Wired to Learn: Qualitative Analysis of Using Google Hangouts for Online Tutoring

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ABSTRACT

The Deaf and Hard of Hearing Virtual Academic Community (DHHVAC) provides support for online tutoring. These sessions require the student and tutor to feel comfortable using the video conferencing software and navigate potential technical issues while simultaneously discussing academic material. This research is a qualitative analysis of recorded online tutoring sessions. The DHHVAC has supported more than 160 tutoring sessions with 16 tutors and 38 students averaging 63 minutes in length. Google Hangouts was used for tutoring sessions as it was the best tool to accommodate students' needs and provide multiple approaches for efficient content-related conversation. Accessible technology is improving the academic experience for deaf and hard of hearing students; online tutoring provides new options to support student learning and ongoing data analysis will discover ways to help students and tutors in the online environment.

BACKGROUND

Online support for academic subjects is widely available for the general postsecondary student population in both asynchronous formats (e.g., [1]) and synchronous systems (e.g., [2]; [3]; [4]). Academic support is especially valuable for postsecondary students who are deaf or hard of hearing because many of these students arrive at college or university underprepared for their coursework [5];[6]. However, many of the generic resources are not accessible for students who are deaf or hard of hearing (DHH) because generic online resources do not match DHH students' communication preferences. One solution for making tutoring more available to students is to provide it online. Until recently, most research on online tutoring pertained to satisfaction studies [7]. Studies of what actually happens during tutoring sessions are much less common (e.g., [8]). This study is meant to examine what takes place during online tutoring sessions for science, technology, engineering and math (STEM) courses with DHH students and their tutors.
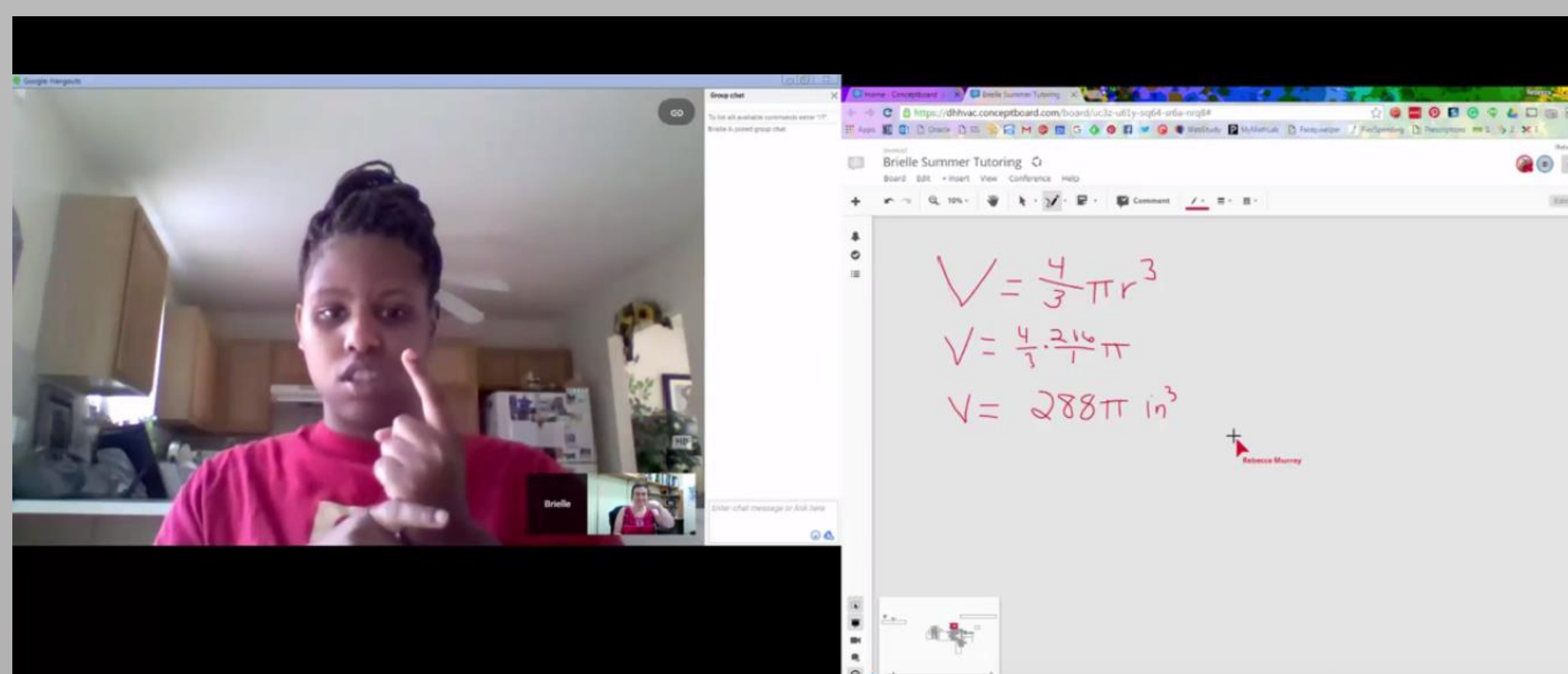
METHODS

A research group is reviewing excerpts from recorded tutoring sessions. Videos are coded for communication strategy, conversation content, materials used in the tutoring session, and technical issues. Examples of the codes are shown in Table 1.

Table 1. Synchronous Tutoring Video Content

| Content Trend	Student	Tutor	Code	Example
Communication Style	Simultaneous Communication	Sign Language; Facial Expression	LISL, LAQ	Student signs "How do I solve the problem?"
Conversation Content	Providing Information or Expressing Understanding	Providing Information or Expressing Understanding	LISL, LRQ	Student signs, "Oh! I understand!"
Materials Used	Hardcopy homework; Text-based chat	Hardcopy homework White board	LWR	Student is looking away from camera to read notes

RESULTS

Eight videos have been coded thus far, representing approximately 20% of all the video excerpts. To date, the analysis has identified the following trends:

• Communication style: Students used Simultaneous Communication most often, followed by ASL only. Tutors used ASL, facial expression without ASL, or spoken language with similar frequency.

• Conversation content: For both students and tutors, the primary conversation content focuses on providing information or expressing understanding about the topic being discussed.

• Materials used: While tutoring may utilize a wide variety of materials, the sessions analyzed thus far have predominantly used hardcopy homework documents. Students have also used text-based chat to discuss tutoring issues. On occasion, sessions also used online materials.

• Technology issues:The videos analyzed thus far have included very few technology issues. Two students experienced an issue, while none of the tutors experienced issues. In one instance, a tutor provided a student with some technical instruction.

CONCLUSIONS

The DHHVAC's objectives are to help deaf and hard of hearing students overcome barriers in STEM education, one of those barriers is access to qualified tutors. Preliminary research shows that concerns related to technology failure or lack of contact did not impact the overall quality of tutoring sessions that were recorded. However, continuing research is needed.The DHHVAC staff hope to continue to research asynchronous and synchronous online tutoring to improve the online academic experience for deaf and hard of hearing students.

Given that the DHHVAC is a research project with a private community of members, there are limitations related to participation. As a whole, the DHHVAC hopes to continue to collaborate with another tutor programs (i.e. NTID Learning Center, academic departments, and other campus partners) to recruit more tutors and students to join our program. We would like to provide more options for participants in regards to content, availability, and technology used.
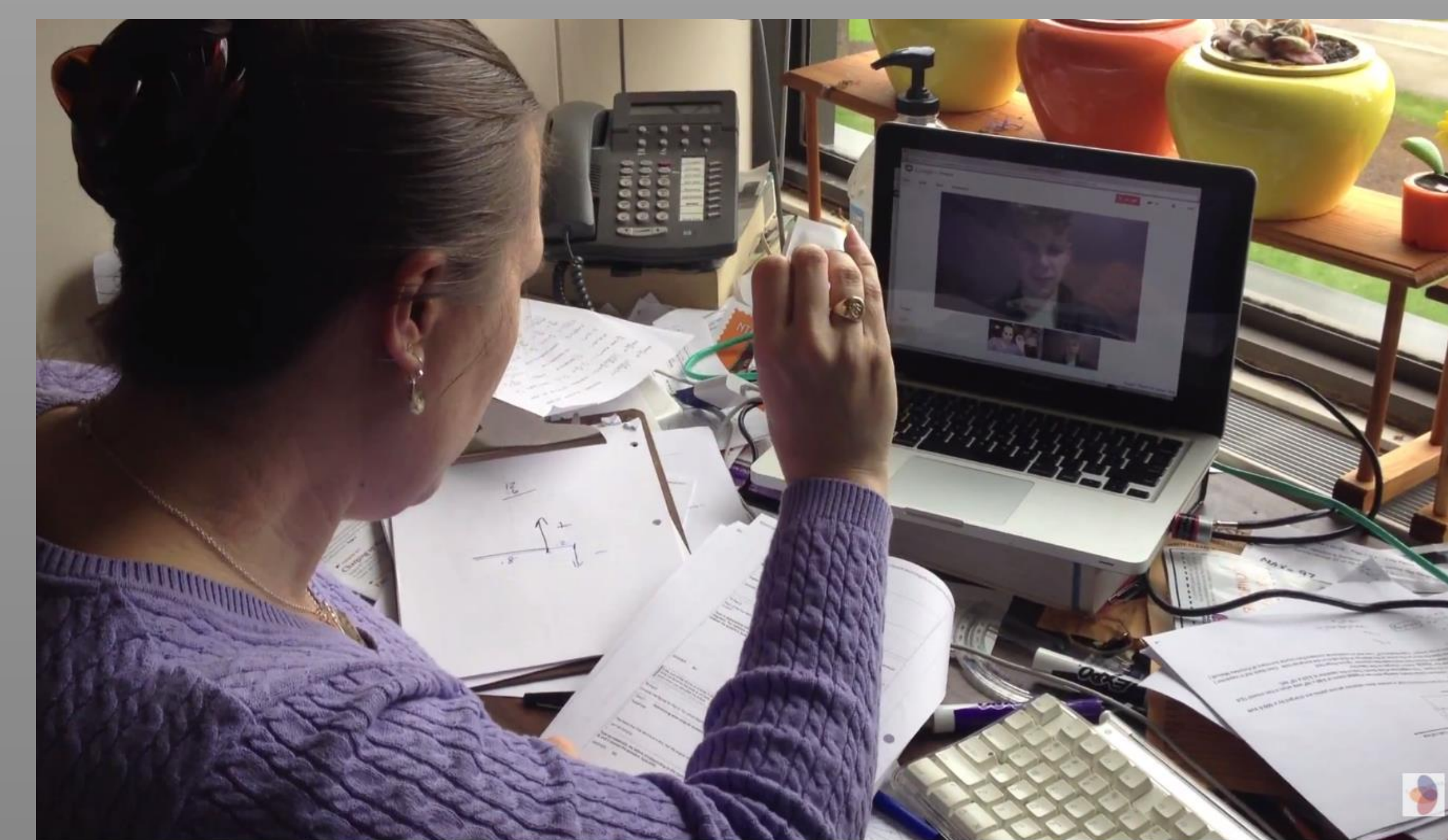
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