Completion Report Form  
for  
Perkins Title I, Program Improvement, and Leadership Strategies and Projects

One report should be completed for each strategy or project.

A. Campus  Kauai Community College

B. Strategy Title  ACCESS for CTE Students with Disabilities  
Proposal No.: KAU2012/13(1)-T1-02

C. Proposer Name: _Sandra Magnussen_  E-mail: _smagnuss@hawaii.edu_

D. Project Description (from approved proposal, abbreviated)
1) The purchase of 10 Livescribe Echo Smartpens to diminish cost of hiring notetakers, and 
hold workshops for CTE students to learn to use them, thereby creating a more independent 
student.
2) Update software for CTE students such as JAW's, Dragon Naturally Speaking, and 
Kursweill. Hiring of an APT Band-B to assist CTE students in the use of Adaptive Technology 
Systems.
3) Professional development for the campus by Jane Jarrow. Jane to assist faculty with 
aligning CTE Technical Standards to assure it meets industry standards without being 
discriminating.
4) Implement VRI Pilot Project to enhance campus accessibility for Deaf CTE students.

E. Activities Planned/Completed (Add/Delete lines as necessary)

<table>
<thead>
<tr>
<th>Activities Planned (from proposal)</th>
<th>Completed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Purchasing of Livescribe pens were completed in August 12, but due to the difficulty in getting account codes set up for the grant (received code in early Feb. 13), the hiring of the APT person was not done, thus workshop 1 &amp; 2 training on this AT was not able to go forward. Cancelled attendance to the AHEAD Conference was due to the death of proposer's mother.</td>
<td>partially</td>
</tr>
<tr>
<td>2) Updating of AT Software was done, but the recruitment of the APT-Band B was not done, due to the short time left in the grant.</td>
<td>partially</td>
</tr>
<tr>
<td>3) Professional Development with Jane Jarrow was done.</td>
<td>YES</td>
</tr>
<tr>
<td>4) Implementation of VRI Pilot Project was partially implemented. Securing VRI (see attached report) was expedited on time. Most activities were not implemented as this project weighted on APT position to troubleshoot while building an infrastructure, which was not done due to the account codes not being in place in a timely fashion.</td>
<td>partially</td>
</tr>
</tbody>
</table>

If some activities in the plan were not completed, the campus should provide a brief explanation of why (e.g., after x recruitments a qualified counselor could not be found, delays in hiring, delays in purchasing, etc.)
### F. Performance Indicators Addressed, Effectiveness Measures, and Expected Outcomes

<table>
<thead>
<tr>
<th>Performance Indicators, Effectiveness Measures, Expected Outcomes (from proposal)</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Livescribe pens would be used for SWD and diminish the need for live notetakers, thereby decreasing cost.</td>
<td>Pens were given to two notetakers to test, but without the APT support, live notetakers had a hard time getting support when things went wrong with the pen. Nonetheless, both liked the pen’s capabilities and saw it helpful in note taking as a whole. Without the support of the APT position, the campus still needed to use companion notetakers in CTE courses and was not able to decrease this cost.</td>
</tr>
<tr>
<td>Updating AT Software will be loaded and ready for F13 student use.</td>
<td>CTE students with disabilities now have 2 updated Mac Mini’s with updated software &amp; AT equipment such as Dragon 12 for PC &amp; Mac, JAW’s Professional, FM Loops, and etc.</td>
</tr>
<tr>
<td>Jane Jarrow would assist CTE faculty in aligning program Technical Standard to be Compliant with the Office of Civil Rights.</td>
<td>Jane did a day workshop and offered to help faculty via email.</td>
</tr>
<tr>
<td>VRI pilot project would enable the campus to have an alternative to face-to-face interpreting and diminish some cost to the college.</td>
<td>The project was held up by the new fiscal system, Kuali. The account code for this project was delayed until early February 2013, too late to hire an APT. The assessment piece was done (attached) and balance for this project was moved to ASL interpreters.</td>
</tr>
</tbody>
</table>

*If the results were less than expected or something other than expected, e.g., a key piece of equipment or software is no longer available, not enough students opted to utilize the service/program, etc.*
G. Impact (qualitative and quantitative)

We anticipated an increase of 3% or more of certificates/degrees earned by SWD from academic year 2011-12 to 2012-13. We did not reach this goal, as the number of students who received certificates/degrees were the same for each academic year, 16.

In addition, the VRI Pilot Project, estimated to reduce the campus's interpreting fees by 25%, was not implemented completely, due to the lateness of securing a Perkins Account Code. This lateness contributed to not reducing the interpreting fees and the need to reallocate funds to the hiring of interpreters.

H. Expenditure Report  (Suggestion: use original budget spreadsheet and add a column to show actual expenses and total). Be sure to highlight or notate changes from original budget plan.

<table>
<thead>
<tr>
<th></th>
<th>Amount Budgeted</th>
<th>Adjusted Budget</th>
<th>Amount Expended</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Personnel</td>
<td>$84,177.83</td>
<td>$4,583.71</td>
<td>$28,705.40</td>
</tr>
<tr>
<td></td>
<td>(Itemization optional)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Other Current Expenses</td>
<td>$73,931.00</td>
<td>$153,525.12</td>
<td>$123,11.79</td>
</tr>
<tr>
<td></td>
<td>(Itemization optional)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Itemization optional)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>$158,108.83</td>
<td>$158,108.83</td>
<td>$151,820.19</td>
</tr>
</tbody>
</table>
Video Remote Interpreting (VRI)
Pilot Project Preparation

Consultation Report

By: Isle Interpret

Kauai Community College

Spring 2013
Video Remote Interpreting (VRI) 
Pilot Project Preparation

Shortage of Interpreters

The 2012 U.S. Census Bureau estimates the state of Hawai’i’s population to be 1,392,313. According to researchers at Gallaudet University, “anywhere from 9 to 22 out of every 1,000 people have a severe hearing impairment or are deaf.” This makes the estimate of the population of deaf, hard of hearing and deaf-blind people within the U.S. to be 2.2% of the national population. Based on these statistics, the population of Hawai’i’s deaf, hard of hearing and deaf-blind community is estimated to be 30,639 persons with approximately 30% of this population living on the neighbor islands.

Deaf people live on all islands of Hawai’i. Sign language interpreters predominantly live on ‘Oahu because it is more populated and presents more opportunity for employment. This results in a shortage of qualified interpreters on neighbor islands. Therefore, deaf persons living outside of ‘Oahu have a harder time receiving equal access to services they have the legal rights to receive according to the Americans with Disabilities Act (ADA).

Historically, to meet the needs of the deaf on neighbor islands, interpreters from ‘Oahu are sometimes hired to fly over to provide interpreting services, however the cost

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to do so is often excessive. This cost can be a barrier for complying with the legal
obligation to provide communicating access to persons who are deaf.

This situation is common in rural and distant neighborhoods around the nation.
Because of this, the Department of Justice recognized that remote populations of deaf
nationwide were being unserved and underserved by the lack of access to qualified
interpreters within their communities. In response to this, effective March 15, 2011,
ADA regulations were updated to formally recognize Video Remote Interpreting (VRI) as
an acceptable reasonable accommodation for provision of a qualified interpreter.

An Overview of Kauai Community College’s Needs

Like other rural areas, Kauai is profoundly affected by the lack of qualified sign
language interpreters within its community. Currently, interpreters must be flown over
from Oahu several times per week to meet the interpreting needs of deaf students. This
cost is approximately three times the cost of providing comparable services on Oahu.

For the 2009 - 2010 academic year, Kauai Community College spent $212,500.00
on interpreting services for 1 deaf student enrolled in AMT. In the 2010 - 2011
academic year, the CTE enrollment of deaf students increased to 2 and the college spent
$238,877.00 on interpreting services. The estimated cost per credit hour is $6200.00.

These per student and per credit hour costs are drastically higher than other UH
campuses that are able to utilize on-island interpreters. It is clear Kauai Community
College needs to find a resolution that controls the cost of communication access while
continuing to provide high quality interpreting services. Doing this will enable Kauai

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Community College to continue supporting deaf students in successfully completing courses so as to retain this underrepresented and underserved population.

VRI is a cost effective alternative to onsite interpreting services and can mitigate the overall cost of serving deaf students. VRI services will support student academic success and benefit Kauai Community College financially while also providing a model that will benefit all UHCC campuses struggling to provide deaf students enrolled in CTE programs with high quality interpreting services.

**Video Remote Interpreting (VRI)--An Overview**

Video Remote Interpreting (VRI) is an interpreting service provided over the Internet using video conferencing technology. The interpreter is not physically present with the deaf and hearing persons who need to communicate with one another. The interpreter is connected to the site from a remote location using video conferencing technology.

For VRI to be effective, the interpreter needs to be able to hear what is being said through a microphone so the interpreted message can be viewed by the deaf or hard of hearing person on a video monitor. Additionally, a high-resolution video camera needs to be positioned on the deaf individual so the interpreter can see what is being signed. The interpreter can then interpret this into English for the hearing participants. The hearing participants will need speakers or headsets in order to hear the English interpretation from the video remote interpreter.
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**Appropriate Use of VRI**

Effective use of VRI requires the use of qualified, highly skilled, linguistically competent interpreters who adhere to a professional code of conduct and professional interpreting standards. It is also important to use interpreters who are experienced in the setting and subject matter, comfortable interpreting remotely, and familiar with the local vernacular. Even when using a highly qualified interpreter, it is important for all parties to understand that VRI has benefits as well as limitations in all settings including educational settings.

**General Benefits of VRI**

Video remote interpreting is a useful alternative means for providing qualified interpreting services that is now recognized by the Americans with Disabilities Act. A large percentage of Kauai Community College's estimated cost per credit hour is paid to the interpreter for indirect interpreting costs including flight cost, interpreter's travel time hourly rate, ground transportation, and airport parking. Currently, Kauai Community College is paying a disproportionate amount for indirect interpreting service costs compared to in-class interpreting costs. VRI services are billed for actual interpreting time, which meets the college's goal to mitigate interpreting costs.

**Coordinated VRI Benefits**

To derive the true benefits of VRI services, it is recommended that Kauai Community College obtain VRI services through an interpreting agency with experience coordinating video remote interpreting services. A VRI agency provides the added
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benefit of utilizing a large pool of skilled and qualified interpreters. Coordinated VRI services will enable Kauai Community College to achieve the following benefits:

- Access to a large pool of highly qualified interpreters
- Access to quality VRI services when onsite services are limited
- Provide onsite interpreting services when it is determined most appropriate
- Provide a video remote interpreter as a substitute when an onsite or video remote interpreter cancels with late notice
- Sharing of classroom materials to better prepare the video remote interpreter
- Cost-effectiveness
- Communication access is provided faster and easier
- Appointments with short notice can require less coordination by using a video remote interpreter

Considering the benefits of coordinated services, it is clear that a VRI agency will enable Kauai Community College to provide deaf and hard of hearing students with access to the highest quality interpreting services faster and easier by providing access to a larger pool of qualified interpreters. Additionally, an agency can work with the Office for Students with Disabilities counselor to coordinate both onsite and VRI services for the campus and assist in determining when VRI would be viable and when an onsite interpreter is truly necessary. Less lead-time will be necessary when VRI is used because flights will not need to be made. Furthermore, appointments will not need to wait to be scheduled for a later time when an interpreter is expected to be on campus and/or

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available. As such, issues can be dealt with in a timely manner and deaf students will have greater access to campus faculty, staff, and student activities services. Therefore, using VRI to provide faster and easier communication access will enhance the overall community college experience for deaf CTE students.

When an onsite interpreter is deemed necessary, neighbor islands have limited resources. Very few interpreters live on the islands of Kauai, Maui, and Hawai‘i and currently no qualified interpreter lives on the islands of Moloka‘i and Lana‘i. When qualified interpreters live on island, their services are usually in high demand. This makes it challenging to secure onsite interpreting services when needed or when convenient. When VRI and onsite interpreting services are coordinated, an agency is able to work with the college to serve their needs compressively.

Coordinated services are paramount when an interpreter needs to cancel with late notice. A video remote interpreter can be a substitute for an onsite interpreter. In addition, VRI like all technology can have issues. Therefore, if the regularly scheduled service is VRI, during times when the scheduled video remote interpreter is experiencing a power outage, Internet outage, or other technical difficulties, the VRI agency is able to coordinate even last minute VRI substitutes for remote interpreters.

Collaborative with Kauai Community College instructors and Kauai Community College’s disability services counselor is also imperative so class materials can be shared with the assigned video remote interpreter. This ensures the interpreter is prepared for class. It also means that appropriate information and materials can be passed on to

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substitute interpreters so they are sufficiently prepared for classes and appointments as well providing continuity of interpreting services.

Isle Interpret began offering VRI services to meet this very need in Hawai‘i that was not being filled. Isle Interpret expanded its services to include onsite interpreting and has been awarded the DHS-DVR statewide Interpreter Referral Contact to begin July 1, 2013. As such, Isle Interpret can provide the coordination of VRI services needed by Kauai Community College. Further information on the services Kauai Community College could utilize can be found at www.isleinterpret.com.

Alternatives to utilizing Isle Interpret’s services include using the coordination of VRI services from an agency selected from among a number of nationwide VRI providers. However, it is important to understand the limitations of using a VRI provider located in the continental United States. These VRI agencies do not have a pool of Hawaii based interpreters to provide the VRI services. This makes interpreting local language and accents challenging since the interpreters are not be familiar with cultures and culturally appropriate social norms. Additionally, without a readily accessible pool of Hawaii based interpreters, these VRI agencies will not be able to provide the benefit of onsite interpreting services when it is determined most appropriate. Working collaboratively to collect and share classroom materials throughout the semester may also not be included as a part of the service provided depending on the provider selected. Additionally, certain continental VRI providers are not affordable in their rates and will not result in a significant cost-savings.
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Therefore, it is recommended that working with a VRI service provider is in Kauai Community College’s best interest. In the process of selecting a provider, Kauai Community College should consider all the factors mentioned above prior to selecting a VRI service provider to work with.

Limitations of VRI

In addition to the benefits discussed above, VRI has limitations that should always be taken into consideration. According to the Registry of Interpreters for the Deaf and the National Association of the Deaf, VRI may not be appropriate for the following types of situations:

- Large unstructured meetings with multiple participants that require a great deal of interaction
- Complex philosophical discussions containing unclear intentions or multiple meanings
- Topics that are sensitive in nature
- Settings that involve persons with secondary disabilities like low vision as this may limit their ability to use the technology

When VRI first began in the 90’s, a classroom setting was considered an inappropriate setting for the use of VRI primarily because it has multiple participants and requires a great deal of interaction. Having multiple participants make hearing all comments/questions challenging for the interpreter. Because the interpreter is located remotely, it is challenging to convey the identity of the person speaking when there are large numbers of participants. Also, classroom settings often require a great deal of peer
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interaction and traditional VRI equipment was not mobile or easily adjusted to meet such changing dynamics.

Furthermore, topics covered in post-secondary classrooms are often inherently complex and philosophical in nature. The ability to interpret this information accurately from a remote location and have the interpretation be truly understood and beneficial to the deaf person was a concern and challenge initially. Despite these apprehensions, VRI has been used successfully in many settings once thought inappropriate including post-secondary classrooms.

With the advancement of technology and VRI best practices, these challenges can now easily be overcome in many classroom settings. Wireless microphones, speakers with built in microphones designed for teleconferencing, and the portability of laptops and tablets combined with the provision of textbooks, teaching materials/handouts, an introduction of who is in the room, simple adjustments to turn-taking, having students announce their name prior to speaking all make VRI in classroom settings a effective alternative to onsite interpreting.

Additionally, with the emergence and proliferation of the use of video technology by persons who are deaf and hard of hearing for all sorts of interactions including as an alternate means of telecommunication, the concern regarding the conveying of complex information being less effective when done remotely is less of a concern than it once was.

It is clear that more and more post-secondary institutions are utilizing VRI services due to a shortage of qualified providers in their area, not having the right kind
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of provider available, as a substitute for an ill-absent onsite interpreter, and as a method of reducing interpreting costs. However, at the present time, sufficient research hasn’t been conducted on the number or percentage of post-secondary institutions utilizing VRI, the types of situations that VRI is being used for on post-secondary campuses, the exact number of agencies providing VRI, or student and faculty perspectives on their VRI experiences. As such, there is limited information available to provide conclusive guidance the use of VRI in post-secondary settings.

Another important limitation to keep in mind is the occupational health and safety of remote interpreters. An interpreter working remotely will experience fatigue quicker than when working onsite. Therefore, video remote interpreting sessions should alternate interpreters over shorter lengths of time in order to provide sufficient rest breaks. Teaming is commonly used to ensure that does not affect the quality of video remote interpretation. Sometimes teams of interpreter are at the same location. Other times, the team of interpreters can be in different locations. At times the team interpreter may need to be a deaf interpreter especially when the deaf consumer has limited language abilities.

As such, the appropriateness of using VRI for a given course or meeting and the number of interpreters to be assigned should be determined collaboratively by the VRI scheduler, the disability services office/counselor, and the hearing and deaf participants. Factors that should be considered when making this determination include the topic, environmental setting, and the technical/technological aspect.
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**Topic**

It is important for all parties involved in the VRI session to have shared knowledge on the topic to be discussed including the interpreter. The interpreter should be experienced in working in this type of situation and familiar with the content. It is best practices that the interpreter be provided with a copy of the syllabus, textbook, handouts, PowerPoint, and other information prior to each class. This way s/he will be better prepared to interpret for the topic and the VRI services is likely to be more effective solution for the deaf student.

**Environmental Setting**

Setting factors that need to be taken into consideration include:

- Lighting
- Seating arrangements
- Line of sight of both deaf, hard of hearing participants to the video screen
- The interpreter’s line of sight to the consumer via the video camera
- Location of cameras
- Mobility of cameras
- Location of consumers in relation to one another
- Location of consumers in relation to the camera
- Use of microphone(s)
- Use of speakers
- Background movement and noise
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- Clothing colors and pattern
- Interpreter’s or deaf consumer’s idiosyncrasies

Technical/Technological Aspect

Successful use of VRI requires:

- Sufficient bandwidth to support VRI
- Appropriate equipment available for accessing VRI
- Staff familiar with video conferencing technology
- Staff competent to troubleshoot technical issues as they arise
- Time to arrange technology and logistics—testing of equipment and speed of connection
- Access to advanced tech-support when needed

Three Vital Components to a Successful VRI Experience

Based on this overview of Video Remote Interpreting, for VRI to be successful for Kauai Community College, it is necessary to ensure that three vital components are in place. These VRI components include:

1. Video Conferencing Platforms and Features
2. VRI Technology including campus bandwidth
3. Training for students and instructors on VRI Best Practice Protocols

A video conferencing platform that meets Kauai Community College’s needs must be selected. Based on the software selected, updated equipment with the proper specifications designated for VRI use needs to be obtained. Kauai Community College’s
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Internet bandwidth needs to be evaluated by Kauai Community College’s IT department to ensure that download, upload, and latency speeds on the campus are sufficient to support VRI. A final key component to success is training for deaf students and instructors on the VRI Best Practice Protocols.

Video Conferencing Platforms and Features

Isle Interpret has researched thirty-three different video conferencing platforms that have the potential of meeting Kauai Community College’s video remote interpreting needs. The thirty-three platforms are listed in alphabetical order below:

1. Adobe ProConnect
2. Avaya
3. Camfrog
4. Convo
5. Dell Chat
6. DITTOPro
7. Eyeball Chat
8. FaceTime
9. Fuzebox
10. Google Hangouts
11. GoToMeeting
12. iChat (is being discontinued)
13. iVisit
14. iWowwe
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15. LifeSize
16. LinPhone
17. Mega Meeting
18. Microsoft Live Messenger
19. MMX
20. NexTalk
21. ntouch
22. Omnijoin (formerly Nefsis)
23. Oovoo
24. P3
25. PalTalk
26. PeopleLink
27. Polycom
28. Polycom PVX
29. Sight Speed
30. Skype
31. TrueConf
32. Vidyo
33. WebEx

In researching these platforms we gathered information on their features including:

License fees

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- Subscription fees for software as a service
- Purchase price
- Per usage fees
- Encryption capabilities
- Scheduled capabilities
- On-demand capabilities
- Group video calling
- File sharing
- Screen sharing
- Recording capabilities
- Chat/instant messaging capabilities
- Remote CART capabilities
- Reports of actual time connected
- Call history
- Accessibility from mobile devices
- HD resolution
- Firewall compatible

Isle Interpret conducted a cursory comparative analysis of the thirty-three video conferencing software/platforms to determine which of these software would be best suited for Kauai Community College’s video remote interpreting needs. It was determined that features that would be given the most weight in this comparative analysis were:
1. Video quality
2. Effective video resolution even with slower Internet speeds and lower bandwidths
3. Group video calling capability to support team interpreting
4. Chat/IM functionality
5. PC and Mac compatible
6. Portable
7. Ease of use
8. Active and easily accessible tech support

Initial vetting of software eliminated most applications that do not possess one or more of the basic requirements listed above from the list of software leaving twenty possible platforms. The only exception made was keeping FaceTime as a candidate despite not being PC compatible or having a built in chat feature. The reason this decision was made was because FaceTime is well known to have excellent video quality. Isle Interpret wanted to ensure that the highest quality software was considered even if it wasn’t PC compatible.

Isle Interpret then tested the video quality of these twenty candidates further to reduce the list of potential software down further to six video conferencing programs. These six programs were FaceTime, DITTOPro, Google Hangouts, Omnijoin, Oovoo, and Skype.

These six video conferencing programs were then more critically evaluated based on each of the features mentioned above. Table 1, below, provides an overview...
of how the video conferencing applications were ranked based on performance. As can
be seen, DITTOPro ranked the highest of the five platforms. FaceTime ranked second
highest. Skype was ranked third best. Google Hangouts ranked fourth best. Oovoo
ranked fifth best. And after evaluation, it was determined that Omnijoin's video quality
was so poor and inconsistent that it could not recommended for VRI usage and
therefore it was not ranked.
<table>
<thead>
<tr>
<th>Video Quality &amp; Size</th>
<th>Group Video Calling</th>
<th>Chat/IM</th>
<th>PC &amp; Mac</th>
<th>Portable</th>
<th>Ease of Use</th>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>Good</td>
<td>Yes</td>
<td>Both</td>
<td>Yes</td>
<td>Requires Orientation</td>
<td>1</td>
</tr>
<tr>
<td>Good</td>
<td>No</td>
<td>No</td>
<td>Mac Only</td>
<td>Yes</td>
<td>Very Easy</td>
<td>2</td>
</tr>
<tr>
<td>Good</td>
<td>No</td>
<td>No</td>
<td>Both</td>
<td>Yes</td>
<td>Easy</td>
<td>3</td>
</tr>
<tr>
<td>Average</td>
<td>Average</td>
<td>Yes</td>
<td>Both</td>
<td>Yes</td>
<td>Requires Orientation</td>
<td>4</td>
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<tr>
<td>Average</td>
<td>Average</td>
<td>Yes</td>
<td>Both</td>
<td>Yes</td>
<td>Easy</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 1: Video Software Ranking Based on Evaluation of Key Features
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DITTOPro

Table 2 Evaluation of DITTOPro

<table>
<thead>
<tr>
<th>Features</th>
<th>Most heavily weighted features</th>
<th>Desirable Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Quality/Size</td>
<td>Good</td>
<td>Group Video Calling</td>
</tr>
<tr>
<td>Resolution</td>
<td>Good</td>
<td>Chat/IM</td>
</tr>
<tr>
<td>DITTOPro</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PC/Mac</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Requires orientation</td>
</tr>
</tbody>
</table>

DITTOPro is a highly viable video platform option. DITTOPro has an adjustable frame rate, which results in a strong and consistent video quality that adjusts to the bandwidth of the user with the slowest connection to ensure packet loss is minimized. DITTOPro’s resolution is rated highly because it presents clear picture quality.

An additional advantage of DITTOPro is that the interpreter can control and adjust the format and layout of the consumers’ screen. This is desirable because the picture tiles can be set consistently and the deaf consumer will have less to set up at the beginning of each class. DITTOPro also offers group video calling and is compatible with both PC and Mac equipment. It does not have a mobile app, but it can be accessed from a laptop and a tablet that utilized Adobe Flash Player making it portable. However, it is strongly recommended that one be wired to maintain the highest possible video quality.

A minor drawback of DITTOPro, is that the software does require users to receive orientation on its use. With proper orientation, tech support, practice and possibly a step-by-step guide DITTOPro can be a very good VRI option for Kauai Community College.
FaceTime

Table 3 Evaluation of FaceTime

<table>
<thead>
<tr>
<th>Features</th>
<th>Most heavily weighted features</th>
<th>Desirable Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Quality/Size</td>
<td>Resolution</td>
<td>Group Video Calling</td>
</tr>
<tr>
<td>FaceTime</td>
<td>Good</td>
<td>Good</td>
</tr>
</tbody>
</table>

FaceTime is also a viable and reliable video platform option. The video quality is consistently good with a high resolution. FaceTime on an iPad is very mobile and would work well in for both in-class and outside of class activities. FaceTime is very easy to use and requires very little set up or troubleshooting if any.

However, FaceTime does not have Group Video Calling. This feature is considered ideal for longer classes where 2 interpreters would be required. FaceTime also does not have the ability to chat or send instant messages to the other party. A “chat” feature is desirable so the interpreter and the deaf student can communicate with each other when technical issues arise and they are not able to see each other. It is also useful for communicating certain types of instructions, specific vocabulary, etc.

An important consideration regarding FaceTime is that it is strictly Mac OS compatible. If FaceTime were selected as Kauai Community College’s VRI platform, it would require the campus to invest in iPads and work with interpreters/ VRI agency that used Mac equipment. This investment may be well worthwhile for Kauai Community College in the long-term since
VRI Pilot Project Preparation

Apple has a strong reputation for providing high quality video products that are tailored for educational settings.

Skype

Table 4 Evaluation of Skype

<table>
<thead>
<tr>
<th>Features</th>
<th>Most heavily weighted features</th>
<th>Desirable Features</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Video Quality/Size</td>
<td>Group Video Calling</td>
</tr>
<tr>
<td>Skype</td>
<td>Average</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Skype, although one of the most well known video calling platforms around, surprisingly did not rate as high as other software in terms of Video Quality/Size and Resolution. It was noted during testing that the frame rate dropped before the resolution adjusted. This characteristic presents a situation where signs may drop from the video causing the interpreted message to be incomplete or skewed in meaning.

Skype does have all the other desirable features listed in the chart above. Group Video Calling is available in the upgraded Premium version of the software. A chat feature is present and the software can be used on PC and Mac equipment. Since Skype is a commonly known and used mainstream product, adjusting to a VRI system utilizing this software would be very easy to use because it is familiar to many.

The only other drawback in addition to the frame drops that occurred is in regards to the group video calling feature. The layout on the screen is defaulted in such a manner that the size of the video gets smaller when more than two individuals are connected. This can make it visually difficult for both the deaf student and interpreter to see one another. Smaller video size
makes fingerspelling challenging to read and can lead to more visual and mental fatigue for the student and the interpreter.

**Google Hangouts**

Table 5 Evaluation of Google Hangouts

<table>
<thead>
<tr>
<th>Features</th>
<th>Most heavily weighted features</th>
<th>Desirable Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Quality/Size</td>
<td>Resolution</td>
<td>Group Video Calling</td>
</tr>
<tr>
<td><strong>Google +</strong></td>
<td>Average</td>
<td>Average</td>
</tr>
</tbody>
</table>

Google Hangouts is a feature of a larger service called Google +. Google Hangouts scored an average rating for Video Quality and Size. Just as with Skype, it was noted that video frames dropped before resolution dropped. As with Skype this presents the possibility that signs will be dropped and as a result there could be challenges reading a person’s signs and understanding the complete and accurate message. The Resolution received an average rating due to fluctuating bandwidth issues that was noticed only with using Google Hangouts.

Google Hangouts does have Group Video Calling so a team interpreter could be present in a longer class. The software includes a special format designed to signal the use of a sign language interpreter. A universally known icon for sign language interpreters can be chosen and then the initiator is labeled the “The interpreter” and person receiving the message is labeled “The Signer.” This feature is helpful for designating the working interpreter when there is a team of interpreters providing VRI services. A chat feature is present in Google + that integrates with Google Hangouts. Additionally, Google Hangouts works on both Mac and PC computers. This may mean that Kauai Community College could utilize its current equipment.

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VRI Pilot Project Preparation

If the software was utilized on a laptop computer or tablet then it could be very mobile, although given the bandwidth related video quality issues noted during testing, it is recommended that if this platform is selected, it is best to use a wired connection rather than using a wireless connection.

A couple of drawbacks of Google+/Google Hangouts are that it is not an intuitive program and it would require more orientation, practice and possibly a step-by-step guide. Additionally, although the University of Hawaii utilizes Google Mail and a few other Google Apps, all the features and benefits of Google+ and Google Hangouts cannot be accessed from within a University of Hawaii account.

Oovoo

Table 6 Evaluation of Oovoo

<table>
<thead>
<tr>
<th>Features</th>
<th>Most heavily weighted features</th>
<th>Desirable Features</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Video Quality/Size</td>
<td></td>
</tr>
<tr>
<td>Resolution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group Video</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chat/IM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PC/Mac Compatible</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobile</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ease of Use</td>
<td></td>
<td>Requires orientation</td>
</tr>
</tbody>
</table>

Oovoo's video quality was rated as slightly less than average. The reason is because it was the only software that experienced ghosting. Ghosting is a phenomenon when an image that is being transmitted is superimposed a number of times in a slightly offset position on top of the main image. This results in blurring of the image that makes signs unreadable and fingerspelling unreadable when the ghosting occurs. The resolution of the video in Oovoo was evaluated as average.

Isle Interpret
Oovoo possessed all the other desirable features listed above. It has group video calling ability but the of course as with other platforms, the more videos being transmitted simultaneously the more bandwidth required and the quality of the individual videos decline. The software offers a chat feature and it is both PC and Mac compatible. The software is also portable. It can be used on a laptop or on tablets equipped with Oovoo’s mobile video calling app.

Once you have been oriented to the software, it is relatively easy to use. The primary concern regarding Oovoo was the inconsistent video quality. Ghosting is not a desirable characteristic of a VRI platform. Therefore, that is why Oovoo was ranked the lowest.

Recommended VRI Equipment Specifications

The designated VRI computer equipment used the deaf student plays a key role in the quality of the VRI experience. Factors like the operating system, device drivers, the browser version, anti-malware running in the background, the camera, and any other connected hardware or accessories can affect computer’s ability to process video conferencing data. As such the following VRI equipment specifications listed below are recommended:

<table>
<thead>
<tr>
<th>MacBook Pro, iPad or PC laptop</th>
<th>OS &amp; Processor speed: Mac OS X v10.6.8 or later, Windows 7 with Intel i3 Core or AMD equivalent or better</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RAM Memory: 8 GB minimum</td>
</tr>
<tr>
<td></td>
<td>1 GB dedicated graphics card or better (an integrated graphics card is not sufficient for processing high quality video)</td>
</tr>
<tr>
<td>Internet Speed</td>
<td>4 MB download, 1 MB upload, &lt;250ms latency</td>
</tr>
<tr>
<td></td>
<td>Computer must be wired, not wireless</td>
</tr>
<tr>
<td>Video Cameras</td>
<td>External Webcams with HD 720p</td>
</tr>
</tbody>
</table>
VRI Pilot Project Preparation

- Logitech Pro 9000
- Logitech C910
- iSight camera or FaceTime HD camera will have to be used with a MacBook Pro or iPad

| Speakers       | External speakers
|                | External speakerphone (speakers with built in microphone) |
| Microphone     | Wireless microphone for the instructor |
| Adobe Flash Player | Latest version |

Monitors

For comfortable viewing of the interpreter, it is recommended that the monitors/screen size be a minimum of 17 inches measured diagonally. Although it is possible to utilize netbooks and computers with smaller screens, it is not recommended for VRI sessions that are longer in length because the smaller screen is thought to fatigue the eyes of the student quicker.

Computers

Computers used for VRI services can be either a desktop or laptop. For portability, a laptop or tablet is recommended. The computer should be dedicated to the use of VRI during interpreting sessions. The computers should not be used for checking email, and conducting other business during VRI sessions. Running multiple programs has a negative effect on the processor and causes latency, pixelization, blocking and audio issues. As such, all other screens and programs should not be operating when VRI is being used.

Tablets are being used more commonly for video chatting. If the software video can be adjusted to full screen on a 9-10" tablet, and the tablet can be positioned appropriately easily, the use of tablet may be beneficial for VRI.
VRI Pilot Project Preparation

Internet Speed

A critical component of the VRI process is the quality of the video. Bandwidth directly impacts the quality of video. Bandwidth is the amount of data that can be transmitted in a fixed amount of time. Bandwidth is affected by the amount of traffic on the network at a given time, the number of people using the Internet connection, and how much downloading or streaming is occurring on the same network at a given time.

Three measures of bandwidth important to VRI include download speeds, upload speeds, and latency. Download speeds measure the bandwidth available from the Internet connection coming to the computer being tested/used. Upload speeds measure the amount of bandwidth available from the computer being tested/used to the Internet. Latency is the amount of time it takes for data you send to reach its destination. Users perceive latency as the delay from when data is sent and when it is actually received.

It is critical that the campus has a bandwidth that provides continuous minimum download, upload, and latency speeds for the duration of the VRI session. This will prevent video quality issues due to packet loss, pixelization, loss of audio, freezing, blocking, ghosting, and disconnection. The recommended bandwidth specifications for effective VRI services are:

- Download speed: minimum of 4.0 MB
- Upload speed: minimum of 1.0 MB
- Latency speed: less than 250ms

If Internet bandwidth speeds fluctuate or are slow at one end-point, video resolution quality needs to be reduced to reduce packet loss and ensure interpretation can be understood. However, the reduction of resolution has direct impact on video quality and can
VRI Pilot Project Preparation

make VRI a less effective solution for effective communication access if the frame rate and resolution are too low.

Video Cameras

The external Logitech webcams listed in the table are recommended because they provide minimum video resolution of 720p (1280 x 720 pixels, at 30 frames per second). Other brands can be used as long as they meet the minimum recommended resolution of 720p.

Audio Configuration

Built-in audio devices (microphones and speakers), otherwise referred to as integrated audio devices, cannot be used for video remote interpreting services. Integrated audio devices pick up the sound coming out of the speakers and feed the sound back through the integrated microphone creating a sound loop effect. This results in audio feedback and echo, which is disruptive to VRI participants. As such, USB or Bluetooth headsets or speakerphones are highly recommended for use with VRI.

VRI Best Practice Protocols for Kauai Community College

Best Practice Protocols for Deaf Students

Kauai Community College students will be provided with an orientation on:

- How to request VRI services
- How to obtain access to VRI equipment
- How to use the VRI software
- How to obtain tech support for technical issues
- How to provide feedback on VRI services.
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After being oriented to the VRI software and request system, Kauai Community College students are given a Log-in and Password to access scheduled VRI services.

Daily class log-in, setup, and testing:

- Plug in the webcam, microphone and speaker/speakerphone before the computer is started and VRI software is opened.
- Ensure that all other programs and windows on the computer are closed and not running. The use of additional programs while accessing VRI can negatively affect the quality of the VRI connection.
- Launch the VRI software and log-in to the VRI system at least 5 minutes before the start of class to allow time to check audio and ensure the system is operating smoothly.
- Ask the instructor to do an audio check prior to the start of class.
- If the VRI software’s ‘chat’ feature is enabled, please mute the chat feature. Some software’s default settings include a chime when a Chat message is sent or received. This can be disruptive or distracting to the class.

VRI Dynamics

- The video remote Interpreter is visible on a computer facing the deaf student.
- The interpreter can see the deaf student and does not have visual access to the front of the class.
The interpreter must first hear the information before they are able to interpret resulting in the deaf student receiving the information slightly behind the hearing students.

The video remote interpreter knows the deaf student cannot look at the computer screen and the instructor simultaneously. Therefore, the video remote interpreter will try to ‘hold’ or chunk information so the deaf student has time to look at the instructor and then back to the interpreter.

A classroom interpreter can help facilitate rapport between students. A video remote interpreter can be utilized in the same manner for conversations with fellow students.

*Communication with the Interpreter*

- Isle Interpre will work with the instructor to received class materials so the Video remote interpreter can follow along with what is being referenced.

- Isle Interpre provides instructors with classroom best practice protocols to help aid in the interpreting process. Instructors are asked to avoid general statements like “Look at this.” Isle Interpre asks the instructor to be more specific in their instructions like; “Look at this sample that says, ‘The man watched over the house.’”

- Instructors are asked to use specific direction but it might be difficult to always adhere. It is recommended that a deaf student be provided a notetaker for a VRI class. In addition to taking notes, the notetaker should sit next to the deaf student to assist in signaling what materials or parts of materials the instructor is referring to. For example, when an instructor says, “Read this paragraph,” the notetaker can point to the specific paragraph.
VRI Pilot Project Preparation

- Video remote interpreters welcome deaf student feedback and guidance. To help build the interpreter’s classroom schema, the deaf student can tell the interpreter, “The teacher is holding up a picture,” or “The student in the back is being silly.”

Attendance:

- If the deaf student knows they will not be attending class, in addition to contacting their instructor, they are expected to notify their counselor and the VRI agency. This may help to reduce the amount that needs to be paid for VRI services. For example, if sufficient notice is provided to the VRI coordinator in accordance with the providers’ cancellation policy, Kauai Community College would not be billed for that cancelled VRI session.

- Like onsite interpreters, video remote interpreters will wait anywhere from 15-30 minutes for a student to connect for the scheduled VRI appointment.

- Please note: It is very helpful to receive notification about an absence. If the interpreter is logged into the system but the student does not connect, the interpreter will not know whether the student is absent or if the student is present, but having connection issues. Therefore, it is helpful to have the instructor, disability counselor, or other designee contact the VRI agency to verify absences or communication issues in the event that the student has not communicated this to the VRI agency.

- The VRI agency should be expected to follow Kauai Community College’s DSSO campus policy for reporting absences.

- In the event of a no-show, Kauai Community College would be billed for the entire class period.
VRI Pilot Project Preparation

Audio:

Setting up an entire room with speakerphones for individual class sessions and breaking this down on a daily basis is currently challenging. As such, for VRI sessions the instructor is usually the only person in class with a microphone. This leads to audio issues when other students are speaking. The instructor will be asked to repeat comments and questions from students in the class. However, it is expected that sometimes this will not happen. In such instances, the video remote interpreter may ask the teacher to repeat the question or comment from the students. Since the instructor is focusing on their students, it is understandable that the instructor may not hear the video remote interpreter’s request. Therefore, to obtain clarification, the video remote interpreter may ask the deaf student to help get the instructor’s attention and request that questions/comments be repeated.

- The Kauai Community College IT staff will work with the instructor on the audio/microphone set up and support.
- The video remote interpreter is also available for peer interactions. The teacher can give the microphone to a student who needs to interact with the deaf student, or share the microphone with a small group of students during period of small group work during class time.

Troubleshooting:

- If the video picture is not showing, check that the camera is ‘recognized.’
  - Go to the system settings or control panel.

Isle Interpret
VRI Pilot Project Preparation

- If the webcam device is shown to be recognized by the computer and is still not showing any video, it is best to reboot the computer. The device may be occupied by another software running in the background that was used earlier in the day.

  - If the video appears grainy, dim, or choppy, sometimes the cause is insufficient lighting.
    
    - Adjust the camera’s internal brightness, contrast, and exposure settings
    - Position the deaf student so the light source is front and facing the student
    - Position the student and VRI equipment closer to the light source
    - Adding of additional light may be needed

  - If the video appears washed out, the light may be too intense.
    
    - Try dimming the light or reflecting the light off of a light colored surface to soften the light
    - Adjust the camera’s brightness, contrast, and exposure settings

- If audio is not working properly, check the computer’s sound settings to ensure:

  - The correct device is selected
  - The mute setting is off
  - The volume is set to a high enough level to be heard.

  - If the sound settings are set properly, it may be necessary to shutdown the program and restart the entire computer and reboot the program.
  - If this does not work, Kauai Community College IT will need to be contacted for assistance.

  - If the program is not responding, reboot the entire computer.
VRI Pilot Project Preparation

Outside of class needs:

Often in academic classes, there are communication needs outside of scheduled class time. Outside of class requests VRI may be appropriate for include:

- Group work
- Meeting with the teacher during office hours
- Tutoring sessions
- Study groups
- Library assistance

Deaf students may request additional VRI services for such appointments by contacting their disability services counselor, Sandy Magnussen (smagnussen@hawaii.edu) in accordance with Kauai Community College policy.

Best Practice Protocols for Instructors

Instructors will be provided with the same orientation on VRI that is provided to students:

- How to request VRI services
- How to obtain access to VRI equipment
- How to use the VRI software
- How to obtain tech support for technical issues
- How to provide feedback on VRI services.

Please know that after being oriented to the VRI software and request system, Kauai Community College students are given a Log-in and Password to access scheduled VRI services.

Prior to the start of class, students are expected to do the following on a daily basis:

Isle Interpre
Daily class log-in, setup, and testing:

- Plug in the webcam, microphone and speaker/speakerphone before the computer is started and VRI software is opened.
- Ensure that all other programs and windows on the computer are closed and not running. The use of additional programs while accessing VRI can negatively affect the quality of the VRI connection.
- Launch the VRI software and log-in to the VRI system at least 5 minutes before the start of class to allow time to check audio and ensure the system is operating smoothly.
- Ask the instructor to do an audio check prior to the start of class.
- If the VRI software’s ‘chat’ feature is enabled, please mute the chat feature. Some software’s default settings include a chime when a Chat message is sent or received. This can be disruptive or distracting to the class.

It is imperative that you as the instructor assist in the setup process by allotting sufficient time prior to the start of class to conduct an audio check. This will ensure the interpreter can hear the instructor and other students as they speak. It will also ensure that the instructor and class of students can hear the interpreter when the interpreter voices for the deaf student.

Please note: The interpreter will interpret everything they hear. Instructors are advised that if you are engaging in a private conversation or are leaving the room temporarily, the wireless lapel microphone should be turned off. When the conversation is over or you return to the room, please remember to turn the wireless lapel microphone back on.
VRI Pilot Project Preparation

**VRI Dynamics**

- The video remote Interpreter is visible on a computer facing the deaf student.
- The interpreter can see the deaf student and does not have visual access to the front of the class.
- The interpreter must first hear the information before they are able to interpret resulting in the deaf student receiving the information slightly behind the hearing students.
- The video remote interpreter knows the deaf student cannot look at the computer screen and the instructor simultaneously. Therefore, the video remote interpreter will try to 'hold' or chunk information so the deaf student has time to look at the instructor and then back to the interpreter.
- A classroom interpreter can help facilitate rapport between students. A video remote interpreter can be utilized in the same manner for conversations with fellow students.

**Communication with the Interpreter**

- The video remote interpreter can function most successfully if they have class materials to refer to. Instructors can work with DSSO to utilize the resources they already have so material can easily be shared electronically. It would be ideal for the video remote interpreter to have a copy of any book and all handouts the class is using. Materials can be shared with the interpreter via fax or scanned emailed. If the class is utilizing Laulima, adding the video remote interpreter to the Laulima site can aid with material access.
Best practices recommend that the instructor avoids general statements like “Look at this.” Isle Interpret asks the instructor to be more specific in their instructions like; “Look at this sample that says, The man watched over the house.”

A good rule of thumb for the instructor is to make accommodations ‘as if a blind student was in class.’ The interpreter is ‘blindly’ providing an interpretation without access to visual aids used in class. If the instructor provides more descriptive instructions and explanations, the video remote interpreter is able to provide a much richer and comprehensive interpretation.

Instructors are asked to use specific direction. If a deaf student is provided a notetaker for a VRI class, it is recommended that the notetaker sit next to the deaf student to assist in signaling what materials or parts of materials the instructor is referring to. For example, when an instructor says, “Read this paragraph,” the notetaker can point to the specific paragraph.

**Attendance:**

If the deaf student knows they will not be attending class, in addition to contacting their instructor, they are expected notify their counselor and the VRI agency. This may help to reduce the amount that needs to be paid for VRI services. For example, if sufficient notice is provided to the VRI coordinator in accordance with the providers’ cancellation policy, Kauai Community College would not be billed for that cancelled VRI session.

Like onsite interpreters, video remote interpreters will wait anywhere from 15-30 minutes for a student to connect for the scheduled VRI appointment.
Please note: It is very helpful to receive notification about an absence. If the interpreter is logged into the system but the student does not connect, the interpreter will not know whether the student is absent or if the student is present, but having connection issues. Therefore, it is helpful to have the instructor, disability counselor, or other designee contact the VRI agency to verify absences or communication issues in the event that the student has not communicated this to the VRI agency.

The VRI agency should be expected to follow Kauai Community College’s DSSO campus policy for reporting absences.

In the event of a no-show, Kauai Community College would be billed for the entire class period.

Audio

Kauai Community College’s IT staff will provide an orientation to the use of the microphone. Setting up an entire room with speakerphones for individual class sessions and breaking this down on a daily basis is currently challenging. As such, for VRI sessions the instructor is usually the only person in class with a microphone. The instructor is asked to repeat comments and questions from classmates. The instructor can also stand next to a student speaking or give the microphone to a student.

The video remote interpreter has the ability to ask the instructor to repeat something for clarification. Since the instructor is focusing on their students, we find they often do not hear the remote interpreter. If the video remote interpreter is asking for clarification, they may ask the deaf student to help get the instructors attention.
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- The video remote interpreter is available for student-to-student interactions. The microphone may be requested for the deaf student to talk with a fellow student.
- A common challenge for a video remote interpreter is popcorn reading and student reading in general because of volume. The instructor can either give the reading student the microphone or stand right next to the person reading.

Audio/Visual aids used in class:

- If an audio/video aid will be used in class, Isle Interpret requests that the interpreter have access to the materials at least 24 hours in advance for preparation purposes. Previewing the material will help enhance the quality of the interpretation since the video remote interpreter will not be able to see the material while it is shown in class.
- Some movies are closed-captioned and may require special equipment to work properly. Please check with the Kauai Community College IT department to assure the captions work. Some videos are open captioned, which has the captions visible without any additional steps needed. Please notify the interpreter if the movie you will show has captions. Most deaf students have English as their second language and for this reason they may still want the captioned movie interpreted.

Troubleshooting:

- If the video picture is not showing, check that the camera is ‘recognized.’
  - Go to the system settings or control panel.
VRI Pilot Project Preparation

- If the webcam device is shown to be recognized by the computer and is still not showing any video, it is best to reboot the computer. The device may be occupied by another software running in the background that was used earlier in the day.
  - If the video appears grainy, dim, or choppy, sometimes the cause is insufficient lighting.
    - Adjust the camera’s internal brightness, contrast, and exposure settings
    - Position the deaf student so the light source is front and facing the student
    - Position the student and VRI equipment closer to the light source
    - Adding of additional light may be needed
  - If the video appears washed out, the light may be too intense.
    - Try dimming the light or reflecting the light off of a light colored surface to soften the light
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- If audio is not working properly, check the computer’s sound settings to ensure:
  - The correct device is selected
  - The mute setting is off
  - The volume is set to a high enough level to be heard.
  - If the sound settings are set properly, may be necessary to shutdown the program and restart the entire computer and reboot the program.
  - If this does not work, Kauai Community College IT will need to be contacted for assistance.
    - If the program is not responding, reboot the entire computer.
VRI Pilot Project Preparation

*Outside of class needs:*

Often in academic classes, there are communication needs outside of scheduled class time. Outside of class requests VRI may be appropriate for include:

- Group work
- Meeting with the teacher during office hours
- Tutoring sessions
- Study groups
- Library assistance

Deaf students may request additional VRI services for such appointments by contacting their disability services counselor, Sandy Magnussen (smagnussen@hawaii.edu) in accordance with Kauai Community College policy.

**Conclusion**

In the research for this project, it was clear that bandwidth is a critical piece to the successful implementation of VRI. Isle Interpret’s past experience with Kauai Community College’s bandwidth indicated that either the bandwidth available on campus was limited given network usage or the computer used for VRI services bottlenecked the bandwidth. The computer that was utilized for VRI with Kauai Community College in 2011 had Windows XP as its operating system. At the time, XP was more commonly utilized by video conferencing software and was what software companies recommended. However, because Windows XP is being phased out by Microsoft, video conferencing software that is PC compatible now works better with Windows 7. Windows XP will no longer be supported by Microsoft and as a result,

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the University of Hawaii at Manoa is recommending the upgrade of operating systems to Windows 7 for computers three years old or newer and the replacement of computers that are more than three years old.

With this in mind, Isle Interpret recommends the following in order to implement successful video remote interpreting services at Kauai Community College:

- Kauai Community College select an agency specializing in VRI services to work collaboratively with that offers:
  - Coordination of services
  - Access to a large pool of qualified interpreters locally that meet the language and cultural needs of deaf students who may be available for onsite services when VRI is not appropriate
  - Willingness to potentially use a different platform they may currently be using to accommodate Kauai Community College's needs and preferences
- Kauai Community College use the information on the video conferencing platforms contained within this report to select the software it would like to utilize for piloting of video remote interpreting services
- Kauai Community College purchase new equipment solely for the use of VRI. New equipment must be compatible with the video conferencing software selected for use by the campus
- Kauai Community College's IT consider setting up static IP connections in classroom(s) where deaf students will be using video remote interpreting

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services each semester. Establishing a dedicated line is means for providing improved bandwidth to the designated campus VRI equipment. IT personnel on another University of Hawaii campus have successfully used this technique to improve the bandwidth for videophones for deaf students.

Isle Interpret would like to continue working with Kauai Community College to support the campus with establishing optimal bandwidth to support VRI services. With suitable bandwidth in place, minor testing of the recommended video platforms can be done to support Kauai Community College in selecting an appropriate video conferencing platform. After a platform is selected, Isle Interpret will work with Kauai Community College to add a section to the VRI Best Practices Protocol handbook that is software specific. With these three essential elements in place, Kauai Community College will be prepared to implement VRI services throughout its campus.