families to earn a bachelor’s degree
Nearly 50% are Pell Grant recipients
More than 50% are from families in the lowest income quartile (<$34,315)
One-third report a family income of $20,000 or less
UTEP’s Mission: Access and Excellence

Largest producer of Mexican-American STEM graduates in the nation
Third among U.S. universities in awarding to Hispanics
  Bachelor’s degrees
  Master’s degrees
  Doctoral degrees
Among the top 10 in preparing Hispanic students for success in completing doctoral degrees
UTEP’s Overall Strategies

Pre-college preparation
Financial aid and scholarships
Academic and career advising
Flexible classes and scheduling
Enriched and expanded programs
Data-driven strategies
Classroom strategies centered on student success
Strategies of the Computing Alliance of Hispanic-Serving Institutions
CORE PURPOSE

Create a unified voice to consolidate the strengths, resources, and concerns of HSIs and other groups committed to increasing the number of Hispanics in all computing areas.
CAHSI Strategies

Promote dialog
Promote social science network
Promote initiatives

CS0
Peer-Leaders
Student Advocates

Affinity Research Groups
Mentor-Grad Fellow-Net

Development Workshops
Faculty Advocates
Effective Practice: ARG

Affinity Research Groups in Practice: Apprenticing Students in Research

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Abstract

Background The affinity research group (ARG) model is a set of practices built on a cooperative team framework to support the creation and maintenance of dynamic and inclusive research groups in which students learn and apply the knowledge and skills required for research and cooperative work. Using situated learning theory, we conducted a qualitative study of current and former ARG members to understand the potential of the ARG for preparing students for graduate school and professional research careers.

Purpose Our study investigated how the ARG model influenced students, particularly those from underrepresented groups, in becoming researchers and practicing computer scientists.

Design/Method We employed multiple data collection methods, including individual and focus group interviews and participant observation, to investigate whether this model had lasting effects and sustainability beyond the time students spent in an ARG.

Results Using themes emerging from our data analysis, we can explain how students become contributing members of ARGs, group identity and cohesiveness are formed, members learn collaboratively, members participate in larger professional communities, and participants’ identities are transformed from student to researcher.

Conclusions Findings suggest that the structural and procedural elements of ARGs support students’ growth and development as researchers and their gradual socialization into broader computer science research and professional communities through legitimate peripheral participation and immersion in situated practice.

Keywords communities of practice; cooperative learning; undergraduate research

Introduction

Increasing the number of qualified graduates in science, technology, engineering, and mathematics (STEM) is a growing and urgent need for the United States (Committee on Science, Engineering, and Public Policy, 2007, PCAST Report, 2007). A multitude of initiatives target this need by focusing on the retention of students in the sciences, but few of these initiatives serve higher education institutions across departments. There is
INCREASING UNDERGRADUATE DEGREE ATTAINMENT
• Increased completion rate of Hispanic students by 10%.
• Graduates Hispanic students at nearly 10 times the national rate of Hispanic baccalaureates in computing.

GRADUATING HIGHER RATES OF WOMEN WITH MASTER’S DEGREES
• An increase of 62% since 2006 of women MS graduates

CONTRIBUTING TO THE POOL OF HISPANIC DOCTORAL COMPUTER SCIENTISTS
• In 2013, 14 PhDs were granted to Hispanic CS students from the mainland U.S.
• CAHSI U.S. mainland schools conferred three of those.
Call to Action
Recommended Actions by Employers
(Excelencia in Education)

Partner with institutions to target student in K-12 and create knowledge about opportunities.
Provide internship and fellowship opportunities to Hispanic students.
Provide mentoring between employees and local Hispanic university students.
Recruit employees from institutions where Hispanics graduate.
Engage the Hispanic Community!

Become involved in increasing access to computing ...
It is critical for the health of the country

http://cahsi.org
Acknowledgements:

National Science Foundation Broadening Participation Program, CNS-1042341