

Classroom Engagement with Knowledge Holders-Through Video Conferencing

by

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Bachelor of Science, University of British Columbia, 1998

Bachelor of Education, University of Northern British Columbia, 2009

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We acknowledge with respect the Lekwungen peoples on whose traditional territory the university stands and the Songhees, Esquimalt and WSÁNEĆ peoples whose historical relationships with the land continue to this day.

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Supervisory Committee

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Abstract

Working in a global pandemic environment has been a catalyst in how educators can use technology to support learners. From this context, it created opportunities for bringing in stakeholders who wanted to share their knowledge into the classroom remotely. As such, the question which guided this project is how to improve in-class student engagement with video conferencing by bringing knowledge holders into the classroom remotely. The project setting focuses on grade ten high school students learning the Career and Life Education 10 course from the British Columbia Ministry of Education. Throughout the project Indigenous ways of learning are also explored to improve social engagement and social presence.

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Dedication

Thank-you to my family, Anggri Agustin, Christine Hood, and Liam Hood who created time and support for the completion of this project. You are all loved so very much!

To my father, Bill Hood, who always had a plan, worked hard, and was always meticulous with any project he tackled. Although my father has passed, his lessons are carried with me...always. To my mother, Marlene Aksenchuk, who gave me words of encouragement and supported me through all of my academic endeavors. The lessons that I learned from my parents on determination and perseverance, is what has allowed me to be sitting here, in the present moment, typing these final words.

Chapter 1: Introduction

My Story

Professional Context

School communities in Canada are fortunate that the technological framework is in place to support communication such as sharing files, pictures, or collaborating on projects through digital files. Over the last year, I have been engaged with peers on collaborative projects such as making video compilations, creating websites, and co-editing documents while pursuing my Master's of Education and Technology degree. As a cohort we communicate with peers, professors, and knowledge holders through video conferencing and text messaging using various online communication platforms. Although I have not met most of my colleagues in person, I have created relationships that not only centre on educational pedagogy, but have also learned about their personal values, interests, creativity, and uniqueness. It is experience that motivated me to consider the use of video conferencing as a tool, to improve learner engagement. Just prior to the spring break of 2020, schools shut down and educators were required to teach remotely because of COVID-19. Most school districts have a distance learning program in British Columbia (B.C.), but the closures forced educators to find solutions that best fit their capacity to learn new distance education technology. Reflecting on the experience, there were things that worked, things that did not work, things that needed tweaking, and things that you knew should be there but were not present at all. It is challenging to find the best solutions to all of these diverse components and even define what those missing pieces are. As such, it is natural to start with a messy canvas of thoughts and ideas before a clearer picture of the pedagogy is discovered.

One valuable activity that worked for one of my courses was for students to communicate in small groups with each other in designated online video conference rooms. Some of the communication revolved around curriculum, but it also blended into a social and emotional support for students who have a natural need to connect with people outside of their isolation due to COVID-19 restrictions. I was unable to be present in each video conference room at all times; however, as compared to the classroom, I am not always present at each student space when together in the classroom. Creating a safe online learning environment with transparent expectations for all parties was imperative for the peer-to-peer interactions to be supported. Presently, students coming to school are able to build interpersonal relationships within physical proximity of each other, but I am finding limitations with the number of knowledge holders who feel comfortable coming into higher-risk environments in relation to COVID-19 exposure. The next step for the design iteration is to explore ways to bring these knowledge holders into the video conference environment and to find ways to increase student engagement while doing so.

Personal Context

Many families are now interconnecting with the world around them through video conferencing. My in-laws in Indonesia are able to fully utilize their multifunctional cell phones, with supportive software, to reach out and video conference with us here in Canada. We have reaped in the benefit of seeing our families grow and interact with each other through synchronous video, share key events in our lives, such as birthday parties, and build relationships that intertwine our families. Our life is enriched because of the ability for technology to bring people together. It is not only in a professional context individuals can enhance their lives with online video conferencing, but also in a personal context.

Bringing into Practice

The B.C. Digital Literacy Framework can be found on the Government of B.C.'s website as a guide to find success when integrating technology into the school environment. This document was created from resources based on the International Society for Technology in Education's (ISTE) Standards for Students ("*ISTE Standards for Students*," n.d.). The overall objective of the B.C. Digital literacy framework ("*Digital Literacy*," n.d.) is for learners to have, "the interest, attitude and ability of individuals to use digital technology and communication tools appropriately to access, manage, integrate, analyze and evaluate information, construct new knowledge, and create and communicate with others" (p. 1). Digital literacy is part of the overall construct of the classroom environment where learners can utilize technology for the benefit of building relationships or gaining knowledge from individuals outside of the classroom in online environments. With the advent of using video conferencing software for communication, we can also re-frame our definition of community when it comes to exposing our learners to knowledge holders. Merriam-Webster's online dictionary says community can be, "a unified body of individuals: such as the people with common interests living in a particular area" (*Definition of COMMUNITY*, n.d.). However, community isn't just limited to a specific spot on the world map, but encompasses the world itself. Distance has been a limiting factor of community knowledge holders to meet learners in a face-to-face classroom, but it no longer has to be with video conferencing. We limit the expertise of knowledge that we expose learners to if we just think locally. Although a local community may reside 2000 kilometres away from the ocean, it is still viable that an oceanographer can share their knowledge at their coastal location. As such, we need to define community as larger than the physical surrounding space that students live in.

With the use of technology, our community expands to the capability of hardware and internet infrastructure.

Problem

The B.C. Ministry of Health has implemented safety guidelines for the public to reduce human contact in response to the COVID virus. Currently, we have the challenge of providing the same quality of engagement for learners by bringing in knowledge holders through online video conferencing. Overall, there is a lost emotional component when communicating through distance via video conferencing as opposed to face-to-face interactions (Gunawardena & Zittle, 1997; Short et al., 1976; Walther & Daly, 2002).

Purpose

The purpose of this project is to explore how classroom learners can improve their engagement with knowledge holders through video conferencing. In addition, the question of how one can use First People's Principles of Learning (FPPOL) to improve the engagement process of online video conferencing is explored.

Search Methods

A review of the literature on learner engagement with knowledge holders was conducted to examine the research that is applicable to this project. Further, the literature was examined to find factors that can create challenges when facilitating the project.

The literature was selected with the following criteria:

1. Published within the last five years to find knowledge that is current and reflects the technology being currently being implemented.
2. Focused on high school education, when possible, as the project is focused on these learners.
3. Included post-secondary education if unable to find adequate content on high school education
4. Represented geographic diversity by exploring the research found on other continents outside North America
5. Subject to scholarly and peer-review, but may be outside of these parameters when applicable for finding relevant information

The literature research was initially focused on using the University of Victoria (UVic) Library Summons 2.0, which searches all applicable databases and Google Scholar to find potential avenues on exploring the subject for the project. In addition, area faculty and graduate students, in addition to the education librarian, were helpful in selecting key search terms when navigating the UVic database as well as obtaining referrals to relevant articles. Upon finding key articles that were applicable to the project, I would often research the sources cited in the articles to determine if there were other meaningful resources to use in my research.

Search Tools

The following online search tools were used:

- Google scholar- When I had challenges uploading older books from the University of Victoria library, I found Google Scholar was able to give me access to material. I was able to read background information about a concept that was previously cited in a current journal and assess if the same citing pertained to my research topic.
- UVic Library Summons 2.0 - The majority of my research took place using Summons 2.0.
- Google search – Finding an author’s personal experiences, background, and locating quotes from knowledge holders outside of published text was useful in processing a deeper understanding of key concepts. It also helped determine who the foundational theory holders were on key concepts.
- Zoom – multiple synchronous sessions communicating with Dr. Valerie Irvine and one session with Colin Madland.

Search Procedure

The following are some of the keywords which were used in UVic Summons 2.0 in finding literature on the project:

- social presence theory
- community of practice
- student engagement + (virtual guest speakers OR expert guest) + (high school OR secondary school)
- video conference + education + review
- video conference + (virtual guest speakers OR expert guest) + (high school OR secondary school)
- Skype a scientist
- blended synchronous learning + (high school OR secondary school)
- aboriginal knowledge + online learning
- synchronous learning

The majority of my search began in September 2020, but an exploration of the subject started in March 2020.

Chapter 2: Theoretical Framework and Literature Review

Theoretical Framework

Community of Practice

Community of Practice (CoP) is a theory introduced by two researchers both from different educational backgrounds: Étienne Wenger, who has a background in computer science and educational theory, and Jean Lave, who is a social anthropologist with expertise in educational theoretical frameworks. These researchers published the initial theory of CoP in their book *Situated Learning: Legitimate Peripheral Participation* (Lave & Wenger, 1991) Wenger-Trayner (2015), brought more detail to the CoP theory in his following work in which he describes CoP as the following:

Communities of practice are formed by people who engage in a process of collective learning in a shared domain of human endeavor: a tribe learning to survive, a band of artists seeking new forms of expression, a group of engineers working on similar problems, a clique of pupils defining their identity in the school, a network of surgeons exploring novel techniques, a gathering of first-time managers helping each other cope. In a nutshell: Communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly.

(para. 4)

According to Wenger, there are three characteristics recognized in community of practice. First, there needs to be something that binds individuals together, such as having a common interest, hobby, or learning the same subject as your peers. Second, there needs to be social engagement between members in the community in which bonds and social relationships

are formed. Third, individuals have to be practitioners who engage in a common language of learning, share the same routines, tools, and have, “produced a shared repertoire of communal resources” (Wenger, 2001, p. 164). Communities of practice are naturally defined in classroom environments where we see the elements of domain, community, and practice of learning concepts.

CoP must also be nurtured, as community engagement can wane or become stagnant. Wenger (2001) brought forward three concepts in propelling CoP’s forward: enterprise, mutuality, and repertoire. Enterprise is the initiative of having leadership, developing new ideas, and exploring new directions those ideas take the community. Mutuality describes how building meaningful relationships builds trust between participants, allowing greater comfort in expressing personal thoughts, and improving the flow of verbal communication. Repertoire is how the community can reflect on its own dynamics, interactions, development, and use those insights to propel itself forward.

CoP does not imply all people physically share the same space, but can be bridged through online video conferencing. Virtual Communities of Practice, also known as Online Communities of Practice, are such communities. The iCollab project took place from 2011 to 2014, which explored using CoP theory and connectivism into building, “a sense of trust and mutually beneficial relationships around and between students and lecturers” (Cronin et al., 2016, p. 1). The program connected lecturers and students from six different countries from postsecondary institutions to build relationships between individuals.

Social Presence Theory

Short et al. (1976) completed a study that determined people prefer face-to-face communication compared to audio or video communication. The study compared an audio system and video system, to face-to-face communication in order to determine the preference individuals had when speaking to others. The social psychologists in this study developed Social Presence Theory (SPT), which looks at how telecommunications affects “the degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships” (p. 65). Although the study found a decrease in social engagement while using technology as well as a decrease in the opportunity for learning to occur, one must consider the technology that was available in 1976 was limited compared to the video conferencing technology of today. Gunawardena and Little (1997) continued with the development of Social Presence Theory through Computer Mediated Communication (CMC) by finding an increase in satisfaction from participants through the use of emoticons and text. Walther and Parks (2002) found in their study with CMC that the components of emotion are unfulfilled by the participants' inability to communicate with non-verbal cues. Gunawardena also stated, “participants in conferences create social presence by projecting their identities and building online communities In order to encourage interaction and collaborative learning, it is important that moderators of computer conferences promote the creation of conducive learning environments” (1995, p. 163). Providing learners with an additional layer of utilizing CMC during a synchronous video conference can be a valuable tool if facilitated correctly by the educator. An additional method for students to improve their social presence is to add a picture or photograph to represent themselves, or use a photo capturing an interest or hobby as an avatar for others to view. Kear et al. (2014) found that some students responded to an increase in social

presence through the sharing of profile pictures in online forums (p. 14). The addition of profile pictures allows a knowledge holder to see the student's presence in a video conference setting. This improves the social presence of the students for the knowledge holder.

A meta-analysis completed by Richardson et al. (2017) on social presence in an online environment, found that, "social presence may very well predict students' satisfaction and perceived learning" (p. 413). However, the degree of satisfaction is very dependent on individual learners. Lowenthal and Mulder (2017) state, "research has suggested that people perceive social presence differently and each person has different social presence needs" (p. 40). The researchers further suggest five considerations for educators in the implication of practice using communication technology. First, video may not always be the right fit for the situation. Second, how you communicate in addition to the context of the topic is also important. Third, both educators and students need to practice using the technology that facilitates online communication, with educators giving support for students. Fourth, a clear goal and purpose needs to be provided to students for the use of communication technology. Finally, give students choices when using communication technology so as to not overwhelm their comfort level. For example, some students may feel more comfortable communicating verbally while video conferencing, whereas others might prefer communication through text (Irvine et al., 2013).

Indigenous Education

First People's Principles of Learning

First Peoples Principles of Learning (FPPL) and Indigenous knowledge are part of the BC curriculum (*Indigenous Education Resources / Building Student Success - BC's New Curriculum*, n.d.). As truth and reconciliation are also an integral part of BC's curriculum, it is important to recognize and teach in a manner that acknowledges our colonial past, and works towards incorporating aboriginal perspectives into our classrooms. (*Truth and Reconciliation Commission of Canada: Calls to Action: Truth and Reconciliation Commission of Canada - DesLibris*, 2015). To do this, we must first acknowledge the history of education, second, look at student engagement in Indigenous education, and third, look at how video conferencing can be combined with Indigenous education.

The absence of Indigenous knowledge is from what Battiste describes as cognitive imperialism. "Cognitive imperialism is about white-washing the mind as a result of forced assimilation, English education, Eurocentric humanities and sciences, and living in a Eurocentric context complete with media, books, laws, and values" (Battiste, 2017, p.26). Battiste describes that Indigenous knowledge has a different way of looking at the world around you. She describes it as, "a knowledge system in its own right with its own internal consistency and ways of knowing, and there are limits to how far it can be comprehended from a Eurocentric point of view (Battiste, 2002, p. 2). Restoule (2019), states that in Indigenous education, "learning takes place in the community and the environment, and everyone is a potential teacher from family members to nonhuman and more-than-human relations" (p. 1297). Although we can incorporate elements and move forward with bringing curriculum that has FPPL, the education system itself

is rooted in a colonial past that has its own systems. To address supporting FPPL, the First Nation's Education Steering Committee (FNESC), founded in 1992, set a mandate to, "facilitate discussion about education matters affecting First Nations in BC by disseminating information and soliciting input from First Nations. The primary goal is to promote and support the provision of quality education to First Nations learners in BC" ("About FNESC," n.d., para. 4). FNESC outlines FPPL with the following main objectives:

- Learning ultimately supports the well-being of the self, the family, the community, the land, the spirits, and the ancestors.
- Learning is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place).
- Learning involves recognizing the consequences of one's actions.
- Learning involves generational roles and responsibilities.
- Learning recognizes the role of Indigenous knowledge.
- Learning is embedded in memory, history, and story.
- Learning involves patience and time.
- Learning requires exploration of one's identity.
- Learning involves recognizing that some knowledge is sacred and only shared with permission and/or in certain situations.

(FNESC Learning First Peoples Poster, n.d.)

The FNESC objectives can be utilized by educators in various academic settings, such as having knowledge holders engaging students in Career and Life Education 10 (*Building Student Success - B.C. Curriculum*, n.d.) about determining one's identity in exploring career paths, roles of being patient, reflections on yourself and the impact you can have on your own personal well

being, family, the community, and sharing or personal experiences so that positive choices are being made.

Student Engagement in Indigenous Education

The topic of culturally responsive teaching can be approached by creating opportunities for learners inside and outside of the classroom. When considering a joint task between peers, Pete's (2017) perspective of culturally responsive teaching is, "learners come to the classroom with rich identities which could drive curriculum choice" (p. 62). Likewise, Rigney's (2019) thoughts on culturally responsive learning when accounting for digital learning is the following:

Schooling that uses dialogical and participatory teacher pedagogies, which authentically connect learning of subject-specific knowledge to the lifeworlds, epistemological experiences, and languages of Indigenous students, for both improving learning outcomes and addressing social inclusion challenges. (p. 1042)

Part of this culturally responsive teaching is when presenting students with a learning engagement, that there is value in using the prior knowledge of students and their own communities. Learning that is not specifically teacher driven spurs authentic learning for the learning partners involved.

Bartlett et al. (2012) created a set of guiding principles for the goal of weaving together Indigenous knowledge and science knowledge into curriculum. Altogether eight key points are presented for educators to consider:

1. Acknowledge that we need each other and must engage in a co-learning journey
2. Be guided by Two-Eyed Seeing

3. View “science” in an inclusive way
4. Do things (rather than “just talk”) in a creative, grow forward way
5. Become able to put our values and actions and knowledges in front of us, like an object, for examination and discussion
6. Use visuals
7. Weave back and forth between our worldviews
8. Develop an advisory council of willing, knowledgeable stakeholders, drawing upon individuals both from within the educational institution(s) and within Aboriginal communities (p. 334)

The researchers looked at student engagement with a high school science course, but overall the principles can be applied to a variety of subject areas. It is reasonable, based off of this information, to acknowledge that educators need aboriginal knowledge holders, and aboriginal knowledge holders need educators. In this sense, the co-learning journey is a shared experience between the learners and knowledge holders. The second point is being open to Two-Eyed Seeing. Marshall (2018), a valued Elder of the Mi’kmaq Nation, coined the principle of Etuaptmuk/Two-Eyes Seeing with the following words:

I, you, and we need to learn to see from one eye with the best or the strengths in the Indigenous knowledges and ways of knowing... and learn to see from the other eye with the best or the strengths in the mainstream (Western or Eurocentric) knowledges and ways of knowing... but most importantly, I, you, and we need to learn to see with both these eyes together, for the benefit of all. (para. 3)

The value in Marshall's words is, "fine tuning your mind into different places at once, you are always looking for another perspective and better way of doing things" (Bartlett et al., 2012, p. 336).

Video Conferencing in Education

General

For the purpose of my project, the approach of multi-access learning (Irvine et al., 2013), will be used in my classroom. Our class will be offered in the face-to-face modality, while our knowledge holders will connect synchronously online to the classroom. That said, we are looking at ways to support FPPL and inclusion. As such, we will explore ways to support any members of our class that cannot or will not come in person due to health and safety concerns due to COVID-19. At some point, we may have to pivot away from F2F and move into providing synchronous and asynchronous communication. In addition, asynchronous communication will occur through the process of students' texting questions during the learning session, but with the intent of responses not occurring immediately.

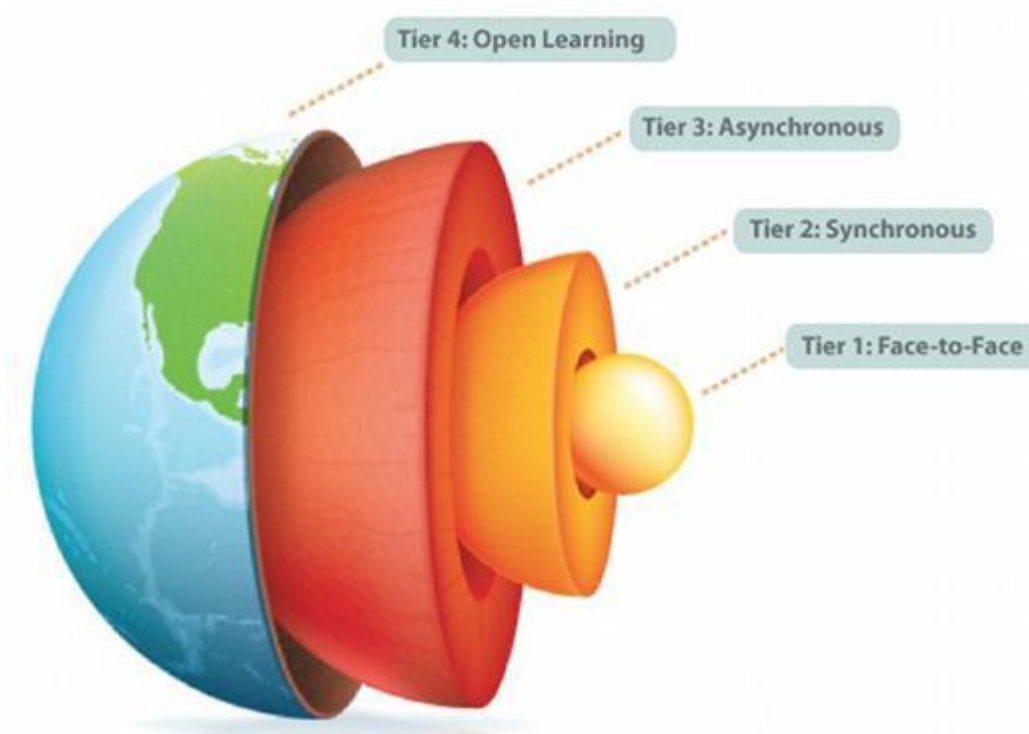
In the landscape of online learning, there are various strategies that are utilized to communicate with learners and a variety of descriptions from various researchers that overlap each other. Irvine (2020) notes that defining the difference between modality and pedagogy, in addition to having common terminology, will help learners, educators, and researchers better understand, "intended designs and practices" (para. 30) when navigating the configurations of online learning. Modality, as defined by Irvine, "typically refers to the location and timing of interactions" (para. 1) whereas pedagogy is, "the art, science, or profession of teaching" (*Definition of PEDAGOGY*, n.d.). The literature review will focus on the modality of multi-

access learning in online environments that are face-to-face, synchronous, and asynchronous. As well, various terms found in the literature will be provided to give readers an understanding of how a variety of concepts fit under multi-access learning.

Multi-Access Learning

Multi-access learning is defined by Irvine et al. (2013) as, “a framework for enabling students in both face-to-face and online contexts to personalize learning experiences while engaging as a part of the same course” (p. 175). Their four-tiered model on multi-access learning begins 1) face to face, 2) synchronous, 3) asynchronous, and 4) open access to the learning environment. The model gives flexibility for students to choose their learning path, by allowing individuals to move between tiers, or participate in multiple tiers. Students may also be able to, over the duration of a course, determine the type of modality they would prefer to engage in. The free determination of modality movement by students is defined by Beatty as the Hyflex (hybrid-flexible) model (2007). However, most designs are not Hyflex as facilitators place limitations with regard to putting in restrictions and requirements into time needed for learners to be in specific modalities to meet the learning objectives of the course.

In the literature, the term blended synchronous learning can be defined as, “learning and teaching where remote students participate in face to face classes by means of rich-media synchronous technologies such as video conferencing, web conferencing or virtual worlds” (Bower et al., 2015, p. 1). Blended synchronous learning is a type of multi-access learning, which is presented as tier one (face-to-face) and two (synchronous online) for engagement of modality, as shown in Figure 2.

Figure 1*Tiers of the Multi-access Framework*

From “Realigning Higher Education for the 21st-Century Learner through Multi-Access Learning.” By Irvine, Code, and Richards, 2013, *MERLOT Journal of Online Learning and Teaching*, p. 176. CC BY-NC-SA.

Alternatively, the literature describes Here or There (HOT) instruction which again is the same description as blended-synchronous learning approach that has students from on-site (“here”) or a remote location (“there”) participating together in class activities in real time. The acronym first mentioned by McKimmy and Schmidt (2014) and also be found from Zydney et al (2019). However, we will continue to use tier one and two multi-access learning to describe blended synchronous and HOT (Irvine et al., 2013).

Preparing for Online Engagement

Krutka and Carano (2016), based on pedagogical literature on the topic, provided a list of suggestions for educators to consider when preparing for a video conference with the following:

1. Know district and school policies for video conferencing and [knowledge holders]
2. Gain parental permissions
3. Outline objectives and ground rules
4. Check stability of internet connections
5. Complete practice runs with the other class and own class before beginning
6. Have tech support available during the video conferencing collaboration
7. Have a backup plan
8. If using a [knowledge holder], prep the speaker, have interview questions pre-arranged that are possibly designed and asked by the students
9. Consider time differences if doing an international video conferencing collaboration
10. Provide students with continuous feedback and reflection in addition to time for evaluation during and in between video conferencing sessions. (p. 125)

For the purposes of this project with classroom students, it is not expected that our class members will be online as we will be situated in our classroom at school, but they will be provided the option of using asynchronous communication channels to be more inclusive and more flexible in the modality of communication. However, our guests will be connecting online synchronously. Depending on how things unfold with COVID-19, we may have situations where some learners may need to switch to connecting remotely as well. In the next section, I explore ways to engage learners for contributions to the discussion via modalities that work best for them

(e.g., some may prefer to comment via backchannel chat, whereas others may be keen to speak out).

Facilitating Online Engagement

There are various strategies for student engagement with respect to multi-access learning. Zydney et al. (2019) provide a hybrid HOT instructional model with post-secondary students, which according to Irvine et al. (2013) is a face-to-face, synchronous, asynchronous multi-access model incorporating three modalities. According to Zydney et al. (2019), learners should have their own personal electronic device that enables them to access the instructor's online synchronous presentation and electronic educational material. They further say that all students should have the ability to choose how they want to engage in a learning session, be it engaging through a video conference, attending F2F, or commenting through text while in either mode. The set-up described by the researchers had only a maximum of eight students meeting F2F in the classroom and the rest of the learner's video conferencing remotely. The multi-access model described by Zydney et al. can also be used to include a larger number of F2F learners in the classroom. The Master's of Educational Technology Graduate (TIEGrad) program at the University of Victoria (UVic) from 2019-2021, for the training of educators across Canada, had a ratio of 13 F2F learners and 12 remote learners (*Remote Teaching Resources*, 2020). From 2013-2015, the UVic TIEGrad program's ratio was 5 F2F learners and 20 online learners (V. Irvine, personal communication, November 27, 2020). Wang et al. (2017) used a face-to-face, synchronous, asynchronous multi-access learning model, but with a different number of participants in both the F2F and remote learning. The participants were graduate students who were also in-service teachers, with six students who joined remotely. Some of the challenges that

came from the study is that the online learners had more difficulty with “asking questions and getting the instructor’s attention” (p. 112). Wang et al. also noted that online students had trouble observing demonstrations or activities in the classroom. These students also had difficulty communicating with in-classroom group partners and having their texted questions responded to in a timely manner during the in-class session. In addition, there were occasions where online participants had their cameras off and did not respond to questions. Such considerations need to be considered if a pivot takes place in which students need to work remotely via synchronous and asynchronous modalities.

One of the challenges with bringing in a knowledge holder is to avoid passive learning that can take place. Li and Guo (2015) explain how a knowledge holder traditionally provides information to the classroom and then follows up with a short question and answer session reserved for the end of the presentation (p. 2). The researchers created a student-centered guest lecturing model that focuses on having post-secondary university students’ work in teams to research and create interview questions prior to the knowledge holder presentation, with the lecturer being in-class or remote. The students then interview the knowledge holder while recording a video of the process. After the interview students have a discussion of the video they recorded and follow up with a summary of what they learned. The role of the instructor during the process is to find appropriate knowledge holders, manage classroom behavior, and support students without taking a dominant role in the process. The pilot study showed positive results for student engagement, but the researchers felt they needed a stronger theoretical framework for collecting data to measure student engagement. They also felt they needed to explore best practices for collaboration between peers.

O'Donoghue (2020) did a study that involved seven schools in Ireland on bringing presenters/experts/knowledge holders through video conference using Zoom software for synchronous video sessions with senior high school chemistry students with the goal of improving shared/group experiences. The "Stories from the Lab" sessions were in response to COVID-19 restrictions removing in-class instruction and setting into motion online learning. A total of three knowledge holders were given 10 minutes to talk about their area of expertise and how this knowledge tied into the high school chemistry curriculum. Altogether, eight knowledge holders presented to classes ranging in education from a 1st year PhD background towards having a research fellow. Initially, there was a question period for students at the end of each 10 minute presentation, but from the early feedback it changed into a question and answer discussion period that was facilitated by the host/teacher of the session when all three knowledge holders had finished. Although a majority of the students possessed cell phones, laptops, or tablets, most students chose to use text messaging to submit their questions through the use of a personal cell phone. In 2013, the Vanier Institute based in Canada, published a report that noted 85% of grade 11 students possessed a cell phone (Damboise et al., 2013). Common Sense Media found similar results from a 2019 survey. This survey found that 82% of grade 10 students in the United States own a smart phone ("Media Use by Tweens and Teens 2019: Infographic," 2019). Smart phones can be a cost effective measure, if internet access is available, for the use of video conference sessions. Students had the flexibility to have their message viewed by everyone in the Zoom video conference session, or could ask a question individually to the host/teacher to ask on behalf of them. During the sessions, video and microphone settings were turned off for students and checks were made before the session occurred to correctly identify student participation and identity. Only the host/teacher had access to an active video and microphone feed. Overall,

O'Donoghue found positive feedback in the sessions but did identify things to work on in improving online engagement. It was unknown how many students had challenges with joining the session because of issues with not being able to connect through the internet or not having a quality internet connection to view sessions properly. Knowledge holders need more training on how to present information in a video conference format such as making adjustments for visuals. Finally, there was not enough information gathered to state in confidence that the synchronous video sessions in the study had advantages compared to asynchronous videos when it comes to shared experiences with students.

Another important consideration when assessing the value of technology-oriented communication tools is that of emotional involvement. Plass and Kaplan identify that, "human learning and performance cannot be simply described from a cognitive or even socio-cultural perspective alone" (2015, p. 131). Plass and Kaplan cite the work of Roseman (2011) very concisely on the five different components of emotion, described as response types, which in specific combinations relates to a particular emotion for the individual when responding to specific situations.

1. Phenomenological component (specific thoughts and feelings)
2. Physiological component (characteristic bodily response patterns)
3. Expressive components (specific manifestations in face, voice, and posture)
4. Behavioral component (action tendencies)
5. Motivational component (corresponding goals). (p. 132)

In considering emotional components to learning, one can question if Indigenous pedagogical practices can create depth into the facilitation of engagement with learners.

Summary

The theoretical framework and literature review provides guidance and a road map towards the pedagogy and modality of using video conferencing in the classroom. As such, engaging learners in the classroom with remote knowledge holders is the main objective of this project. The three theoretical frameworks, Cognitive Theory of Multimedia Learning, Community of Practice, and Social Presence Theory, are the pedagogical approaches that are explored. As well, culturally responsive teaching fits naturally into applying Indigenous knowledge into our theoretical framework. The modalities of having face-to-face interactions in the classrooms, synchronous video communication between learners, teacher, and knowledge holder, and asynchronous text communication will be the backdrop for incorporating a multi-access learning environment. The project also needs to be flexible in responding to the COVID-19 pandemic by having the ability to pivot into students being engaged remotely through synchronous and asynchronous communication in an online environment.

Chapter 3: Application of Video Conferencing in the Classroom

The facilitation of the project, as to how it applied in the classroom, is provided in a video titled Classroom Engagement with Knowledge Holders-Through Video Conferencing. Closed captioning is embedded in the video, with a transcript of the video provided in the Appendices section of this document. A Creative Commons [CC BY License](#) for the video allows the public to have open access to the content created as long as attribution is provided to the content creator. If using my work you can attribute the following:

This work by [Trevor Hood](#) is licensed under a Creative Commons [CC BY License](#).

The video is accessible through YouTube from the following link:

<https://youtu.be/nKrqfpo9iAk>

The video can be accessed through the UVicSpace dated May 2021 from the following file name: HoodTrevor_MEdProject_2021_application_002.mp4

Chapter 4: Conclusion

My reflection on my summary of learning, growth, and recommendations for future research and practice are provided in a video titled Conclusion: Classroom Engagement with Knowledge Holders-Through Video Conferencing. A Creative Commons CC BY License for the video allows the public to have open access to the content created as long as attribution is provided to the content creator. The following video link on YouTube will take you to my conclusion on the project:

<https://youtu.be/TUx4ajQdGqk>

The video can be accessed through the UVicSpace dated May 2021 from the following file name: HoodTrevor_MEdProject_2021_reflections_003

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Appendices

Video Transcript

Thank you for joining me in my screen cast. I want to acknowledge the place of learning for this project occurred on the unseated territory of the Lheidli T'enneh first nations people my project is titled classroom engagement with knowledge holders through video conferencing. The purpose of this project is to explore how classroom learners can improve their engagement with knowledge holders through video conferencing and explore the question of how one can use First People's principles of learning to improve this process. Throughout the presentation I will be using the term knowledge holder which is equivalent to what the literature on the topic refers to as a guest speaker or guest lecturer. The premise with using the term knowledge holder is to incorporate the lens of First People's principles of learning the content of my screen cast will show my application of knowledge in fulfilling one of the components required for completing my masters of educational technology degree at the University of Victoria. I will first provide some background on the project then outline the actions taken to prepare for the video conference sessions what was done during the video conference sessions and activities completed after video conference sessions the background.

Background

Due to COVID-19 many educators needed to make adjustments or pivot in the way curriculum is delivered starting this project. I had to also consider that if an outbreak occurred at the school or if a student was absent due to COVID-19 exposure and were being quarantined the students would still have the opportunity to engage with knowledge holders who present through video conferencing. As well I had to consider that if my school closed down the continuation of learning could still occur with knowledge holders. Having a multi-access learning model was therefore essential prior to starting this project. Next I want to let you know how video conferencing First People's principles of learning and curriculum content fit together in this project.

Preparing for Video Conference Sessions

The course that I taught for this project is career and life education 10. The following shows the British Columbia career life education 10 big ideas that are outlined by the BC Ministry of Education.

Next we see the First People's principles of learning that were developed by the First Nations education committee situated in British Columbia Canada. From both resources I created the following graphic organizer which shows how the First People's principles of learning goals can be applied to the big ideas found in the career and life education 10 course. At the top of the graphic organizer we have synchronous video conferencing incorporating both the curriculum and the First People's principles of learning with the ultimate objective of improving the engagement process of learners with knowledge holders.

An increasing focus on technology-enabled participatory learning also leverages the orientation of today's and tomorrow's students for whom a digital environment is expected. I feel this quote from the BC digital literacy framework is a principle that orients itself with this project quite well.

Preparing for video conferencing and the first topic is looking at the physical features of the classroom. Students were in the classroom for the video conference presentations. The seating arrangement initially had small groups of tables together to support and facilitate communication between peers on small group activities discussions and peer learning support. However I had to make changes due to social distancing guidelines brought into the school. Seating was then organized to have a maximum amount of space between desks with all students facing one direction in the classroom

The technology: The technology used to facilitate the video conference sessions were the following:

- Classroom desktop computer with a windows 10 operating system.
- Generic desktop speakers that sit on the teacher's desk.
- Internet connection with supportive bandwidth.
- A generic projector a screen centered at the front of the classroom.
- A generic HD 1080 webcam but later changed to using a Logitech c920s pro HD webcam.
- An Audio Technica atr 2100x usb microphone and a 15 meter extended usb cable.

Many webcams on the market have a built-in microphone however this creates limitations as to isolating engagement to whoever is closest to the camera therefore it's important

in having a microphone that can be moved around in the classroom having a usb cable extension from the desktop to the microphone gave me accessibility needed for students to use the microphone. Consideration must also be taken into account for having a microphone that is durable enough to withstand accidental drops or bumps when being moved around the Audio Technica microphone is a dynamic microphone and was chosen because it is more resilient to drops or falls compared to a condenser microphone. Notably there are very expensive video conference setups on the market for medium group presentations but the tools I use were very cost effective and more realistic to replicate for other educators who wanted to have a video conference system placed in their classroom. The webcam usb extension cord and microphone were also shared with a colleague that was also able to support video conference sessions in their classroom.

Next I looked at establishing the classroom environment. One of the important elements in helping to facilitate communication is for setting up a positive learning environment where students feel comfortable around each other to speak out loud and share their thoughts. Throughout the course students participated in group presentations small group activities talking circles storytelling and in-person knowledge holder sessions. As well students established the learning expectations in the classroom as a group on their first day of class. These in-class activities help facilitate community of practice and social presence within the classroom. In addition the course content of career life education 10 coincides with improving social emotional skills learning to network with others and connects effectively with the First People's principles of learning.

Prior to hosting a knowledge holder I used Krutka and Carano's 10 suggestions for preparing for a video conference.

The first is know district and school policies for video conferencing and knowledge holders. The school district that I am in has a specific licensing agreement with a video conference provider that allows me to use this platform for engaging with knowledge holders and students.

Prior to students engaging in video conferencing students needed to sign documentation that gave permission for their ability to have their information shared as guided by the freedom of information and protection of privacy act in British Columbia. The following document created by my school district allowed me to share the video of my students during synchronous video conference sessions, allowed them to use the microphone and gave students the option of partaking in the meeting through texting questions to the knowledge holder.

Gain parental permissions. The class that I'm facilitating this project is mostly grade 10 students mixed in with some grade 11 students. Due to the student's age parental permission was not needed however if I did the project in the first quarter of our school year parental permission would have been needed for students who were 14 years old and turning 15 by the end of the year.

Outline objectives and ground rules. This part was for students to find out more about the topic of what the knowledge holder was going to speak of and to make connections about this subject. Using First People's principles of learning I wanted students to not only make initial connections on the topic that were personal but also to make connections to their community This could be thinking of a family member friend or connecting to the place the knowledge holder is presenting from such as sharing a story about their place. My role was to facilitate the community of practice and social presence building prior to the video conference session. Some

of the activities we did either the day before or prior to the video conference session were the following:

- Independent exploration and research of the topic using the internet.
- Small group discussion.
- Classroom discussion using a KWL organizer. The strategy of activating prior knowledge the "K" what you know followed through with the "W" what you want to learn prior to the session. This part is where students generated questions for the knowledge holder before the presentation. Finally the "L" or what you learned activity was done after the video conference session and I will elaborate and describe how I modify this portion later in the video.

Number four: check stability of internet connections. This was not an issue at my school as we have direct wired internet service and have a large bandwidth but definitely a very important aspect especially if the service is spotty or if there are certain times during the day where an increase in usage can affect your ability to facilitate a video conference. As well the knowledge holder needs to have the bandwidth capacity from where they are located to engage with the class.

Next complete practice runs with the other class and own class before beginning. In our context we did not have another class. I had students practice using the video conferencing software with their phones a few days prior to the first event with a knowledge holder meeting the class I was fortunate to have a document camera in my class paired with the projector and was able to show students with my phone as to how the software can be downloaded on a personal device. Students are able to download the program using the public school Wi-Fi and explored how to set up their account. I also gave time for students who didn't have their phone or

wanted more time to explore the software the next day before we had our first in-class video session.

In-classroom students with their phones would then have the opportunity to text questions to the knowledge holder but with the audio and video features off. In addition, I outlined the following guidelines: First, use your own personal device. It's optional but not necessary to engage in the video conference session. As well, not all students feel comfortable asking questions out loud in class, and we want to provide an alternative means for you to communicate with the knowledge holder. Next, the video session is private. As well, students need to use their own name or pseudonym that the teacher is aware of prior to individuals entering the meeting and finally use appropriate language that is outlined in our school code of conduct. This also goes into the parameters of following the ground rules of the classroom.

Have tech support available during the video conferencing collaboration. In this case, the tech support and troubleshooting was done by myself.

Have a backup plan. I found the best way to help support communication is using my cell phone with a direct phone number with the knowledge holder. Sometimes the meeting was delayed but not cancelled because of troubleshooting various issues surrounding the support of video or audio.

Next, if using a knowledge holder, prep the speaker, have interview questions pre-arranged that are possibly designed and asked by the students. With knowledge holders that I met and built a relationship with, it was easier to provide feedback and to ask for feedback on how they felt the video conference meeting went. With meeting a new knowledge holder, I would speak with them on what they plan to present and indirectly suggest how they can improve their engagement with learners such as sharing a personal story, something about themselves, and

having the knowledge holder understand some of the interests the students have. None of my knowledge holders identified themselves as having Indigenous ancestry but I did use the First People's principles of learning when bridging how connections can be made between students and knowledge holders communicating to the classroom through video conference.

Number nine. Consider time differences if doing international video conferencing collaboration. The knowledge holders that met with my class were spread throughout the province of British Columbia and we're in the same time zones as the class. However this is a very important factor when planning out having a knowledge holder from another country or say from another province of Canada. And number 10 provide students with continuous feedback and reflection in addition to time for evaluation during and in between video conferencing sessions

Classroom Engagement During Video Conference Sessions

So for classroom engagement during video conferencing my role was to facilitate and support engagement between the knowledge holder speaking via video conferencing and the students who are in the classroom. The classroom activities that help support this engagement were the following:

- Greeting and introduction from the classroom to the knowledge holder.
- Next paraphrasing or repeating questions presented by the knowledge holder.
- Moving the microphone around the classroom for students to ask their questions.
- Getting the attention of the knowledge holder when a student had a question.
- Maintaining on task behavior.

- Adjusting the screen location of the knowledge holder when viewed by the classroom on the projector. There were times when the knowledge holder's slide presentation was not viewed properly because a portion of information was covered by their synchronous video box.
- Adjusting the audio output for not only the knowledge holder's voice but also for video clips the knowledge holder may present to students.
- Changing the position of the webcam so as to not have it fixed on one specific group of learners in the classroom.

However I did acquire a second webcam that met the needs of offering a much greater panoramic view of the classroom and reduced my time with having to move the document camera around to scan the class. This created a greater opportunity for the knowledge holder to view the learners and improve social engagement. It allowed the knowledge holder to ask questions in which the students can provide a physical response such as putting their hand up. Next wrapping up the video conference session with the class saying and waving goodbye to the knowledge holder. As well in one of our video conference sessions students were able to communicate with the knowledge holder in a small group that range from one to five students but in general this is not the case with most of the knowledge holders who communicated in the classroom

Post Activities from Video Conferencing

In extending Krutka and Carano's guidelines and using First People's principles of learning I wanted students to give back to knowledge holders. Bartlett and all give such guidance in their principles of Indigenous knowledge and found the following quote inspiring, "Acknowledge that we need each other and must engage in a co-learning journey."

I created a document that would reflect a co-learning journey and shared my vision and thoughts with our Indigenous learning center at our school to get feedback on making improvements As well having students to self-reflect on their feelings thoughts values and extending those connections to the people and places around them is a way to see the learning experience from an alternative perspective that relates to First People's principles of learning.

After a video conference session I collected student's reflections from what they wrote or were willing to share with me and gave those thoughts and experiences back to the knowledge holder. Creating a circle of reciprocation and building upon a shared experience supports the community of learning environment.

Conclusion

My initial investigations with how to effectively facilitate video conferencing started in October of 2020. Video conference setup during this time had all of the same equipment except that I was using the built-in webcam microphone instead of the extended microphone. Questions were relayed from students to the teacher and then to the knowledge holder. I often found myself repeating the question because of the poor microphone quality. In addition

I had to follow our school policy on having the video feed off to avoid students being viewed. Only I was able to be viewed at this point in time. I was still working on my literature review and exploring strategies to improve social presence build a community of practice and use First People's principles of learning. It wasn't until my second quarter class which went from November and finished in January that I was able to make greater strides with engagement. I had the proper microphone equipment and had the needed documentation for students to be seen on camera. I am currently teaching my third quarter class which started in February and will finish in April and so far during this period I have implemented more strategies for students to be reflective of their experiences with communicating to knowledge holders. I had for each class either six or seven video conference sessions. Altogether I was able to host 19 video conference sessions. Overall I came to the following conclusions from this project. Students asked more questions and were more confident speaking to the knowledge holder after more video conference sessions. Student's reflections improved as the routine of our video conference sessions progressed. It is imperative to create a classroom community and improve the social presence between learners as this will help facilitate engagement with the knowledge holder through video conference. This prior learning can also be extended to the use of personal electronic devices each class is unique and different and should be since all learners have stories

and sharing that makes individuals special. In general students prefer to choose communicating in the classroom with the microphone. Some students joined the video conference with their phones but chose not to text questions directly to the knowledge holder. In each class I would have a group of students who did not ask questions to the knowledge holder. As such there is room to make improvements in increasing student engagement and to apply more First People's principles of learning. Having knowledge holders as experts in their field speaking to us through video conference created new learning opportunities that otherwise would not be available.

Knowledge holders responded to physical cues of the students when given the visual opportunity and would extend their questions for students to respond non-verbally. In addition even though it is not the focus of my project I found that I took more initiatives to prepare knowledge holders in speaking to the class through video conferencing and provide suggestions such as student interests. I let the knowledge holder understand that a sharing of learning from students would be provided to them after the video conference session. Although my video conference sessions had non-Indigenous knowledge holders including myself I did not think that this should be a roadblock for implementing Indigenous ways of learning. However this does not retract from how enriching and important it is to have Indigenous knowledge holders communicate with our learners as there are stories and experiences that need to come from the individual as that itself has meaning. Even though we had in-class sessions with Indigenous knowledge holders it still poses a question of how student engagement through video conferencing might have varied.

Thank you for your time in viewing my project on classroom engagement with knowledge holders through video conferencing.