Uncovering Challenges: A Case Study Identifying the Barriers of Introducing a
Proposed Computer-Based Substance Use Intervention Program Into Elementary
Classrooms

By

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COMMITTEE APPROVAL

The members of JILLIAN ELIZABETH SMITH Thesis Committee certify that they have read the thesis titled *Uncovering Challenges: A Case Study Identifying the Barriers of Introducing a Proposed Computer-Based Substance Use Intervention Program Into Elementary Classrooms* and recommend that it be accepted as fulfilling the thesis requirements for the Degree of

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Abstract

The purpose of this case study was to explore the problems that teachers anticipate facing when facilitating a new online computer-based substance use intervention program to grade six and seven elementary school students. This case study aimed to identify the support resources that teachers predict would be valuable to them in order to facilitate such a program. Four teachers were interviewed. A semi-structured interview protocol was used and then thematic analysis was applied to code the data. The results identified the following themes: technological barriers, autonomy, role apprehension, facilitation resources, and a general anti-drug attitude. Findings of the study include valuing healthy living as a school subject, identification of variation between schools and school districts, a consistent desire to spread an anti-drug message, a request for digital manuals and a support point person, the challenge of relying on a computer-based application, and the preference for teachers to have a reliable source of anti-drug resources while maintaining their ability to tailor the lessons to their teaching style. Future studies may include a more heterogeneous population and investigate schools in urban area. Additionally, further areas for program development can include tailoring online programs to work within the confines of school district technology restrictions, and providing the option for teachers to modify lessons to meet their classroom needs.

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Chapter One: Study Background

Introduction

My interest in substance misuse and online interventions began during my undergraduate degree. I continued to pursue this subject during my Master of Arts in Learning and Technology. From the start of the Master of Arts program I knew that I wanted to be involved in creating positive change in the lives of young people, and it was my desire to learn more about how I could support that change. I was interested in focusing my study on an elementary school environment primarily because of my experience working in social services. In interviewing clients who were street entrenched and struggling with addictions I saw a frequent trend where drug use began as a youth. I was curious to explore this further and learn about preventative measures that could be employed for youth. I recognized that one major barrier to introducing substance misuse interventions into elementary schools was the burden this placed on teachers. Typically elementary school teachers are not given specific training on interventions or counselling skills, so I endeavoured to seek out opportunities in my region that could support teachers in taking on this role. I learned that a professor from the University of British Columbia, Okanagan was engaged in a pilot project, *HABIT HCE,* with a medium sized school district within the interior of British Columbia. I advocated for a way that I could use my thesis to become involved and was welcomed by the *HABIT HCE* research team.

The *HABIT HCE* study was led by Dr. Marvin Krank, my former professor at the University of British Columbia, Okanagan (UBCO). He collaborated with Dr. Robert Campbell (UBCO) and a school district counsellor at the aforementioned school district. The purpose of their project was to introduce an online intervention program to several elementary schools within the school district. The goal was to simultaneously deliver a substance use intervention

program while gathering information within the application to later analyse. The computer application would include six structured sessions that engaged grade six and seven students in learning activities. Each activity was goal driven, with the purpose of combating substance use, gathering data, or both. The *HABIT HCE* team planned to measure the student-reported use of drugs throughout the school year and identify trends via the online intervention program. Initially the *HABIT HCE* pilot study was projected to start in September 2016 and the computer application would be used during the 2016-2017 school year. However, the study was delayed and a draft version of the first substance use intervention session for the computer program was released in April 2017.

My initial intention was to study the problems that teachers experienced during the school year while facilitating six computer-based intervention sessions. Due to the aforementioned delay I changed my initial plan of a longitudinal case study to a single interview with each participant to fit within the timeframe of my Master of Arts thesis. My expectation was that these interviews offered an opportunity for research on the barriers to introducing a new computer-based substance use intervention program into an elementary school classroom. I expected that this could inform what training, support systems, and support documents could be valuable to future program developers who might consider introducing interventions via a computer application in the future.

Thesis Statement

Teachers learning to facilitate a computer-based substance use intervention program that is delivered using an online platform in an elementary school classroom will experience significant challenges. Uncovering challenges faced by teachers can inform program development, as well as reveal areas for future research. Research revealing problems identified

by teachers can bring to light previously unknown barriers to computer program implementation and substance use intervention program implementation.

Four teachers were interviewed with the hope of discovering the barriers to facilitating online substance use intervention sessions to their students. Prior to the interviews teachers were given a paper copy of a lesson plan. Teachers predicted the challenges to implementing a new computer program and teaching a curriculum that was created for them. Teachers discussed their thoughts and feelings about becoming substance use intervention facilitators. This case study aimed to classify the needs and desires for support identified by teachers who were potential facilitators of the *HABIT HCE* project. In addition, this study aimed to explore the perceived barriers to facilitating an online substance use intervention program, and feelings about taking on the intervention facilitator role.

Significance and Background

Students in grade six and seven are on the cusp of an integral time for decision-making about drugs and alcohol (Schulenberg, OMalley, Bachman, Wadsworth, & Johnston, 1996). Previous Canadian grade six substance use interventions have involved Royal Canadian Mounted Police officers working in collaboration with school districts to facilitate the DARE program (West & O'Neal, 2004). DARE was the *Drug Abuse Resistance Education Program* developed by American police officers in conjunction with a school district (West & O'Neal, 2004). The program eventually spread internationally resulting in a high volume of unsuccessful elementary school substance use interventions (Sahin & Karapazarlioglu, 2014; West & O'Neal, 2004). Studies generally found that the DARE program had an ineffective or negative effect on youth substance use, meaning that most youth who participated in the program experienced the same or higher substance use rates than their non-participant peers (Sahin & Karapazarlioglu,

2014; West & O'Neal, 2004). In essence, taking the DARE program potentially increased the

likelihood of participants misusing substances during teenage years and into adulthood (West &

O'Neal, 2004). This is significant because no program since DARE has been so widely used. The

failure of the DARE program demonstrates the importance of interventions that have evidenced-

based positive outcomes (Gorman & Huber, 2009). Any introduction of a new program must

consider the legacy that was left by the DARE program, and how to avoid the ineffective and

harmful effects demonstrated by a program that was not evidence-based (Gorman & Huber,

2009; Sahin & Karapazarlioglu, 2014; West & O'Neal, 2004). The *HABIT HCE* pilot study team

aimed to replace DARE with an effective online substance use intervention program. However,

for any new program to have longevity a number of variables must align. Among these variables

are facilitators, who must be effective in their practice and willing to engage in interventions on

an ongoing basis. There were two main options for facilitators: hire contracted non-school

district staff or enlist elementary school teachers to assume the role of interventionists and

facilitate this program for grade six and seven students. This case study focused on elementary

school teachers as facilitators of the substance use intervention program.

The computer-based program employed an online platform for accessing information.

The online delivery model was chosen due to the ease of ensuring consistency between

facilitators. Additionally, this delivery method was preferred to engage students with computer

game activities in an effort to provide lessons that were fun and informative. The teacher's role

as a facilitator would be to guide students through the login process, troubleshoot problems, and

ensure that students were completing the activities in full. There was no expectation for teachers

to share their personal experiences or lecture the students while students navigated through the

activities. Instead, students would read information, complete the subsequent activities, and

engage in self-paced learning through each session. Teachers could choose to guide the session so that all students worked at the same pace, but this was not expected. Program development drew from video games, expecting that students would engage readily if activities were interactive. The aim of the computer program was to simultaneously promote healthy living and prevent substance use. The program was built within the expectations of the BC Ministry of Education curriculum, and the intention was to deliver the program during class time and within the classroom. Each of the six sessions of the program was to run for one to two hours each, and teachers were to space the sessions out throughout the school year.

Grade six and seven students were chosen as the target audience of this computer-based substance use intervention program due to their young age. According to McGue et al. "an early age at first drink has been repeatedly associated with substantially elevated rates of alcoholism" (2001, p. 1156). When youth use and abuse substances, there is the potential for significant short-term and long-term negative effects. This can include affecting social, physical, emotional, and cognitive developmental milestones (McGue et al., 2001). Alcohol use alone increases dramatically from age 12 to age 17 (Grant et al., 2006). Thus, an effective intervention program that targeted this age group could result in positive short-term and long-term effects.

Teachers were chosen as potential facilitators for a number of reasons. Schoolteachers have been identified as a significant protective factor in preventing, delaying, and reducing substance misuse (Oliveira do Nascimento & De Micheli, 2015; Vidourek et al., 2014). Students spend about 700 hours a year with their teachers (OECD, 2013). Moreover, the teachers develop a bond with students since they spend many hours with students over the school year (Phelps, Corey, DeMonte, Harrison, & Loewenberg Ball, 2012). During the school year students form bonds with their teachers and consider them trusted advisors (Lee, 2007; Phillippo & Stone,

2013). Therefore, integrating substance use intervention into a teacher's breadth of expertise allows for teachers to provide accurate and relevant information to their students via an evidence-based method. Essentially, teachers could leverage their bond with their students to ultimately reduce student substance use.

As described, DARE was an intervention program that was not scrupulously investigated and potentially had negative consequences for students. This case study aimed to critically consider the barriers to a proposed method of intervention that had been successful in other student populations: online learning (Raghupathy & Forth, 2012; Schinke, Schwinn, & Hursh, 2014; 2015). Through this case study knowledge was gained to better understand the teachers' experience of assuming the role as a facilitator of a computer-based intervention. Further, valuable knowledge was gained about factors leading to online computer-based substance use intervention program facilitation success.

Current research outlines the general barriers to integrating drug intervention technology in the classroom, but information regarding British Columbia elementary school teachers' experience is lacking. This case study aimed to explore the barriers to introducing technology in the classroom, and focused on the potential facilitators of the program: British Columbian teachers.

Research Questions

Primary Question:

What are the problems that teachers anticipate facing in facilitating these computer-based intervention sessions?

Sub Questions:

1. What are the challenges predicted by teachers in regards to using a new computer program?

2. What are the support services teachers anticipate needing in order to facilitate these intervention sessions?

3. What concerns do teachers have about taking on the role of substance use intervention facilitator?

Limitations

This case study relied on a group of teachers that had the potential to be selected for their classroom to participate in the *HABIT HCE* pilot study. The case study researcher invited potential participants via non-probability chain referral sampling. Similar to Tansey (2007), this method of participant selection was chosen in order to gain information from important stakeholders. Tansey (2007) identified the importance of conducting interviews with participants who could provide insight regarding the research questions. This method was chosen rather than random sampling where participants may or may not be excluded from the study despite their potential to provide relevant and important information (Tansey, 2007). This case study sought information from teachers who had the potential to facilitate the intervention sessions in the future. Thus, participation relied on chain referral and subsequently referral was limited to a small number. This small sample size was due to the delayed start of the case study and the short window of time for conducting the participant interviews. If there was more time to conduct the interviews, then perhaps more participants could have been invited via chain referral. However, only three waves of participant invitation occurred due to the brief timeframe of the case study.

Despite the small sample size the information gathered was still valuable, as it originated from stakeholders who have expertise in the field of elementary school teaching and predicted challenges to program implementation relevant to the school district chosen for the new program.

All of the participants interviewed held permanent or temporary long-term teaching assignments for a minimum of one school year. No teachers on call were invited to participate, as their names were not provided via chain referral. Consequently, the experiences of teachers on call are not captured in this research. Hence, both the small homogenous sample size and chain referral participant selection method were limitations in this study.

Because this case study includes in-depth in-person interviews the total time allocated per interview was brief and interaction occurred only once. These interviews occurred during non-work hours including a lunch hour and after the school day had ended. This further limited the amount and quality of data gathered. When interviewed, participants outlined the stress of being time-limited due to their personal and professional responsibilities. Participants remarked that they had tasks to complete once the interview was complete. It is possible that a greater volume of information would have been gathered if the timing of interviews did not cause inconvenience to participants.

An additional limitation of the case study was that the participants were all from the same school. This is a noteworthy limitation as interviewing participants from alternate schools could have revealed more diverse barriers to integrating a new substance use intervention program. Indeed, some participants noted the differences between substance use prevalence and the use of technology in other schools and school districts. Access to technology, student populations, and exposure to substance use were all identified by participants as factors that vary by city and school that could have been further explored with a greater range of participants.

This case study interviewed teachers who worked in a school with a primarily Caucasian and English-speaking population. This homogenous student population limited the study, as teachers did not speak to cultural or language barriers. Adams, Jessup, Criswell, Weaver-High, and Rushton (2015) outline that teaching new concepts to English second language students results in increased difficulty of learning complex topics. Therefore, teachers of a more heterogeneous student population may face different barriers than those who were interviewed.

The semi-structured interviews introduced eight prepared questions and allowed for supplementary open-ended discussion. This short list of prepared questions limited the study, as reflection of the participant responses yielded the awareness that valuable information could have been gathered with additional pre-planned questions. The questions were primarily opinion seeking, and a wider breadth of questions could have also produced additional findings.

Delimitations

The majority of limitations were mitigated by the use of the semi-structured interview method. This method allowed for participants to recall experiences outside of the school where they were presently employed. Unscripted questioned were posed, inviting participants to describe teaching at another school and in other school districts. Participants were asked to elaborate on the barriers to facilitation of a computer-based intervention program in general and how this might affect program delivery. Teaching different student populations revealed that access to technology and the Internet were barriers that were common, although not prevalent in the participants' current school. Additionally, one participant discussed the limitations that they faced when they were a teacher on call, and how this would have affected their ability to facilitate the computer-based program. Despite the small participant sample of four teachers, the

varied experiences between participants mitigated many limitations of this study.

Recommendations for addressing limitations in future research are included in chapter five.

Chapter 2: Literature Review

This literature review identifies that teachers are important stakeholders in preventing, delaying, and reducing youth substance use (Oliveira do Nascimento & De Micheli, 2015; Vidourek, King, & Fehr, 2014). Therefore, investing resources into teachers can lead to systemic change (Airini, McNaughton, Langley, & Sauni, 2007). Teachers can develop an identity of substance use intervention facilitator given the correct educational method, constructive peer interaction, and appropriate support (Claassens & Lessing, 2015; Malik, 2016; Neuenschwander, Abbott, & Mobley, 2013; Pansiri, Mhozya, Bulawa, & Moletsane, 2012; Robson, Bailey, & Mendick, 2008; Samra, 2013).

With the potential to create such positive change in the lives of elementary school students, an extensive review of literature was completed. First, intervention programs were explored to consider current and past interventions, and contributing factors to program success. Next, it was imperative to explore technology use in interventions facilitated in an educational setting due to the recent trend towards online learning and subsequently a trend towards online interventions. Literature on the student-teacher relationship as a protective factor was reviewed in order to determine the importance of selecting teachers to facilitate substance use interventions, rather than a third party contractor.

This study consulted research on teachers in the intervention facilitator role because there has been a significant history of both technological and non-technological interventions facilitated in the classroom setting. Because the participants in this study were all teachers who are considered a unique cohort of adult learners, literature on teacher education was reviewed. Lastly, the research value of this study has been identified.

Intervention Programs

There have been many different approaches to youth substance use interventions (Okamoto, et al., 2012; 2014). It has been promulgated that one of the most prominent approaches, the *Drug Abuse Resistance Education* (DARE) *Program*, has been unsuccessful if not harmful (Sahin & Karapazarlioglu, 2014; West & O'Neal, 2004). This substance use intervention program was used widely across Canada (Sahin & Karapazarlioglu, 2014; West & O'Neal, 2004). Elementary school students who engaged in this program showed a trend of substance use similar to those who did not engage in programming, and there were also trends of increased use of substance use over several years (West & O'Neal, 2004). Additionally, DARE was not successful due to its inability to adapt to the characteristics of each school's environment, whereas incorporating teachers to facilitate in their respective schools addresses this issue (Dembo & Schmeidler, 2002; D'Errico & Morrell, 2015; Sahin & Karapazarlioglu, 2014). Careful analysis of this and other substance use prevention program failures has added to developing improved and effective substance use intervention programs (Gorman & Huber, 2009; Lucas, 2008). For example, previous programs have been "based on the assumption that young people use drugs because of the lack of information regarding addictive drugs" (Sahin & Karapazarlioglu, 2014, p. 70). Knowledge imparting alone is an ineffective method of intervention (Sahin & Karapazarlioglu, 2014, p. 70). Instead, addressing social interaction issues such as bullying and peer pressure was a greater method of intervention (Sahin & Karapazarlioglu, 2014).

Technology Use in Educational Interventions

There has been a significant shift from interpersonal to technology-based substance use interventions for youth. Technology-based interventions have generally been successful with

older youth populations (Doumas, Esp, Flay, & Bond, 2017). Interventions that rely on technology can be more readily accessible to youth when budget restrictions are a barrier to program delivery (Doumas et al., 2017). Youth reported they were readily agreeable to engaging in technology-based interventions as well as other health-focused programs (Elias-Lambert, Boyas, Black, & Schoech, 2015). Previous attempts at digital substance use interventions for elementary school students have also been successful (Raghupathy & Forth, 2012; Shrier, Rhoads, Burke, Walls, & Blood, 2014). However, these studies have primarily focused on a wider age range, an older age group, and a specific ethnic population or have targeted only one specific drug (DeGarmo, Eddy, Reid, & Fetrow, 2009; Doumas et al., 2017; Raghupathy & Forth, 2012; Shrier et al., 2014). Thus, there is a lack of information on generalized substance use interventions delivered via a computer to a homogenous group of grade six and seven students in an elementary classroom. Subsequently, technology use in substance use interventions with youth must be explored in depth, and this study contributes to such literature.

There have been many different approaches to the integration of technology into youth substance misuse interventions (Raghupathy & Forth, 2012; Schinke, Schwinn, & Hursh, 2014; 2015) including: cellular telephone applications; computer games; and online learning (Raghupathy & Forth, 2012; Schinke et al., 2014; 2015). Computer-based programs also allow students to engage in self-paced learning and activities that are similar to video games, which has improved student engagement (Doumas et al., 2017; Schwinn, Schinke, & Di Noia, 2010). However, selection of a delivery method relevant to the audience and facilitators takes marked consideration to ensure that the delivery is engaging for the audience while also simple enough for facilitators to easily present. The process of finding an adequate and effective digital drug intervention program may vary depending on several factors (Raghupathy & Forth, 2012).

Ethnicity, budgetary constraints, seclusion, access to Internet, age, personal experience, and technological skill are all variables that impact teachers and their students (Doumas et al., 2017; Raghupathy & Forth, 2012; Samra, 2013).

Continuing to explore the use of technology in teacher-facilitated substance use interventions may be beneficial for students, but there are additional stakeholders to consider when introducing a program into an elementary school setting. Although Samra (2013) demonstrates that technology is a valuable tool for interventions, technological prowess has been a barrier to embracing technology-based learning in the classroom. Samra (2013) asks how "educators [can] get around the obstacles caused by the extensive introduction of technological tools into the classrooms" (p. 610) because it is detrimental to both educators and learners when technology is a barrier (Coleman, 2016). The Ministry of Education recently implemented significant reforms into the elementary and secondary curriculum in British Columbia (Ministry of Education, n.d.). With over 35,000 educators in British Columbia at the start of the 2016-2017 school year, this had an impact on a large population of teachers (BC Ministry of Education, 2017). The pilot project, *HABIT HCE,* aspired to meet the standards of the new curriculum.

Student-Teacher Relationships as a Protective Factor

A large body of research currently in existence focuses on interpersonal interventions rather than technology-based interventions for elementary school age children. In addition, current technology-based intervention studies have often been targeted at populations older than elementary ages (Doumas et al., 2017; Schwinn et al., 2010). Each elementary school teacher from this sample group taught the same group of students for all of their school subjects throughout the school year. This differs from the education of high school students in the same geographical area, whose teachers often instruct their specialization and students have several

different teachers throughout the school year. This lends to an increased requirement for a breadth of knowledge pertaining to curriculum topics. Beavers (2009) describes the implicit expectations of teachers' roles in a modern-day education system, stating:

> Teachers are required not only to be experts in their content area, but are also expected to be fluent in child psychology, skilled in communication, execute brilliant classroom management strategies, and navigate the unrelenting gauntlet of educational politics. They must also be familiar and comply with ever-changing federal and state mandates regarding educational standards. … It is an overwhelming undertaking even for the most skilled teacher. (p. 25)

Implementation and adoption of a technology-based intervention program relying on online resources directly depends on the elementary school teachers who would facilitate it. These teachers would be solely responsible for delivering the content and therefore expected to use intervention skills they have not formally acquired. This expectation, as identified by Beavers (2009), is tremendously taxing for an already burdened teacher. Exploring teacher supports is imperative when integrating new technology into the classroom (Voyiatzaki & Avouris, 2014). Consequently, when considering migration to technology-based interventions teachers must be consulted regarding their perceived and predicted needs.

Interpersonal relationships have a great effect on student substance misuse. Teachers, friends, and parents are all contributing factors to whether a youth uses substances (Sigfusdottir, Kristjansson, Gudmundsdottir, & Allegrante, 2011; Skipper & Douglas, 2015; Woolley, Kol, & Bowen, 2008;2009). A relationship of trust can indicate student success in many areas (Lee, 2007). The way that a student perceives the teacher, including whether they perceive them as an educational professional or as an emotional support person, is a factor in student success (Guess

& Bowling, 2014). Teachers are often advisors and mentors to students for social and emotional support as well as academic support (Phillippo & Stone, 2013). However, emphasis on an interpersonal relationship between the teacher and student does not negate the use of technology for interventions. Instead, it suggests the importance of the teacher's adoption of the facilitator role while using a technology-based program, rather than the students using the computer program independently. Thus, including teachers in the substance use intervention facilitation program both expands the teacher's breadth of knowledge and can positively affect the students who receive the interventions.

Teachers as Intervention Facilitators

One overarching theme in preventing, delaying, and reducing substance misuse in youth has been schoolteachers (Oliveira do Nascimento & De Micheli, 2015; Vidourek et al., 2014). Beavers (2009) emphasized the importance of the role that teachers play, calling them the "foundational component of any educational system" (p. 25). Effective teachers are a predictor of student success in both academic and non-academic areas (Tournaki & Podell, 2005). Oliveira do Nascimento and De Micheli (2015) determined that "active involvement of both teacher and student was most effective at reducing the prevalence of substance use and the severity of associated problems in students" (p. 2499). However, when there is a breakdown in the relationship between the student and the teacher, this can have negative effects on the student's performance in academic and non-academic areas (Phillippo & Stone, 2013; Segedin, 2012). The teacher's behaviour and attitude in general can also affect student performance in these areas (Schwabsky, 2014). According to Waller, Finch, Giles, and Newbury-Birch (2017), whether teachers agreed that interventionist was an acceptable role for them was a determining factor in

program participation. Therefore, the attitude that teachers approach facilitating a substance use intervention program is important to explore.

Current research about taking on the role of intervention facilitator in a high school setting is abundant (Waller et al., 2017). There has also been a breadth of studies on teachers assuming a role related to or directly described as substance use intervention educator (Beets et al., 2009). Nevertheless, there is a lack of information about the feelings of teachers assuming the role of substance use intervention facilitator within the context of facilitating technology-based intervention sessions. This study aimed to explore the concerns felt by teachers within the context of facilitating structured computer-based intervention sessions.

Teachers were chosen as participants in this case study because they are key stakeholders in the introduction of a new computer program in their classrooms. Stakeholders are crucial to environment-specific intervention success (Dembo & Schmeidler, 2002). Moreover, the process that teachers learn and relay their knowledge to students plays an integral role in student success (Coffey & Farinde-Wu, 2016). Professional learning is "growth of teacher expertise leading to a change in practice" (King, 2016, p. 574). One catalyst for change is the integration of professional learning opportunities (King, 2016). Introducing a new substance use intervention program into the school system typically requires professional development training for teachers. However, it was predicted that there would be only a limited time allotted for training teachers within the *HABIT HCE* pilot study. This case study focused on support systems that could be readily available for teachers who have received only small amounts of training. Investment into support systems for teachers is imperative since competent program delivery can lead to positive student outcomes (Airini, McNaughton, Langley, & Sauni, 2007; King, 2016). Involving teachers and other stakeholders in the development and delivery of a program contributes to a

trend of decreasing substance misuse (Dembo & Schmeidler, 2002; Terziu, Hasani, & Osmani, 2016; Vidourek et al., 2014). Involving multiple stakeholders in the process of developing a method for distributing knowledge benefits from the input of multiple perspectives (Tighe, Barnes, Connor & Steadman, 2013). The consideration of what support services might benefit teachers is an important factor in professional learning occurring simultaneously to facilitation, in addition to the development of the support services themselves.

Teachers as Adult Learners

Teacher training brings with it a unique set of considerations. In regard to adult learning and development, Caffarella and Barnett (2000) suggest that actively engaging participants as they undertake the learning process improves the learning experience. In addition, a program developer must consider if the method of education addresses a "complex array of variables [influencing] participant needs for adult learning experiences such as in-service and staff development" (Dettmer, 1986, p. 1). One popular educational method is to invite participants and other stakeholders to provide constructive criticism of their education (Caffarella & Barnett, 2000; Caffarella & Daffron, 2013; Marino, Marwaha, & Barrow, 2016). Skill development also occurs when participants can critique the program, ask questions, and request support services or follow up (Marino et al., 2016). This case study introduced this idea by providing participants with a sample of a lesson plan and solicited feedback. In summary, engaging participants in providing constructive criticism improves the program content, and support services for the program (Caffarella & Barnett, 2000).

It cannot be assumed that just because the learner has the theoretical knowledge that they can then teach that information (Farley, 2003). Training participants to facilitate a new subject can be done through combining self-reflection with specific subject matter education (Malik,

2016). This training should focus on enhancing existing skills and developing new skills (Malik, 2016). In past research, adding knowledge that decreases role ambiguity "[brings] structure or coherence to a previously innate sense of how to do coaching" (Moore & Koning, 2016, p. 40). Introducing role clarification, educational material, and guidance on delivering information improves the teachers' ability to learn and facilitate a substance use intervention program. However, preparation alone is not sufficient for producing effective intervention facilitators. Support that accompanies program delivery is imperative.

During this study several participants discussed the use of technology as a training or support tool while simultaneously emphasising the value of interpersonal support. This reflects Neuenschwander et al. (2013) who explained that training adults using person-to-person interaction, as well as computer-based learning contributes to a meaningful educational exchange. Technology can be used to inform adult participant educational practices (Neuenschwander et al., 2013). Technology was a salient topic of discussion during the participant interviews, in addition to the desire to change the intervention sessions to suit the individual teachers' style of facilitation.

Aside from technological barriers there are numerous unpredictable barriers to participants while teachers learn how to fulfill the facilitator role. Robson et al. (2003) identified just some of these barriers for adult participants noting:

Respondents reported previous experiences in education of social, personal and psychological difficulties, such as shyness (for example, about speaking out in class), panic in examinations, inability to concentrate and feelings of isolation and vulnerability. In addition, some respondents constructed compelling narratives which appeared to link their experiences of anxiety and stress with their experiences of physical impairment and

loss, a disrupted family life and schooling, undiagnosed learning difficulties, or bullying

at school. (p. 313)

The solution to these barriers was providing participants with self-efficacy, control, and

consistent support (Espiner & Hartnett, 2012). A multi-dimensional support system that includes

both emotional and social encouragement leads to participant self-confidence in their new role

(Claassens & Lessing, 2015). Improved participant engagement occurs when participants are

provided with social and emotional support (Robson et al., 2008). Additionally, perceived lack of

supports is a deterrent to introducing a new program (Waller et al., 2017). Socio-emotional

support contributes to a positive reciprocal approach to learning (Pansiri et al., 2012). Plainly, the

more supported participants feel, the more they engage in learning. Further, the more the

participants engaged in learning and accessing knowledge through support services, the more

supported they felt (Pansiri et al., 2012; Robson et al., 2008). This support alleviates anxiety

regarding technology and other barriers (Neuenschwander et al., 2013; Robson et al., 2008;

Samra, 2013).

   Current research indicates that support or lack thereof is a determining factor of the

successful integration of a new program (Waller et al., 2017). Support systems developed to aid

in technology integration into the classroom have been studied to determine value and to inform

improvement (Niess & Gillow-Wiles, 2017). However, support systems for teachers in relation

to the integration of a technology-based substance use program were missing. This case study

aimed to fill this void and explore the support systems needed for this population.

   Stressing the person-centered learning process, autonomy and self-efficacy result in an

adult participant who feels more in control of their own learning process (Espiner & Hartnett,

2012). Ross-Gordon (2003) notes that:

The adult learner is responsible for making personal decisions in day-to-day life, in many

cases decisions that also affect others. Similarly, adults are assumed to prefer self-

direction in determining the goals and outcomes of their learning. (p. 43)

Adult learners, specifically teachers, have individual needs that are reflective of their transition

into a new role (Beavers, 2009). These adult learners value knowledge that is relevant to their

impending tasks (Beavers, 2009). Teachers within this study not only discussed barriers to

delivering the substance use intervention program, they also readily offered methods for

overcoming those barriers. This is reflective of a teacher's ability to solve problems as part of

their daily professional practice (Beavers, 2009). In sum, teachers should be considered a sub-

group of adult learners who pose a specialty in problem solving, and benefit from retaining at

least partial control over their learning experience.

As identified, the participants of this study were not subject matter experts and their

professional identity was "schoolteacher", not "interventionist" or "intervention facilitator".

When participants are not an authority on the topic an opportunity for personal growth

accompanies their education (Caffarella & Barnett, 2000). This includes the chance for

discussion and sharing their experience with others (Caffarella & Barnett, 2000). Adults are a

unique group of participants who grow through self-reflection, challenge, and success (Caffarella

& Barnett, 2000). This can entail changing mindsets about student success, the teacher's role,

and pro-social teacher-student relationships (Patton & Parker, 2014). Therefore, adult learners

can develop with interpersonal dialogues and explore proposed identity growth as a component

of their learning experience.

Challenges to Implementing Digital Interventions in the Classroom

Previous literature has found that implementing digital interventions in the classroom for the purpose of healthy living education has a unique set of challenges. When implementing interventions for sexual health researchers, digital interventions in the classroom provided less privacy than digital interventions that students complete on their own and without teacher guidance (Mann & Bailey, 2016). However, when awarding students with privacy to complete their tasks online, further challenges arose.

Seomun and Lee (2018) found that teachers were hesitant to use a digital medium for information delivery in their classrooms due to views on the adverse health outcomes caused by digital textbooks. Further, Seomun and Lee (2018) outlined that teachers were concerned digital information delivery systems would reduce student interpersonal skill development because there would be less direct interaction. This lack of interaction was also reflected in teachers' concerns that they might not be able to readily assess their students' emotions (Seomun & Lee, 2018). Baker, Bernard, and Dumez-Féroc (2012) created an intervention to improve student debate and argument skills by creating chat rooms for students to interact with their peers on given subjects. Baker et al. (2012) found that their attempt at integrating this technology-based intervention into the classroom failed without direct interpersonal interaction under the supervision of the teacher. Thus, similar to Seomun and Lee (2018), Baker et al. (2012) found that teachers' concerns about the lack of interpersonal interaction between teachers and students could be detrimental to their skill development.

Researchers found that a challenge to implementing digital intervention programs was the modification of lessons to meet the needs of each classroom. Modification causes a risk that the core tenets of the intervention may be lost (Mann & Bailey, 2016). Haelermans, Ghysels, and Prince (2015) proposed that modification of program delivery to suit different populations could

start in the program development stage to preserve program integrity and improve student

outcomes. Students could be assessed at the beginning of the digital intervention and then

provided with a pre-determined intervention suited to their identified needs (Haelermans et al.,

2015). Providing different lessons to students in the same classroom has drawbacks as well.

Within a classroom setting parallel learning may be beneficial as teachers can guide students

through each activity and monitor for progress (Baker et al., 2012; Mann & Bailey, 2016).

In all, there are a variety of challenges to implementing a digital delivery method or

digital intervention in the classroom. The research outlined above highlights the difference in

findings of research on the use of digital learning systems in the classroom setting. Although

research showed that asynchronous learning might be valuable to modifying the lessons to meet

the needs of the student, it can also be a detriment to learning when there is a lack of direct

supervision (Baker et al., 2012; Haelermans et al., 2015; Mann & Bailey, 2016). Further, digital

platforms can reduce interactions between students and teachers, which can arrest development

of interpersonal skills and block the teachers' ability to monitor the students' emotional

wellbeing (Baker et al., 2012; Seomun & Lee, 2018). Exploring this topic further can increase

knowledge of digital interventions in the classroom and gain insight into substance use

intervention implementation challenges.

Research Value

This study is valuable as there has been a varied approach to substance use interventions

in school settings with chiefly little to no success (Okamoto, et al., 2012;2014; Tupper, 2008).

Teachers have been left to develop substance use interventions on their own using parts of other

programs and integrating their own beliefs (Tupper, 2008). The timing of this study is especially

relevant due to the recent change to public school curriculum made by the British Columbia

Ministry of Education (Ministry of Education, n.d.). Answering the research questions posed will aid in the transition into the new curriculum. Moreau (2016) describes the history of youth substance use interventions as a conflict between imparting knowledge and impressing fear. The research question regarding teachers assuming the role of substance use intervention facilitator explored this topic in-depth to provide a modern-day vignette of teaching this polarizing subject. Sadaf, Newby and Ertmer (2012) explain that teacher beliefs about self-efficacy, pedagogical value, and constraints direct their choice to integrate technology into the classroom. Thus, understanding what teachers believe are barriers or challenges can inform future program development. Moreover, discovering the support services desired by teachers can further improve the experience of introducing a new technology-based substance use intervention program into classrooms. In all, this study provides knowledge about the expected barriers to online substance use intervention program implementation and the desired supports voiced by teachers.

Chapter 3: Method and Methodology

Strategy of Inquiry

This case study was a component in a broader pilot study, *HABIT HCE*. The *HABIT HCE* pilot study sought to implement the use of online resources to facilitate substance use interventions within elementary school classrooms. In order to plan implementation, it was imperative to consider the barriers to teaching that elementary school teachers may encounter, and what support services could reduce these barriers. This case study was developed in order to consider these topics and explore barriers with a sample group of elementary school teachers.

The primary research question for this thesis was to gain insight into the anticipated problems a teacher may encounter when facilitating computer-based intervention. Secondarily, predicted challenges with new computer programs, expressed desires for support services, and concerns related to the role of substance use intervention facilitator were all investigated. A qualitative case study approach was used to focus on the information provided by elementary school teachers within this school district. The research was not conducted with the goal of being generalizable, but to understand the potential challenges of computer-based interventions within this school district as identified by the participants. Specifically, the research goal was to understand the potential challenges, desired supports, and barriers within the context of teaching in grade six and seven classrooms. Generalizability does not necessarily limit this case study, as limitations can provide direction for future research enquiries into technology-based interventions facilitated by non-experts of the subject and by teachers (Polit & Beck, 2010; Valdez, McGuire, & Rivera, 2017).

Case study methodology is used for research that explores complex topics within a specific context (Baxter & Jack, 2008). A case study was chosen in order to ensure that the

nuances of the perceived teacher experience could be gathered. Case studies are valuable in investigative research, and allow for new insight into aspects of the topic of inquiry (Pathak, Jena & Kalra, 2013).

I approached this study without experience teaching in an elementary school setting. The experience I did have included facilitation of interventions to adults using interpersonal strategies in face-to-face settings. However, I did have education through my Master of Arts degree program on technology-based learning. I attended graduate courses on an online platform for over a year before commencing my thesis. These online courses were asynchronous, but involved group work outside of the digital classroom. I attended theory-based courses where I learned about program development, implementation, and evaluation. I lacked experience in the practical application of this theory. Aspfors and Eklund (2017) outline that research-based education can be used as a tool for students to improve their understanding of the practical application of their research and clarify the role of the teacher. Consequently, my learning leading up to the thesis directly affected the development and focus of my thesis.

Participants

Participants were selected using non-probability chain referral sampling. Non-probability chain referral sampling refers to a participant recruitment process where participants nominate additional potential participants. This method is often used when a participant pool is difficult to access (Kristensen & Ravn, 2015). The initial participant who nominated subsequent participants acted as a mediator, to facilitate connection between the researcher and the participants (Kristensen & Ravn, 2015). The first participant was contacted by a researcher from the *HABIT HCE* team and then referred to me. After the initial contact with the *HABIT HCE researcher,* the participant then contacted three other potential participants within the same school and invited

them to participate in interviews. All four participants were then given timeslots for interviews

on the same date. The first participant also nominated five additional potential participants at the

end of her interview. I then contacted these potential participants by sending letters of invitation

via email correspondence. On the day of the interviews I met with each participant in their

classrooms. Participants' decisions to consent to interviews were not shared with the individual

who nominated them to ensure privacy.

Participant selection was purposeful as it recruited teachers within the same school

district who taught grade six or seven students. Purposeful participant selection contributed to the

collection of valuable data during qualitative research (Reybold, Lammert, & Stribling, 2013).

Participant selection for qualitative research typically identifies a group of individuals with

similar traits (Kristensen & Ravn, 2015). The target participant population was chosen by

selecting teachers who could potentially facilitate the *HABIT HCE* intervention sessions in the

future. Therefore, gathering information from this participant group was meaningful, as the

HABIT HCE program had been designed specifically for age groups taught by these participants.

These participants offered a perspective on the challenges to introducing a new substance use

intervention program into an elementary school classroom. In total, nine teachers from three

different schools were invited to interview, and four were ultimately interviewed.

Four individuals agreed to be interviewed. They were all female and employed by the

same school (hereafter School A). In September 2016 there were 2.8 female teachers for every

one male teacher in British Columbia (BC Ministry of Education, 2017). This study's

participants therefore do not reflect the ratio between male and female teachers in British

Columbia. Three of the participants held permanent teaching positions at the school and one of

the participants held a temporary assignment for one school year. One teacher taught grade seven

students and three teachers taught both grade six and seven students. There was a homogenous

ethnicity representation, as all participants were Caucasian and taught a primarily Caucasian

student population. Participants were assigned pseudonyms as demonstrated in Table 1.

Table 1.

Participants

Pseudonym	Gender	Current Position	Grade(s) Taught	School
Simone	Female	Permanent Employee	Six and Seven	A
Carly	Female	Permanent Employee	Seven	A
Nathalie	Female	Permanent Employee	Six and Seven	A
Valerie	Female	Temporary Assignment	Six and Seven	A

The school that employed these participants was situated in a rural municipality in British

Columbia with an approximate population of 11,000. This municipality was part of a greater area

with a population of approximately 60,000 residents. The overwhelming majority of the

population was fluent in English and more than 98% of the greater area residents spoke English

as their first official language. Within the municipality the majority of residents were of

European origin. Approximately 10% of the population were non-European origin residents,

including primarily Aboriginal, Asian, and African ethnic groups. In 2015 the average yearly

income for a household with children in this municipality was approximately 160,000 dollars. At

the same time the average household income in Canada and British Columbia was 70,000 dollars

per year (Statistics Canada, 2017). Thus, this municipality has an outstandingly high income in

comparison to average Canadians, and an exceptionally homogenous English-speaking

population.

Malterud, Siersma, and Guassora (2016) note that small sample groups are appropriate when samples are chosen by specific traits under certain circumstances. Small sample groups can offer valuable information when participants have knowledge specific to the research topic (Malterud et al., 2016). Therefore, a small sample group is appropriate when exploring aspects of a pilot intervention including understanding the barriers that elementary school teachers may face and the support services they may need.

Data Collection

Semi-structured interviews were conducted, with a focus on technology-based learning and technology-based facilitation. Interviews are a preferred method of qualitative research when researching a complex issue (Bullock, 2016). The interview method allows for the researcher to gather in depth information from the participants, resulting in rich data (Qu & Dumay, 2011). Semi-structured interviews allow for flexibility and were the most appropriate method of data collection for this case study. As reflected in this study, semi-structured interviews produce both facts and meaning (Qu & Dumay, 2011). Thus, while this case study aimed to primarily gather information about the introduction of a new computer program, knowledge about the meaning of being an intervention facilitator was also gained. A semi-structured interview allows the interviewer to modify the order or wording of the questions to meet the participant's needs (Bullock, 2016). In addition, semi-structured interviews allow for interviewers to break from their scripted questions to explore a topic further (Bullock, 2016). Individual interviews also protect privacy and promote discussion on sensitive topics (Bullock, 2016). An ethical consideration of a semi-structured interview method is to ensure that non-scripted questions still pertain to the research topic (Kallio, Pietilä, Johnson, & Kangasniemi, 2016).

Four participant interviews were held on April 27, 2017. The interview recordings ranged from 11 to 23 minutes long. Prior to the recording, participants were introduced to myself (the researcher), and then reviewed the consent form. The consent form is found in Appendix A. In addition, participants were offered a paper example of what one online substance use intervention session could include, as demonstrated by Appendix B. Participants were budgeted ten minutes to review the example session at the beginning of the interview, however all of the participants used less than ten minutes to review the lesson plans. This time was budgeted generously to ensure that participants did not feel rushed in reviewing the lesson plans in order to move onto the interview. Instead, intentionally allotting time for lesson plans review allowed participants to reflect on the material provided and formulate feedback without rushing.

Each interview began by requesting the participant describe what their initial thoughts were regarding a paper example of an online substance use intervention session. This topic was then explored using open-ended and clarifying questions. Flexibility and solicitation are valuable tools in qualitative research interviews that can lead to productive results (Gubrium, 2012). Therefore, it was imperative to allow participants to convey their thoughts prior to the eight scripted questions that followed. Lastly, each participant was asked if they had any additional information they would like to discuss prior to ending the interview.

Peredaryenko and Krauss (2013) identify that researcher openness improves the quality and quantity of participant responses in qualitative interviews. Although I predicted that there would be recurrent themes identifying common barriers of requested support services, I refrained from offering examples to participants. Instead, I allowed participants to apply their own understanding of the questions and develop answers with minimal assistance. Gustafsson Jertfelt, Blanchin, and Li (2016) discuss the importance of using open-ended questions in qualitative

research as open-ended questions allow participants to answer freely, with minimal guidance from the interviewer. I solely asked open-ended and clarifying questions to the participants during the interviews in following with these guidelines. The semi-structured interview questions are located in Appendix C.

Anonymity and privacy were reviewed with participants, as well as the right to withdraw from the research study at any time. Participants were assured that their participation would not be disclosed to their employer. Each interview was audio recorded with the purpose of reviewing the data for transcription and analysis. I then transcribed the audio files into a Microsoft Word document and reviewed the recordings for accuracy. Gubrium (2012) identifies that audio recordings are a necessary tool when interviewing participants on complex topics. However, Nordstrom (2015) argues that audio recordings can stifle controversial expressions due to apprehension of surveillance. Indeed, after the audio recording ceased one participant provided lengthy off-the-record commentary on a topic that was not inquired about during the semi-structured interview.

Data Analysis

Once participant interviews were transcribed I reviewed the information multiple times. I first read all of the participant answers to one question, and then highlighted common themes. I continued with the remaining seven questions with the same method. For example, when asked "What feelings do you have about taking on the role of substance use intervention facilitator?", I highlighted common responses. Next, I reviewed the overall transcripts to capture any thematic data that was not captured by comparing specific question responses. I read each participant's entire transcript and highlighted themes that had not been identified in the first analysis. For example, participants expressed opinions on providing information to students about "vaping"

and the use of an electronic cigarette. As there were no questions on this topic, this information

was not captured by the initial response comparison and was interspersed throughout the

interviews. Lastly, I analyzed outlying responses that were only expressed by a single

participant. I reviewed each participant transcript individually in its entirety for outlying

responses and highlighted these responses. For example, I identified that work experience and

confidence in technological competence resulted in outlying responses. Loudová (2015) used a

similar open coding method to analyse data gathered from teachers on the complex concept of

family.

In order to analyse the data, I searched the transcripts for coding opportunities in the

transcripts of the participants. Initially specific keywords were highlighted, however it became

apparent that this was an inadequate method as there was a significant variance between

participants in language used as descriptors. Thus, the focus turned to thematic trends and

concept identification. The use of thematic analysis is common in qualitative research due to the

flexible approach to coding (Clark & Braun, 2018). The thematic analysis method used in this

case study was open coding. Open coding is a dynamic data set categorization method where

initial strategies may change to improve analysis, as it did in this study (Strauss, 1990). Probst

and Bucholtz (2015) outline the use of coding in qualitative interviews as a method for capturing

nuances, which was relevant to this study. Additionally, transcripts can be coded multiple times

to highlight different dimensions of the interviews (Probst & Bucholtz, 2015). The comparison

of statements within the interviews using different coding methods can give different information

upon analysis (Probst & Bucholtz, 2015). Thus, comparing interview answers involved coding in

multiple ways. Categories and subcategories were developed and organized. First, topics were

organized question by question. Similar topics from participant responses were placed into

categories, and exceptional topics were placed into an outlier category. Next, topics were then

scrutinized further to determine likeness and subcategories were created. Then, the transcripts

were reviewed in full to determine if any topics highlighted could be added to categories, or

whether the context of a topic would be better suited for a different subcategory. Lastly,

subcategories were analyzed for similarities to reduce redundancy and amalgamate similar

topics. Burnard (1991) outlines that this process includes careful scrutiny and checks for

researcher bias. Thus, after creating and reviewing all subcategories I again compared each

transcript to ensure that bias had not resulted in inaccurate contextualization or salient data

omission.

Reliability

According to Hyett, Kenny, and Dickson-Swift (2014), "case study research is an

investigation and analysis of a single or collective case, intended to capture the complexity of the

object of study" (p. 2). For a number of reasons, the findings of this study would likely vary if

the study were to be replicated. The reliability of this study is limited by its small homogenous

sample. One primary consideration for reliability is the lack of male representation within the

study. As outlined, in September 2016 26% of teachers were male, however 0% of participants

were male (BC Ministry of Education, 2017). Reilly, Rackley and Awad (2017) identified

systemic barriers to female access to technology education. Thus, although women in this study

may focus their responses solely on technological barriers, men may have focused on a different

topic.

The research was limited to a rural town in British Columbia. Research conducted in a

metropolitan area with greater heterogeneity would likely produce different results (Avellar et

al., 2017). Westhof and Koomen (2012) found ethnic incongruence was a contributor to teacher-

student conflict. Consequently, if the teacher was an ethnic minority teaching in the same predominantly Caucasian school, the focus of the responses may have been conflict resolution. Additionally, if the participant were a teacher of an ethnically diverse student population, the participant might have identified navigation of varying cultural beliefs and practices. In all, the participant group of female Caucasian teachers of a primarily Caucasian student population results in a finding that may not be consistent with a replicated study.

A further limitation of this study includes the lack of a prototype. At the time of the interviews a digital version of the lessons was not yet available. Instead, participants were asked to review a paper version of a program intended for a digital platform. Similarly, the version provided to participants was a draft of one of the six intervention sessions. As this draft version may be altered when hosted on a digital platform, participants have provided feedback about an intervention session that may or may not be significantly different than the final product. Participants only accessed one of the six sessions, which limited their ability to gauge the session from a holistic perspective. Participants then had to imagine the translation of the paper draft on a digital platform, and how this first session might fit within a series of sessions.

Validity

The use of the semi-structured interviewing method contributes to internal validity (Christoforidou, Kyriakides, Antoniou, & Creemers, 2014). Internal validity infers that the study is conducted in a systematic manner and effort is made to reduce variables that may skew the findings. There were occasions when participants requested that I (the interviewer) confirm their understanding of the question prior to continuing with their answer. Once I confirmed that their interpretation of the question was accurate the participant resumed their response to the initial

research question. This was an example of hermeneutic affirmation, where the participant desires to confirm their understanding of the question before proceeding (Rodham, Fox, & Doran, 2015). There was an opportunity for validity to be compromised if the researcher did not closely listen to the participants explain their understanding and correct misunderstandings (Rodham et al., 2015). Validity was upheld when participants were provided with affirmation only after confirming that their understanding of the questions was correct. Thus, although the interviews were semi-structured, effort was made to remove researcher bias and promote participant autonomy.

Researcher bias was reduced using a number of methods. First, I was not a teacher and was not employed by the school district. Chenail (2011) outlines that a researcher may be biased when she is a member of the population group she is studying. In this study open-ended questions were used. Chenail (2011) suggests that open-ended questions reduce bias because they can be crafted to allow participants to explore their answers outside of the confines of predetermined answers. Close-ended questions were used to ensure researcher understanding and offer opportunities for clarification. According to Chenail (2011) follow-up questions are a common method to better understand the experience of the participant. Rodham et al. (2015) also outline that maintaining curiosity and openness reduces assumptions. By using open-ended questions, the researcher can be curious, gather information, and gain knowledge that might otherwise be tainted by personal bias (Rodham et al., 2015). Of course, their own understanding of the experience would influence the researcher, but monitoring preconceived ideas can reduce influencing the study (Rodham et al., 2015).

Next, audio recording of the interviews reduced researcher bias. The audio recording method was used to ensure that interview responses were recorded accurately in full. This

reduced the likelihood that the researcher would rely on memory or notes for data. Rodham et al.

(2015) outline that audio recordings are the primary deterrent in biased data collection when

conducting qualitative research interviews. The use of audio recording allows the researcher to

revisit the interaction multiple times during analysis, each time with new understanding of

themes and findings (Rodham et al., 2015). The audio recordings gathered from the interviews

were used in this manner, where the participant responses were recorded verbatim and reviewed

multiple times during data analysis. Data analysis used the audio-recorded interviews to identify

trends and answer research questions. Seven main themes were discovered and explored further

in the next chapter.

Chapter 4: Analysis

The primary research question of this study was an inquiry into the barriers to computer-based substance use intervention sessions as predicted by participants. Additionally, specific components of computer-based facilitation sessions were explored including technology use, desired support services, and role apprehension.

The themes that emerged from the analysis are presented in Table 2.

Table 2.

Themes

Theme	Description	Participants identified in theme
The appropriateness of healthy living as a school subject	Teachers felt that elementary school students should be provided with education on healthy living, but viewpoints on what topics were appropriate varied.	Simone, Carly, Nathalie
Variation between student populations	Teachers identified that students in different schools and school districts have varying exposure to drugs and alcohol.	Simone, Valerie, Carly
Anti-drug message consistency	Teachers felt that relaying an anti-drug message to students was a critical part of their role as teachers to grade six and seven students.	Simone, Valerie, Carly, Nathalie

Facilitation resources	Teachers identified a manual would be a valuable facilitation resource, and suggested a variety of additional supports.	Simone, Valerie, Carly, Nathalie
Reliable information and autonomy	Teachers want to retain their autonomy by editing or deviating from the intervention sessions and appreciated having reliable information about substance use provided to them.	Simone, Valerie, Carly, Nathalie
The challenge of relying on a program that uses technology	Teachers identified that user logins and access to the Internet presented the biggest barrier to integrating a new computer-based program into the classroom setting.	Simone, Valerie, Carly, Nathalie
Apprehension of the teacher-intervention facilitator role	Teachers felt unsure about taking on a substance use intervention facilitator role because they weren't certain they had the knowledge and skills to manage some of the emotional aspects of an intervention.	Simone, Carly, Nathalie

The Appropriateness of Healthy Living as a School Subject

In order to understand the value that participants placed on substance use interventions, I first explored participants' thoughts of healthy living in the curriculum. All of the participants interviewed expressed that healthy living was an important school subject for students in grades six and seven. Carly, Simone, and Nathalie stated that goals, values, and activities are all components of healthy living that every student should be or has been learning about.

Carly and Simone emphasized that grade seven students were about to transition to high school and preparing them for exposure to drugs and alcohol through healthy living education was a primary concern. However, Nathalie expressed the challenge of teaching the subject of healthy living to a class of students when grade six students are present, stating "grade six I feel like what do they need to know and how much do I need to scare them?" Although teaching grade six students posed a challenge, Carly, Simone, and Nathalie all felt that grade seven students were ideal recipients of the healthy living message, which overruled apprehension about teaching the same material to grade six students.

Carly explained that she felt it was important to share an anti-drug message with her grade seven students as grade eight was approaching. She expressed concerns about preventing substance use and outlined that prevention was part of a teacher's role:

> They are going into grade eight and some of them have already been exposed in their
> homes, so I just think it's really an important life skill that we teach them how to role
> play and how to prevent it and be knowledgeable.

Nathalie similarly expressed that high school was a driving cause for the importance of educating students on drugs and alcohol. She felt that by teaching grade six and seven students in the same

classroom she was forced to teach both grades the same content. However, she felt more

comfortable educating grade seven students and supported these feelings by stating:

> I feel much more comfortable with grade seven because they are imminently going into
>
> high school and they're going to be exposed to it a lot more so I feel that's an okay time
>
> to bring it up.

This demonstrates the confidence felt by participants that grade seven students need to receive

information about drugs and alcohol because of their transition into the eighth grade and starting

high school. Carly, Simone, and Nathalie all felt that attending high school would likely

introduce students to drugs and alcohol if they had not already been exposed. The concern for

grade seven students to be prepared for the pressures of high school ended up dictating the

classroom healthy living content and gearing the content towards the older cohort.

No participants denied the importance of healthy living in the curriculum, but some felt

conflicted about delivering substance use interventions to their students. This point is further

discussed in the section "Ambiguity in role responsibilities".

Differences Between Student Populations

Participants outlined experiences they have already had with students, and how these

experiences varied between schools. Valerie, Simone, and Carly related the importance of

healthy living education to issues they had already experienced at their current or former schools.

In general, participants felt that other schools or school districts had greater alcohol and drug

prevalence. However, all felt that substance use education and healthy living promotion were

still important parts of the curriculum for their current classroom. Valerie reflected on a recent

event at the school, stating, "so we had a student here who's in grade seven who brought a vape

and was found with it…" She continued by explaining that there was a varying degree of

awareness about the consequences of bringing "vapes" to school. Valerie expressed the need for

teachers to be given the same information about drugs and alcohol regardless of whether it is

prevalent in their school.

Simone and Carly discussed their experiences working in a different school district,

comparing it with their current school. For instance, Simone discussed her experience at a school

in another city where drugs and alcohol use was more common:

> Not so much in this school but in a school that I've worked at previously we had a lot of
>
> drug and alcohol problems in the school and we had kids as young as grade six-seven that
>
> were regularly drinking or smoking marijuana…

Carly expressed a similar sentiment, explaining her previous exposure to student substance

misuse while in a teaching position at an inner-city school. "Not so much at this school, but at

my former school where inner city students are exposed to things like that." Thus, Carly and

Simone identified that drug and alcohol use was uncommon at their current school, but that it

was not uncommon in other schools. This suggests that teachers' outlooks on substance use may

vary between schools too. The teachers interviewed were vocal that healthy living promotion

was an essential classroom subject. The primary reason for this was that the grade seven students

were about to start high school in grade eight. Additionally, there was apprehension about

whether certain content was appropriate for the younger students in grade six since high school

was more than a year in the future.

This illustrates that if alcohol and drug use were more prevalent in their school, teachers

might have provided alternative responses. Moreover, the participants who did have experience

working in schools where alcohol and drug use was more common were able to carry that

information forward into their current teaching positions and their teaching of healthy living. In

all, participants reported that the prevalence of substance abuse in the student population at their school was minimal but that this finding would be different at other schools.

Anti-Drug Message Consistency

All participants emphasized the importance of delivering an anti-drug message to their students. There was an overarching belief that teachers should cover the subject of substance abuse rather than avoid the complex topics surrounding misuse. There was significant variation in the tactics that participants believed should be used to communicate this message. Valerie and Carly mentioned "vaping", Valerie and Nathalie identified "fentanyl" as emerging drugs that should be discussed in the classroom. Carly and Valerie felt that due to recent drug trends it was important for teachers to have accurate and current substance use education material. Carly and Valerie expressed the need for substance misuse education to reflect current events. Carly stated "I think right now I'm concerned 'cause of what I'm seeing in the news. I think we need to be right up-to-date with what's going on in our world with media". Similarly, Valerie stated, "vapes are a new thing but let's get things caught up so that we have the resources". This illustrates that teachers felt that the anti-drug message should be influenced by current events. Additionally, this suggests that teachers want their program content to reflect the information that the media has been delivering. In all, the information gathered from participants indicates that substance use intervention programs should be reflective of current substance use trends.

Valerie and Carly discussed concerns that they were not delivering messages that were consistent with other grade six and seven teachers in the same school. Valerie noted that another teacher's message pertaining to substance abuse was not appropriate to the student audience. Though, the overall theme was a genuine desire for the students to avoid substance misuse regardless of the message delivery. Valerie expressed her worry, stating:

I think as teachers we often wonder because we kind of teach a little bit in isolation… am

I going too far with this material? Did I scare them enough? Was I too soft on them? We

don't really know.

This statement outlines thoughtfulness towards the content that is delivered to the students.

Carly, Valerie, and Simone felt secluded while teaching alone in a classroom and they were

concerned for the students in other classrooms who might not be receiving an effective anti-drug

message. Nathalie and Carly compared themselves to other teachers, and suggested that they felt

apprehension about whether or not their own method was appropriate. This outlines the desire

that teachers have to communicate the anti-drug message to their students, and the lack of

confidence in the current communication methods.

The Need for Facilitation Resources

When a new substance use intervention program is introduced facilitators are often

provided with training. Therefore, I asked participants about how they would like to be supported

in learning this new program. Not all participants felt that a training session would be necessary

and that supplementary tools would suffice. Valerie and Simone expressed that training sessions

for teachers could be optional. Valerie and Simone preferred to rely on an intuitive computer

application that was simple to navigate, rather than be trained to use a complex computer

application. Valerie stated that she felt she could teach a technology-based lesson without a

training session as long as there was a manual available. Similarly, Simone expressed feeling

comfortable using technology in the classroom and explained that training should be provided to

teachers who would find value in it:

For some of us we don't need any training. Like, you can just give us an info sheet. For

others they're going to want step-by-step training…it almost has to be a tiered approach

where you can offer, you know, on a pro-D a half an hour session on how to create

accounts and get your students to log in…but for some of us if you just got us the

information we could go in with that too.

This demonstrates that although training sessions are common, it should not be assumed that all

teachers will face barriers and that training sessions are necessary. Instead, alternatives could be

explored, and participants made some recommendations that may be valuable to consider.

Carly, Valerie, Simone and Nathalie all suggested the use of a quick reference guide or

manual. Participants felt that a digital manual was the most valuable tool to facilitating an online

intervention session. Participants suggested a variety of information that could be contained

within the guide or manual. Nathalie advised that teachers should: "just really have a plan and a

guide and talking points", whereas Valerie suggested that teachers be provided with a

comprehensive teaching support package. Valerie stated "So for me personally I'd like to be able

to go online, and be able to call somebody if I needed to. Maybe even shoot off an email…" This

illustrates the variation between participants and the subsequent variety of resources that would

be of value when introducing this substance use intervention program.

Carly and Simone discussed access to a reliable school district employee as a valuable

resource to both teachers and students. Simone requested ready access to a counsellor in order to

refer students who make a disclosure to a teacher. Similarly, Carly identified the school district's

alcohol and drug counsellor as a source of support. This demonstrates the need for a point person

when providing support to participants so that they can access information that cannot be found

in a manual.

Due to the substance use intervention program's introduction of new topics most

participants felt that providing examples for complex concepts would be valuable and help

alleviate teachers' workload. Participants were provided with an example of an activity from the intervention session that required students to identify their activities, abilities, and values. Simone, Nathalie, Carly, and Valerie recommended providing a bank of words for students to choose from and insert into a response field rather than have the students think of the words on their own. Nathalie and Valerie felt this would also ease the workload on the teacher, since the teacher would not be forced to develop an extensive list of vocabulary to provide to their students. It was described that students may not have the language or comprehension of the topic until they are given examples and they could apply those examples to their own answers. Valerie stated, "I always feel like I have to give an example", and then began describing the process for developing examples if they were not already provided. Nathalie discussed offering the students some examples for a skills progression survey "I like to have a nice layout of what skills they might be; a big list of them, so they can choose is always nice". Carly suggested that offering her students choices from vocabulary options would help her students stay engaged in the online program. The information gathered from Nathalie, Carly, Simone and Valerie outlines the desire for teachers to provide example vocabulary to their students and the value that could be found by providing teachers with a word bank.

Participants reported that they could support each other in facilitating an online intervention program. Carly and Simone suggested being support systems for other staff members. Carly suggested that she could support fellow teachers by helping them develop substance use intervention teaching plans and Simone expressed that she could help her colleagues by providing technical support. Carly stated she is comfortable helping teachers who have less experience than her with teaching the subject of substance use. Simone offered that as the school's technology contact she felt she could contribute to supporting others with

technology-related problem solving. This outlines the importance of considering teachers as possible support resources to each other.

Reliable Information and Autonomy

Participants expressed appreciation for being offered a series of six substance use intervention sessions designed by the *HABIT HCE* pilot project team. Overall, participants preferred the ability to deviate from the *HABIT HCE* lesson plan or modify it in some way. Participants valued their autonomy to create their own lesson plans and modify any substance use intervention sessions provided to them.

Valerie identified the specific reason why she felt that a series of sessions created by the *HABIT HCE* pilot project team was valuable to her. The British Columbia Ministry of Education had recently made significant changes to elementary school curriculum. She identified that she was particularly stressed about redesigning her healthy living lessons due to workload stress. Valerie outlined that providing teachers with intervention sessions that met the requirements of the new curriculum would reduce her workload and she could trust that the information within the six sessions were reliable and accurate. Valerie commented on the recent curriculum change in British Columbia, stating

> The entire curriculum has been changed in all subjects so…when I'm looking at curriculum from past years I can't use it. I can't use some of the resources because I have to adapt it. So, right now especially it would be really nice if things were just done.

Later Valerie commented on her desire to alter the intervention sessions to add journaling at the end. She suggested this would allow for a safe method of disclosure if necessary. Valerie also outlined that this would meet her need to connect with the students to ensure their emotional wellbeing without being intrusive. Valerie also ended the interview by summarizing that the

information and resources should be made available to all teachers, but to allow teachers to mould the sessions to their students. She stated, "Once the kids adapt to who you are and what your expectations are and you get to know their little personalities it actually becomes quite a beautiful little family". Valerie reiterated, "Sometimes the fun comes in the creativity of choosing so I wouldn't want to take that away… have it available but don't make it mandatory". This outlines her ambivalence between being appreciative for structured substance use intervention sessions, which would reduce her recently increased workload, and her desire to maintain her autonomy by creating her own lessons.

Nathalie and Carly felt that substance use intervention sessions were valuable because they ensure students are accessing reliable information from a safe resource, however they didn't want the program to be entirely computer-based. Nathalie expressed a desire to inject group interaction to the computer-based interventions, explaining that her students "…actually know a lot so letting them share their stories and stuff is important and I could share stories". Similarly, Carly discussed the use of brainstorming as a tool for group learning to supplement the online intervention sessions. Carly felt that the students could help each other identify values and then the students could apply the information to answering questions within the online activity. Interestingly, participants predicted ways they could use to modify the intervention sessions so that their facilitation experience could be more flexible.

Carly, Simone, Valerie and Nathalie felt that regardless of whether or not they facilitated the six structured substance use intervention sessions created by the pilot project team, they appreciated any reliable and current resources. Nathalie stated, "I Google videos that would be age appropriate so if that's already done for me that would be great". Carly expressed that providing teachers with reputable website addresses to gather reliable information would be

valuable to both students and teachers. Carly felt that teachers could use the information on the websites to create lessons if needed, and students could use the web addresses for research assignments. Carly identified that students may come across unsafe material if searching for information on the Internet unsupervised. Carly added "I spend a lot of time at home surfing at night looking for good websites…making it easier to me is having all this information all packaged". This illustrates the desire for teachers to include computer-based anti-drug activities into their classroom, regardless of whether or not intervention sessions are provided to them. In general, there was a preference for providing teachers with resources to facilitate their own version of substance use intervention sessions, and acceptance of reliable resources in order to teach those sessions.

The Challenge of Relying on a Program That Uses Technology

Teacher's perceptions regarding the online substance use intervention program varied for several reasons. Throughout the participant interviews, several reflected on their familiarity with technology, as well as with substance use interventions. Simone, Valerie, Carly and Nathalie linked their experience to their desired level of support and type of support. Simone, Valerie, and Carly commented on past attempts to ease the introduction of a new program with varying degrees of success. In addition, Valerie reflected on the limitations of the program if a teacher-on-call were to attempt to facilitate the substance use program. Valerie explained that teachers-on-call have only limited access to technology, and would struggle to facilitate due to their limited access to resources. Thus, participants were able to extrapolate what problems others might experience, in addition to identifying barriers specific to themselves.

Participants overwhelmingly felt that the two main issues with using an online technology-based intervention program were the use of logins and access to the Internet. Nathalie, Simone,

and Carly had previously expressed their comfort with technology and explained that regardless

of their skill level they would likely experience barriers that could prevent the lesson from

occurring altogether. For example, computers were not permanently placed in every classroom

and teachers had to prearrange for laptops to be delivered at a certain time and date. Thus, only

three classrooms within the school could have access to computers simultaneously. Further,

participants explained that use of the Internet on school computers was problematic due to

several restrictions such as network access, limited browser choices, and out-dated software.

Valerie explained the struggle with using the Internet on the available laptops at the school:

> I suppose Internet access could be an issue. It wouldn't be at this school but it could be in
>
> other schools. I know I got an email today from the school where my son is at. Today they
>
> have no Internet…so you could have your entire lesson go sideways if you were planning
>
> on having your entire day go that way.

Valerie continued to explain further restrictions to accessing the Internet that other school district

employees face. She outlined that teachers-on-call do not have access to the same technology as

temporary assignment or permanent teachers. Valerie elaborated that teachers-on-call are not

given user permission to use the Internet on classroom computers, thus preventing them from

facilitating anything online. She explained that the teacher-on-call would be an ideal candidate

for facilitating an intervention session created by the *HABIT HCE* pilot project, as it would

require minimal direction from the teacher who would be away from the classroom that day.

Simone described the process of accessing an application through an Internet browser for those

who did have access to the Internet:

> …Brower compatibility is a big issue for us at this school and some people think it
>
> shouldn't be an issue 'cause it's such a simple thing to just update your browser. All of our

computers are locked down so we can't update Java, we can't update browsers. So when

you build something that we're going to use in the school it has to work on older

browsers…we have what we have and if it doesn't work on that program then it's not

going to get used because to try to get it updated and changed just doesn't happen very

quickly or easily…the way our technology is cause it's all managed centrally beyond us.

Therefore, this reveals the variety of Internet-related barriers that teachers face when relying on a

computer-based program. Any computer-based programs must examine the Internet browser that

is used by that school district. Further, this suggests that any program developer must consider

whether the proposed facilitators can even access the computer application.

    This also connects to the previously identified theme of desire for autonomy. Teachers

were limited to using only the technology provided to them, and were unable to modify the

technology provided by the school district. Further compounding this issue was the concern that

participants could not change the program to overcome technological restrictions. Teachers who

identify barriers would not be able to proactively change the program to work within the

confines of the technology provided. Instead, if teachers did not have the autonomy to edit the

computer-based intervention sessions they may be forced to abandon using the program until

program developers can make the necessary changes. Instead, if teachers had the autonomy to

update their own classroom technology as needed, they would have the freedom to use the

intervention sessions on any browser and any software version necessary. However, as teachers

are limited to the technology provided to them, they instead could troubleshoot by editing the

program itself to suit the classroom setting.

    Comfort with technology itself was identified as a challenge for the implementation of a

computer-based program. Simone advised that there is a significant variation in comfort level

with technology within the school. She explained that some teachers would be reluctant to participate in using the intervention sessions solely due to the requirement to use technology. Simone felt that high ease of use and providing training would help reduce any resistance. Using video and audio technology was another concern raised by Simone, as she expressed that headphones are not always available. Therefore any videos would have to be muted or removed altogether from a computer-based program, as this would cause problems for the teacher who is facilitating. Simone outlined that technological skills level, equipment, and application components would all pose a challenge to the success of a computer-based program as teachers would be apprehensive to use a program that requires a high level of technological skill and technological equipment organization. These statements made by Simone suggest that teachers may be reluctant to facilitate computer-based substance use intervention sessions due to their own skill level and the challenges to navigate within the program.

There was one outlier in the group who felt that technology was an integral part of her classroom, so she felt confident taking on the facilitator role. She felt that navigating an online intervention session was easily managed and that it was unlikely the computer program would have technological barriers that she could not overcome. This signifies the importance of considering the varying levels of technological skill and how that might affect receptiveness to a new computer-based substance use intervention program.

Participants identified the use of login information and password-protected accounts as a major deterrent to use a computer-based program as valuable time can be lost at the login stage. Most participants felt that student accounts were the primary issue. Carly felt that passwords were a barrier to using online accounts, as students often forget their passwords. Nathalie felt similarly, explaining that logins create a barrier to accessing computer programs, and "if there's

no passwords and logins that's usually no problem". Nathalie offered that the solution to managing password-guarded accounts would be to link all the student accounts to one teacher account. Similarly, Simone explained that the use of unique student identifiers could be time consuming if teachers had to create login accounts for all of their students each year. She suggested that the solution would be to use generic login identifiers "student one, student two, student three" and delete student data as needed. Valerie introduced that teachers-on-call are limited by passwords and logins as this information is restricted. Overall this identifies a theme of apprehension towards using a computer program that requires login and password use.

Apprehension of the Teacher-Intervention Facilitator Role

The participants in this study deconstructed their identity as teachers and compared this to their expectation of a proposed additional identity: technology-based substance use intervention facilitator. First, they discussed their understanding of the intervention, then outlined how the lesson plan suited their teaching style. Then participants identified their current role as an elementary school teacher and compared this to the proposed role that blended teacher and intervention facilitator. When participants considered their feelings about assuming the role of online substance use facilitator most focused on the emotional aspect of this role. The words often used by participants were: *scary, fear, disclosure, trigger, important, counsellor,* and *training.* Additional themes identified were concern for confidentiality, family environments, and a lack of adequate training for teachers to support students when a concerning disclosure is made.

Simone expressed her apprehension about the role of substance use intervention facilitator:

You don't want to ignore it if they bring it up, you don't want to. You want to respond

appropriately and it's really difficult sometimes to know. It's a very unpredictable

subject. You don't really know what you're going to get from the kids and it's hard to

feel adequately prepared when I don't think that we as teachers for the most part have

proper training ourselves in it. So, it's scary.

This quote demonstrates the concerns a teacher has when facilitating a substance use intervention

program, as it is a sensitive subject. Simone recognized that students often feel that teachers are

safe adults to disclose information to, as they develop trust during the large amount of time spent

in the classroom. Simone related this apprehension to her past experiences. She recalled that she

has had a student make a disclosure that was serious and led to a police investigation. Simone

stated that the student's access to school counsellors was delayed due to understaffing.

Simone and Valerie verbalized concern that a student would disclose information to

them, increasing their apprehension of taking on the role of intervention facilitator. Simone

expressed that she would be less fearful of disclosure if there were a clear order of operations

created so that she could to react appropriately to the student. Valerie explained that her

apprehension stemmed from the concern that she may trigger one of her students while in the

intervention facilitator role. The student may then feel compelled to disclose information to her

during the computer-based intervention session, which could be a negative emotional experience

for both student and teacher. Valerie stated that she believes that most students at the school have

no firsthand experience with drug use so it was an uncommon subject discussed between

students. Valerie worried that if a student did disclose that there was drug or alcohol use present

at home, then other students at the school would be judgemental towards the disclosing student.

Valerie emphasized the importance of supporting students who do make a disclosure. She

suggested that a method to avoid public disclosures would be to encourage journaling. Valerie explained that she reviews her students' journals daily and students could feel confident that their teacher would read a journal entry disclosure in a timely manner. This demonstrates the specific concerns about assuming the role of intervention facilitator and possible solutions to students making disclosures in front of their peers.

Parents of the students also caused participants to be wary of assuming the intervention facilitator role. Nathalie's fear was that parents would become concerned if she provided gratuitous information to her students. She was apprehensive that she would scare them too much and parents would intervene. However, in light of the recent fentanyl epidemic, Nathalie felt that substance use should still be addressed. Echoing this, Carly felt that this was an important time for teachers to deliver an anti-drug message to students. Carly reflected that the focus should be on healthy living and avoiding negative lifestyles. She outlined that alcohol, drugs, and tobacco were all subjects that were culturally acknowledged as drugs. However, after the recording ended Carly discussed electronic cigarettes as a more ambiguous topic, where there have been differing opinions within the school about the appropriate approach. Valerie reiterated this idea, and explained that she was unsure about her approach to electronic cigarettes because these are also harm reduction tools. Valerie was concerned that a parent might have recently quit smoking by using an electronic cigarette and that it would cause conflict between the student and the parent or between the family and the teacher. In all, this demonstrates that participants consider their students as well as their families and this causes nervousness about delivering anti-drug messages in the classroom while acting as a substance use intervention facilitator.

One outlier who expressed no role ambiguity was Valerie who felt that substance interventions were part of a teacher's role. She suggested that parents and teachers should work

together to educate students on the dangers of using drugs and alcohol. Valerie expressed happiness that substance use interventions would be part of the curriculum. This illustrates the variation between teachers and the subsequent willingness to assume the role of substance use intervention facilitator.

In sum, most participants generally felt conflicted about the role of substance use intervention facilitator because of the possibility of emotional harm to their students or conflict with their families. However, one participant felt strongly that the role was an inherent part of being an elementary school teacher. Based on the information gathered during these interviews, research implications, program development, and new knowledge gained have been identified and included in the following chapter.

Chapter 5: Research Implications

The purpose of this study was to gain insight into the barriers of introducing a technology-based intervention program to a group of teachers. Specifically, this study aimed to answer the following questions: What are the problems that teachers anticipate facing in facilitating these computer-based intervention sessions? What are the challenges predicted by teachers in regards to using a new computer program? What are the support services teachers anticipate needing in order to facilitate these intervention sessions? What concerns do teachers have about taking on the role of substance use intervention facilitator?

Participants generally felt that healthy living and substance use were important topics for students on the cusp of starting high school. Commonly, participants felt strongly about an anti-drug message, but were uncertain where to find accurate and reliable information to share with their class. They carefully considered what appeared to be a solution to this need, and identified several perceived challenges.

Participant Concerns

First, when exploring the problems or barriers that teachers anticipated in facilitating these computer-based intervention sessions there were a number of concerns voiced. Participants discussed challenges related to pedagogical beliefs and technological barriers. There were concerns that the intervention sessions, which were created by the *HABIT HCE* pilot project, were not cohesive with their teaching method. Participants felt that a major challenge to convincing teachers to employ this program in their classrooms was that teachers could not customize the lessons. Lack of customization would prohibit teachers from modifying the program to meet the needs of each unique classroom. Classroom dynamics were described as fluid based on the teacher, the students, and the resources available. Thus, the inability to

customize the program would deter teachers from using the intervention sessions. Additionally, participants expressed apprehension that the program would become mandatory, and predicted that if it were to become mandatory, teachers might pushback against its implementation. Further research should examine program implementation with a focus on teachers' ability to modify the program because failure to overcome this barrier could result in the failure of similar programs in the future.

Participants displayed uncertainty about facilitating substance abuse content from a program that they themselves did not create. They frequently voiced the importance of a current anti-drug program that reflects the present-day trends in drug use. They expressed that they were often unsure of the information they were sharing, and whether their classroom drug education went too far or not far enough. Participants felt that the program would be a convenient way to access the information they sought. Although they wanted reliable information, they also wanted to have freedom to interact with their students and integrate personal experiences. Participants felt that personalizing the program to the dynamic of the classroom would alleviate some but not all concerns. In all, no teacher interviewed felt confident that they would use this new program over the long-term without first modifying it themselves. Future research should delve into methods for program modification while guaranteeing the ability to maintain the core concepts of the program. As outlined in literature, editing the program without careful oversight can result in loss of program integrity. Methods for maintaining faithfulness to the original program while providing opportunities for flexibility should therefore be researched further.

Teachers also noted the desire to modify the program while simultaneously conveying that they have time restrictions and may not be able to make time to modify the program. This is further complicated by the need for the program to remain up-to-date by reflecting evidence-

based practice and current events. Future research should explore this conflict, asking how users can modify a program without a great time investment all while keeping the program relevant.

Technological Challenges

As mentioned, technological challenges were one of the major perceived barriers to the integration of a new computer-based substance use intervention program. Participants identified two main technology-caused issues: users and computers. First, participants reported that teachers would have a spectrum of technological ability. Participants who felt confident in their computer skills predicted that teachers who were less skilled would be reluctant solely based on the fact that the program was fully online. Next, participants explained that when children were the users of any computer application there were issues with organization. Primarily, child-related disorganization was outlined as a loss of login information or difficulty navigating to and through the program independently. Teachers who identified as highly skilled technology users stated that they would be deterred from using the program if there were unique login identities or private passwords managed by the children.

This information can be applied to further research on the use of an organized system for teachers to save students' passwords. Facilitator ability assessments specific to a proposed program would be a valuable research topic in the future. As researched by Lindquist and Long (2011) user assessment can identify barriers to technology use and improve participation levels. During the development of future programs, it would be valuable to research and assess user ability level. This would contribute to the identification of barriers and to discover what support services a user might benefit from during program implementation.

Exploring the potential user's challenges has provided valuable information and suggests future research into user barriers with a more heterogeneous user population. The homogeneous

participant group and student population limited this study. Future research with a variety of populations would be beneficial as additional challenges or support services could be uncovered. This knowledge would aid in addressing challenges caused by language barriers, different belief systems, and varying technology in different school districts. This research could improve future program development, as the information would capture barriers that would otherwise remain unidentified when interviewing a small, homogeneous group of participants.

Next, computers were the second major challenge of using an online program. Participants identified that access to computers was limited to users with specific credentials. Further, participants felt that computers were at a premium within their school. They explained that careful planning would be required to consistently access the number of laptop computers needed for facilitating this program in their classroom.

Computers were limited by restrictions placed by the school district's information technology administrators. Browsers, software, and operating systems would likely be outdated on the computers available for facilitating the substance use intervention program. Thus, any new program would have to be used via technology that might be considered outdated. Participants identified that they were forced to cease using a program simply because the program had updated but the school district's computers had not. In sum, access to computers and access to technology through the use of those computers were both barriers to the online substance use intervention program.

This research uncovered that a barrier to program implementation was the restrictions that administrators placed on the computers. Although restrictions are necessary for the safety of the students and the school district property, this significantly limits the number of programs compatible with the computer software. These findings inform the development of computer

programs and applications that will be used on computers with archaic technology. A program cannot be successfully introduced into a classroom if restrictions prevent it from being used. Although this does not resolve the issue of computer availability and access to the Internet, providing a program to users that can be run on their computers is a salient concern. It was apparent during this study that there were several layers of technological barriers, including access to computers, sign in, access to the Internet, and program compatibility. There were also administrative barriers including user privacy and school district policy. When considering the implication for future studies, it would be valuable to research the technological limitations prior to the development of any computer programs.

Further, future research must consider the necessity of administrative restrictions. Research into the needs for access to modern technology while maintaining security would be beneficial. This information could inform the development of future programs, and ensure that programs function within the security parameters set by the administrators. This research could also provide insight into support services that might be provided or indicated by administrators. By exploring administrative restrictions, a balance may be found between usability and security.

Support Systems and Resources

Participants discussed the support systems and resources they felt would be adequate to meet their own needs. Since all of the participants in this study expressed that they were moderately to entirely comfortable with the use of technology, there is no information on the support systems that would meet the needs of a teacher with poor technical prowess. Participants suggested the use of a manual would be valuable, and that offering the manual in a digital format was desirable. Participants also identified that they appreciated knowing another human being would be available to them by email or phone if their problem were not readily solved. However,

future research would benefit from exploring the needs of a low skill user, as their support system desires would likely be more extensive. Interestingly, participants suggested themselves as supports to each other. The subject of mentorship and support has been explored in past literature, however there is a need for future research into the dynamic of emotional-practical support between teachers when facilitating substance use interventions online (Claassens & Lessing, 2015; Neuenschwander et al., 2013; Pansiri et al., 2012). This is especially important when teachers are expected to implement a program where a program developer may not be readily available or trained to provide emotional-practical support. In the case of the *HABIT HCE* intervention sessions there was a long-term goal of program use without program developer or researcher supervision. By researching the use of peers as support the program may have improved longevity, as another teacher employed at the same school would meet the facilitator's emotional-practical needs. Thus, support systems are not just technological; they include human resources as well.

Assuming the Role of Intervention Facilitator

The participants of this study explored their feelings about assuming the role of intervention facilitator. While most agreed that the topic was important, there was apprehension about teaching such a sensitive topic. Several participants explained that they have already introduced this topic to their class, but that past experiences have made them hesitant about their delivery. A common theme was apprehension of student disclosure, and subsequent uncertainty about appropriate follow up. Participants identified that as teachers they have a strong bond with their students and perceived it was imperative that students felt they could disclose information to their teacher. Conversely, participants felt that as teachers they were not properly trained in emotionally supporting students who made a disclosure or ensuring that students had access to

the correct professional supports. These findings inform preparation for the introduction of a sensitive topic into a classroom setting. The development of a concrete order of operations for student disclosure is a necessary tool for teachers. Future research should explore the relationship dynamic between teachers and their students when students disclose sensitive information. Insight into teacher preparedness and standard protocol for disclosure could improve teacher participation in intervention sessions as well as decrease apprehension. As this was identified as a barrier, further information regarding disclosure of sensitive information could improve understanding of the teacher's emotional experience while conducting intervention sessions. This is imperative as teachers are often facilitators of healthy living classes and intervention program success relies on teacher participation.

Informing Program Development

The findings from this study are valuable in informing the development of the *HABIT HCE* computer program. This case study demonstrated that teachers desire the freedom to edit the program as needed to suit their student population and teaching style. It is recommended that programs be flexible and customizable. This would allow teachers to meet the dynamic needs of their classrooms. This would also allow teachers to modify the program to their own teaching style. Thus, adding a method for teachers to pause the predetermined program to insert personal touches could improve teacher participation in an online substance use intervention program.

It is suggested that teachers be provided with a list of reliable resources. Knowledge that teachers desire high quality information from reputable sources allows program developers to design a resource list for teachers to give lessons outside of the six sessions provided by *HABIT HCE*. Teachers can then access information from reputable sources and maintain current information within their educational content. This is especially valuable when teachers are

unable to use the designated intervention session programs or prefers to provide their own version of substance use education.

The information gathered from this case study can inform the computer program application platform by ensuring that it can run within the given technological constraints. This includes the browser type and version made available to teachers by administrators. Because teachers identified that access to headphones was a barrier, the program should reflect this constraint. The program may be modified to allow for synchronous video and audio play through a shared computer screen operated by the teacher. The program must be able to function on a variety of browsers and software platform versions in order to be used in a variety of school districts. Thus, the program developers should consider the long-term goal of introducing this intervention program to additional school districts and perform necessary program modifications.

Recommendations include that the program developer create a simple way to organize student login information. The program can use the knowledge gained in order to create a method for organizing student login information so that teachers can easily troubleshoot problems during the login stage of each session.

Program developers should create a digital user manual and a solidified troubleshooting process. The *HABIT HCE* program could employ the teachers' requests for support services by creating a digital manual and identifying a point person who can provide support when needed. A digital manual is portable, accessible, and they can employ search functions to easily identify solutions. However, digital manuals should not be the only available resource for resolving computer program challenges. Specifically, the program developers should ensure a point person is readily available during the time that the teacher intends to facilitate an intervention session.

This may require training of a school district employee or group of super-users who can support teachers in resolving technological challenges.

Program developers should seek ways to reduce participant apprehension. Identified in this study was the apprehension that a student might disclose information to the teacher. The program developers should ensure that a standard operating procedure has been solidified and teachers are informed of the process. Included in this should be a list of resources available to the student, as well as resources available to the teacher. For example, the student might access the school counselor for emotional support, whereas the teacher might access the elementary school principal for practical support.

The findings from this research can inform the integration of future structured programs into the classroom. Information gathered through this study is relevant outside of the subject of substance use and can guide program rollout planning with other topics of instruction. The introduction of programs created by an outside source can be investigated further to consider the trend of ambivalence between convenience and creative license. Future research would benefit from an in-depth study into facilitators personalizing computer-based programs.

New Knowledge Gained

This research identified several obstacles that were not identified in previous literature. First, it became clear that teachers viewed grade seven elementary school students as the ideal target for substance use intervention programs and healthy living promotion. This strong conviction was held by all participants and occurs within the context of anticipating that their students will be attending high school in the next school year. Additionally, it was identified that participants felt that their primary barriers to technology were the use of logins and Internet

access. Further, there was a lack of information regarding teachers assuming the substance use

intervention facilitator role while using a computer-based platform (Beets et al., 2009).

This case study identified that one main barrier to introducing the program was the lack

of freedom. Previous literature suggested that the program content was a main barrier instead.

Caffarella and Barnett (2000) identified that adult learners like to share their experiences, but it

was previously unknown how this translated into facilitating a substance use intervention

program in an elementary school classroom. Consequently this case study uncovered previously

unclear or unidentified knowledge that can inform the development and implementation of

similar computer programs into the classroom setting.

Existing Knowledge Confirmed

Knowledge that was already gathered from previous studies was reflected in the findings

of this case study. Samra (2013) states that there are many barriers to the integration of a

computer program, and among them is technological skill level. Participants reported similar

potential barriers by suggesting that teachers who are not comfortable with technology would

likely resist the computer-based intervention sessions. This affirmed that teachers are met by

challenges when attempting to introduce new programs into their classrooms.

Participants felt strongly that their relationship with their students was a protective factor

that prevented substance use. This is reflected in literature as it has been identified that teachers

are significant in the non-academic facets of a student's life (Tournaki & Podell, 2005).

However, this was also an obstacle to the introduction of a structured computer program as

participants felt that they needed to mould the program to meet the different needs of each

classroom. Therefore there were several obstacles to introducing a computer-based substance use

intervention program into a classroom setting that were reflected in existing literature and reiterated by participants.

This study affirmed the desire of teachers to be intervention facilitators. Waller et al. (2017) outlined the necessity of teachers as intervention facilitators, which was echoed by participants. Participants felt that providing education to their students about substance abuse was an important facet of their role. Additionally, participants identified that students were particularly well suited for interventions in grade seven due to their impending enrolment in high school.

Participants echoed Beavers (2009), and stated that teachers are often expected to assume a counsellor-like role when students disclose information to them. Participants explained that this also led to apprehension about facilitating a substance use program, as they were unsure how to appropriately support a student who makes a disclosure. Support was an identified factor in reducing barriers to assuming the intervention facilitator role. As outlined by Espiner and Hartnett (2012) and Claassens and Lessing (2015), support systems must reflect a person-centered approach where emotional, social, and practical supports are provided.

Teachers have specific needs as adult learners. Participants indirectly confirmed the necessity of engaging in program development. Participants outlined their desire to edit the program to suit their classroom and their teaching style. Similar to Marino et al., (2016), teachers used the interviews as a time to reflect on their current skill as intervention facilitators and consider how those skills could be improved. Teachers benefit from role clarification, as it reduces ambiguity about expectations within the classroom setting (Moore & Koning, 2016). This was outlined further by teachers who explained that there is currently significant ambiguity about the depth to which they were expected to educate their students on substance abuse and the

method of which to do so. By providing teachers with explicit role expectations they were able to

affirm whether they felt comfortable in that role and express their apprehension.

Chapter 6: Conclusion

The purpose of this case study was to gain insight into the perceived barriers to integrating a new computer-based substance use program into an elementary school classroom. The case study asked participants what challenges they expected and what support services could be of use. Participants were interviewed and asked a series of open-ended questions to gather information. The participants were all teachers of grade six and seven students in a rural school district in the Interior region of British Columbia. The study was limited by the homogenous participant sample and the use of a paper draft version of one intervention session. Participants were asked to imagine that the intervention session was translated to an online platform and part of a series of six sessions. Participants projected their predicted experience using a digital program when only given a paper copy. However, given a digital copy of the interactive sessions, their interviews would likely have garnered additional information.

The prevalence of technology-based interventions has consistently been increasing; however there has primarily been a focus on studying high school students. Documenting the experiences of four teachers has provided insight into the unique barriers that elementary school teachers face when attempting to introduce a new computer program into a classroom setting. Information was gained about the support services that teachers would find useful when using a new program and facilitating such a sensitive subject. Additionally, the experience of teachers assuming the role of substance use intervention facilitators has seldom been explored. This study has begun to fill the knowledge gap and provide understanding of these topics.

From the perspective of a computer-program designer this study would be valuable in informing the limitations of school computer systems and elementary school Internet access. Additionally, program designers can gain value from this study by applying the knowledge

regarding teachers' desire to retain autonomy and edit the lessons to suit their teacher style and the needs of their classroom cohort. Computer program support service developers can benefit from this study by developing digital manuals for troubleshooting problems and guiding teachers through each session. In all, this study is valuable to developers who can consider the results while building their applications.

This study provided insight into the experience of facilitating online interventions. Previous studies have focused on interpersonal interventions, the effectiveness of online interventions, teacher support systems, but not a combination of all three. As education has trended towards increased technology use, so have substance use interventions. Considering teachers in the substance use facilitator role and their needs provides valuable information for future research and program development for technology-based intervention sessions.

Future research can explore program customization and navigating administrative restrictions. Moreover, future research should include the use of a login organization system to reduce barriers to program implementation. Future research must expand the participant selection to reflect a heterogeneous population and the use of a real computer program. Knowledge would benefit from exploring the implementation of this substance use intervention program in a variety of school districts where different needs may reveal different challenges and require additional supports.

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Appendices

Appendix A: Letter of Invitation and Consent Form

Teachers of School District 22
Vernon, British Columbia

We would like to invite you to participate in a study entitled HABIT HCE Development, and a subset of this study entitled Teaching the Teachers that focuses on professional development. The purpose of the Teaching the Teachers study is to engage schoolteachers in order to develop an effective teacher training and support system. Royal Roads University Master of Arts in Learning and Technology student Elizabeth Smith is leading this study and Dr. Marvin Krank of the University of British Columbia leads the HABIT HCE Development study. The reason you are being invited to participate is because you are a teacher of a grade six or grade seven class in one of the participating pilot schools at School District 22.

If you agree to participate in this study you will be asked to engage in one in person interview for approximately one hour. You will be given a copy of the lesson outline and 10 minutes to review the outline. You will then be asked open-ended questions for the remaining 50 minutes. The interview will be recorded for transcription. The recordings will be destroyed once transcribed and the transcriptions will be stored on an encrypted digital device, and then destroyed after 2 years in June 2019. The data from the study will be shared by the Teaching the Teachers study to the HABIT HCE research team.

Your participation to this study is completely voluntary. There are no risks involved, and no sensitive questions are asked. You are entirely free to decline participation, to withdraw from the interview at any time, and to refuse to answer any question. If you choose to withdraw, all of your contributed data will be destroyed unless you provide written permission for the data to be used.

The information that you share in this study will be confidential. To ensure that you remain anonymous, a fictitious name will be used in transcribed interviews and all publications. Whether you choose to participate or not will have no effect upon your employment and your identity as a participant will not be relayed by the researcher to your employer.

The planned outcomes of this research are as follows: We would like to use this information to publish articles on professional development and substance use interventions. Further, information from this study will inform curriculum on substance use interventions in elementary schools.

If you agree to participate and complete the interview you will be provided with a letter of gratitude from Royal Roads University graduate student Elizabeth Smith. This project has received clearance through the Royal Roads University Research Ethics Board. This information can be confirmed by emailed or calling Colleen Hoppins at Colleen.Hoppins@royalroads.ca.

If you agree to participate in this research please sign this paper and provide a paper copy to me in person or email a scanned copy to Elizabeth.2smith@RoyalRoads.ca to confirm your participation. Ensure that you retain your copy. Should you have any questions before proceeding or at any time during this research please contact me.

☐   I agree to participate in the Teaching the Teachers research study
☐   I agree to participate in 1 in-person interviews

Signature _____
Thank you for your consideration,
Elizabeth Smith, Royal Roads University Graduate Student, Master of Arts in Learning and Technology
Overseen by Dr George Veletsianos, thesis supervisor, Greorge.Veletsianos@RoyalRoads.ca

Appendix B: Sample Lesson Plan From *HABIT HCE*

Healthy Automatic Behaviors Intentions and Thoughts (HABIT)

Lesson One Workbook
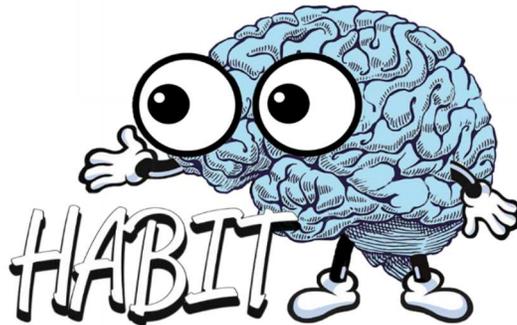
Healthy Automatic Behaviors Intentions and Thoughts (HABIT)

What is HABIT?

Healthy – Health means many things. First, it means feeling good and strong. A healthy person is able to do and accomplish things. Physical health means being able to act with strength and skill. Mental health means being able to think clearly and deal with life. Everyone wants a healthy mind and body. Good health helps us to be who we are and who we want to be.

Automatic – We do many things without having to think about them. These actions are called habits. Good habits lead to good outcomes. These lessons are about how we learn good habits that have healthy outcomes. You will also learn how to avoid bad habits that lead to poor health.

Behaviours – What we do and are able to do defines who we are. Actions can make us stronger both mentally and physically. They can make us happier and healthier.

Intentions – Part of developing good habits is planning ahead. You think about what you are going to do. You plan and part of your plan is what you intend to do. Good intentions can lead to good habits, but not always. Part of forming good habits is learning how to act as you planned.

Thoughts – What we think about, our ideas, impressions, and feelings, are part of learning healthy habits. Thoughts are part of planning. Thoughts also precede actions. Good health happens when you think, plan, and do healthy things.

HABIT lessons are designed to show you how people think, plan and do healthy things. They will also help you to achieve your health goals.

HABIT Lesson 1: Health and who you are

You are unique, different from everyone else. You share values, abilities, and goals with others, but no one is just like you. Others can give you advice, but it is up to you. Over the next few years, you will choose who you will become. This lesson will take you through a journey of self discovery to find out more about who you are and who you want to be.

(graphic "Good stuff ahead")

Let's begin with YOUR HEALTH GOALS

List four things that you view as most important to your PHYSICAL HEALTH. You should write down healthy traits or outcomes that you value. They can be things you already have or things that you would like to have or be able to do.

1.

2.

3.

4.

List four things that you view as most important to your MENTAL HEALTH. You should write down healthy traits or outcomes that you value. They can be things you already have or things that you would like to have or be able to do.

1.

2.

3.

4.

YOUR VALUES

Your values are important to who you are. What do you value most? Write down the four most important things you value.

1.

2.

3.

4.

YOUR ABILITIES

What you are capable of doing is an important part of who you are. Think about some of things that you are able to do? Write down four things you able to do that are important to you.

1.

2.

3.

4.

YOUR ACTIVITIES

What you actually do is an important part of who you are. Think about some of things that you do? Write down four of your current activities that are important to you.

1.

2.

3.

4.

WEB EXERCISE ONE

Now that you have thought about your health goals, values, abilities and activities, it's time to look at what others have said in answer to these same questions and to ask yourself some more questions about who you are. To do this, you will go on-line and sign in to the web link: <u>Lesson one web exercises</u>.

There are two goals in doing these exercises.

1. First, it is valuable to learn from others. Sometimes others have thought about things that you might find useful in setting your goals. These exercises will give you a chance to think about options that you may not have thought about before.
2. Second, these exercises will ask questions about your personality. These questions will help you to understand some of your strengths and weaknesses. Your personality profile will be described and provided to you. It will help you to learn how you can make good choices in future lessons.

Homework assignment: GOOD ROLE MODELS

Role models are people that we look up to and want to be more like. They can be someone we know personally or are related to. They can also be someone well known. Healthy role models lead healthy lives and do healthy things. In this task you will identify two healthy role models that you look up to and would like to be more like. For each person, answer the following questions:

1. What kinds of things do they do that you admire?
2. What are their values?
3. Do they have any special skills or abilities that you would like have?

After completing this task, answer the following question: what are the differences between a good and bad role model?

Appendix C: Semi-Structured Interview Questions

Semi-structured interview questions:

1. What support services do you believe that teachers might need in order to effectively facilitate an online substance use intervention program to students in a classroom setting?

2. What are the challenges do you predict in regards to using a new computer program?

3. What experience do you anticipate after reviewing the lesson one session outline?

4. What suggestions do you have about successfully translating a written lesson outline to a technology-based teacher-facilitated intervention program?

5. What do you anticipate are the barriers for facilitators with regard to technology-based facilitation?

6. What are the support services you anticipate needing in order to facilitate these intervention sessions?

7. What feelings do you have about taking on the role of substance use intervention facilitator?

8. What are the problems that you anticipate in facilitating interventions?