

**Enrichment: Testing the Concept of a Virtual Alliance for Deaf and Hard of Hearing  
STEM Students at the Postsecondary Level**  
Award Number HRD-0927586  
<http://www.rit.edu/ntid/cat/enrichment>

**Social Network Parameters  
Specifications, Planning, & Prototypes**

Compiled January 2012 by E. William Clymer

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## Background

This document contains the original VAC specification that the team used initially to design a working prototype produced using Ning, a social network development application. This functional prototype included all of the major elements in the specifications.

During the summer and fall of 2011, Google released a beta version of Google+, which is a competitive product to offer social networking features, similar to Facebook and Twitter, with the additional benefit of offering high quality audio and video communication.

It is this Google+ video chat capability that differentiates it from Facebook and Twitter, especially in the deaf community because of the ease of sign communication. The feature is called “Hangouts” and enables a group of participants see and hear the conversation of members of a circle “hangingout”. One person “has the floor” at a time, and their video display is largest among the group of video windows displayed; this person is given the floor using the traditional telepresence practice of switching the display to whoever is talking the loudest. This of course is a problem for deaf persons, who typically don't sign during such a meeting. When sound was not being used, Google+ was not able to determine who should be in the large window. Recognizing the concerns of the deaf community, Google+ engineers made it possible for sign language users to hit shift+s to take control of the display. In order for this to function correctly, the audio capability on the users computer must be on mute. This sensitivity to deaf concerns and the full feature set of Google+ has made it very popular in the deaf community.

However Google+ does not have the management and control that the Ning prototype can provide. Whether the system can effectively be used by the Alliance is yet to be determined.

NTID Center on Access Technology  
**A Project to Test the Concept of a Virtual Alliance**  
RIT/NTID  
[www.ntid.rit.edu/cat/enrichment](http://www.ntid.rit.edu/cat/enrichment)

Social Networking Design Parameters  
November 9, 2009

Goal:

To use social networking technologies to provide a platform for supporting students with a hearing loss enrolled in STEM majors.

Objectives:

1. Provide a venue for discussion between STEM student and interested parties, 24/7. This could be one to one private conversations or shared postings.
  - a. Allow for creation of communities or special interest groups among users with similar interests.
2. Provide an array of access services for students with a hearing loss enrolled in STEM majors.
  - a. Deaf mentors
  - b. Remote interpreting
  - c. Remote speech-to-text captioning
  - d. On-line speech and hearing services
  - e. On-line tutoring
  - f. On-line notetaking
  - g. On-line advising
  - h. Etc.
3. Provide a clearing house of resources to support students with hearing loss enrolled in STEM majors
  - a. Bibliography of STEM text books and other materials
  - b. Links to online materials
  - c. Access to previously used tutorial information
  - d. Access to existing captioned media in STEM areas
  - e. Links to organizations/networks supporting STEM students with a hearing loss.
  - f. Provide an archive of support materials and references.
  - g. Etc.
4. Develop online, open source dictionaries for use by speech-to-text captionists and interpreters.
  - a. Downloadable dictionaries for speech-to-text captionists for STEM courses.
  - b. Viewable ASL dictionaries for STEM courses.

Technical requirements:

1. Applications should be fast, dependable, free, and work on popular platforms.
2. All applications should be fully accessible for groups (including visually impaired) and conform to universal design principles.

3. Possess both synchronous and asynchronous features.
4. Pass the test of university firewalls for social networks
5. Function even with slow connection speeds often available at home or in rural areas.
6. Monitor participation and membership to ensure appropriate and legal/copyright use.
7. Etc.

Special Considerations:

1. Design to meet the specific communication needs of the user(s):
  - a. Speech
  - b. Captioned
  - c. ASL
  - d. Any combination of these.
  - e. Etc.

Probable audiences:

1. Students with hearing loss
2. STEM faculty
3. Support service coordinators
4. Interpreters
5. Speech to text operators
6. Academic support staff
7. Tutors
8. Note takers
9. Speech, language, audiology professionals
10. Vocational rehabilitation professionals
11. Friends
12. Etc.

## Ning Virtual Academic Community Prototype

The Ning prototype of the VAC was developed as a model of the key functions deemed necessary for the application to be successful.

### Main Screen

The screenshot shows a web browser window displaying the main screen of the NTID Virtual Alliance. The browser's address bar shows the file path: `file:///Volumes/penteam$/Current%20Projects/NSF%20RDE%20Enrichment%20Grant/Social%20Networking/NTID%20Vir...`. The browser tabs include Gmail, Xerox E, pdf-pr, RIT SRS, NTID SF, Web Co, The Sc, Google, and NTID Vi. The browser's address bar also shows a search bar for "Search NTID Virtual Alliance" and a "Manage" button.

The main screen features a navigation menu with the following items: [MAIN](#), [REMOTE SERVICES](#), [LOCAL SERVICES](#), [DISCUSSIONS](#), [ONLINE RESOURCES](#), and [MANAGE](#). The title "NTID Virtual Alliance" is displayed in a large, green font.

The main content area is divided into several sections:

- WELCOME TO THE VIRTUAL ALLIANCE SITE!**: This section contains a general introduction to the site, information about privacy settings, and a note about administrator capabilities.
- PATRICK**: This section displays the user's name, "Patrick", and provides options for "Sign Out", "Inbox", "Alerts", "Friends - Invite", and "Settings". A "Quick Add..." dropdown menu is also visible.
- MEMBERS**: This section shows a grid of member avatars. There are two rows of avatars, with the second row containing a real photo of a woman. Below the avatars are links for "+ Invite More" and "View All".
- VIDEOS**: This section has a link for "+ Add Videos".
- PHOTOS**: This section has a link for "+ Add Photos".

At the bottom of the page, there is a copyright notice: "© 2011 Created by Liz Lawley." and a footer with links for "Badges", "Help", and "Terms of Service".

# Remote Services Screen

The screenshot shows a web browser window with multiple tabs. The active tab is titled "Remote Services" and displays the URL: `file:///Volumes/penteam$/Current%20Projects/NSF%20RDE%20Enrichment%20Grant/Social%20Networking/NTID%20Vir...`. The browser's address bar also shows "Welcome | NTID Cen" and "Breaking News, Weat". The page header includes "Manage" on the left and "Patrick Sign Out Search NTID Virtual Alliance" on the right. A navigation menu at the top contains links for "MAIN", "REMOTE SERVICES" (highlighted), "LOCAL SERVICES", "DISCUSSIONS", "ONLINE RESOURCES", and "MANAGE". The main heading is "NTID Virtual Alliance" in a large, green, sans-serif font. Below this, there are links for "All Pages" and "My Pages". The section title "REMOTE SERVICES" is prominently displayed. A descriptive paragraph follows: "General information on what remote services are, and who provides them. Links from here to the sub sections (Remote Captioning and Remote Interpreting, along with other services that might be added)". An "Edit" link is visible below the paragraph. On the right side, a user profile for "PATRICK" is shown with options for "Sign Out", "Inbox", "Alerts", "Friends - Invite", and "Settings", along with a "Quick Add..." dropdown menu. At the bottom left, the copyright notice reads "© 2011 Created by Liz Lawley.". At the bottom right, there are links for "Badges | Help | Terms of Service".

# Local Services

Browser tabs: Gmail, Xerox E, pdf-pre, RIT SRS, NTID SF, Web Co, The Sco, Google, Google, Local S

Address bar: file:///Volumes/penteam\$/Current%20Projects/NSF%20RDE%20Enrichment%20Grant/Social%20Networking/NTID%20Vir...

Navigation: MAIN REMOTE SERVICES LOCAL SERVICES DISCUSSIONS ONLINE RESOURCES MANAGE

## NTID Virtual Alliance

All Pages My Pages

### LOCAL SERVICES

It's not clear what the best way to arrange this would be...geographically? By university? How many locations actually provide local services to students? Does it make sense to provide directories, links, etc, or is this too big a category for the alliance site to try to maintain?

Edit

Manage Patrick Sign Out Search NTID Virtual Alliance

+ Add a Page

**PATRICK**

- Sign Out
- Inbox
- Alerts
- Friends - Invite
- Settings

Quick Add...

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# Discussions

Manage Patrick Sign Out Search NTID Virtual Alliance

[MAIN](#)
[REMOTE SERVICES](#)
[LOCAL SERVICES](#)
[DISCUSSIONS](#)
[ONLINE RESOURCES](#)
[MANAGE](#)

## NTID Virtual Alliance

[All Discussions](#)
[My Discussions](#)
[Settings](#)
+ Add a Discussion

### DISCUSSION FORUM (4)

View **Categories**

Categories	Discussions	Latest Activity
<b>RESEARCH</b> Any user can create a discussion topic in this forum category.	0	No activity yet
<b>CLASSROOM SUPPORT</b> Any user can create a discussion topic in this forum category.	0	No activity yet
<b>UNIVERSITIES</b> Individual discussion topics for specific universities. Only administrators can create new topics, but all users can respond in those topics.	2	Aug. 13, 2010 Gallaudet Discussions by Liz Lawley
<b>STEM SUBJECT AREAS</b> Individual discussion topics for specific STEM subject areas. Only administrators can create new topics, but all users can respond in those topics.	4	Aug. 13, 2010 General STEM Discussions by Liz Lawley

**PATRICK**

Sign Out

Inbox

Alerts

Friends - Invite

Settings

Quick Add...

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# Online Resources

Manage Patrick Sign Out Search NTID Virtual Alliance

MAIN REMOTE SERVICES LOCAL SERVICES DISCUSSIONS ONLINE RESOURCES MANAGE

## NTID Virtual Alliance

All Pages My Pages

### ONLINE RESOURCES

Besides ASL dictionaries, what would make sense to include here?

Edit

+ Add a Page PATRICK

- Sign Out
- Inbox
- Alerts
- Friends - Invite
- Settings
- Quick Add...

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# Manage

Manage Patrick Sign Out Search NTID Virtual Alliance

MAIN REMOTE SERVICES LOCAL SERVICES DISCUSSIONS ONLINE RESOURCES MANAGE

## NTID Virtual Alliance

Shortcuts

**DASHBOARD**

**MEMBERS**

	Pending Approval	Yesterday	Past 10 Days
Members	0	0	0

**CONTENT**

	Pending Approval	Yesterday	Past 10 Days
Photos	0	0	0
Videos	0	0	0
Blogs	0	0	0

**NING ANNOUNCEMENTS**

Leaderboards are now live! Go to the Features Layout page to add it to your main page.

Get involved with Ning community on Creators Network.

Learn more about member engagement.

Get Branded media players with Ning Pro.

**MESSAGE BOARD**

Try Twitter Integration for your Network.

Set up Languages for your Network.

Add Blogs feature to your Network.

Add Events feature to your Network.

Add Forums feature to your Network.

**LEADERBOARDS** [VIEW ALL](#)

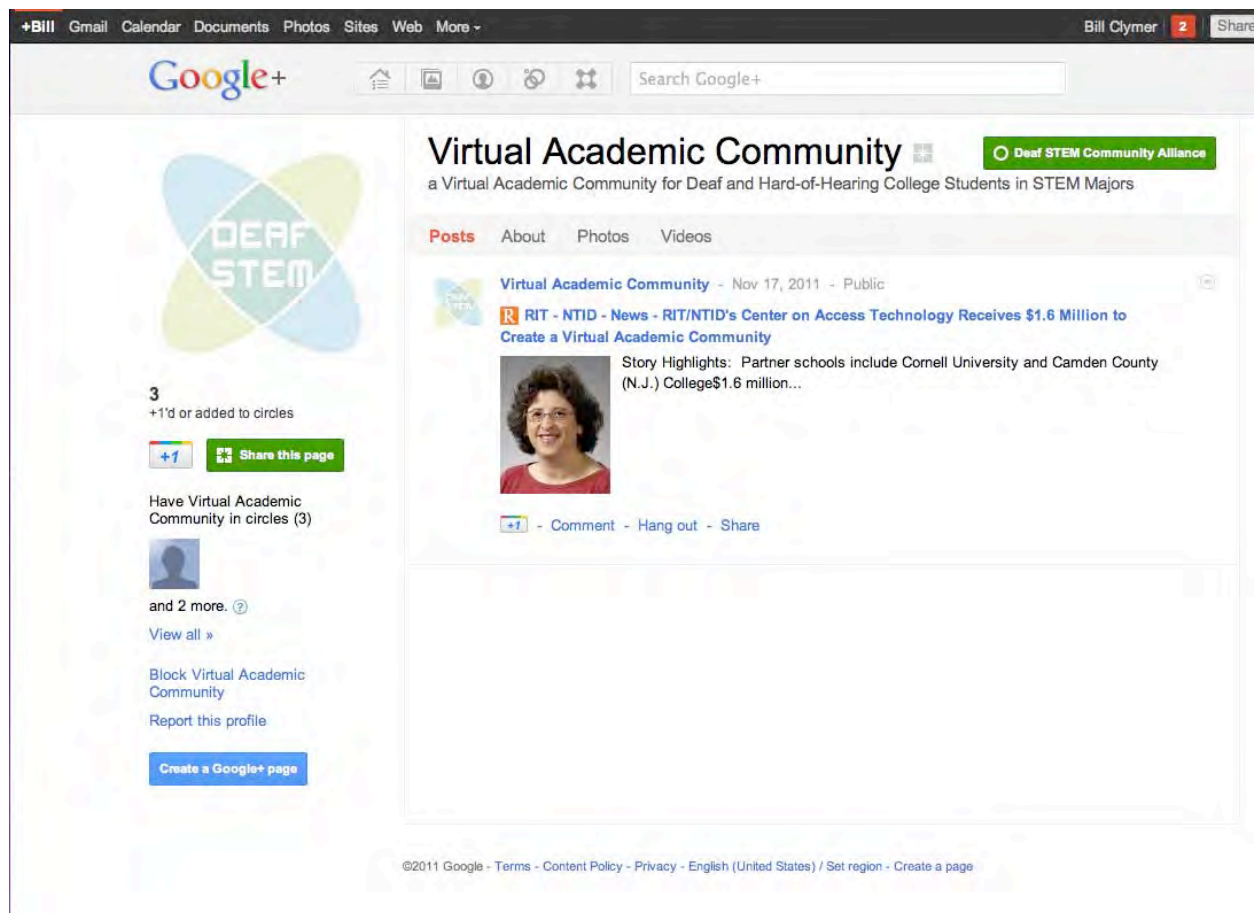
Leaderboards display the top members and content on your Network. [Invite new members](#) and add more content to see Leaderboards for your Network.

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## Google+ Virtual Academic Community Prototype

The introduction of Google+ in 2011 afforded the project team the opportunity to compare the features of this newly designed social network with the specifications of the Virtual Academic Community System. Although there are some challenges, the initial testing of the prototype revealed many of the features of Google+ could satisfy the requirements of the VAC. Of special significance is the ability to use of the Google+ Hangouts for video conferencing, which within the RIT and local Rochester Road Runner systems provided very clear and smooth video communication, sufficient for sign language.

### Main Screen



The screenshot shows the Google+ interface for the 'Virtual Academic Community' page. At the top, the Google+ logo and navigation icons are visible. The page title is 'Virtual Academic Community' with a subtitle 'a Virtual Academic Community for Deaf and Hard-of-Hearing College Students in STEM Majors'. A green badge indicates it is part of the 'Deaf STEM Community Alliance'. The page has tabs for 'Posts', 'About', 'Photos', and 'Videos'. A post from November 17, 2011, is displayed, titled 'RIT - NTID - News - RIT/NTID's Center on Access Technology Receives \$1.6 Million to Create a Virtual Academic Community'. The post includes a profile picture of a woman and story highlights mentioning partner schools like Cornell University and Camden County College. The left sidebar shows that 3 people have added the page to their circles, with options to share the page and view all circles. At the bottom, there are links to block the community, report the profile, and create a Google+ page. The footer contains copyright information for 2011 Google.

# Deaf STEM Stream in Google+

The screenshot shows a Google+ interface for the "Deaf STEM Community Alliance" circle. At the top, the navigation bar includes "Bill Clymer" and a "Share..." button. The main content area displays three posts by "ben rubin":

- Post 1 (Dec 21, 2011 - Limited):** "Here is a prototype of our project page". It includes a link to "Virtual Academic Community" and a button for "Deaf STEM Community Allia...".
- Post 2 (Dec 13, 2011 - Limited):** "Meeting is going well today! Michele and Kathy are up on Google+".
- Post 3 (Dec 5, 2011 - Extended circles):** "Khan Academy Blends Its YouTube Approach With Classrooms". It features a photo of a man and text stating: "At least 36 schools nationwide are combining teacher-led lessons with computer-based lectures and exercises using a software program based on Salman Khan's popular YouTube lessons."

The left sidebar shows the user's profile "Bill" and navigation options: Stream (Friends, Family, Acquaintances, Following, Deaf STEM Com..., Incoming, Notifications), Chat (Enable Chat), and What's hot.

The right sidebar for the circle includes:

- Circle name: "Deaf STEM Communit... (8)" with a YouTube icon.
- Buttons: "+ Add to Deaf STEM Co...", "View all".
- Section: "Suggestions" with members: Chris Tsotakos, Richard Latham, and Megan Clegg, each with an "Add to Deaf STEM ..." button.
- Section: "Circle sharing" with a "Share this circle" button.
- Section: "Hangouts" with a "Start a hangout" button.

“Circle” or Group of VAC STEM Participants

The screenshot shows the Google+ web interface. At the top, there is a navigation bar with links to Gmail, Calendar, Documents, Photos, Sites, Search, and More. The user's name, Bill Clymer, and a notification badge with the number 2 are visible. Below the navigation bar is the Google+ logo and a search bar. The main content area displays a list of people and communities. The list is sorted by Relevance and includes a grid of items: an 'Add a new person' button, a profile for 'ben rubin', the 'Virtual Academic Community', a profile for 'Michele Fish', a profile for 'Barbara Mckee', a profile for 'Wesley Blue', a profile for 'Linda Bryant', and a profile for 'Peter Lalley'. Below the list, there is a section for creating or managing circles, with a prompt to 'Drag people to your circles to follow and share'. This section contains several circular buttons: 'Drop here to create a circle', 'Friends 1', 'Family 0', 'Following 0', and a button for the 'Deaf STEM Community Alliance' with options to 'Edit', 'Delete', and 'Share'. At the bottom of the page, there is a footer with copyright information and a 'Send feedback' button.

+Bill Gmail Calendar Documents Photos Sites Search More - Bill Clymer 2 Share... [User Profile] [Settings]

Google+ Search Google+

People in your circles (8) People who've added you (6) Find people **Deaf STEM Community Alliance (8)** x

Sort by: Relevance Remove Clear selection View pro

+ Add a new person

ben rubin

Virtual Academic Community

Michele Fish

Barbara Mckee

Wesley Blue

Linda Bryant

Peter Lalley

Drag people to your circles to follow and share

Drop here to create a circle

Friends 1

Family 0

Following 0

Deaf STEM Community Alliance  
Edit | Delete  
Share

©2012 Google - Terms - Content Policy - Privacy - English (United States) / Set region - Create a page Send feedback

# Video "Hangouts" in Google+

The image shows a screenshot of a web browser displaying the Google+ interface. The browser's address bar shows the URL <https://plus.google.com/u/0/circles>. The main content area displays a list of people in the user's circles, including Ben Rubin, Michele Fish, Lisa Elliot, Barbara Mckee, Wesley Blue, Linda Bryant, and Peter Lalley. A Hangout window is overlaid on the right side of the page, showing a video call with Ben Rubin. The Hangout window title is "ben rubin says..." and the URL is <https://talkgadget.google.com/hangouts/67ea3400f21a15029b43a413fb0ad865d2afb4d7hl=en-US&authuse...>. The Hangout window includes a video feed of Ben Rubin, a smaller video feed of another participant, and a control bar with buttons for Invite, Chat, YouTube, Reindeer, Mute Video, Mute Mic, Settings, and Exit. The background of the Hangout window is a purple and pink gradient with a starry pattern.

## Google+ Video Hangout and Viewing YouTube Video

The screenshot displays a Google+ Video Hangout interface. At the top, the browser address bar shows the URL: <https://talkgadget.google.com/hangouts/67ea3400f21a15029b43a413bfb0ad865d2afb4d7authuser=0&hl=en-US&source=1>. The page title is "Google Hangouts".

On the left side, there is a "Chat" window with a message from "me": "I was interested in getting feedback from our programmers" sent at 1:19 PM on Wednesday.

The main area features a YouTube video player titled "Now playing: RIT Campus Tour". The video shows a paved path leading through a campus with trees and buildings. The video player includes a progress bar at 1:04 / 9:14 and a "Push to Talk" button.

Below the video player, there are two small video thumbnails of participants. One participant is identified as "Bill Clymer".

At the bottom of the interface, there is a toolbar with several icons: "Invits", "Chat", "YouTube", "Reindeer", "Mute Video", "Unmute Mic", "Settings", and "Exit".