Welcome to AIMS²(HSI-STEM Grant) Meeting # 39 JD 1568 2 PM – 4 PM, December 10, 2015



COLLEGE OF ENGINEERING AND COMPUTER SCIENCE





AGENDA

Information Items

- November 12th Student Research Symposium Ramesh
- Annual Performance Report
 - Review of Section A of the Title V Annual Performance Report (APR) Nathan
- Academic Progress of Cohorts
 - Glendale Community College Jan Swinton, Scott Rubke and Richard Cortes
 - College of the Canyons David Martinez and Eric Lara
 - CSUN Bob Ryan, and Tesha
- Project Activities
 - Ongoing Research Projects/Group Meetings Reports by CSUN Faculty Mentors
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- Upcoming events/Meeting Calendar
- Adjourn



Congratulations Dr. LaTesha Hagler Director, TRIO Program, Azusa Pacific University (Jan 2016)



You will be missed! All the best from all your friends, students, and colleagues At CSUN, GCC, and COC and the ACCESS High Schools



November 12th Research Symposium

- Where Johnson Auditorium, CSUN
- Time 3:30 PM 5:30 PM, followed by a reception/poster session
- 12 Presentations based on summer 2015 research projects (and ongoing AIMS² research projects)



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CSUN Title V/HSI-STEM APR:





Background Overall approach and findings Trends in quantitative measures Patterns emerging from qualitative measures Focus areas and recommendations Plans



Approach: Framework

Project objectives guided the evaluation as an embedded mixed methods case study design

Overall evaluation goal was to assess project performance measures with baseline and actual performance data at each campus



Approach: Procedures

Data sources AIMS2 students, faculty, staff and institutional data Data collection procedures Journal guides, surveys, and interviews Data analysis procedures Frequency analysis and thematic data analysis



Cohort participant structured journals = 1 submission/month over 12 months (Oct. 2014-Sept. 2015) for Cohorts 3-4 24 student interviews (Summer/Fall 2014) - Final sample = Cohorts 1, 2, 3, 4

- Gender: 19 male, 4 female
- *Ethnicity*: 13 Latino, 4 Middle Eastern, 4 White, 1 Asian or Asian American, 1 other, 1 decline to state *Major*: 8 ME, 7 CSCIT, 5 ECE, 3 CECM, 1 MSE



Student Interviews @ CSUI

Interview protocol:

 Students' interests, participation, and challenges: faculty research, student-faculty/peer-peer interaction

Procedures:

- 60-minute, semi-structured interviews in CECS conference room
- Data preparation and analysis
 - Transcription + de-identification
 - Categorization of themes that emerged from clustered codes aligned with performance measures



Document data sources
Counseling appointments
Educational plans, events (3a)
MESA database/tracking system (4a/b, 6a/b)
Student survey (5a/b)

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Document data sources
Counseling appointments (3b), tutoring log (4a)
Student survey (3b, 4a/b, 5a/b, 6a/b)
Cohort 3 respondents (n=6)
Cohort 4 respondents (n=11)
Student focus group (5b, 6c)



3 overarching goals: build a transfer model, increase student transfer to CSUN, and increase student completion at CSUN 12 objectives shape 35 performance measures 35 performance measures informed by data type 28 quantitative, 7 qualitative measures shape data 28 quantitative measures by measure type: 21 = cohorts + 7 = project/non-cohort7 qualitative: 2 @ COC + 2 @ GCC + 3 @ CSUN



Performance Measures: In-Dept

35 performance measures guide assessment 4 project measures = across campuses Transfer, articulation, completion 3 non-cohort measures = campus specific Counselor STEM PD, academic advisers 28 cohort measures = direct cohort Advising, tutoring, mentoring 21 quantitative + 7 qualitative



Cohorts: In-Dept

Project = cohort model: Evaluation = cohort approach
Cohort 3 (Fa13) + Cohort 4 (Sp14): assess cohort measures by cohort
Baseline + performance data collected, analyzed, assessed by cohort targets
Applied 21 quantitative cohort measures to each

cohort (n=42) + applied 7 qualitative measures across cohort (n=7)

Total: 49 cohort measures



Quantitative Measures by Cohor

Advising sessions (6) Peer/tutoring sessions (12) Online course enrollment (4) Student-faculty interaction (6) Peer mentoring (6) Academic workshops (2) Supplemental lab (2) Faculty research interaction (2) Cohort participation (2)



Qualitative Measures by Cohort

Quality of student-faculty interaction at GCC/COC (2) and CSUN (1) Quality of peer-peer interaction at GCC/COC (2) and CSUN (1) Effects of student participation in faculty research at CSUN (1)

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Final Count: Measures

	Quantitative		Qualitative	Total
Project	4		0	4
Non-Cohort	3		0	3
Cohort	21	21	7	49
Total	49		7	56



Of 56 total measures, 35 measures (63%) met or exceeded project targets or demonstrated improvement in quality for both cohorts Data for the quantitative measures (n=49) reveal that 28 (or 57%) measures met or exceed project targets Results for all qualitative measures (n=7/7)point to improvement in quality of peer-peer interaction, student-faculty interaction, research participation



All 4 project measures – transfer (1a), course articulation (2a/b), and completion (7a) met or exceeded project targets in the period All 3 non-cohort measures – Counselor STEM PD (3a) at GCC/COC, academic advisors at CSUN (8a) – met or exceeded project targets 28 of 49 (57%) cohort measures across campuses met or exceeded targets in the period



Focus: CSUN Cohort Measures

Performance measure data suggest variation across cohorts

Met or exceeded project targets: Cohort 3 = 7/21 (33%) vs. Cohort 4 = 14/21 (67%)

Explanations: newer cohorts tend to engage more + Cohort 3's senior-standing/4-years of cohort experience



Iransfer/Completion

Transfer achievement exceeded target 86 new CSUN transfer students entered in 2014-15 from COC/GCC in a field housed in CECS 74% increase over last year's number (n=64), 178% increase over the project target (n=36) and a 305% increase over baseline figure (n=21) from 2010-11 Program completion exceeded target 36.5% (72/197) completed a degree program for the most recent period vs. 30.9% (21/68) project target Increase over first project year of 29.3% (22/75) and a decrease over the third project year of 39.2% (60/153) BUT headcount up!



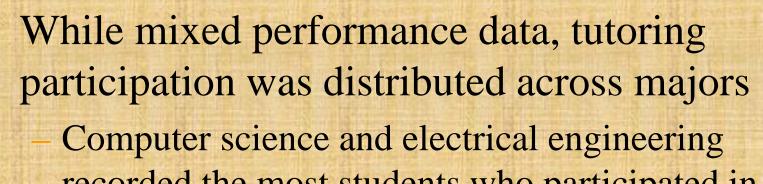
Strengths: Cohort Measures

- GCC/COC counselor STEM PD steady COC/GCC academic advising generally up but mixed across cohorts
- Student-faculty interaction at all three campuses dramatically increased during the period
- COC/GCC/CSUN (Cohort 4): strong student participation in CSUN faculty research CSUN Cohort 4 academic advising, labs,
- workshops, peer mentoring increased



Focus Areas: Cohort Measures

- Academic advising mixed: generally met target for "newer" cohort = Cohort 4
 - BUT: GCC Cohort 3, COC Cohort 4, CSUN Cohort 3 did not meet project target
- Peer/tutoring participation at CSUN did not meet targets, but did meet targets at COC/GCC
- Academic workshops, supplemental labs at CSUN *generally* fell below targets BUT GCC Cohort 4 online enrollment up!
- Cross-campus collaborative cohort measure - CSUN cohort peer mentoring of GCC/COC cohort *generally* fell below targets



- recorded the most students who participated in tutoring
- More students from Cohort 4, greater percentage of Cohort 3 engaged in tutoring



Measures

- Program work at COC/GCC supports tutoring, level of academic advising
- COC/GCC/CSUN faculty work with cohort participants advising, mentoring, supervising research: *major strength*
- Events, activities tend to promote frequent student-faculty interaction and peer-peer interaction
- COC/GCC/CSUN workshops, labs: sustains involvement of select students
- Peer mentoring across campuses: needs attention/project focus
- Lower peer tutoring rates = greater percentage of Cohort 4 students/senior standing for Cohort 3 students

Seperation of the second seco

In general, results reveal positive effects of student-faculty interaction, peer-peer interaction, and faculty research participation on student experiences and learning Overall, 7 of 7 (100%) qualitative measures demonstrate improvement in student-faculty and peer environments on campus and enhanced research environment for student participation



Student application of concepts relevant to their fields of study/career skills in the field

- "Once I'm done with this project, I feel like I'll be able to keep approaching [redacted] future projects here."
- "I was able to learn the basics and apply it and put it all together."

Faculty mentor: "Student's commented that this is an amazing program helping with their academics."



Preparation for careers in the field

- "I figure if I put down working on a [redacted] [it] is pretty impressive."
- "[Redacted] said, 'I would take you into my company."
- Faculty mentor: "Students gained hands on experience with projects beyond their course work...."



Faculty Research: Validation

Opportunity space for identity development as an early professional

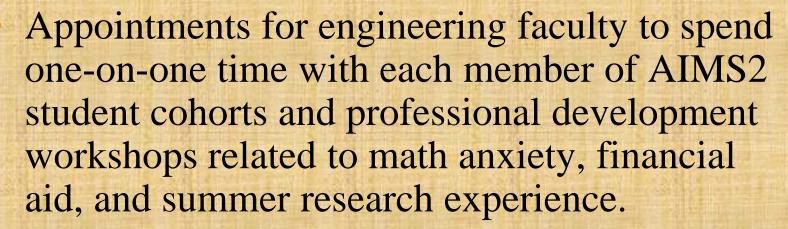
"So I did research there and [redacted] always say, 'You're a perfect student for this or this. This [internship] is looking for these kinds of qualities.' ...hopefully this semester I'll do more research with [redacted]."



Students

Work obligations, academic performance:

- "I didn't have time to do any activities at the school. So the research is ten hours a week and I appreciate the offer and the opportunity. But this time, I can't do it."
- Faculty mentor: "It takes persistence to get students to commit to a schedule and consistently show up on time. It takes further effort to motivate them to do research that will result in fruitful outcomes."



ER SCIENCE

Each student will be scheduled for monthly oneon-one time with faculty in the engineering department to discuss their academic goals, their professional aspirations, and the barriers they may face along he way.



"Listening to experienced and inspiring faculty has been rewarding...I would meet with my teachers with vague and broad questions. In spite of this, they would understand my confusion and would begin providing me with the information...Every meeting has been an eye opening experience for me."



Frequent contact + quality interaction = meaningful relationships with faculty
- "I get a lot from the professors experience; whenever I had questions, I'd find their office hours and I get help from them."

"I always went to [redacted] for all of my questions."

Informal contact: "[redacted] send me emails if there are any internships related to my major."



as Career Prep

Shaping student experiences viz. industry, professional internships, job opportunities:

- "I always went to [redacted] for all of my questions. And I thought that was good because you have somebody that's actually on the inside and that knows how to succeed because [redacted] has been there."
- "I had an internship with Dr. [redacted] who is a very helpful professor. [Redacted] helped me a lot with the internship."



Navigating Academic Systems

"[Redacted] was really friendly and helped me to get familiar with my courses. Those were the main things that helped me get very comfortable here at [redacted]."

"If I wasn't in the AIMS program, then I probably would have floundered a little bit more since I had that support group, they were able to tell me that I needed to do. You need to study, you need to get tutoring and stuff. That helped me."



Academic Self-Confidence

Encouragement and support for developing beliefs in abilities to succeed

- "Just knowing someone that knows that you're able and have potential. I'm able to go above and beyond. I'm capable of doing that."
- "So I do feel like being validated has helped me continue to work harder in my classes and eventually graduate from here."



roblem-Solving Skill.

"So I will take questions to [redacted] about potential senior projects and things like that. [Redacted] had been very and encouraging with those sorts of questions."

 "And no matter what it was, [redacted] would always answer and if [redacted] didn't know the answer, [redacted] would find the answer and help me find the answer."



Peer-Peer Interaction @ CO

STEM tutoring in biology, chemistry, engineering, physics, and mathematics were provided by both faculty and student tutors

 One-on-one tutoring + academic workshops (six) each week in chemistry and math

Hands-on activities in the field

- Company tours to JPL, SpaceX, NASA Armstrong and Mechanix Wear
 - Soldering workshops, pasta and marshmallow tower competition, paper tower competition



Peer-Peer Interaction @ G

Peer mentoring at GCC offers opportunities to guide students

"The peer mentor would ask everyday if I knew the material and meet up to explain it further. The fact that the peer mentor would stay last at night to answer my questions was very helpful, they were always willing to help regardless of the circumstances."



"The sense of community that it fosters in the members is absolutely irreplaceable. We are people fro backgrounds that aren't really represented in the professional scientific community, and the confidence and strength we gain from associating with each other in the program is crucial."

"AIM[s] has been exceptional to a student like myself, who had no college experience, no professional experience, and no idea about STEM. The support and encouragement from being in a cohort of students who are just like me is really inspiring and increases my confidence."

Reproducing Success

• "[Redacted] was the tutor that helped me out a lot. He also gave me advice too like who to take, how to get A's and stuff." "With the friend that was in my class, [redacted] would help me with the material and then after learning the material I would thing that this wasn't so bad like I can definitely do this."



Mitigate Transfer Shock

• "...that's what's going to help me: my fiends and being comfortable in this environment, I guess."

"We formed a nice group and we support each other. And we have our student group and stay in touch."



Institutional knowledge that aids cohort participants in program completion:

"Well she was my mentor and also my tutor. I was telling her that I was having trouble buying books and stuff and she was like, 'well you should apply here. They give you money to buy books."



Cognitive Skill Buildin

 "I met some really nice friends and we got together to study and we're constantly talking about either school-related things or about our own lives."

 "My first semester I didn't really make too many friends. But in that past year, yes. We do anything and everything for our fellow classmates too."



Special Note: iPad Use

Cohort 3 and Cohort 4 students reported using the iPad 3,531 and 5,574 times in total during the period respectively. • Average use by student: Cohort 3 = 392 uses Cohort 4 = 199 uses Peak months for iPad use = Sept-Nov + Feb-May



Qualitative Measures: Interpretation

Meaningful student-faculty and peerenvironments @ COC, GCC, and CSUN Student contact with faculty in research, cohort group meetings, informal interaction = academic, social, and career development Peer-peer interaction: navigate transfer and academic systems + build community knowledge



- Historical nature of compliance reporting: snapshot in time
- Objectives, performance measures limit scope
- Monthly cohort participant journals: completion rates high but variable

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Recap: Conclusions on Performance

In general, advising, activities, workshops, and faculty research are project strengths Overall, frequent and consistent studentfaculty interaction tends to have the strongest effects on student experiences Finally, peer interaction in a mix of multiple forms—formal mentoring, tutoring + informal socializing and studying appear to have strong,

positive effects on student transitions, social adjustment



Overall Project Focus Area

Increase number of advising sessions with GCC/COC/CSUN cohort participants = faculty mentor roles

More mature cohorts (senior-standing) = explore career-preparation/advising as focus of interaction
 Peer-mentoring seems to be central to student experiences: consider coordinated efforts for
 COC/GCC students to be peer mentored by
 CSUN students in *sustained relationships* where frequent, meaningful interaction occurs



Continue to coordinate evaluation efforts at COC, GCC

Data collection with CSUN Cohorts 4/5/6 via cohort participant journals and faculty mentor questionnaires

Present results, findings of CSUN interview study on effects of research participation and experiences of students of color in engineering/computer science Participate in CSU HSI STEM evaluation project and share results as they are available



Thank you for your work with students! And thank you for supporting our work to document your successes!



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Meeting Calendar for Spring 2016

- Jan 21, 2016*
- Feb 18, 2016*
- Mar 24, 2016*
- April 21, 2016*
- May 19, 2016*

*Monthly meetings above are scheduled from 2 PM – 4 PM in JD 1568.

June 2, 2016 or June 9, 2016**

****** External Advisory Committee Annual Meeting – Year 5 – either in JD 1568 or Orange Grove Bistro (luncheon followed by meeting)



Happy Holidays Everyone!



To all of you on the AIMS² team Wishing you a safe holiday season and a great year ahead!