

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



April 30, 2015

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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 4<sup>rd</sup> year

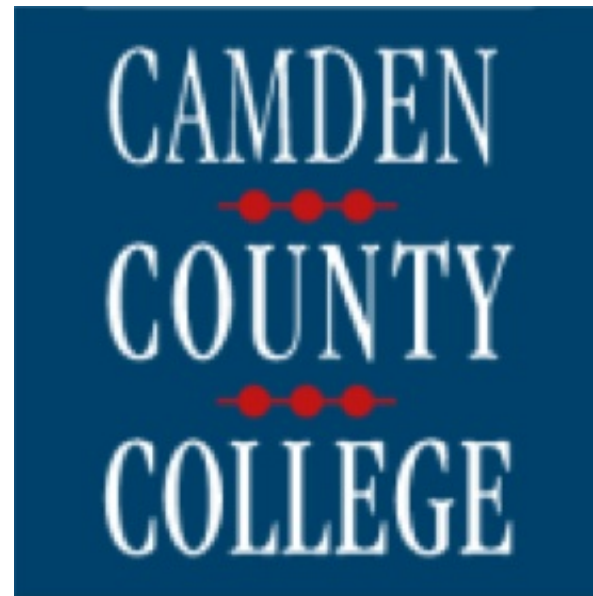




# Campus Partners



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



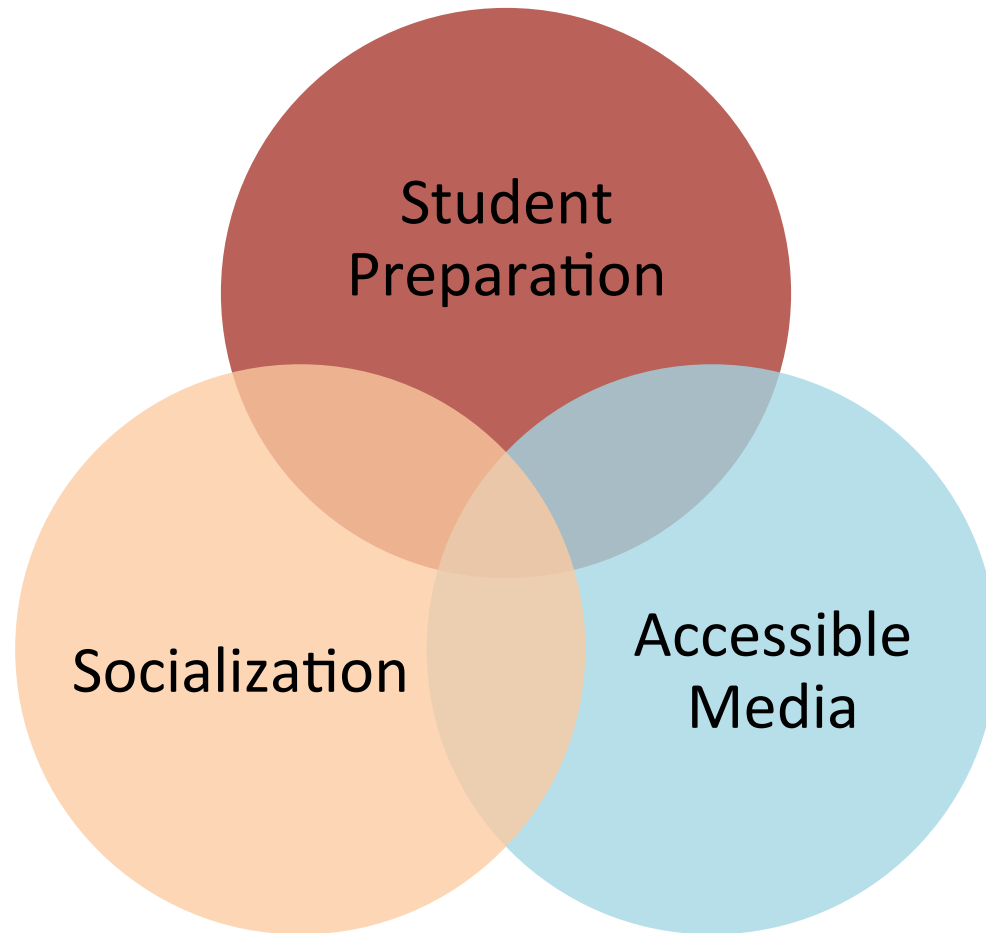


# Challenges Addressed by the Alliance

- 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





# 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

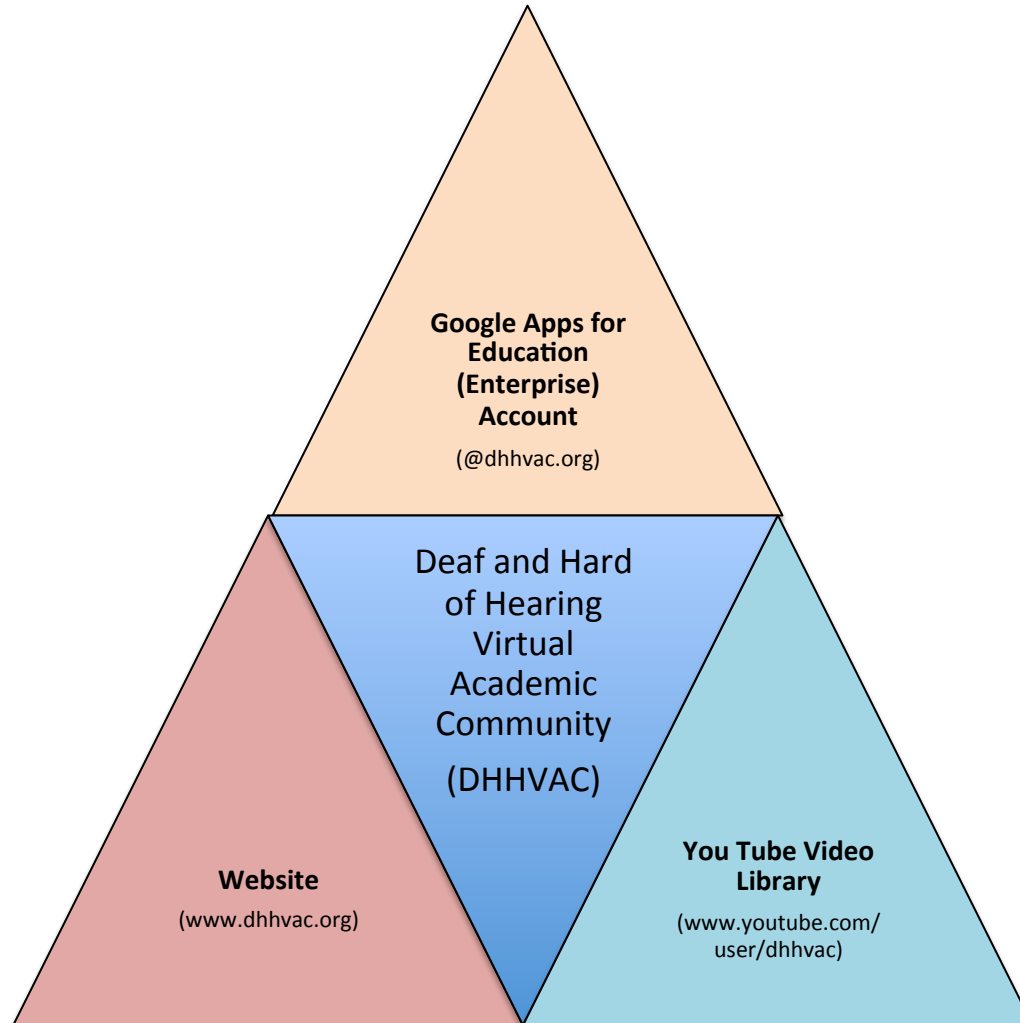
- Incremental (adding components gradually)
- Iterative (modifying model based on consumer and evaluation feedback)

(Cockburn, 2008)





# Model Infrastructure





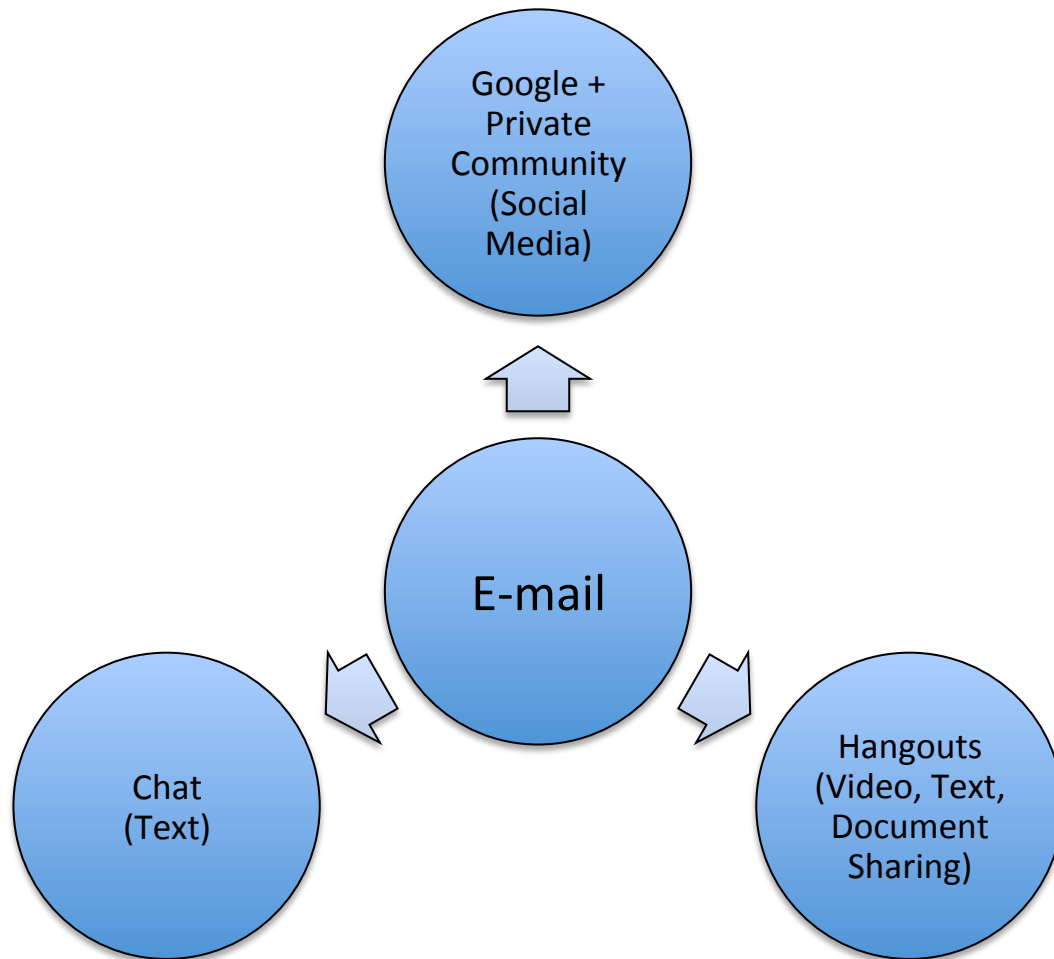
# Model Infrastructure Components

- Communication
- Dissemination
- User Analytics



# Communication Infrastructure

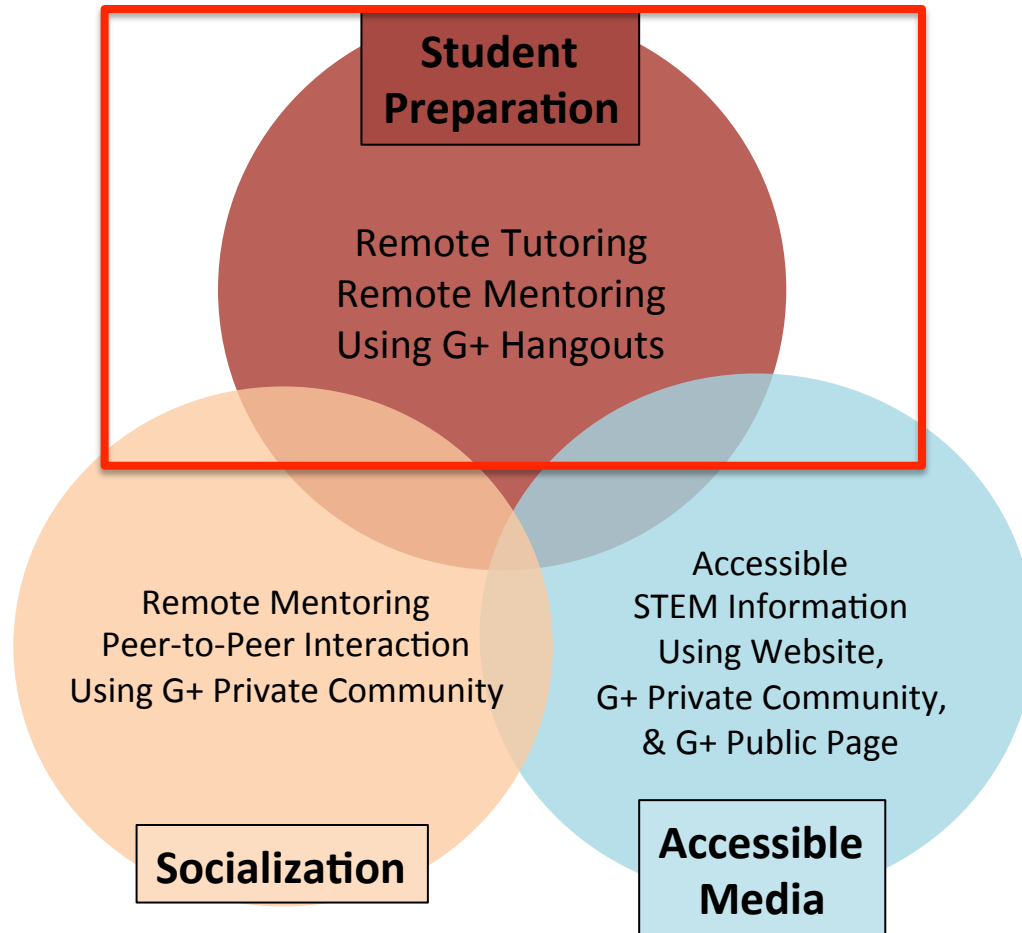
## Google Apps for Education (Enterprise) Account





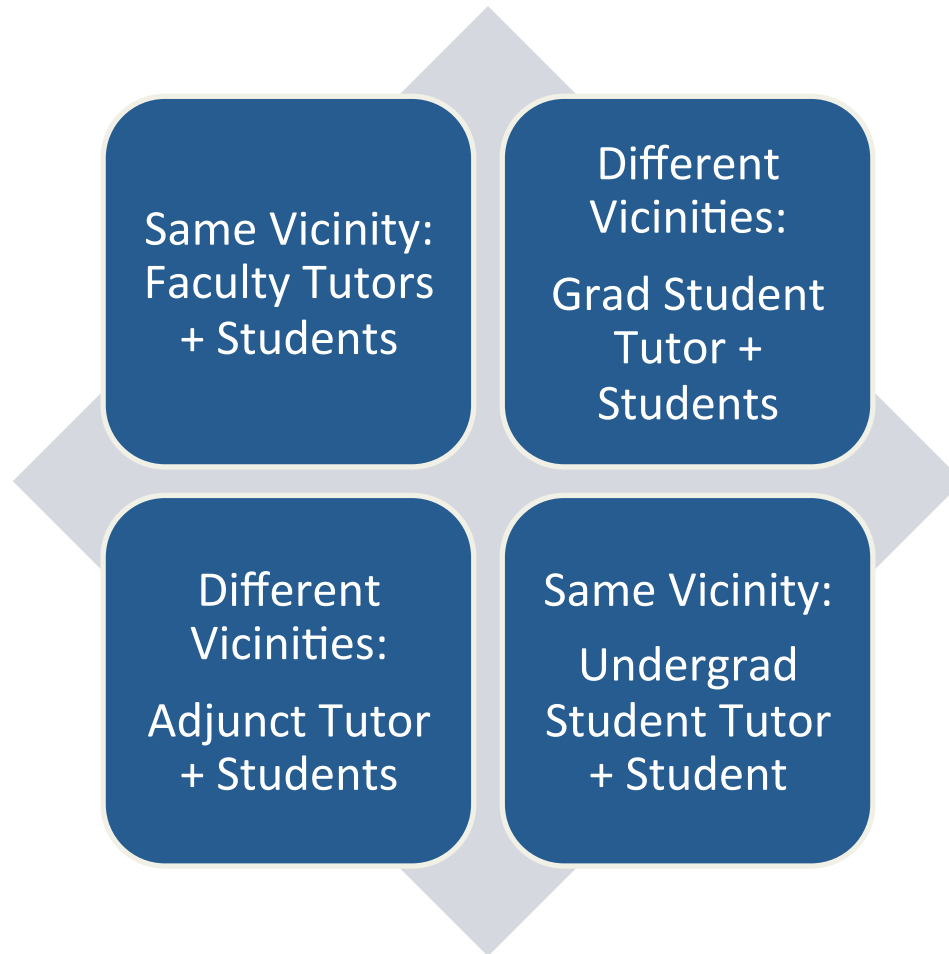
# DHHVAC Model

## Barriers & Strategies





# Tutoring Models





# 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+ Screenshot feature





# Part I: Advantages of Remote Tutoring using Google+ Hangouts

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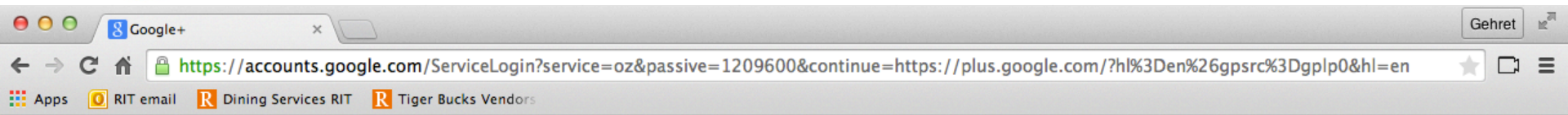


# Google+ Hangouts: Communication Flexibility

- 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



One account. All of Google.

Sign in to continue to Google+



**A Gehret**  
a.gehret@dhhvac.org

[Need help?](#)

[Sign in with a different account](#)



# My Google+ Homepage

The screenshot shows a browser window with the Google+ homepage. The address bar displays <https://plus.google.com/u/0/>. The browser's address bar includes navigation icons (back, forward, refresh, home) and a search bar with the text "Search for people, pages, or posts". Below the search bar are navigation tabs: "Home", "All", "VAC", "More", "Mentions", and "Explore".

The main content area is divided into several sections:

- Share what's new...:** A text input field with icons for "Text", "Photos", "Link", "Video", "Event", and "Poll".
- You may know:** A list of suggested connections with "Add" buttons. The list includes:
  - Gehret VACTutor** (L Elliot in common)
  - C Levin** (B Rubin in common)
  - A Jacobson** (B Rubin in common)
- Recent posts:** A post by **D Easton** titled "VAC News and Stories - Apr 8, 2015" with the hashtag #Drought. The text reads: "The drought and water shortage in California has been in the news a lot lately. Look where NASA is finding water!". Below the text is a space image of a galaxy.
- Another post:** A post by **Jon Schull** titled "Shared publicly - Apr 8, 2015" with the hashtag #Evolution. It includes a quote: "Simon Terry originally shared: The ongoing evolution of a network of talented change agents changing the future of work. Thanks to +Susan Scrupski and the amazing network for their support."

On the right side, there is a "New conversation" section with a search bar and a list of recent video calls:

- L Elliot** (Thu) - You were in a video call
- Lisa Elliot** (Thu) - You were in a video call
- B Rubin** (Jan 20) - You were in a video call
- N King** (5/2/14) - You were in a video call

At the bottom right, there is a "Start a video Hangout" button highlighted with a red box. Below it, a message says "Tell friends you're available by starting your own video Hangout." and a "View all" link.