



Latino Culture- Added Challenges

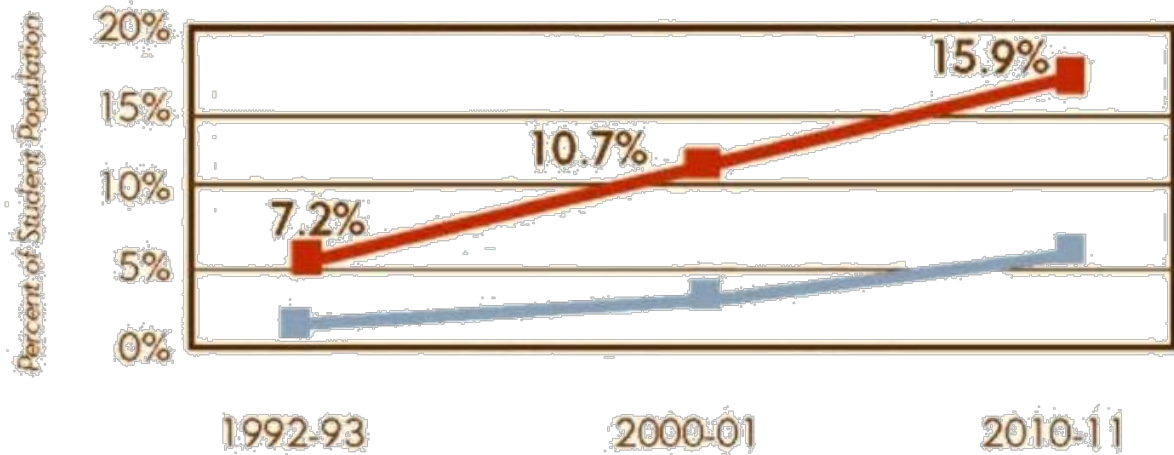
Hispanics and Education

Hispanics are the fastest growing and youngest group in the United States and in the state of Idaho. Hispanic students are the fastest-growing demographic group in Idaho's education system. Between 2000-01 and 2011-12, Hispanic K-12 student enrollment grew 75%. They now make up 16% of Idaho's total student enrollment.

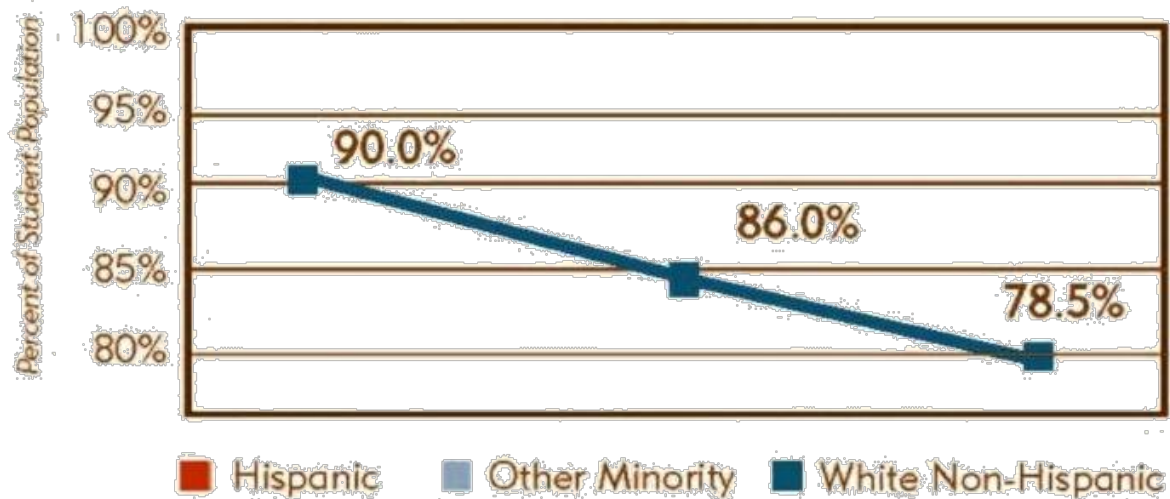


Changing demographics in student population

Hispanic Student Population Change

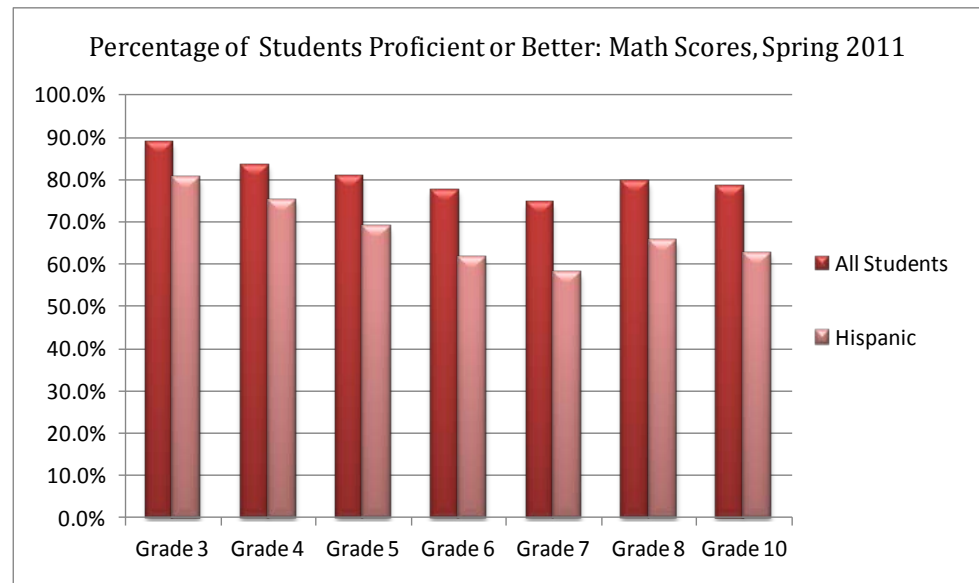


White Non-Hispanic Student Population Change



Percentage of Students proficient or better by grade: math scores

In 2011, math scores fell for all students during middle school years (grades 6-8) and only slightly recovered during high school (grade 10). Limited English Proficient (LEP) and Migrant students fared the worst and were less likely to recover during 10th grade. Research has pointed out that in addition to dealing with the normal challenges of being a “teenager,” foreign-born Mexican students face higher levels of poverty and seasonal migratory disruptions in schooling that propel them into early labor force participation. The natural consequences are below average grades and sometimes withdrawal from school.

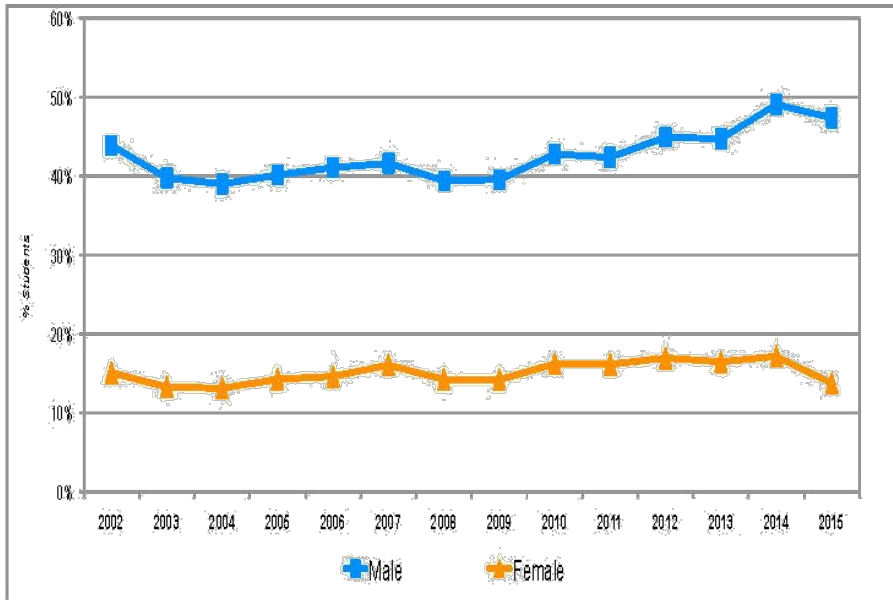


		2003	2004	2005	2006	2007	2008	2009	2010	2011
MATH										
Grade 3	White	n/a	88.8	85.6	93.6	89.1	90.0	89.5	90.0	90.6
	Hispanic	n/a	72.9	65.0	82.0	73.6	75.0	74.6	77.9	80.1
Grade 4	White	80.6	86.6	92.5	92.2	85.2	87.2	88.1	87.5	86.3
	Hispanic	58.0	67.6	71.5	77.4	65.2	71.5	74.5	74.6	71.7
Grade 5	White	n/a	n/a	84.1	90.7	76.7	81.8	81.4	82.9	90.6
	Hispanic	n/a	n/a	66.8	74.7	54.2	60.3	63.5	66.7	77.5
Grade 6	White	n/a	n/a	74.9	88.5	79.1	81.0	82.1	83.0	81.2
	Hispanic	n/a	n/a	59.3	72.1	51.4	57.7	59.2	64.1	61.3
Grade 7	White	n/a	72.6	79.3	79.5	74.2	78.9	79.4	79.1	78.5
	Hispanic	n/a	46.5	54.1	56.0	48.4	54.0	54.3	58.4	57.7
Grade 8	White	56.5	70.1	72.8	75.4	75.6	81.9	82.1	83.2	82.8
	Hispanic	24.9	38.9	46.3	50.5	50.8	62.4	59.4	64.4	65.0
Grade 9	White	n/a	n/a	n/a	n/a	81.3	80.1	n/a	n/a	n/a
	Hispanic	n/a	n/a	n/a	n/a	56.2	57.3	n/a	n/a	n/a
Grade 10	White	75.0	73.9	87.8	74.8	76.2	80.1	48.6	80.3	82.0
	Hispanic	42.5	43.5	42.3	44.9	49.5	57.3	29.3	61.2	62.5

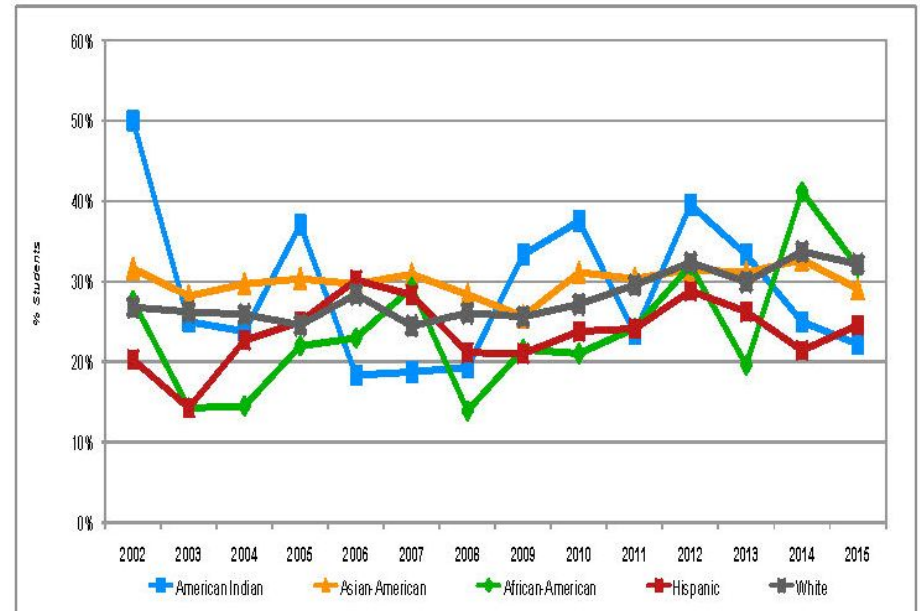
With the rapid growth of the Hispanic student population, it is time to envision equity—in access and success—in the science, technology, engineering and math (STEM) fields.

Early interest in science, math, technology or engineering needs to be recognized, cultivated and encouraged in K- 12 schools.





STEM Interest by Gender



STEM Interest by Self-Identified Ethnicity

Enable underserved youth

Sixty years after *Brown v. Board of Education*, education in the United States remains separate and unequal for too many children of color, students with disabilities and those living in high-poverty communities. This is especially true in the areas of science, technology, engineering and mathematics (STEM).



Overall, the current system used for funding school districts is not equal across districts and Hispanic students are less likely to have access to challenging, high-quality math instruction, further discouraging an interest in mathematics or science.

(Berry, 2005; Chacon, 2000; Triana & Rodriguez, 1993)



It is estimated that Hispanics will comprise 30 percent of the U.S. population by 2040 and will be the majority group in several states. Increasing the percentage of Hispanics and other traditionally underrepresented minorities in STEM occupations is not only ethically and morally correct, as these groups deserve equal access to STEM fields, but allows minority groups to serve as role models and mentors for younger members of their own ethnic/racial group.



The nation's future

The demand for skilled workers in STEM fields will be difficult, if not impossible, to meet if the nation's future mathematicians, scientists, engineers, information technologists, computer programmers, and health care workers do not reflect the diversity of the population.



Changing Expectations

Colleges and Universities are trying to understand why more Hispanics aren't attracted to STEM careers and what can be done to encourage them to enter these fields.



Data from the Integrated Postsecondary Education Data System (IPEDS) Completion Survey for the 1999-2000 academic year points out that the most popular majors in which Hispanic students earned bachelor's degrees are in the social sciences, business, psychology, and education. In contrast, Hispanic students are less likely to earn undergraduate degrees in biological and life sciences, computer and information sciences, engineering, and the health professions and related sciences. (Llagas & Snyder, 2003)

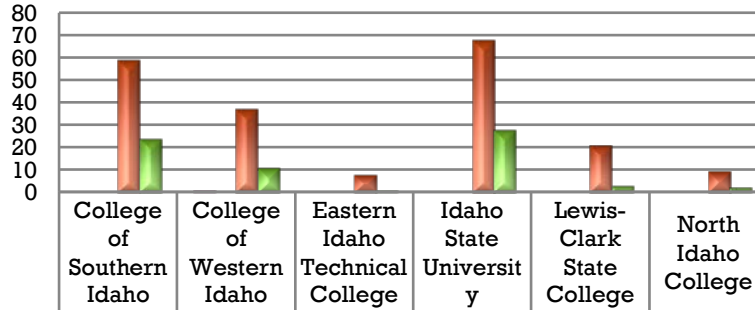


Although Hispanic students have been shown to be equally likely as White students to major in STEM, they are significantly less likely to earn a degree or certificate in a STEM field. According to recent data from the Higher Education Research Institute (2010), 16 percent of Hispanic students who began college in 2004 as STEM majors completed a STEM degree by 2009, compared to 25 percent of White students.



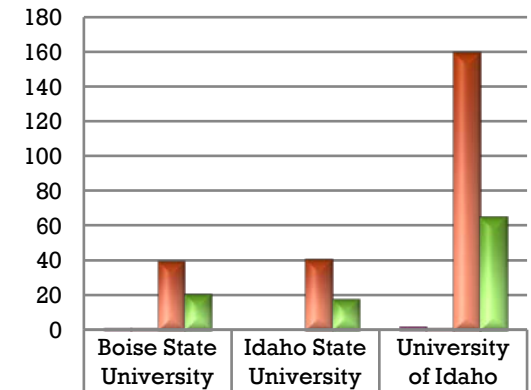
2010

Associate's Degree



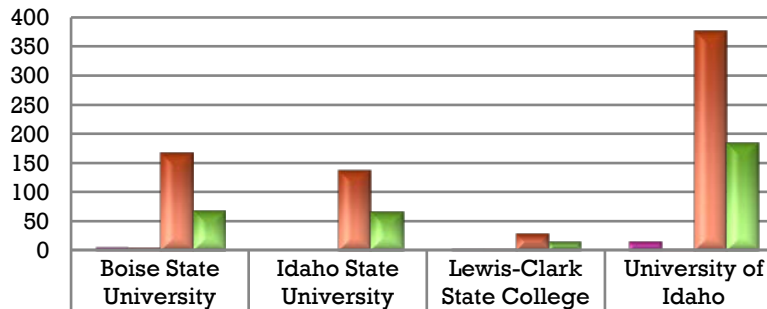
	College of Southern Idaho	College of Western Idaho	Eastern Idaho Technical College	Idaho State University	Lewis-Clark State College	North Idaho College
Hispanic Men		1	0		0	
Hispanic Women		0	0		0	
Total Men Pop.	59	37	8	68	21	9
Total Women Pop.	24	11	1	28	3	2

Master's Degree



	Boise State University	Idaho State University	University of Idaho
Hispanic Men	1		2
Hispanic Women	1		1
Total Men Pop.	40	41	160
Total Women Pop.	21	18	65

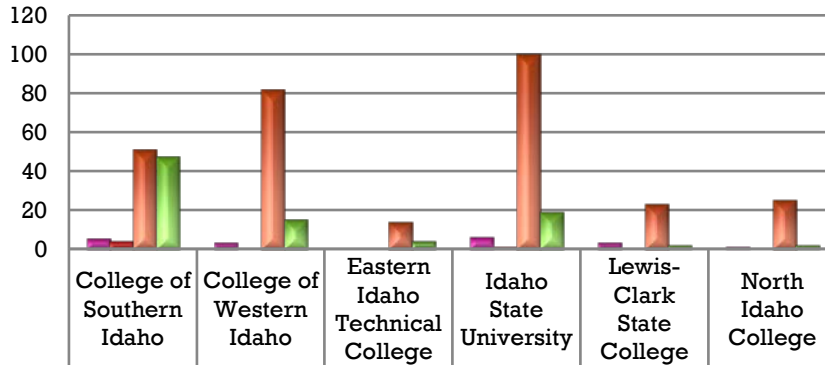
Bachelor's Degree



	Boise State University	Idaho State University	Lewis-Clark State College	University of Idaho
Hispanic Men	5		2	15
Hispanic Women	4		2	3
Total Men Pop.	167	139	28	376
Total Women Pop.	68	65	15	185

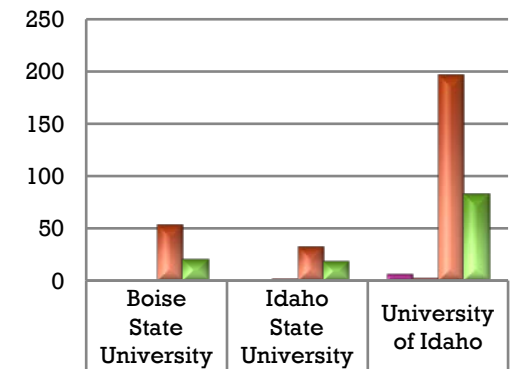
2011

Associate's Degree



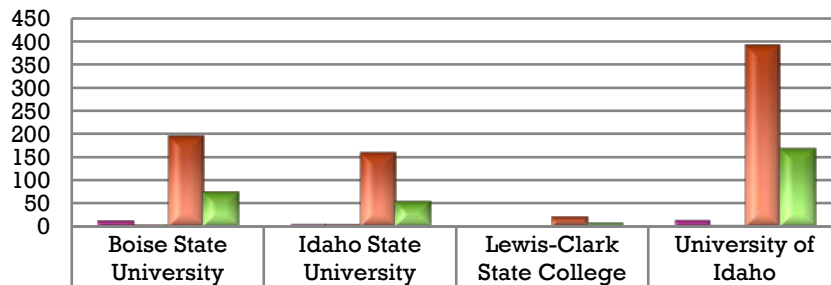
Hispanic Men	5	3	0	6	3	1
Hispanic Women	4	0	0	1	0	0
Total Men Pop.	51	82	14	100	23	25
Total Women Pop.	47	15	4	19	2	2

Master's Degree



Hispanic Men	0	0	7
Hispanic Women	0	2	3
Total Men Pop.	54	33	197
Total Women Pop.	21	19	83

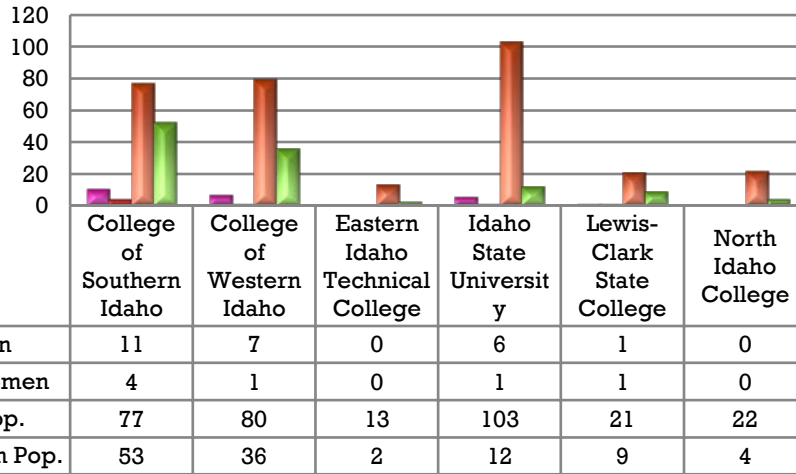
Bachelor's Degree



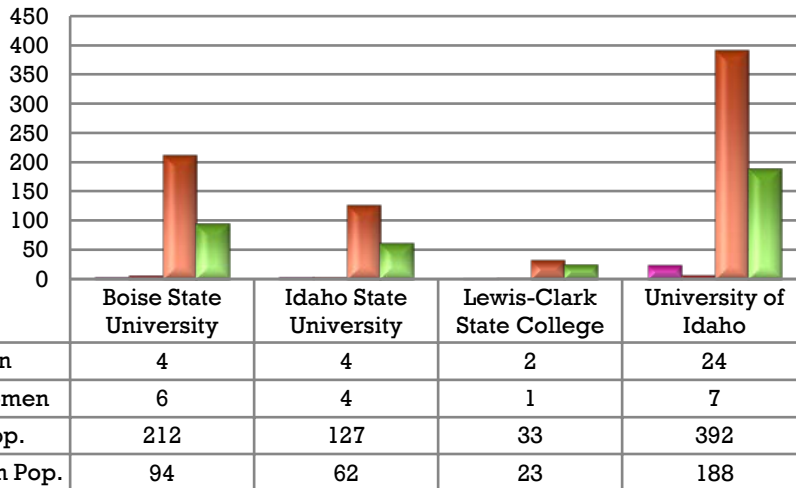
Hispanic Men	13	6	0	14
Hispanic Women	4	5	1	3
Total Men Pop.	196	162	21	393
Total Women Pop.	76	56	8	170

2012

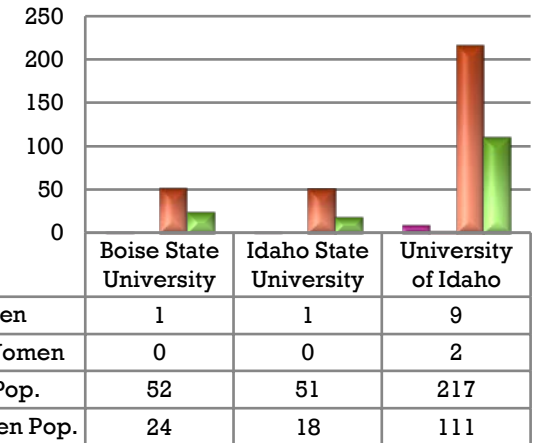
Associate's Degree



Bachelor's Degree



Master's Degree



Women represent less than 20 percent of bachelor's degree recipients in fields like computer science and engineering, and hold less than 25 percent of STEM jobs from 1995-1996 to 2003-2004 the percent of Hispanic students enrolling in STEM fields increased by 33 percent, representing nearly ten percent of students in STEM fields.



Assessing Climate and Community

The stats go on, and all point to one question: how do we bridge the gap between this country's young, fast-multiplying, yet woefully undereducated Hispanic cohort and this nation's ever-expanding demand for STEM-educated labor?

The majority of STEM research to date has focused on predicting persistence and degree attainment rather than students' interest in and choice to major in STEM



The type of institution that a student selects to attend has also been cited as a factor influencing access to and participation in STEM fields for Hispanic students

Financial concerns, family responsibilities and full-time work commitments have all been shown to be factors external to the college that “pull” Hispanic students away from STEM fields.



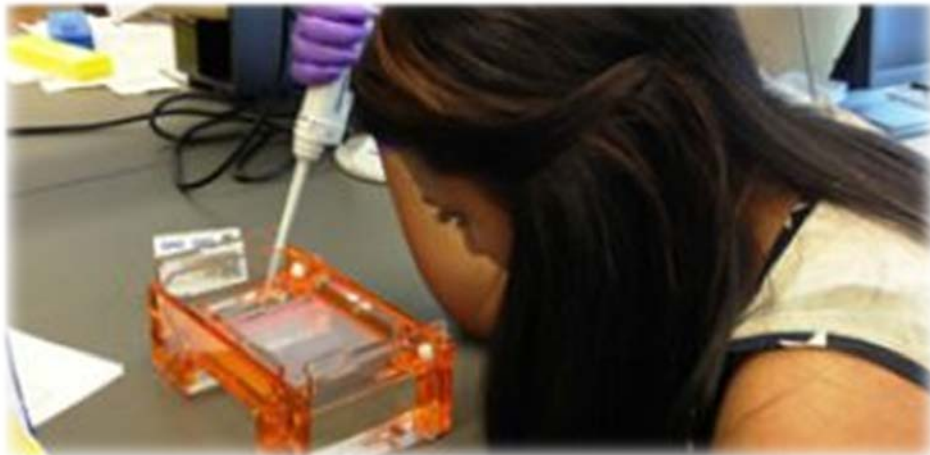
As such, the importance of financial aid on keeping Hispanic students interested and enrolled in STEM majors/careers cannot be overstated. Additionally, financial concerns were shown to negatively influence minority science students' sense of belonging during the first year. Conversely, as one would expect, the numbers of hours per week spent doing homework or studying was found to have a positive impact on minority science students' adjustment in college indicate that working full-time may serve to decrease the likelihood that Hispanic students will persist in a STEM major as undergraduates



Creating a New Culture

Our mission is to show students of every age that science, technology, and problem-solving are not only fun and rewarding, but are proven paths to successful careers and a bright future for us all. Making students aware of STEM in the everyday world around them and that someone just like them created it all will help them understand that they, too, can make new technologies and solve problems.

It has to start in the classroom. It's imperative that students be exposed to technology early because they are the future.



There is no doubt that increasing Hispanic representation in STEM fields involves improving their high school achievement, their completion rates, their entry into a postsecondary institution and, ultimately, their degree attainment. STEM education can provide historically underrepresented populations with proven pathways for obtaining good jobs and a higher standard of living.





First Hispanic Woman in Space

Hispanic students need STEM role models to look to if we are to increase the number of Hispanic students entering the STEM fields.

Future Hispanic Woman in Space





BOISE STATE UNIVERSITY

Latino Culture: Added Challenges

David Estrada, Ph.D.

Department of Materials Science and Engineering

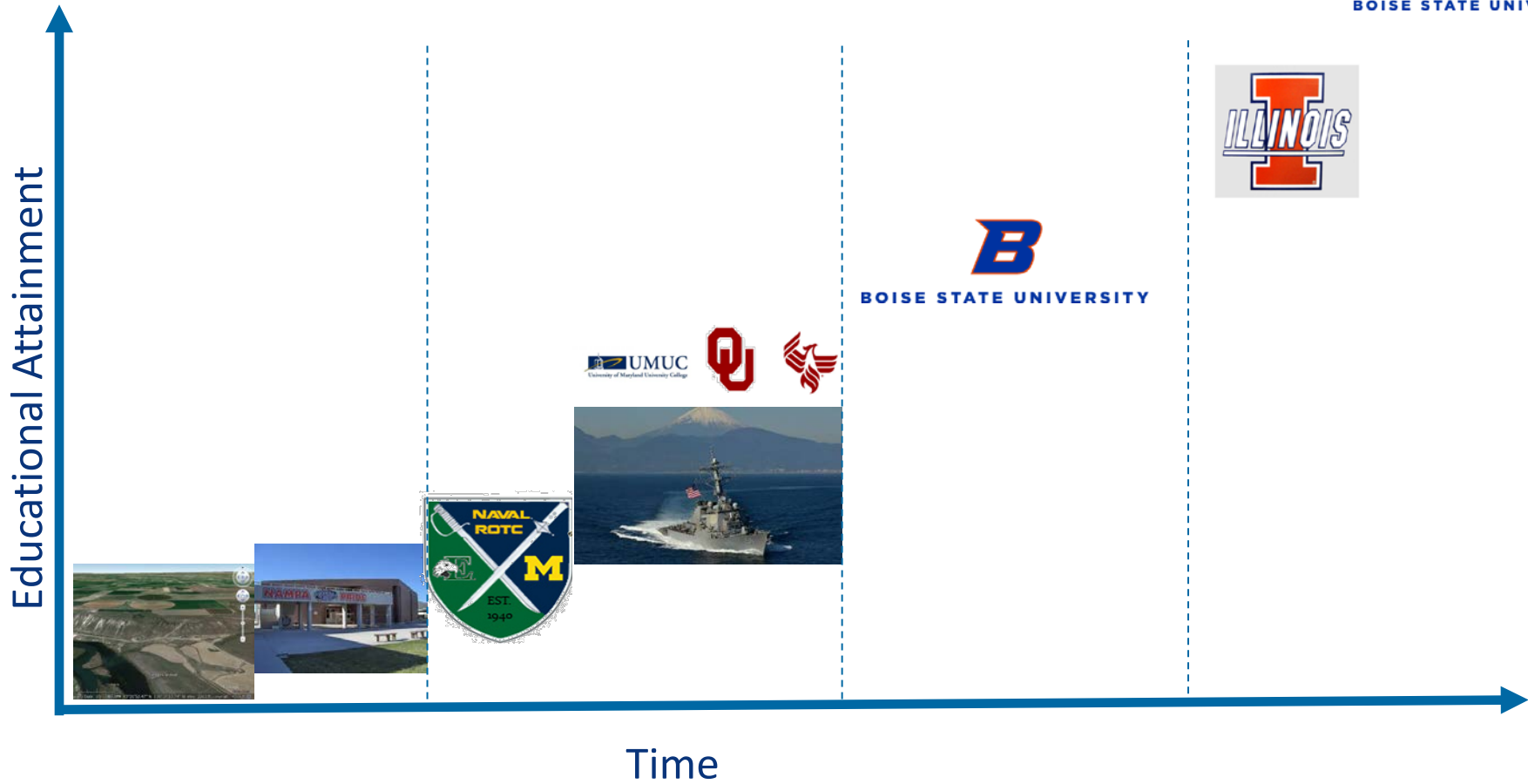


BOISE STATE UNIVERSITY

Personal Background



BOISE STATE UNIVERSITY



Upward Bound

- Federal TRiO program
- Aims to prepare and motivate high school students for success in education beyond high school.
 - First-generation, low-income students
- Daily instruction in current events, college preparatory math, literature, language arts, career and college exploration, science
- Includes a six-week summer residential program at Boise State University
- Targeted High Schools: Borah, Caldwell, Capital, Meridian, Nampa, Owyhee, and Rimrock



<http://education.boisestate.edu/trio/about-trio-upward-bound/>

Educational Talent Search



- Federal TRiO program
- Aims to prepare and motivate high school students for success in education beyond high school.
 - First-generation, low-income students
- Weekly instruction effective study habits, goal setting, enrolling in college-bound classes, career information, college admissions, and financial aid and scholarship applications
- Targeted High Schools Ada, Canyon, and Owyhee Counties: Borah, Canyon Springs, Caldwell, Colombia, Frank Church Alternative, Homedale, Melba, Parma Middle/High, Skyview, South Jr., Vallivue, Wilder Middle/High

<http://education.boisestate.edu/trio/about-trio-educational-talent-search/>

College Assistance Migrant Program

- CAMP is funded by a grant from the Department of Education
- Applicants must meet specific criteria related to seasonal or migrant farm work
- Aim is to recruit and retain students from disadvantaged backgrounds
- Provides financial support, counseling, tutoring, and mentoring for first year students
- After the first year, CAMP offers academic, career, and personal support
- Boise State CAMP started in 1984 and has served over 1000 students



<http://education.boisestate.edu/camp/program-services/>

Student Success Program

- Funded by a grant from the Department of Education
- One of the Student Support Services (SSS) Federal TRiO programs
- Aim is to recruit and retain students from first generation or low-income backgrounds.
- Student with a documented learning or physical disability are also eligible to apply
- Provides
 - financial support (freshman and sophomores)
 - Academic advising
 - Tutoring
 - Financial literacy training
 - Technology and computer use support
- Boise State preparing SSS-STEM application



<http://education.boisestate.edu/ssp/home/student-success-program-services/>

Louis Stokes Alliance for Minority Participation

- Applicants must identify as African American, Hispanic/Latino, Native American, Alaska Native, or Pacific Islander (U.S. Citizen or Permanent Resident)
- Aim is to increase the number of degrees earned by underrepresented minorities in STEM majors
- Provides academic, social, and professional support in a coordinated effort to help students achieve academic and professional goals
- Includes a summer research experience with a faculty mentor
- Boise State houses the only program in Idaho



<http://stem.boisestate.edu/lisamp/>

Ronald E. McNair Post-baccalaureate Achievement Program

- Federal TRiO Program with STEM Priority
- Named after Dr. Ronald E. McNair
- Two year program to prepare students for graduate school
- Summer research experience
- Faculty mentor
- Graduate school and GRE fee waivers
- Conference travel
- Graduate school visits
- Boise State houses the only program in Idaho



<http://education.boisestate.edu/mcnair/program/>

Materials for Energy and Sustainability REU/RET Program

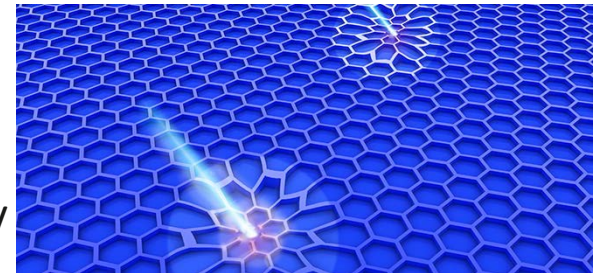
- Funded by a grant from the National Science Foundation in order to provide students with an intense research experience in energy related materials
- Applications due in early March
- 5/29 to 8/1 - \$400/week stipend and housing on campus provided
- Integrated into the BSU Summer Research Community
- Includes social events such as rafting, hiking, and cultural events.



<http://coen.boisestate.edu/mse-reu/apply-now/>

Materials Science and Engineering Interdisciplinary Ph.D. Program

- Funded by \$13 million grant from Micron Foundation
- 5 to 7 years following a B.S. in a related field
- Variety of focused materials research areas
- \$24,000 to \$27,000 annual stipend in addition to a tuition & fee waiver



<http://coen.boisestate.edu/mse/degreeprograms/phd-program/>