SAGE 2YC

2YC Faculty as Change Agents

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PathWaves to Success: Integrating Guided Pathways with Oceanography Program Development

SUMMARY

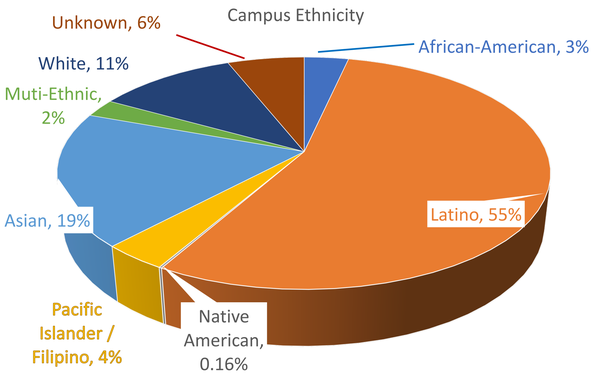
- We needed to create a core network of people interested in providing pathways to careers for diverse students interested in Marine Sciences.
- We hosted a workshop, inviting professors, deans, research scientists and others affiliated with the field.
  - Participants heeding the call hailed from regional 2-year colleges (2YCs), 4-year colleges and universities (4YCs) and marine institutes.
- All agreed that currently there is a need to enhance public perception and literacy in Marine Sciences.
- There was disagreement as to how to create major and career pathways.
  - Hurdles encumber development of new programs at 2- and 4YCs.
- All were very much interested in creating and carrying out action plans, and meeting for further discussions.

Motivation

- Diverse student body:
  - Mount San Antonio College (MtSAC), in eastern Los Angeles county, is a HSI (Figure 1; see also our companion poster at 110-7). Traditional *Introduction to Oceanography* enrollment matches the diversity of the college (Box 1: Outcomes Assessment), but success rates demonstrate inequities that need to be addressed.
  - Charge to develop a more diverse workforce in Geosciences[1,2,3]
- Oceanography Program should lead to increased enrollment, stronger workforce:
  - Students who become interested in pursuing the field have nowhere to go. There are no follow-on courses in Oceanography at the 2YC level – anywhere – to keep students interested in a Marine Science path.
  - Implementation of the **Guided Pathways for Success (GPS)** initiative at MtSAC creates a host of opportunities for potential growth of our Oceanography program.
- SAGE 2YC project (https://serc.carleton.edu/sage2yc/about/index.html) leaders accepted our proposal, promising to help us through this process to reach our goals.
  - Leaders Heather Macdonald, Eric Baer, Jan Hodder, Norlene Emerson, and staff Carol Ormand and John McDaris – THANK YOU ALL for helping us and keeping us motivated to become Faculty as Agents for Change!

Figure 1: Racial Diversity at Mt. SAC

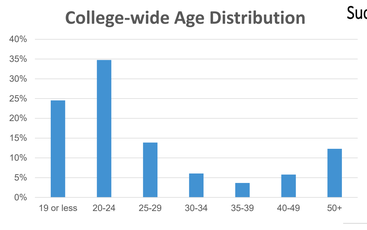
A Hispanic-Serving Institution, a large percentage of the students at MtSAC are also first-generation college students. Our Guided Pathways implementation incorporates strategies designed to address equity issues.

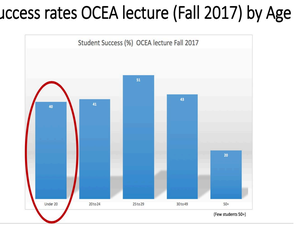


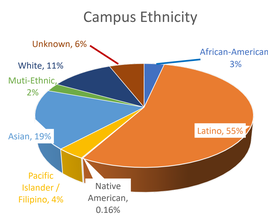
Box 1: OUTCOMES ASSESSMENT DATA

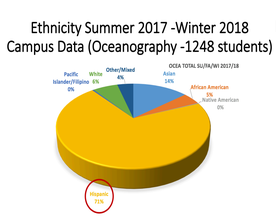
As part of the SAGE 2YC project and with the help of our Institutional Research office, we collected outcomes data on student enrollment and completion rates in geoscience courses, taught by us and by other geoscience faculty at MtSAC in 2017-18. These data include enrollment and completion rates broken down by demographic groups, as well as by non-native speakers.

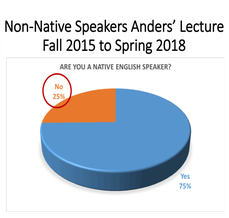
- Oceanography students are representative of the college's racial diversity but not by age
- 60% are 17-20, showing particular challenges to their study habits and preparation for college-level rigor
- (Self-reported) non-native speakers made up large percentage of Tania Anders' classes
- Hispanic and African-American students had lowest success rates in Oceanography. Plans are under way to address these and other equity issues.

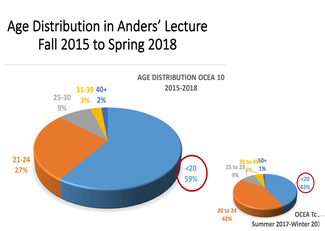


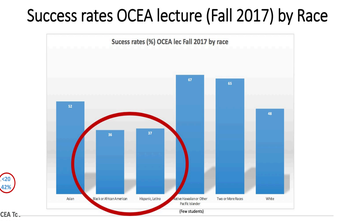












Workshop: PathWaves to Success

As part of our SAGE 2YC activities, we attended a COACh workshop:

- Learned that we needed to create and cultivate a small but enthusiastic cadre of colleagues
  - These people would help inform the process by setting milestones, completing action plans, and spreading their excitement.

We integrated GPS "pillars" into our activities and discussions

- "A rising tide lifts all ships" is an approach that ***maintains equity gaps!!***
  - Active Learning Strategies help to **remove barriers**
- Participants from various educational strata laid out a path for students
  - Matching Curricula
  - Coursework from various departments
  - Collaboration on field trips, research projects will be helpful

Implementing some of the steps will be a challenge

- New programs are difficult to justify at 4YCs
- Articulation agreements need to be negotiated

Let's Do This!

Workshop Evaluation Comments

- I greatly enjoyed this workshop. Out of all the SAGE 2YC workshops I have attended, this made best use of our time. All the activities were very beneficial and and informative.
- I found that all the workshop goals were well addressed and accomplished. Although we might not have directly improved the alignment of ocean science curricula between 2YC and 4YC, we certainly left the workshop with a better understanding of the challenges facing both the 2YC and 4YC with respect to this goal, and how to address them going forward.
- This was seriously the most productive workshop ever, we all agreed on what we want and how to proceed, and we all were able to share
- From the topics that were facilitated in discussion to the networking that naturally happened, this was a wonderful workshop. I generally don't like weekend workshops but I found that this was so good, I would very happily do another one with this group
- As I noted above, the collaboration between 2YC and 4YC didn't quite come off. A big reason for this is that we just didn't have enough schools (of both types) represented. But it was a good start.
- I rated the alignment, framework and plan of action as tend to disagree because...From what I could surmise, MTSAC wants to add ocean science courses, but they are not allowed because there are no classes to which these new classes would articulate at the 4YC. I hope that the 4YC reps were able to explain that we cannot create curriculum to satisfy a desire at a 2YC. While I'm sympathetic to the problem, alignment, framework and actions are not really sensible at this time.
- Good start. I hope there is momentum moving forward.
- I think today was a great start and we just didn't have enough to discuss some of the ideas above, but given more time, we could make good progress.

References:

1. Huntoon, J. E., C. Tanenbaum, and J. Hodges (2015), Increasing diversity in the geosciences, *Eos, 96,* doi:10.1029/2015EO025897. Published on 9 March 2015.
2. Bernard, R.E. and E.H.G. Cooperdock (2018), No progress on diversity in 40 years, *Nature Geoscence* **11:** 292-295
3. National Center for Science and Engineering Statistics (2019), *Women, Minorities, and Persons with Disabilities in Science and Engineering: 2019, Spec. Rep. NSF 19-304,* Natl. Sci. Found., Arlington, Va. [Available at https://ncses.nsf.gov/pubs/nsf19304/]

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