

“De-Siloing” STEM: Creating an Online Multidisciplinary Community of Practice for Students and Practitioners

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For Your Consideration

How do you:

- Regularly communicate with students?
- Coax shy or isolated students to participate in class discussions or activities?
- Foster professional awareness and identity for your students or create connections between course content and “real world” topics?
- Create opportunities for multi- or interdisciplinary inspiration for your students?



Overview

- Who we are
- Rationale for the project
- Describe the online community
- Socialization activities
- Research activities
- Q & A



Who We Are

- Deaf STEM Community Alliance
 - Only Alliance specifically for D/HH students
- Supported by the National Science Foundation, HRD #1127955
- Ongoing project (started Sept 2011)
 - Now in our 6th year

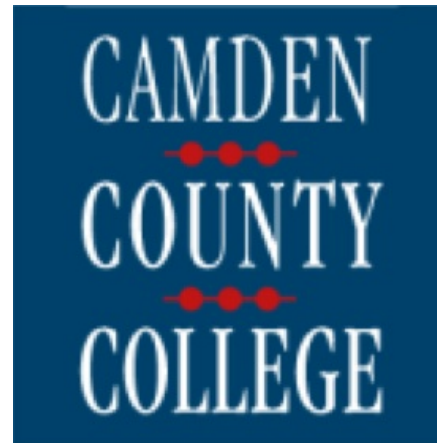




Campus Partners

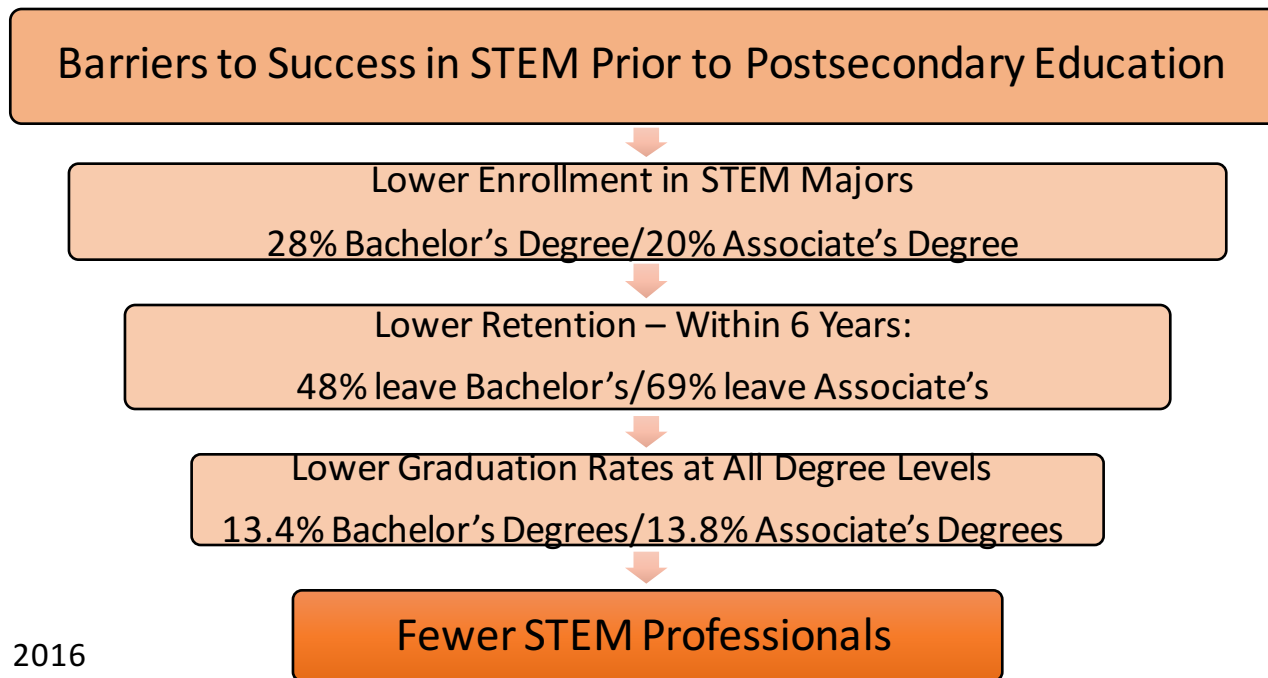


RIT is the lead institution for this project, with Camden County College and Cornell University as partners.





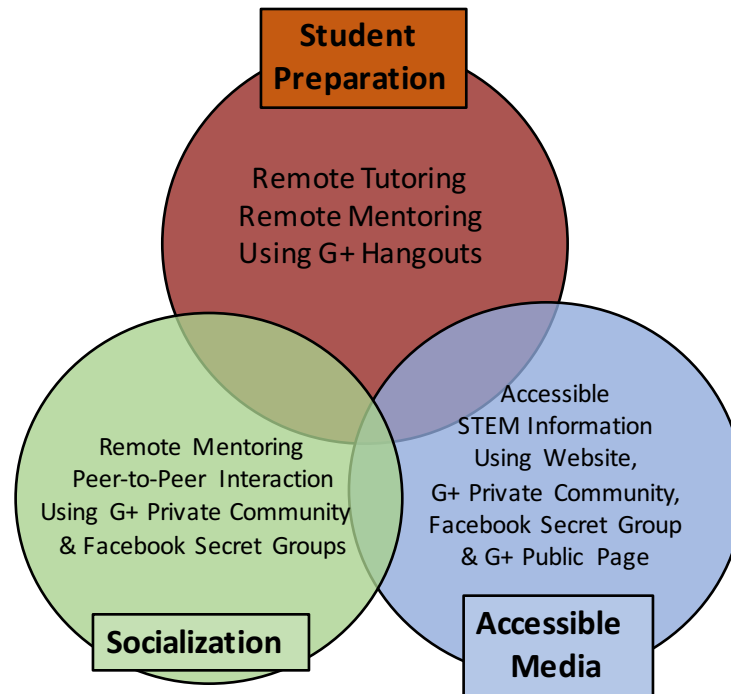
The Narrow STEM Pipeline



Chen, 2016



DHHVAC Model Barriers & Strategies





Goal and Objectives

- Goal:

Create a *model* virtual academic community to increase the graduation rates of postsecondary D/HH STEM majors in the long term

- Iterative and incremental (Cockburn, 2008)

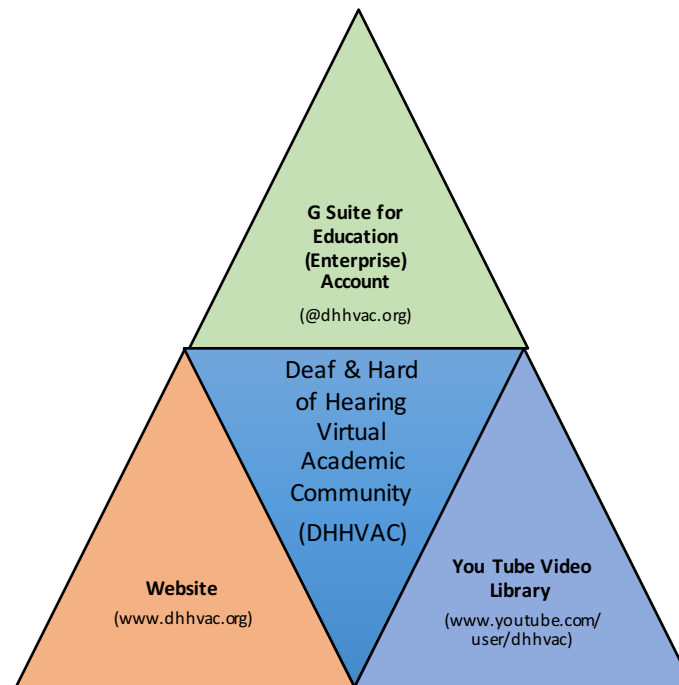
- Iterative – testing what works and revising what doesn't
- Incremental – building model in stages instead of all at once

- Objectives

- 1) Document and disseminate a description of the process of creating a model VAC for replication
- 2) Increase the GPAs and retention rates of D/HH students in STEM majors



Model Infrastructure





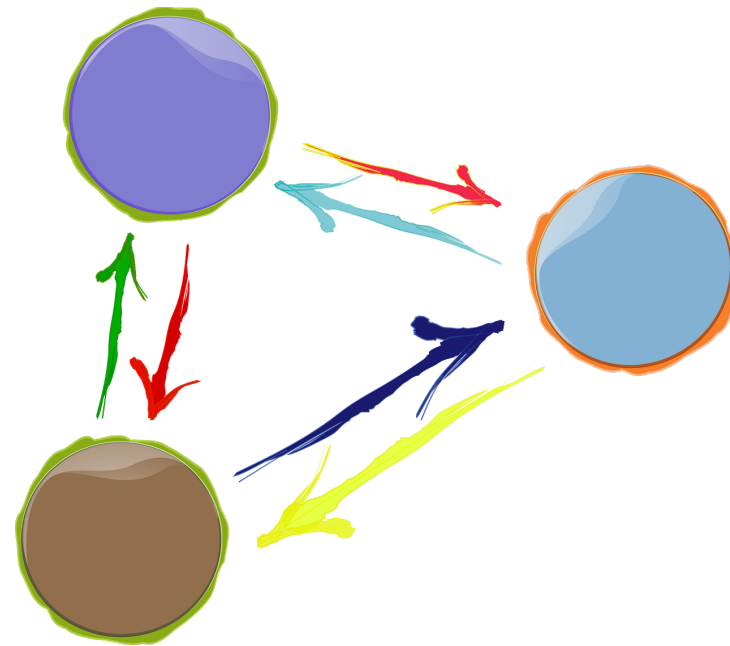
Recruiting Strategies

- Students
 - Tutors
 - Individual contacts
 - Disability Services Offices
- Mentors
 - Recommendations from administration
 - Alumni association
 - Individual contacts
- Tutors
 - Department Chairs
 - Individual contacts
 - Professional development training session



Importance of Social Networks

- Opinion & behavior more similar within groups (Burt, 2004)
- Regulators of behavior (Easley & Kleinberg, 2010)





Importance of Social Networks

- Resource for social capital (Burt, 2004)
- Resource for innovation (Burt, 2004)





Socialization

Mentoring by DHH STEM Professionals

+

Private All-Community Social Media Platform Groups



Remote Mentoring in the DHHVAC





Mentorship Functions

- Support (Ensher, Heun, & Blanchard, 2003)
 - Career development (academic/vocational)
 - Personal development
- Role modeling





Benefits

- Individual
 - Intergenerational continuity
 - Future collaborative relationship development
 - Number of colleagues in the field increases
- Institutional
 - Alumni mentors maintain relationship with alma mater
 - Increased academic performance within a cohort
 - Increased retention rates within underrepresented populations
 - Increased graduation rates

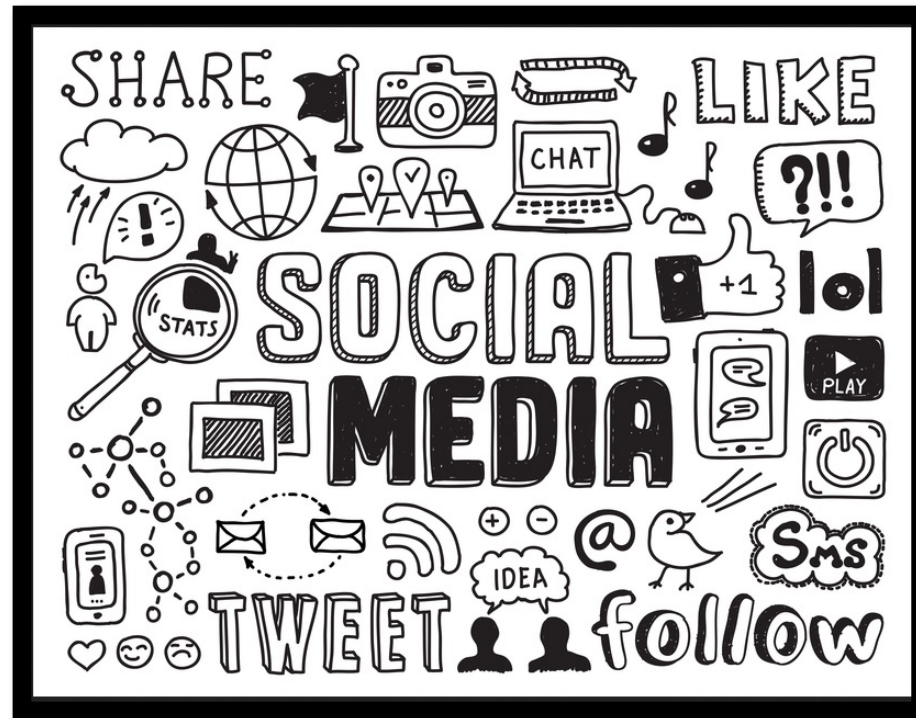


Student-Mentor Matching Considerations

- Student major & mentor occupation
- Student request based on interests or projects
- Demographic similarity
- Communication preferences (e.g., knowledge of sign language, preference for using voice)
- Technology preferences (e.g., email, Hangouts, FaceTime)



Social Media in the DHHVAC





Social Media Platforms

2012



2015





Social Media Functions

- Mitigate social isolation
- All-Community interaction
 - STEM articles of interest
 - Share student schedules
 - Announcements (events, internships, scholarships)
- Remote Mentoring
 - Open forum for mentors to provide 1-to-many mentoring in forms of
 - Information sharing (e.g., pictures of work)
 - Job opportunities
 - Offers for assistance



Socialization – Lessons Learned to Date

- Someone to facilitate engagement
 - Encourage through personal contact
 - Frequent posting (3-10 posts per week)
- Critical mass of participants
 - Started Google+ Private Community with ~ 25 participants (January, 2013)
 - Activity increased with ~ 55 participants (September, 2013)
 - Current membership: 76
 - Started Facebook Secret Group with ~ 13 participants (October, 2015)
 - Activity increased with ~ 20 participants (November, 2015)
 - Current membership: 34
- Platform reputation is important!



Impact on Students

- Creating social capital

I thought there was a lot of potential in getting more resources to help me along with getting more connected in academic life...I also liked the idea of pairing up a student with a mentor

- Resource for innovation

...there was a really nice Facebook group that always kept it updated with new sciences and technologies that I found interesting a lot of times. It exposed me to interesting topics that I wouldn't have thought about in my daily very busy life and it would just make me pause for a moment and do some more research on the topic if I was interested in it.



Research Activities

- Social Media Engagement
 - Content
 - Participation
 - Timing
- STEM Identity



Conclusions

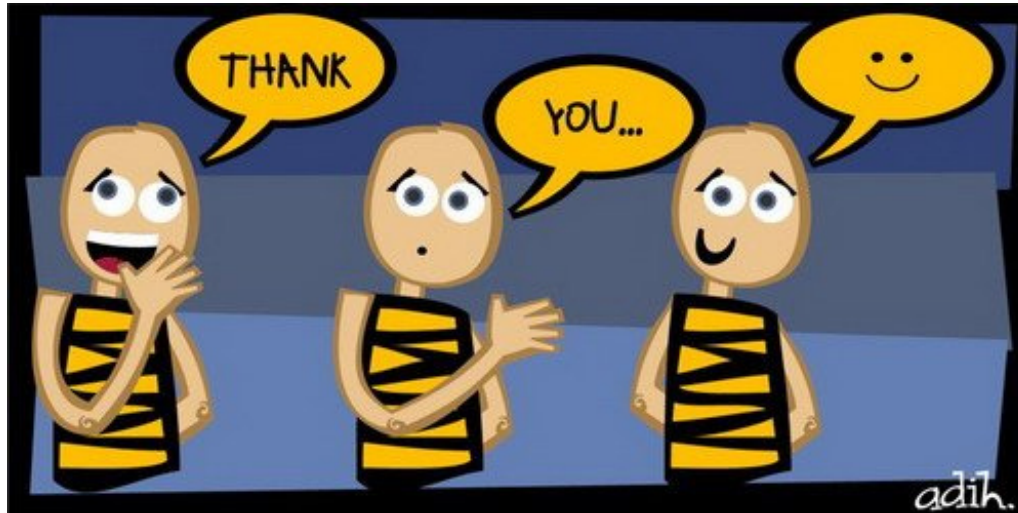
- Underrepresented populations benefit from positive role models
- Students can benefit from either direct or indirect mentoring
- Intergenerational cooperation and support can further BOTH personal and institutional objectives
- The DHHVAC is a model that attempts to implement this solution



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Contact Information

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