Providing Remote STEM Tutoring to Deaf/Hard-of-Hearing Students Using Google+ Hangouts

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Presentation Agenda

- Overview of the Deaf STEM Community Alliance project

- Remote tutoring experiences using Google+ Hangouts

- Using Google Drive for document management and collaboration with colleagues

Who We Are

- Deaf STEM Community Alliance
  - Only Alliance specifically for D/HH students
- Supported by the National Science Foundation, HRD #1127955
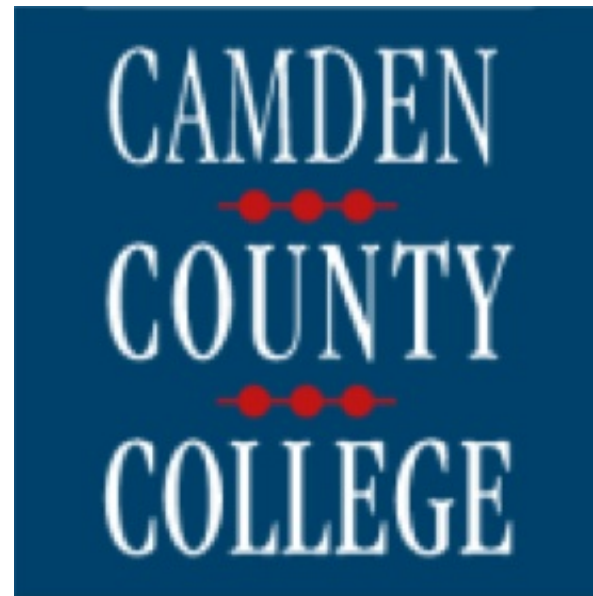- Multi-year project (Sept 2011- Aug 2017)
  - Now in our 4rd year

Campus Partners

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

Challenges Addressed by the Alliance

- Need to add more STEM graduates

- Broaden participation of underrepresented groups in STEM, especially those with disabilities, and, in particular, those who are deaf or hard-of-hearing

- Create more cohesive cyber learning resources for students, faculty, and support service providers

Barriers to Success in STEM

Student Preparation

Socialization

Accessible Media
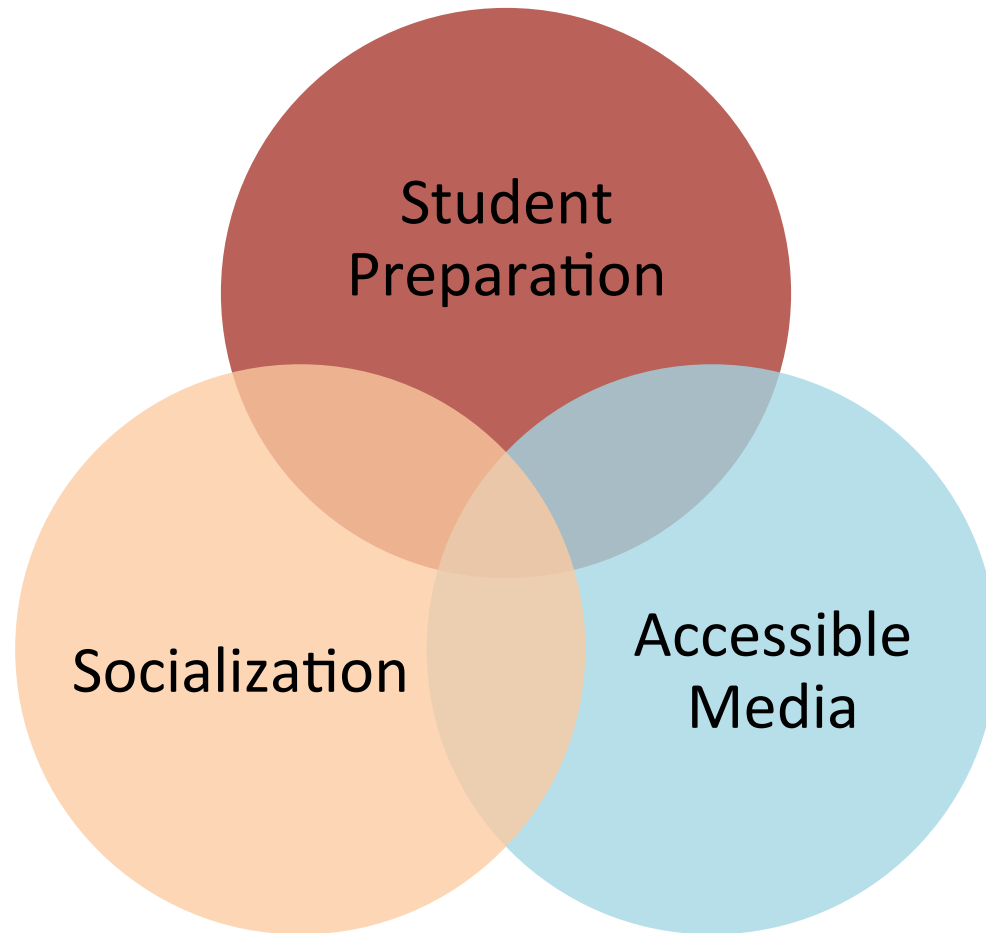
Goal and Objectives

Goal – Build a model virtual academic community (VAC) that will increase graduation rates of D/HH STEM majors in postsecondary education in the long term

Objectives—

1) Document and disseminate a description of the process of creating the VAC to create a scalable model that could be adopted by others
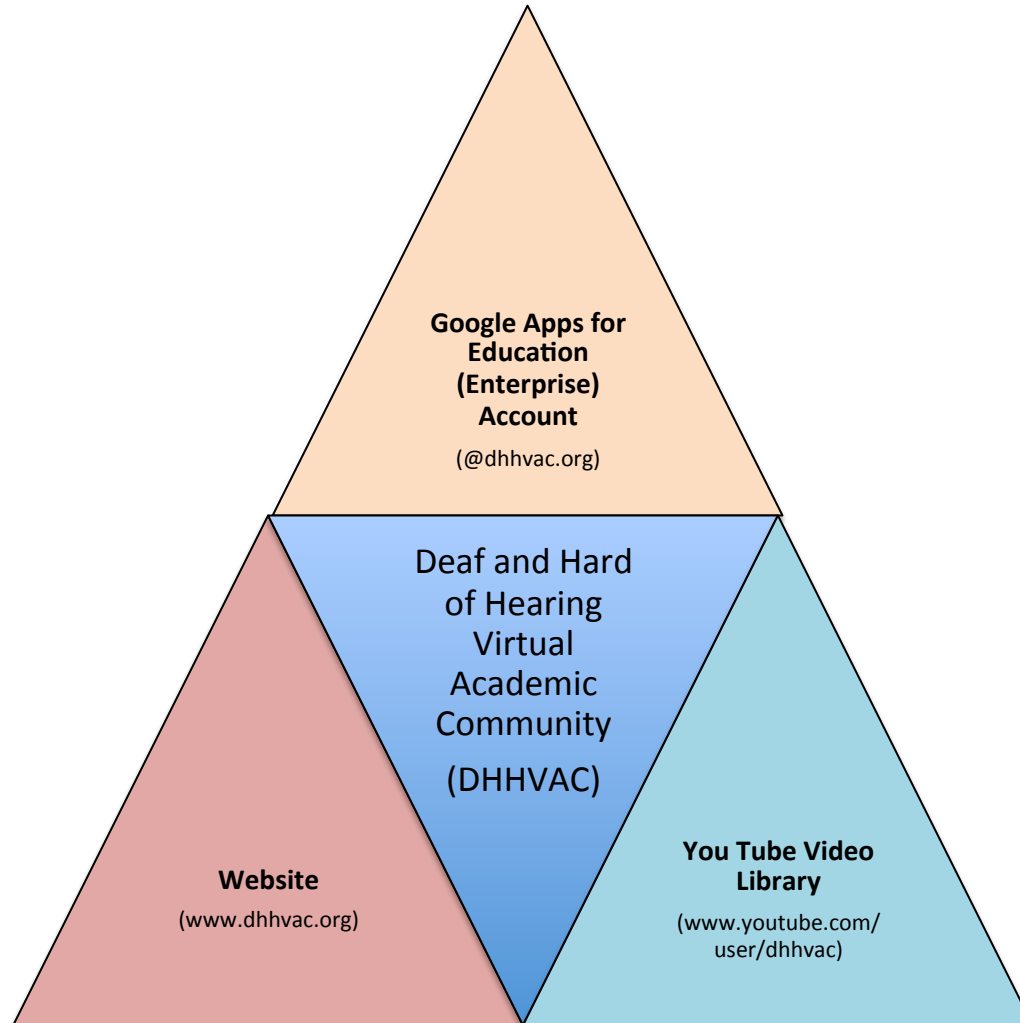
2) Increase GPAs and retention rates of D/HH students in STEM majors

Model Building

- Incremental (adding components gradually)

- Iterative (modifying model based on consumer and evaluation feedback)
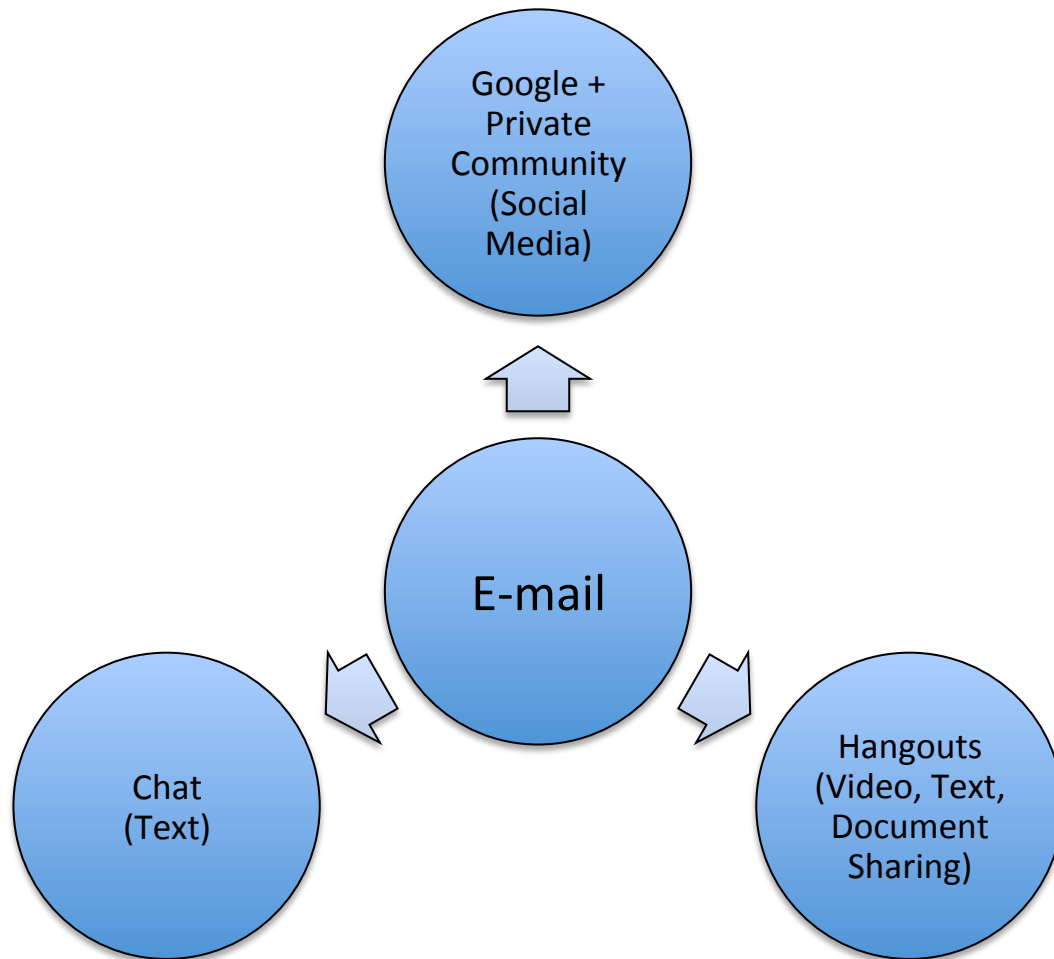
(Cockburn, 2008)

Model Infrastructure

Model Infrastructure Components

- Communication

- Dissemination

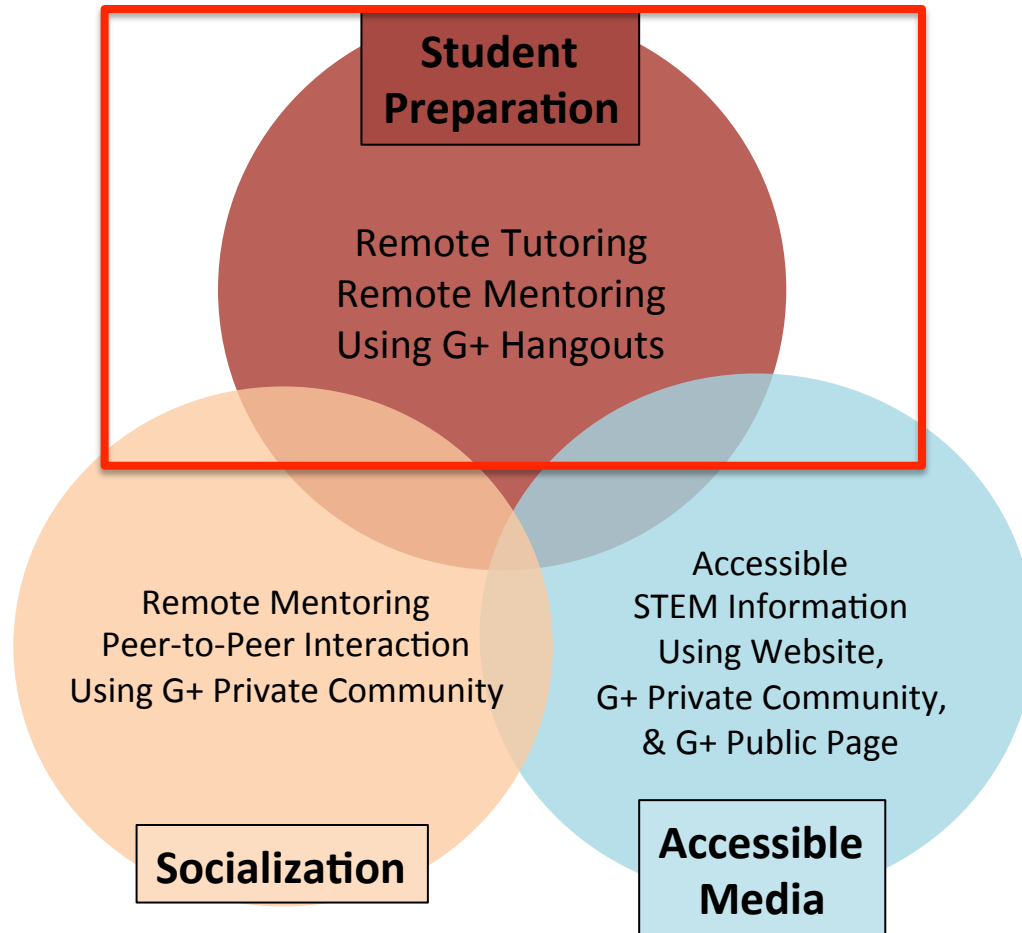- User Analytics

Communication Infrastructure
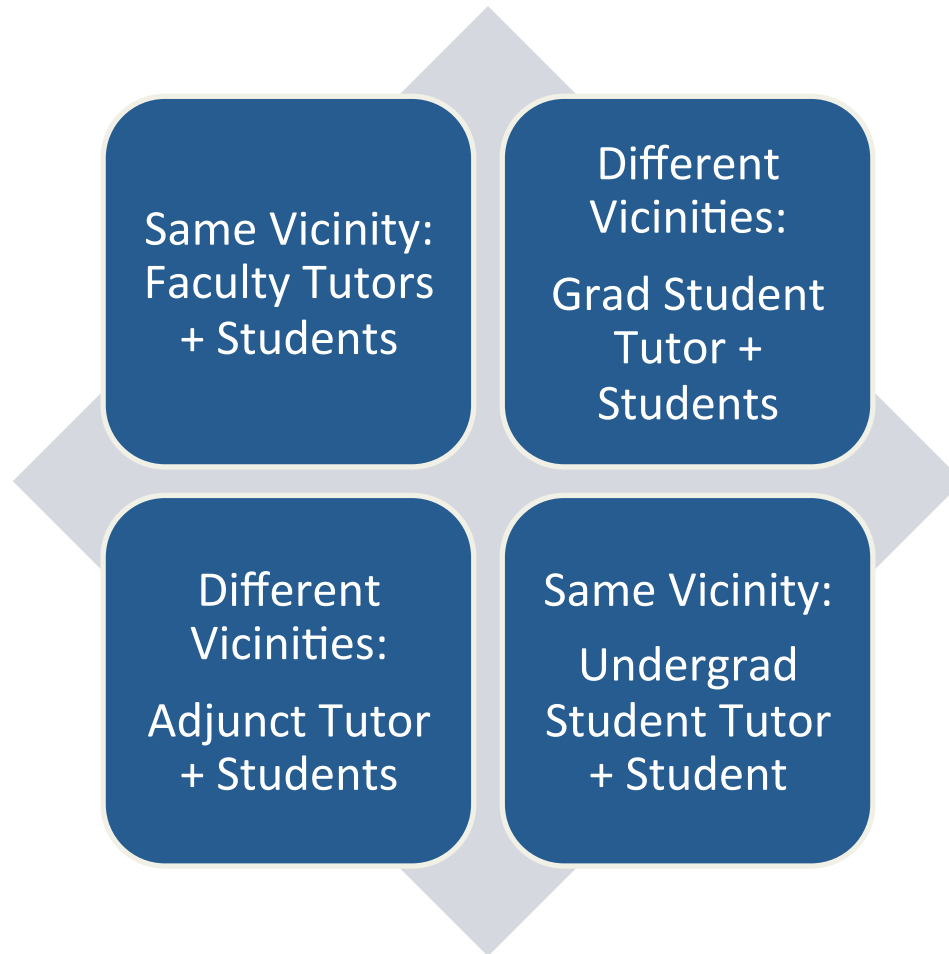# Google Apps for Education (Enterprise) Account

DHHVAC Model
Barriers & Strategies

Student Preparation

Remote Tutoring
Remote Mentoring
Using G+ Hangouts

Remote Mentoring
Peer-to-Peer Interaction
Using G+ Private Community

Accessible
STEM Information
Using Website,
G+ Private Community,
& G+ Public Page

Socialization

Accessible Media

Tutoring Models

Same Vicinity: Faculty Tutors + Students

Different Vicinities: Grad Student Tutor + Students

Different Vicinities: Adjunct Tutor + Students

Same Vicinity: Undergrad Student Tutor + Student

Remote Tutoring FAQs:

Based on RIT/NTID faculty-student face-to-face tutoring
Conducted over 120 synchronous sessions with 11 tutors
Google+ Hangouts as web conferencing platform
Chromebooks, Macs, PCs, iPads & other tablets
On-line resources, paper/pen, whiteboards, Conceptboard (virtual whiteboard)
Asynchronous tutoring sessions

Experience Using Google+ Platform

- Part I: Initial Project Focus: Best features Google+ Hangouts offer for conducting remote tutoring

- Part II: Leveraging Google Drive app for document management and collaboration with colleagues

Part I: Advantages of Remote Tutoring using Google+ Hangouts

- Interface allows flexibility in communication

- Accommodating to schedules (faculty and student)

- Google+ Apps that enhanced online tutoring
  - Google Drive: Document Sharing
  - Google+ Screenshare feature

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Google+ Hangouts: Communication Flexibility

- Versatility of interface allows RIT/NTID faculty to structure sessions similar to face-to-face tutoring

  - Video feeds for both users
  - Microphone capability
  - Chat feature capability

Starting a Google Hangout

My Google+ Homepage