Face to Face, Online or Something in Between:

Student Perceptions of Student Engagement in Different Learning Environments

Hongran Cui

Master of Education

KAMLOOPS, BRITISH COLUMBIA

September 2021

Co-supervisor: Dr. Victoria Handford

Co-supervisor: Dr. Michelle Harrison

Committee Member: Dr. Laura K. Doan

Abstract

According to UNESCO (2020), the COVID-19 impact on education is global. There were more than 1.5 billion learners and students worldwide, from children in early childhood education to students at tertiary education affected by the global pandemic, which led most schools and universities to pivot to online classes. Online teaching and learning became the primary model for teaching, and we are calling this learning Emergency Remote Education (ERE) (Bozkurt et al., 2020). Previous studies have accumulated rich theories in both face-to-face (F2F) and online. However, the theoretical underpinnings of educational theory are weak relative to the global scale of practical applications that have occurred in online education. Therefore, there is a great need in the academic community for research on differences in student engagement in the context of ERE. Using the Critical Incident Technique, this study interviewed ten students in a Master of Education Program. The analysis of interviews produced three main themes: 1) teaching practice; 2) learning behavior; and 3) supportive environment. The findings indicated that there were differences in student engagement between F2F and ERE, and the main reasons causing differences were course design and organization, student-faculty interaction, learning with peers, and social interaction. Based on the literature and findings, the results were discussed, and future study areas were recommended.

Keywords: student engagement, distance education, online education, Emergency Remote Education, Critical Incident Technique, graduate student

Acknowledgements

First and foremost, I would like to express my sincere gratitude to my supervisors, Dr. Victoria (Tory) Handford and Dr. Michelle Harrison. Thank you for guiding me progressively and patiently. I know that I am not the easiest student to supervise. I always had my own opinions and insisted on them. I still remember, when I started my thesis proposal, how they spent half an hour explaining the importance of neutrality in the literature review. They taught me how to do research and the meaning of research. It is crucial to consider the scholarly contribution because of the far-reaching and long-lasting impact. Whenever I went in the wrong direction, they were there to pull me back to the right track. Moreover, they have always evaluated my research and thesis papers with the highest standards, making me aware of my strengths, shortcomings and being modest and prudent. They are more than supervisors to me; they are my mentors. They taught me practical skills and shared their experiences without reservation. How lucky I am to have them as my supervisors.

I am grateful to Dr. Laura K. Doan, the third committee member, who provided valuable comments and suggestions. I would also like to thank the participants, who sacrificed their time, shared their stories, experiences, and insights openly and authentically.

My special thanks go to my family, my backbone. They encouraged and supported me to pursue my dream. No matter what I decided, they were there all the time. Whenever I needed them, they were there. I thank them wholeheartedly.

I would like to list all the people I need to thank but the paper is limited. I thank all the people who supported me in diverse aspects. I will keep your kindness in mind and be grateful all the time. Sincerely thank you.

Table of Contents

Chapter One: Introduction

The outbreak of COVID-19 in December 2019 has affected most countries in the world, including Canada. In March 2020, the World Health Organization (WHO) stated that COVID-19 was a global pandemic (Bozkurt et al., 2020). Keeping people distanced in a recommended or mandatory manner became the major way to prevent COVID-19 infection and transmission in humans. In the absence of trustworthy long-range projections of the duration and the depth of impact of a COVID-19 pandemic, online teaching has become the preferred option to ensure educational continuity. The world changed. Education has also undergone a huge shift (Bozkurt et al., 2020) and the proportion of face-to-face (F2F) learning post-outbreak has been very limited, with the majority of educational offerings in post-secondary moving to remote and online delivery. Universities in British Columbia all pivoted to online classes, since all gatherings of 250 people or more were banned from March 12, 2020 ("B.C. Universities Switching to Online Classes to Avoid COVID-19 Spread," 2020; Ian, 2020), and Thompson Rivers University (TRU) announced on March 15, 2020, that all on-campus courses would be changed to online courses starting on March 16 (Thompson Rivers University, 2020).

As a result of this public health crisis, online teaching and learning has become the primary model for teaching, and dependence on forms of online teaching and learning has never been so important as today. Today we are calling this learning Emergency Remote Education (ERE) (Bozkurt et al., 2020). Students and teachers have found themselves in great need of learning online platforms such as BigBlueButton, Google Classroom, Microsoft Teams, Moodle, Schoology, Skooler, Zoom, and others. Research about the successes of online learning reveals online learning is flexible, convenient, opens opportunities for creation, is innovation, and provides opportunity for critical reflection (Crick et al., 2020; Huang, 2020; M. Jones & Ryan,

2014). Nevertheless, there were also research about the challenges of the online learning. Students might feel lonely, be less motivated, and find it hard to engage in discussion because of a lack of non-verbal cues (Aljaber, 2018; Huang, 2020; Romero-Hall & Vicentini, 2017). All previous researchers have discovered there is much technological literacy that is needed. With the increased use of these educational technologies, questions about the strengths and limits of ERE delivery have arisen. This abrupt transition has revealed an extraordinary number of challenges in terms of educational continuity, the quality of the curriculum, and the use of technological tools.

Distance Education

The definition of distance education in the National Survey of Online and Digital Learning 2019 is "those where no classes are held on campus — all instruction is conducted at a distance" (Johnson, 2019, p. 4). Distance education is not a rare educational activity; the concept and prototype of distance education emerged as early as the late seventeenth century (Bower & Hardy, 2004; Bozkurt, 2019; Dunlap & Lowenthal, 2018). The original purpose of distance education was through providing educational opportunities beyond classrooms, to improve egalitarian and reduce rates of illiteracy (Bozkurt, 2019; Casey, 2008). In the early 1990s, with the development of technology, the digital age began. There was a transformation in the format, focus, and research of distance education. Educational delivery modes became diverse, and synchronous and asynchronous courses were introduced (Bozkurt, 2019). The focus of education shifted from a teacher-centered to a student-centered system, with a greater emphasis on interaction. Moreover, research on distance education has become more intensive, so qualitative research has become more crucial. With the invention of the Internet, online courses became the new favorite of distance learning. Jones International University, the world's first fully online

university accredited by the Higher Learning Commission established in 1993, and since then, online education has flourished (Casey, 2008; Jones International University, n.d.). According to the National Center for Education Statistics (2018), the percentage of undergraduate students enrolled in distance education or online classes in the United States increased gradually, from 15.6% in 2003-04 to 43.1% in 2015-16. In 2018, although the total percentage of the students' enrolment had a slight increase compared to 2015-16, the percentage of students who took the entire program online had substantially increased, from 10.8% to 16.6% (National Center for Education Statistics, 2019). According to the survey data of the Canadian National Survey of Online and Digital Learning, online courses in post-secondary education institutions expanded gradually. The number of institutions offering online courses developed rapidly from 68% in 2010 to 76% in 2011, and 79% in 2016 (Donovan et al., 2019). The increase from 2008 to 2016 was 14%, but 3% between 2011 to 2016. Student enrolment also increased steadily from 2011 to 2018, 18% of students were taking at least one online course for credit in 2016-2017, and 19% in universities, 21% in colleges outside Québec. Students enrolled in fully online programs accounted for 8%, which was 1,357,000 enrolments. On average, each student was taking three or four online courses per year. In 2018 and 2019, over 85% of Canadian post-secondary institutions offered online courses to attract students from outside institutions' location; however, the number of online learning students represented only a small percentage of the universities' total student population (Johnson, 2019). Consequently, in 2019, although most post-secondary institutions reported that online learning was significant, only 12% implemented their online strategic plans (Donovan et al., 2019; Johnson, 2019). Prior to the COVID-19 pandemic, the face-to-face (F2F) teaching was still the dominant way of teaching. Therefore, when the pandemic broke out, all major universities faced stress during the transition process.

Student Engagement

The process of education involves two parties, the one who teaches the knowledge and the one who receives it. The word pedagogy is of Greek origin and originally meant 'to lead and coach children' (Merriam-Webster, n.d.). As adult education gradually developed, educational practitioners began to call for changes in teaching; the traditional passive reception of knowledge by the learner was not enough for the adult learner (Bozkurt, 2019). It is difficult to find a unified concept about learning. Some learning theorists see learning as a process of changing, shaping, or controlling behavior; other theorists prefer to define learning as the ability to grow, develop, and discover and develop potential (Knowles, 1973). Regardless of the differences in theories, learning is an active and refining process. For adult learners, Knowles's Andragogy learning theory "focuses on learner control, self-responsibility, and self-directed and self-regulated learning processes" (Bozkurt, 2019, p. 264). Many pieces of literature suggest that student engagement contributes to improving student learning outcomes (Trowler, 2010). Not only that, but student engagement also contributes to improvements in persistence and retention, egalitarianism, satisfaction, academic success, curricular relevance, and institutional reputation (Filak & Sheldon, 2008; Hughes et al., 2008; Kuh et al., 2008; Skinner et al., 1990; Trowler, 2010). It is evident that the impact of student engagement is far reaching and crucial for students in various aspects.

Significance of Study

The impact of the COVID-19 pandemic on education and the resulting revolution will require understanding and research by educational institutions, educational administrators, researchers in educational theory, and participants in educational practice for many years. The global scale of remote education resulting from this sudden and urgent transition is

unprecedented in the history of education and has no equivalent in the history of education (Hodges et al., 2020). There were previous studies on student engagement in online environments (Dixson, 2015; Garrison et al., 1999; Kent et al., 2016), studies on student engagement in the F2F environment (Ahlfeldt et al., 2005; Connell & Wellborn, 1991), and comparative studies on student engagement (Horspool & Lange, 2012; Summers et al., 2005; Young & Duncan, 2014). Previous studies have accumulated rich theories in both F2F and online. However, the theoretical underpinnings of educational theory are weak relative to the global scale of practical applications that have occurred in online education, and "is far from being a pedagogical concept in its own right" (Bozkurt et al., 2020, p. 2). Therefore, there is a great need in the academic community for research on differences in student engagement in the context of online education. The purpose of this thesis is: Through literature and research, to identify students' perceptions of differences in student engagement between F2F and ERE environments.

From Researcher's Positionality

I started my study at the Master of Education program in Canada in January 2020. Just as I was beginning to understand more about the Canadian teaching modality and was in the process of exploring appropriate learning strategies, COVID-19 exploded. When I initially switched to the ERE, I was excited, confused, and overwhelmed at the same time. When I talked with friends, I realized that I was not the only one, and we shared our experiences to help each other. Before I came to Canada, I worked for over ten years in a large multinational corporation in China and was in charge of the internship project; moreover, I worked many years as a volunteer teacher to teach primary schools students Finance and English. I was aware of the

significance of student engagement and my early experiences in experiencing ERE led to my interest in this topic.

Chapter Two: Literature Review

Modern Education Model

Interactionism is the mainstream of modern education, which refers to students learning through autonomy, cooperation with teachers and classmates, and reflection (Kutbiddinova et al., 2016). The teaching and learning process is a dynamically developing process of unified teaching and learning with interactive influences and interactive activities. The main teaching concepts and teaching ways are based on interaction. In this process, through the optimization of teaching interaction, effective interaction of all factors in teaching combine to improve teaching effectiveness. Optimizing teaching interaction includes the regulation of teacher-student relations and their interactions, forming harmonious teacher-student interactions, student-student interactions, and interactions between individual learners and teaching agencies. Interactionism strengthens the interaction of humans and the environment.

Modern Teaching

The main teaching philosophies of modern education are based on interactive education. Interactive educational philosophy can be traced back to the period of the Ancients and the early Enlightenment. Plato, Confucius, Aristotle, Aquinas, and virtually all ancient philosophers, identified mentoring, modelling, and questioning as of critical importance in teaching and learning. The interaction between the teacher/mentor and learner was the medium for intellectual growth and learning. Beyond the Ancients, one of the pioneers of contemporary education, the early Enlightenment philosopher Rousseau, emphasized nature, advocating that people learn through the interaction with "nature, men, and things" (Martin & Martin, 2010, p. 86). Nature implied internal development; men meant interactions with other people; things referred to interactions with natural surroundings. Rousseau was saying that people not only learn from the

environment and other people but also learn from themselves. Helvétius, who was a contemporary of Rousseau's, advocated materialism. He believed that states could form people into people they need through education (Yang, 2011).

At the beginning of the twentieth century, Dewey proposed pragmatism. Dewey recommended interaction among students; teachers should understand students and teach corresponding knowledge according to the needs and interests of students at different stages of learning (Dewey, 1897; Synytsia, 2020). Dewey criticized traditional education, stating that school curriculum did not consider the nature of children, but was a curriculum designed with adult logic fragmentation, separated from the children themselves and their natural environment. His words were "The school curriculum is dead, mechanical, and formal" (Dewey, 1902, p. 9). Dewey emphasized that learning was a dynamic process, continuous and interactive (Leshkovska & Spaseva, 2016). Montessori, who was a contemporary of Dewey's, paid particular attention to the entire learner and the interaction between learners. As she mentioned: "The pedagogical method of observation has for its base the liberty of the child; and liberty is activity" (Montessori, 1912, p. 52). Schools and teachers should not teach curricula in a settled environment; teachers should teach different subjects differently. Students learn best through their interaction with their peers, and most importantly, they learn actively.

In the late twentieth century, Gardner (1983) proposed the theory of multiple intelligences (MI). He advocated educational reform. He believed that education at the time was not student-centered, but a one-way imparting of knowledge which students received passively (Leshkovska & Spaseva, 2016). Gardner (1995) believed that

> schools should ensure that differences among youngsters are taken seriously, knowledge about differences is shared with children and parents, children gradually assume

responsibility for their own learning, and materials that are worth knowing are presented in ways that afford each child the maximum opportunity to master those materials and to show others (and themselves) what they have learned and understood (as cited in Leshkovska & Spaseva, 2016, p. 60).

In other words, Gardner also emphasized interaction, the interaction between teachers and students, as well as among students. Teachers should adjust the content of class according to students' personalities and learning preferences (styles), and that students learn and accumulate experience in mutual exchanges.

Interactionism has gradually been emphasized and further studied since the early twentieth century. The development of modern teaching and educational concepts is based on interaction, whether in formal teacher/student relationships or mentor/mentee relationships. Interaction is the basis and main component of teaching. The biggest difference between interactive and traditional lecturing behaviour is that unilateral teaching has become ambilateral behaviour between teachers and students. The teaching behaviour has been changed into an interactive behaviour model in which both teachers and students participate. Interaction is the core of interactive teaching. Without interaction or correct interaction, there is no interactive teaching.

Modern Learning

Piaget's theory of Cognitive development identifies learning as a process of students' construction of meaning based on their knowledge when they are facing new opinions from teachers or peers (Piaget, 1977; Villegas & Lucas, 2002). Learning happens when learners interact with the environment and this interaction has meaning for the learner (Sutton, 1978;

Villegas & Lucas, 2002). The learning is the result of interaction between learners and teachers, learners and peers, learners, and environment.

Student Engagement

The primary object of education is engagement (Shulman, 2002). Student engagement (SE) is one of the most important factors and constructs of academic activities (Kuh, 2009; Shulman, 2002). SE contributes to student understanding of knowledge (Shulman, 2002). The learning process starts when students engage themselves in learning, and by learning they produce knowledge. SE is positively related to their achievement and learning abilities (Kuh, 2003; Vibert & Shields, 2003). Understanding SE is of positive significance to students and schools; furthermore, it is also a necessary foundation for modern educational theoretical research.

Student Engagement in Face-to-Face Environment

Teaching has existed for thousands or even millions of years; however, student engagement has attracted interest in the research field mainly in the last 25 years (Christenson et al., 2012). There are some open issues, and general agreements (Christenson et al., 2012), and the definition of SE also has consensus and a certain degree of disagreement.

The Definition of Student Engagement.

There are different and contested definitions of Student Engagement (SE). It starts with the definition of student involvement from Astin, which refers to "the amount of physical and psychological energy that the student devotes to the academic experience" (Astin, 1985, p. 36; Trowler, 2010). The interpretation of 'physical and psychological energy' from Astin is that how students spend most of the time at schools, interact with instructors and peers more often, and are actively involved in different kinds of activities. The best-known engagement indicators may be

the seven principles from Chickering and Gamson (Hu & Kuh, 2001). Chickering et al. (1987) identified seven principles to improve undergraduate education, including student-faculty interaction, student-student interaction, active learning, prompt feedback, time on task, high expectations, and respect for diversity in talents and styles of learning. Skinner and Belmont (1993) suggest a further engagement indicator, connecting SE with inspiration, arguing that the more strongly motivated students are, the more positive the emotions expressed in learning are, the higher the engagement of the learner becomes. Both 'behavioral and emotional' involvements are contained in the definition of 'engagement' (Skinner & Belmont, 1993). Hu and Kuh (2001) define engagement as "the quality of effort students themselves devote to educationally purposeful activities that contribute directly to desired outcomes" (p. 3).

Bowen (2005) connected engagement with four areas "engagement with the learning process, with the object of study, with the contexts of the object of the study, and with the human condition" (p. 4). Coates (2007) defined engagement as students participating in academic or non-academic activities that contributed to academic achievement. Later, Groccia's model gave a six-dimensional definition of SE, which covers the most dimensions, "learners can be engaged during their academic experience: in teaching, learning, research; with community, students, and faculty" (Groccia, 2018, p. 14). When considering theories about student engagement we expect to see definitions developed from one dimension leading to multiple dimensions, often including overlaps that student engagement includes behaviour, cognition, and emotion dimensions (Kahu, 2013). This thesis will use the definition of student engagement of Groccia's (2018) model, which SE is the interplay between behaviour, emotion, and cognition factors.

Behavioural Dimension.

Student engagement always includes elements of behaviour. The behaviour dimension refers to academic and non-academic thinking and behaviour processes (Fredricks et al., 2004; Kahu, 2013). It includes following the rules of schools and online learning, learning and developing academic skills, and participating with tasks in and out of class (Fredricks et al., 2004; Redmond et al., 2018). The behavioural dimension indicates learning and social activities, which have direct or indirect influences on student engagement.

Emotional Dimension.

Also included in student engagement is the emotional dimension of learning and behaviour. The emotional dimension draws on positive and negative feelings or attitudes towards peers, instructors, and institutional stuff; moreover, it also refers to students' willingness to learn (Fredricks et al., 2004; Redmond et al., 2018). Issues such as students like or dislike of their school or teachers, efforts students are willing to expend to learn, and prior assumptions all may be in play. In Askham's article issues of emotion and learning are identified as important to the overall learning environment "there is an emotional intensity attached to the experience of learning that is often overlooked" (Askham, 2008, p. 94). Emotions are an important feature of learning and of relationships, which influence students' learning and cognitive development.

Cognition Dimension.

The Collins dictionary explains cognition as "the mental process involved in knowing, learning, and understanding things" (Collins Dictionary, n.d.). Therefore, cognitive engagement refers to the intellectual efforts students make to master the knowledge. Skills, such as memorizing, self-regulating, critical thinking, combining and synthesizing knowledge, and learning strategies all influence cognition and learning (Fredricks et al., 2004; Redmond et al.,

2018; Reeve & Tseng, 2011). Cognitive engagement is crucial as it aids students as they develop deeper understanding and handle more complex learning content.

Conclusion.

As discussed earlier, SE is a dynamic state, which is influenced by various factors such as students' characteristics, emotion, background knowledge, cognition and efforts, and prior success with learning. Therefore, a multidimensional model of student engagement is more appropriate for this thesis, as shown in figure one. As Groccia (2018) indicated: "learners can be engaged during their academic experience: in teaching, learning, research; with community, students, and faculty. Additionally, student engagement within these six dimensions can occur on cognitive, affective, and behavioral level" (p. 14).

Figure 1

Groccia's Model of Student Engagement
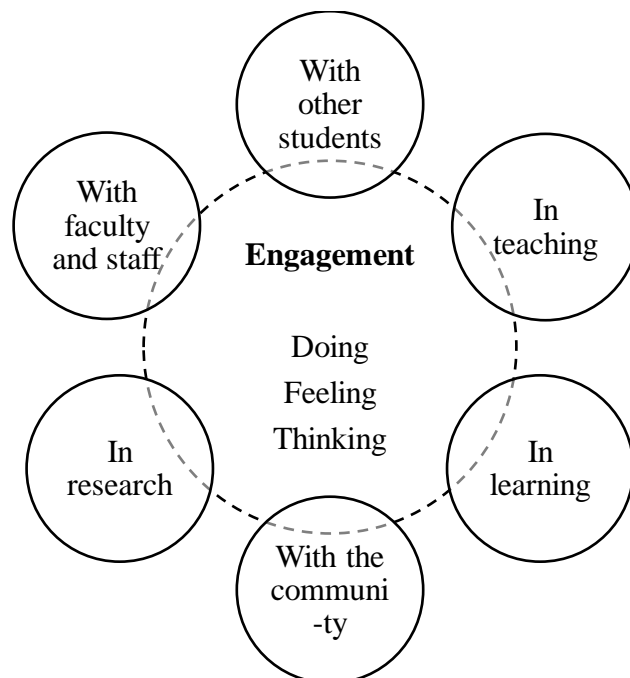
Note. From "What Is Student Engagement?," by J. E. Groccia, 2018, *New Directions for Teaching & Learning, 2018*(154), p. 15 (http://10.0.3.234/tl.20287).

Student Engagement in Online Environment

With the advancement of technology, distance education is also constantly developing. "The use of the internet in teaching and learning has become more common in higher education" (Mather & Sarkans, 2018, p. 61). As more universities offer more online programs and courses, and students' enrollment in online programs grows, research on student engagement in online learning becoming increasingly important (Dixson, 2015; Redmond et al., 2018). There are many concepts of online student engagement. Constructivism and connectivism provide a theoretical basis for understanding online learning (Garrison et al., 2001). Garrison et al. (2001) defined more explicitly the key factors influencing blended learning from the perspective of constructivism. The Community of Inquiry (CoI) framework is one of the most widely used frameworks in online and blended teaching and learning (T. Anderson, 2008; Castellanos-Reyes, 2020); moreover, many scholars have verified the effectiveness of the three factors and the interaction between three factors (Kanuka et al., 2007; Richardson & Swan, 2003). It is the ideal, something all educators are striving to achieve. Therefore, this study will use the CoI framework to explain student engagement in an online environment. The CoI Framework as shown in figure two.

Community of Inquiry Framework.

To explore student-teacher and student-student interaction Garrison presented the CoI framework (Garrison, 2011). CoI includes three elements: cognitive presence (CP), social presence (SP), and teaching presence (TP), as shown in figure two.

Figure 2

Community of Inquiry
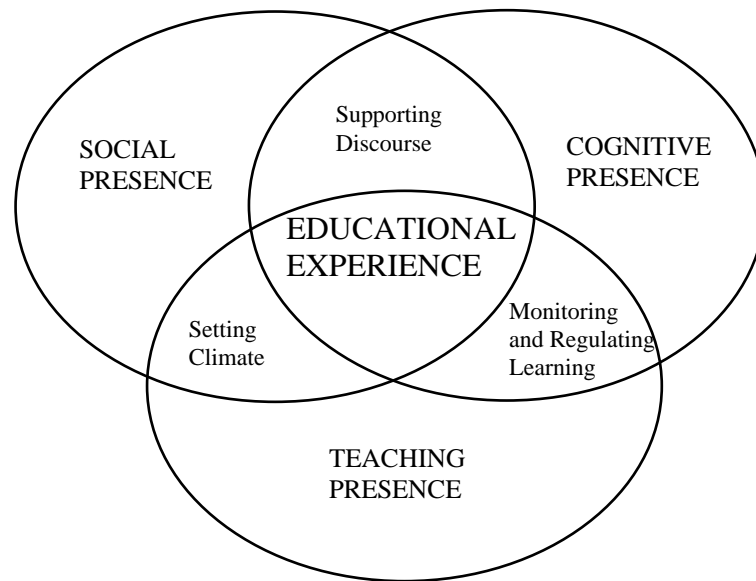
Note. From "Community of Inquiry," by D. R. Garrison, *E-learning in the 21st century: a framework for research and practice* (2nd ed.) (p. 23), 2011, Routledge. Copyright 2011 by Taylor & Francis.

Cognitive Presence.

Critical reflection is an integral part of the learning process for students. "Cognitive presence is a vital element in critical thinking, a process and outcome that is frequently presented as the ostensible goal of all higher education" (Garrison et al., 1999, p. 89). CP refers to the extent to which learners can construct the understanding through continuous reflection and discourse (Garrison et al., 1999, 2001; Swan & Ice, 2010). Critical thinking in CP "includes creativity, problem solving, intuition, and insight" (Garrison et al., 2001, p. 8). CP has four stages, which are "Triggering Event, Exploration, Integration, and Resolution" (Garrison et al., 1999, p. 89). Each stage has its own indicators and sociocognitive processes (Garrison et al., 2001). A triggering event could be a question from instructors, problems that emerge from

interactions, detailed in-class discussions about a point of research and practice, or the uncovering of personal value positions and understandings through reflective writing. Then students will try to get more information through materials related to the issue. At the third stage, students will construct the meaning of all information, in which TP is crucial, as instructors should evaluate the ideas from students and facilitate them to further cognitive development (Garrison et al., 2001). At the fourth stage, students may apply the new knowledge, or ask further questions or start new queries. CP is a process that helps students combine their experiences with the new knowledge, and eventually have a deep understanding of the course content or concepts.

Social Presence.

Social Presence (SP) refers to the ability of learners to identify with the community of learning. The establishment and encouragement for social presence helps to build a trustful environment where learners communicate meaningfully and develop interpersonal relationships through the full display of their personality characteristics (Garrison et al., 1999). SP is good for creating a collaborative learning environment (Castellanos-Reyes, 2020). SP is a supportive element for cognitive presence, the process of critical thinking; furthermore, it has also been shown to increase academic success (Garrison et al., 1999; Garrison, 2011). SP can also build a sense of belonging, helping to create a collaborative and critical environment (Garrison et al., 1999; Garrison, 2011). SP can be demonstrated through emotional expressions, questions to other students or teachers, or through participation in group work. SP is especially significant during ERE because many studies have shown that during the ERE students and teachers were facing extreme mental and psychological issues. For example, Gao (2020) revealed the issue of mental and well-being in ERE. The study from Green et al. (2020) showed that students and teachers felt stress and social isolation in ERE. Another study showed that students are less

motivated because of the lack of a sense of connection with instructors and other students (Shin & Hickey, 2020). Therefore, SP is becoming a significant element to improve student engagement in ERE.

Teaching Presence.

Teaching Presence (TP) plays a critical role in the CoI frameworks, as "TP brings all the elements of a community of inquiry together in a balanced and functional relationship congruent with the intended outcomes and the needs and capabilities of the learners" (Garrison, 2011, p. 25). TP has two functions. The first function is about the course itself, which includes the course content, the ways instructors present material to be studied, and how they assess learning outcomes (Garrison et al., 1999). The second function is the interactions between teachers and students (Garrison et al., 1999). Teaching presence can be expressed through explicit instruction of course content and learning outcomes, participation, and facilitation of different learning activities, encouraging discussion, and affirming or correcting students' understanding. TP includes three teaching roles: instructional design and organization, facilitating discourse, and direct instruction (Garrison, 2003). Instructional design and organization refer to the general course design and delivery, such as curriculum design, instructions, and evaluations. The purpose of the facilitating discourse is through appropriate guidance, leading students to critically think and reflect on the materials, ultimately reach a deeper understanding of the content. For example, instructors could identify an area for discussion, or build an encouraging and trust environment to motivate students to share their opinions. Direct instruction is more specific than facilitation. Instructors should focus on a particular topic, or point out misconceptions from students, and guide them appropriately, which means guiding students based on students' knowledge. In

conjunction with cognitive and social presence, the intent of the CoI model is to create a community of inquiry (Garrison et al., 1999; Garrison, 2011).

Summary.

All three elements CP, SP and TP connect and influence each other, and ultimately improve student engagement. Multiple studies have suggested that the CoI framework makes positive contributions to student engagement in online learning in various aspects, SP in particular (Lawrence-Benedict et al., 2019). TP is a key element because the design and organization of the course determines CP and SP.

The Importance and Significance of Student Engagement

The study of student engagement (SE) could date back to the 1930s; the American psychologist Ralph Tyler was one of the first pioneers who identified that time on task played a significant role in learning (Kuh, 2009). Students who have more task-related behaviours in class learn more (Anderson, n.d.). In 1984, the National Institute of Education (ED) highlighted the significance of involvement in learning in students' education. The more "time, energy, and effort" student dedicate to their education, the more they gain (National Inst. of Education (ED) DC., 1984, p. 17). Later, Pace (1990) noted that the time, energy and communication with peers and instructors are positively related to students' achievement. More and more people recognize the importance of student engagement. Swan et al. (2000) found that students who had more interaction with their peers and instructors were more successful in learning; SE became an important factor in students' study and personal development. The studies from Brown and Sake (1987), Hossler et al. (1988), Jones and Schwartz (1994), and Bellei (2009) showed that instructional time is positively related to students' achievement. More specifically, Törnroos (2005) found that learning opportunity has a positive effect on students' achievement. Students

who spend more time on course-related content will have more gains in learning outcomes. In more recent times, the popular author Malcolm Gladwell has identified that 10,000 hours of rehearsal and learning is what is required to achieve world-class ability in a particular area (Gladwell, 2010). While not proven to be entirely accurate, the concept continues to hold some merit. Practice, time on task, energy, and useful instruction all relate to improvements and likely contribute to student engagement.

The Engagement Indicators.

The importance and significance of SE has been demonstrated in many studies. The National Survey of Student Engagement (NSSE) began gathering data in 1999, which included behavioral and perceptual indicators; behavioral indicators included participation time in and out of classroom of students, while perceptual indicators included relationships between students and students with faculty members, and the supporting environment of institutions. The initial purpose of NSSE was to describe the quality of colleges and universities by focusing on pedagogical practices and students' learning experiences while the government drew attention to students' preference for institutions and teachers' certifications (NSSE, 2001). Through the NSSE data, institutions could see which are effective instructional practices and student engagement patterns, and then modify them appropriately (Kuh, 2003). SE by NSSE is a summary of include critical research concepts regard student engagement, which include student engagement in academic activities and the supporting environment from educational institutions (Hu & Kuh, 2001; Kuh, 2009; NSSE, n.d.). NSSE combines the theory from Ralph Tyler, C. Robert Pace, Alexander Astin, Tinto, Pascarella, Feldman and Newcomb, Pascarella and Terenzini, Chickering and Gamson (NSSE, n.d.). The research study from Kuh et al. (1997) showed that College Student Experiences Questionnaire could access the relationship between

students' behavior and institutions of higher education. With some modifications and development, in 2013, NSSE introduced new engagement indicators (EIs). EIs had four themes, identified as being Academic Challenge, Learning with Peers, Experiences with Faculty, and Campus Environment (Rocconi & Kinzie, 2013).

Academic Challenge.

There are four EIs under this theme: Higher-Order Learning, Reflective & Integrative Learning, Learning Strategies, and Quantitative Reasoning. First, Higher-Order Learning is from Bloom's Taxonomy of cognitive domain, and EIs are also following the principle of Bloom's Taxonomy (NSSE, n. d.). "Higher-order thinking occurs when a person takes new information and information stored in memory and interrelates and/ or rearranges and extends this information to achieve a purpose or find possible answers in perplexing situations" (Lewis & Smith, 1993, p. 136). Higher-order thinking is not merely critical thinking or problem-solving; higher-order thinking includes absorbing new information, thinking critically, reflecting on the information, and integrating the new information into the existing knowledge. NSSE (2013) also identified that students who are required to engage in higher-order learning skills apply knowledge, solve problems, and have a more comprehensive and deeper understanding of the subject at hand. Second, reflective learning focuses on the frequency of students' reflection on their knowledge, and personal connection with learning materials (NSSE, n.d.; Tukibayeva & Gonyea, 2014). Studies showed that students with a deep learning approach were more likely to connect, reflect and review their existing experience and knowledge when facing new information or tasks (Dolmans et al., 2016; Laird et al., 2005). Third, the learning strategies are positively related to academic achievement; moreover, effective learning strategies help students reflect on problems, improve their metacognitive knowledge, and their learning strategies in

return (Biwer et al., 2020; Yan et al., 2014). Forth, quantitative reasoning skills become highly valued in the workplace; therefore, it is critical that students master quantitative skills to analyze quantitative information (Dumford & Rocconi, 2015). Quantitative reasoning is one that uses skills like "prerequisite knowledge", "logical thinking", and/ or "practical skills" to "create and interpret with graphs", "work with data", and/ or "explain the results and meaning of the math/numbers" (O'Neill & Flynn, 2013, p. 340). The four EIs under academic challenge are focusing on different dimensions of academic efforts (Rocconi & Kinzie, 2013).

Learning with Peers.

Learning with Peers is composed of two EIs: Collaborative Learning and Discussions with Diverse Others. Collaborative learning could trackback to Vygotsky (1962, 1978), Dewey (1938), and Piaget (1951) (Davidson & Major, 2014). Often considered the opposite to competition, collaborative learning is a self-managed group that shares the same goals, works with respect, group members contribute personal strengths, not necessarily interdependently, and members take substantial responsibilities (Davidson & Major, 2014; Panitz, 1999). Collaborative learning is also in contrast to passive learning (Robbins & Hoggan, 2019). Collaborative learning could help students improve their thinking skills, communicating skills, the ability to work with others; moreover, they could explore their knowledge, have a deeper understanding of course content, assignments, projects (Boud et al., 2014; Goodsell, 1992; Robbins & Hoggan, 2019).

Peer relationships influence students in diverse ways, including school connectedness (Astin, 1993; Gowing, 2019; Newcomb, 1943). "students' values, beliefs, and aspirations tend to change in the direction of the dominant values, believes, and aspirations of the peer group." (Astin, 1993, p. 398). Furthermore, "College students' interpersonal interactions with diversity are associated with improved cognitive skills, leadership skills, civic engagement, self-concept,

sense of belonging, cultural awareness, and intergroup attitudes" (Bowman, 2013, p. 875). The interaction and relationship among students have an impact on student engagement from two aspects: learning concept and attitude towards learning.

Experiences with Faculty.

There are two EIs under this theme: Student-Faculty Interaction, and Effective Teaching Practice. Interaction is a significant factor in student engagement. Many studies show the student-faculty interaction has a positive influence on students (Cuseo, 2018). The studies from Astin (1993), Kuh and Hu (2001), and Pascarella (1980) indicate that student-faculty interaction is positively related to students' satisfaction with college, personal development, academic achievement, and cognitive growth. Student-faculty interactions could be in and out of class, academic or non-academic interactions. The more students interact with faculty, the more benefit students will gain. There are different kinds of student-faculty interactions, for example, "ask Info related to the course, discuss term paper or project with faculty member, talk with faculty member, have coffee, cokes, snacks with faculty" (Kuh et al., 1997, p. 450). However, not all kinds of student-faculty interactions have a positive impact on learning outcomes. Rather, the interactions related to academic knowledge, value, or career have a prominent impact. (Hu & Kuh, 2001; Pascarella & Terenzini, 1978). Accordingly, qualitative non-classroom student-faculty interaction is meaningful for students' satisfaction with institutions and their success.

Campus Environment.

There are two EIs under the theme Campus Environment: Quality of Interactions and Supportive Environment. Qualitative of Interactions focuses on interactions with important people from educational institutions, like advisors, faculty, and staff (NSSE, n.d.; Rocconi &

Kinzie, 2013). Studies showed that qualitative interactions have an intellectual and academic impact on students (Astin, 1993; Cole, 2007).

Environment involves "characteristics of institutions; curriculum; faculty; the peer group; residence, major, and financial aid; and student involvement " (Astin, 1993, p. 33). The environment includes interpersonal interaction and the interaction between students and their surroundings. Positive interaction and perspectives from students will influence their satisfaction and sense of belongings (Astin, 1968, 1993), and how they spend their time (Kuh et al., 2006).

Chapter Summary

This thesis started from 2020, therefore, it considered the effects of multiple school-system closures or other events that have transpired since early 2020. According to UNESCO (2020) the COVID-19 impact on education is global, and the largest influence was in April 2020. There were more than 1.5 billion learners and students worldwide, from children at early childhood education, to students at tertiary education affected by the global pandemic. Almost 90% of schools from 192 countries were closed due to the pandemic, COVID-19. The entire society was forced to pivot into emergency remote education rather than what was the dominant delivery mode of F2F learning.

While remote education has long been a consistently growing subfield in higher education (Bower & Hardy, 2004; Seaman et al., 2018), the outbreak of COVID-19 has made ERE a global phenomenon (Hodges et al., 2020). For most educational institutions, educational practitioners, and students, the experience of ERE is the experience of remote education, but in reality, the two are very different (Hodges et al., 2020; Williamson et al., 2020). ERE is not the same as traditional distance education, which is fully developed and most of the time is supported by dedicated personnel, whereas ERE is more ad hoc and is a means of responding to

a crisis (Hodges et al., 2020; Means et al., 2014). ERE is done by educational institutions, administrators, faculty, staff, and students with little background in remote learning; it is an abrupt shift without transition and is forced in nature.

The foundation of previous studies is the coexistence of F2F and online; F2F and online are a matter of choice for students (Bozkurt et al., 2020). Under this premise, previous studies on student engagement have accumulated rich cases and profound theories. When society is facing a social security crisis like COVID-19, online education becomes the main teaching modality, however it is not effectively structured as online education (Brooks & Grajek, 2020). What we are using is something that researchers are calling ERE. ERE is compulsory (Bozkurt et al., 2020), at this time in higher education, and is different in purpose, format and efficacy from the premise of previous studies in either online learning or F2F learning. This compulsion is also reflected in educational technology, where COVID-19 forces educators and the educated to collectively embrace/try new educational methods and use new technology and tools. For students, F2F and online learning is no longer optional. This situation has never occurred. In ERE teaching modality, the study of student engagement in learning is still unknown. This constitutes a gap in the research.

Chapter Three: Methodology

Research Question

This research focused on questions related to student engagement. Using the Critical

Incident Technique (CIT) to fill a research gap because few pieces of research have studied

student engagement in F2F and ERE. The research questions were:

1. From students' perspective, are there differences in student engagement, when the

   same courses are switched from primarily F2F teaching to ERE modalities?

2. What are the main reasons causing these differences?

Participants

In the beginning, I was planned to employ snowball sampling to recruit participants,

because snowball sampling is an extremely valuable and often necessary sampling technique

(Waters, 2015). Further, as Noy (2008) stated: "in snowball sampling, the researcher relinquishes

a considerable amount of control over the sampling phase to the informants" (p. 332); by doing

this, the data collected in this study could be more dynamic. To recruit participants, an

introduction letter, as shown in Appendix A, was posted through Moodle in the graduate

program in the Faculty of Education at Thompson Rivers University, which had 425 registered

students. The study concentrated on graduate students; however, it was difficult to recruit

participants through the purest theoretical snowballing in the Faculty of Education as many

students just responded to me directly, rather than recruiting other students. I conducted

interviews with all the students who responded to me initially, and also asked them to introduce

classmates or friends in the Master of Education program who might be interested in attending

the research.

The sampling was focused on graduate students in a Master of Education Program. Studies show that graduate students have higher levels of self-efficacy and autonomy in learning, and their critical thinking skills are better than undergraduate students (Bissessar et al., 2019; Zascavage et al., 2007). Therefore, graduate students are skilled in learning methods, have strong independent learning ability, and have fewer influencing factors on the study, which could reduce the interference factors for the data.

Moreover, there are different learning strategies in F2F and online learning students; for example, students often need to be more motivated, independent, and organized in online learning if they are to achieve a similar or a better outcome as F2F learning (Phipps & Merisotis, 1999; as cited in Summers et al., 2005). Therefore, students who shift from F2F to online learning may have difficulties, especially for students, who do not have the experience in an online learning environment.

Thirdly, in 2020, nearly one-third of on campus students at TRU were international students (Thompson Rivers University, 2020a). In the learning process, the influence of SE can be significant, especially for international students as they may face many challenges. The shift to graduate studies is a beginning of a different sort, however, many students find the increased expectations for reading, writing, independent thought and intensive course or research a challenge (Küçükali, 2019; McClure, 2007). In many ways, students begin again – older, and with an undergraduate degree, but inexperienced in this new environment. One of the main challenges is the language, both in the academic and social contexts (Rodríguez et al., 2019). The other main difficulty for international students is the cultural difference, includes their academic experience (McClure, 2007; Rodríguez et al., 2019). Students have different expectations

according to their academic experiences; especially, when they experience a new education system, they find it hard to figure out the appropriate way (McClure, 2007).

Flanagan (1954) mentioned that the sample size related to the nature, the variety, and quality of the critical incidents, but not the number of participants. Further, Thomson (2011) pointed out that redundancy happens when the number of participants between 10 to 30. Ultimately, ten participants were recruited in this study. Most of them were international students, some were in their first year, and some were in their second year of the graduate program.

Critical Incident Technique

The Critical Incident Technique (CIT) was used in this study to figure out the critical factors that influenced student engagement in the online learning environment from students' points of view.

The definition of the Critical Incident Technique (CIT) is:

…a procedure for gathering certain important facts concerning behavior in defined situations…a set of procedures for collecting direct observations of human behavior in such a way as to facilitate their potential usefulness in solving practical problems…The essence of the technique is that only simple types of judgments are required of the observer, reports from only qualified observers are included… rather than collecting opinions, hunches, and estimates, obtains a record of specific behaviors from those in the best position to make the necessary observations and evaluations (Flanagan, 1954, p. 327 - 355).

The CIT is widely employed in different research areas, such as such as "counselling (Dix and Savickas, 1995; McCormick, 1997), education and teaching (LeMare and Sohbat, 2002;

Oaklief, 1976; Parker, 1995; Tirri and Koro-Ljungberg, 2002)…organizational learning (Ellinger and Bostrom, 2002; Skiba, 2000), performance appraisal (Evans, 1994; Schwab et al., 1975)" (Butterfield et al., 2005, p. 475-476). In educational area "… employed with teacher-pupil relations (Peterson, 1963), selection of student teachers (Ferero,1971), curriculum and teaching practices (Hageman,1973), and teacher efficiency as a result of effective teaching of student teachers (Stewart,1956)" (Reed, 1976, p. 8-9).

Furthermore, the CIT is an exploratory qualitative research method, which is reliable and valid (Andersson & Nilsson, 1964; Woolsey, 1986). The definition of qualitative research from Denzin and Lincoln (1998) is:

> Qualitative research is multimethod in focus, involving an interpretive, naturalistic approach to its subject matter. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them. Qualitative research involves the studied use and collection of a variety of empirical materials—case study, personal experience, introspective, life story, interview, observational, historical, interactional, and visual texts—that describe routine and problematic moments and meanings in individuals' lives (p. 3).

Given the purpose of this study, CIT appeared to be a good fit because the data was collected through interviews, observation, or qualitative questions and interpret the incident from the participants' point of view (Cresswell, 1998; as cited in Butterfield et al., 2005).

Flanagan (1954) emphasizes that CIT does not have strict rules to follow but use the most appropriate approach and procedure to meet the particular research areas. This study used interviews, as Seidman (2006) suggests that if researchers want to know more about the subject's

experience and understanding of one theme, interviews might be the best method. The interview allowed the students to describe if they feel their engagement have changed from F2F to online learning, and why.

Data Collection

According to Creswell (2015), researchers must receive the approval from the institutional review board, because qualitative data collection involves collecting individual information. Before conducting the interview, I got the approval from the Research Ethics Board, as shown at the Appendix B. Further, all the participants have signed the consent form before conducting the interview, as shown at the Appendix C.

Due to the pandemic, data was collected through online interviews. Topic-related interview questions and probing questions are shown in the Appendix D. Most interviews were conducted through Microsoft Teams; for a few participants, who could not log into Microsoft Teams, the interviews were conducted on Zoom. At the beginning of each interview, I briefly introduced the research and the participant's right; then I conducted the interview. All the interviews were recorded on audio.

Data Analysis

For data analysis, I followed Creswell (2015) and Saldana (2016). First, I transcribed each interview. Then for the first cycle coding, I employed value coding and subcoding coding methods, as the value coding is appropriate for exploring participant's attitude, and the subcoding could improve the detail of the categories of data (Saldana, 2016). After coding every interview, I listed all the codes in an excel sheet. Then I did the second cycle coding. "The primary goal during second cycle coding is to develop a sense of categorical, thematic, conceptual, and/or theoretical organization from your array of first cycle codes" (Saldana, 2016,

p. 234). Because Friesen and Young (1985) experienced problems while conducting their research with CIT; they found that they need a theory to classify their data, and then they started with a conceptional structure to categorize their data (as cited in Woosley, 1986). Further, Flanagen (1954) listed three points while summarising to improve the validity of the data: " (a) the selection of the general frame of reference…(b) the inductive development of a set of major area and subarea headings; and (c) the selection of one or more levels along the specificity-generality continuum" (p. 345).

Therefore, by coding, this study uses the CoI framework and the Engagement Indicators (EIs) of the National Survey of Student Engagement (NSSE) as the reference to categorize the main and sub-themes and determine the specific incidents; by doing this, this study ensures the specificity and objectivity of the data from the interviews. There are ten EIs are listed under four themes, as seen below in Table One.

Table 1

Engagement Indicators as identified in the National Survey of Student Engagement

Theme	Engagement Indicators
Academic challenge	
	Higher-order learning
	Reflective & integrative learning
	Learning strategies
	Qualitative reasoning
Leaning with peers	
	Collaborative learning
	Discussions with diverse others
Experiences with faculty	
	Student-faculty interaction
	Effective teaching practices
Campus environment	
	Quality of interactions
	Supportive environment

Kuh (2003) highlights that NSSE data can demonstrate the level of student engagement in different academic activities. One significant indicator is that increase student-faculty members and student-student interaction can improve student engagement (Kuh, 2003, 2009; McCormick et al., 2013). For example, Padgett et al. (2010) also mentions that interaction with faculty and other students motivated student engagement (as cited in McCormick et al., 2013).

This study will follow the five steps of CIT: (1) determine the aim of the activity to be studied; (2) set plans, specifications, and criteria for the information to be obtained; (3) collect data; (4) analyze the thematic content of the data; and (5) report the findings (Flanagan, 1954; Woolsey, 1986).

This research will use the CIT citing the engagement indicators (EIs) from the NSSE as the research framework or trigger to study the research questions.

Positionality of the Researcher

As explained earlier, I was experiencing the ERE while I started the research. It is important to highlight that this study aimed to support both instructors' and students' teaching and learning practices, to identify factors influencing student engagement in the ERE. The study used the CIT to conduct interviews neutrally. Moreover, I applied the engagement indicators of the National Survey of Student Engagement and the Community of Inquiry model as the theoretical framework. However, the results of this study might have the potential possibility to be influenced by my previous understanding of ERE and student engagement, and my perspectives as a student who was also engaged in study.

Reliability and Validity

To ensure the reliability and validity of the research, first, I did member checks, as the member check is one of the ways to improve the validity of qualitative research (Merriam,

1995). After transcribing the interviews, I contacted the interviewees to check the transcripts. I sent the recordings and transcripts to invite them to check either the transcripts or compare the transcript and the recordings, all the participants had confirmed positively that the transcripts were the same as they said in the interview. Moreover, during transcription, I found some words were not clear, or the recordings were broken off; therefore, I asked the interviewees to clarify. Examples are shown in the table two.

Table 2

Examples for Interview Clarification

Transcript in the first version	Requirement for clarification
"…and like I mentioned before… to Canada"	Because the recording is damaged in this part, some words are missing, can you please fill them in?
"The teacher can see you in the classroom, if you are lazy or tired, the teacher will behave."	Does the word "behave" the right word in this sentence? Could you explain it, please? What do you mean?

Second, I also conducted an audit trial strategy. "In order for an audit to take place, the investigator must describe in detail how data were collected, how categories were derived and how decisions were made throughout the inquiry" (Merriam, 1988, p. 172). Reflecting on Merriam's suggestion, as one of my audit strategies, after finishing my first interview coding, I explained it to my supervisors thoroughly. I interpreted the transcript to my supervisor on an anonymous basis and explained how and why I coded and categorized the data. After receiving

the professional feedback from my supervisors, I recoded the interview and confirmed with them

again. This process improved the reliability of this study.

Chapter Four: Results

This chapter will summarize and describe the critical incidents of interviewees related to the research question:

From students' perspective, are there differences in student engagement, when the same courses are switched from primarily F2F teaching to ERE modalities? What are the main reasons causing these differences?

In accordance with the definition of student engagement, the CoI model, and the Engagement Indicators from NSSE explained in this study, incidents are summarized in three main themes and ten sub-themes. Table three below presents the data in a holistic view. Each main and sub-theme will then be introduced with participants' incidents discussed in detail.

Table 3

Categorization of Data

Themes	Sub-theme	Frequency of Mentions
Teaching Practice		
	Technology	7
	Course design and organization	19
	Student-faculty interaction	14
Learning Behaviour		
	Learning with peers	15
	Cognitive engagement	5
	Learning intensity	5
	Learning strategies	5
	Social interaction	12
Supportive Environment		
	Campus support	2
	Program support	3

To protect the participants' identities, quotes from the interviews will present information without mentioning any course names or names of instructors; further, quotations will be adjusted for ease of understanding and grammatical accuracy, without altering the original meaning of the interviewees. Adjustment examples are shown in the Appendix E.

Teaching Practice

Building on the definition from the CoI Framework, 'Teaching practice' in this study includes pedagogical and social elements related to teaching activity. Namely, these activities include designing and delivering courses both in and out the class time. In this study, students experienced both synchronous and asynchronous courses and shared their opinions and experiences about these types of teaching modalities.

Technology

The sub-theme technology contains the technological elements of the hardware and software needed to implement online teaching and learning, as well as the impact of technological elements in the teaching context. Since students were experiencing ERE, which relied highly on technology, the topic of technology was commonly mentioned by the participants in the interviews. Students faced many dilemmas when encountering technologies in the online environment, and they had both positive and negative experiences which shaped their engagement. Many shared how technology positively impacted their experiences. As one student shared:

> I also can learn a lot of things from the online course. I am more familiar with the use of electronic equipment. I think in the field of education, more schools are gradually increasing the use of technology in the classroom, so this helps me keep up with the learning mode of future students ...For example, I took a course called …and in the

course, the instructor introduced us to many different apps to support our classroom

teaching. And for me, I think the most impressive one was called "add a puzzle".

Teachers can use that app to create interesting videos and course content for students. In

remote learning, it will increase the student's interests without board. (Student 1)

Another student shared a similar positive experience as well, and described experiencing

new online tools the instructors used and what she learned:

Instructors in emergency remote education will offer more resources, more platforms like

BigBlueButton or Zoom, or other kinds of online instruction platforms. They offer

breakout rooms. We learn something new. We need to work with PowerPoint, Google

PowerPoint, Google Docs. It's kind of new experience. We learn new technology things.

It means that we become more technological person. It's good. We know how to use

technology tools. We learn to be more of a digital people. I learned how to use the

BigBlueButton and Zoom, how to share screen while doing a presentation, and how to

use Jamboard to share ideas. (Student 3)

Another student highlighted her positive change in ERE, sharing she had become more

confident over time, and more willing to share her ideas in class.

I think most people afraid of speaking in the public, or at the front of the group. English

is my second language, and it is easy for me to feel nervous, especially speaking in front

of lots of students. So, in the online course, I can turn off the camera, and share my voice

with the students, which increases my courage to express myself. Because I cannot see

any faces of my classmates, I do not know what they think, which makes me feel more

relaxed. (Student 5)

And though students shared that they were excited to learn new technology, felt confident to share thoughts and opinions in class at the same time, they also had unpleasant moments because of technical issues. A student mentioned:

Last semester I had a presentation to introduce an article to the group members. I found a related video to better explain the concepts in that article, but when I shared my screen to play this video, my group members said that they could not hear the video. So, I sent them the link. This was the first technical problem I encountered with. The second problem was when my group members were watching this video, the teacher came into our breakout room to listen to my presentation. Of course, there was silence in the breakout room because I was waiting for my group members to finish watching the video. But the teacher thought I didn't say anything in the 30-minute presentation. So, the teacher sent me a message in the chat box, L (student's name), you should talk with your group members and not just let your members see your PowerPoint. When I saw this message, the teacher already left our breakout room. So, I was very sad because I had prepared for a long time for the presentation and was misunderstood by the teacher. (Student 1)

Another student shared her experience regarding technical problems. "I don't trust Moodle with my assignments. Just today I had an experience where I thought I submitted my PDF and it all went through fine, but my professor didn't get it" (Student 2). Students living beyond the Canadian border were also facing more difficulties. A student living in China shared two examples of how internet connection has influenced her engagement in online learning. One example was "In China, we have network restrictions. So, sometimes, when a teacher delivered a

link, I could not open it. Sometimes, it was hard for me to learn something because some websites I could not open" (Student 5). Another example was:

> I need to use VPN. Sometimes, I lost the connection because my network was unstable. Once, I got disconnected from my network when I asked a question, the teacher explained it and asked a question back to me. But, at that time, there was something wrong with my network. I got disconnected, I could not answer the question, I could not hear it. When I logged in again, they already entered the next part. I missed that part. (Student 5)

One other student felt that the online meeting session took extra time and energy from him, which he did not get used to.

> ... one of the big ones is adapting and getting used to Zoom and Zoom meeting sessions, and lots of video conferencing and all. While it didn't seem like a big adjustment to the learning structure or habits, it does take away and depletes a significant amount of my energy...took more naps and try to rest up for the online work...those online social dynamics and video conference calls had just required me to adapt to the new learning environment. (Student 9)

So as highlighted above, technology is a double-edged sword. On the one hand, technology provided instructors with various tools and opportunities to diversify the online teaching classroom form, generated students' interest, and ultimately improved student engagement. On the other hand, technology constraints may have limited some elements of instructors' delivery of courses and course materials; and may have caused confusion among students, which might have influenced student engagement. Additionally, students who were learning in international settings may have faced increased barriers to access their course

materials, which directly or indirectly influenced their engagement, especially when the barriers were out of their control.

Course Design and Organization

The sub-theme 'course design and organization' refers to how instructors design and organize the courses. In this study, the critical incidents under this sub-theme relate to students' experiences and perspectives with the course outline, synchronous and asynchronous courses, length of lectures, type of teaching, and teaching content.

Course Design.

Depending on the course content, instructors designed the courses differently and used diverse ways to organize the courses, therefore, students had distinct experiences and perspectives. They had positive experiences with the organizational forms of online teaching while at the same time facing some challenges. As one example, a student found one course was interesting because it aroused her curiosity. She shared that "The course made me very curious. The teacher assigned some thinking assignments before the class and then she explained them during the class. This made me curious about whether my thinking was correct and willing to participate in the discussion" (Student 8). Another student mentioned how she benefited from the novel class organization of the online course:

> When I logged into Moodle, for today, I was going to read maybe four articles and wrote a summary. All the materials I thought the teacher prepared really well…The professor listed a lot of things. And sometimes, she even invited her professor to be the guest speaker, and we could interact with him. Actually, the article we read was written by him, which was really amazing too. I don't think we'll be able to do that in the face-to-face course. (Student 7)

Another student also had a positive experience with the novel organizational form. He felt that the instructor delivered the course flexibly. He enjoyed that course:

Last fall, in one of my courses, the instructor was doing a sort of combination way. He posted everything on Moodle. He recorded all lectures with voice-over PPT presentation. So, we had access to course materials at any time…That was a great combination…For example, for whatever reason, I had a meeting on that day, or I was sick, or whatever I didn't go to that section, and the instructor provided asynchronous video or anything before or after the course, it was still giving me the option to go back and study it. (Student 10)

He also specified why he preferred the recordings of lectures. "... I'm an international student... I'm not so confident with my professional part of English... my instructor was doing the synchronous and asynchronous combination...This was the amazing part of the asynchronous course. I could stop the presentation anywhere I wanted" (Student 10). Another student held a similar opinion. She described an experience:

The instructor was very good…And he offered very brief but not short synchronous classes, it was very clear with the main point. So, I think it was very clear to me because I knew what I should learn in that lesson, what I should do for the assignment, what I should ask, or what I was not clear about. (Student 3)

However, another student had an opposite experience. He felt the course was not designed for online context, was not well organized, and was not flexible. He said:

...because this course relied heavily on students being physically in the area of Kamloops...and because we were not able to do that...The best word I can describe, it's a little clunky. It's not smooth and a little scattered...it was rushed, because the professor

only released the weekly modules on Sundays and expected us to read the content for

Monday's synchronous class. Additionally, the modules were not well laid out, and it

confused when navigating between weekly content. The professor was great, but I think

that there were even challenges for him to know how to translate the teaching content to

fit online learning. So, it didn't feel as though there was lots of meaningful engagement

with the content. (Student 9)

At the same time, he had positive points of view of one course because the instructor

offered the opportunity to reflect cognitively:

It was a lot of reflective work, and some of them required that each of us went out into

the physical land that we lived on, reflected in nature, and then brought those reflections

into assignments. So, that…stimulated my learning, and made me excited to be enrolled

in this class. (Student 9)

Higher-order thinking was what another student expected. He was unsatisfied with the

instructor because the instructor asked lower-order questions during the class, which made him

reluctant to engage in class. Another student had an unpleasant experience with one of her

courses because the course was different than she expected: "… The teacher assigned us to do

presentations in class but did not explain the topic to us… I registered for…but the teacher didn't

give any valuable information about that" (Student 4). Another two students were upset because

instructors delivered only asynchronous courses (Student 5, 10). They did not enjoy

asynchronous courses, felt difficulty when they had these courses because there were no class for

them to ask questions.

Asynchronous courses and courses with short or insufficient preparation times increased

the burden on students and reduced their engagement. Students preferred synchronous courses

because they could communicate with instructors and classmates about course contents. They benefited more if instructors designed the course suitable for the online settings, such as giving a clear curriculum schedule and instructions and offering flexibility.

Synchronicity in Course Design.

Like F2F teaching, instructors organized online courses in various ways. Students had some of the same and some different opinions about online courses, based on their personal experiences. In this study, some of the students preferred synchronous courses, while some of them did not.

A student shared her view on the form of online teaching. First, she believed that instructors should offer synchronous courses like the school schedule on the system. She said "...She (the instructor) was very good and very responsible. She offered about two-hour synchronous classes twice per week, so it was exactly like what the TRU schedules offer. So, I was happy with that instructor" (Student 3). Then she explained in detail why she enjoyed the course, not only the instructor offered the courses as scheduled, but also the way the instructor organized the courses. First, the course was well designed. The instructor posted all the materials on Moodle so that students could get a holistic view of the whole semester and work through the materials at their own pace. Second, the course was diverse. The instructor organized the synchronous courses through various activities and teaching tools, such as breakout rooms for group discussion, and Jamboard for brainstorming. Third, the instructor offered an "interactive environment" for students to share their opinions (Student 3). She mentioned that all these factors contributed to her engagement in that course.

Another student also mentioned that because of the way the instructor organized the synchronous course, he became more active and engaged in the class and more willing to express his opinions in class. He stated:

> ...this semester I have a teacher who teaches an online course for the first time. I can feel that ... later, I felt that she found a way to make the classroom more alive. After half of the semester, she began to interact with students and set up some interesting activities for the students to interact. And also, in the process of communication, she always encouraged students to speak. Sometimes, she also put some students' excellent assignments on Moodle and studied them with other students in the class. I think this really made students participating more actively in class. And it also improved the students' confidence. I really improved my confidence, and I was willing to share my ideas and my thoughts in the class even I said a wrong answer and the teacher also gave me a very good comment on my speaking. (Student 1)

Students experienced different kinds of synchronous courses as well. Few students had non-mandatory synchronous sessions only for questions and answers about their assignments, or nothing related to courses. For example, a student said that in one of his courses, the instructor did not deliver course related synchronous session, rather spent this time socializing with students. Further, he emphasized that he did not acquire enough new knowledge from that course as he expected because of the way the instructor organized the course (Student 1). This showed that students were expecting to have synchronous courses to learn. Another student had a similar experience, and she felt that it was "frustrating" and "unfair" for students if the instructor did not offer synchronous courses as scheduled (Student 3). She described one of her courses:

One of the instructors gave short synchronous classes, like Q&A. No lecture, nothing. In the Q&A she asked something like "do you have any questions about the assignment", that's it...She posted materials, and materials were poor. I mean, she just wanted to make sure that we could complete the course by doing assignments...She did not require students to be present in her synchronous classes...So you can imagine that no lecture, no real classes, Q&A just about assignments, and no requirement to be presented in the courses...the course was like nothing. Students had no motivation to show up just for questions and answers for assignments. I attended a couple of times, not all because I was very disappointed and angry with what she was doing. I expected more rather than just Q&A. I got a very good grade for that course. But I felt that the instructor did not do her job properly and responsibly. In the synchronous classes, she was just chit-chat. I felt that it was unfair for the tuition fee I paid. (Student 3)

This student also shared another similar type of course organization but with a different experience. She was disappointed because she was expecting that instructors offer synchronous lectures online:

Another course still came up with Q&A synchronous classes, but a bit different. We could talk and discuss the course materials, and we could ask questions about that content and assignments. The Q&A was more general. The materials, she offered were very rich and diverse. I learned a lot from that course because the materials were very good, and they were very informative. So, I learned a lot, but I still expected that she could offer more than just Q&A. (Student 3)

Another student shared a similar experience with one of her courses, how the instructor organized the course:

One course, the teacher introduced a textbook. He assigned us to read one or two chapters each week, but he didn't explain the topic, and he didn't write any summary of the chapters. We should go through the chapters and read ourselves...Before each big assignment, he held an online class...In classes, the teacher just talked about assignments, and we asked questions about assignments. We didn't have any discussions about topics and theories related to the course. If there is no question, he just explained to us the details of the assignments. (Student 4)

She also shared another unpleasant experience with one of her courses because the course was different than she expected:

I had a course in winter, the teacher designed five or six online classes, and each class was three hours. The teacher assigned us to do presentations in class but did not explain the topic to us. I registered for this course to know how I can deal with…but the teacher didn't give any valuable information about that. This class was designed for doing presentations and assignments. In-class presentations from some students were not related to the course at all. But the teacher didn't care about that. When students did presentations, she gave them the score, but she didn't tell them that this topic was not related to the course. And not only me, but also other students couldn't connect this course to some of the presentations. I choose the topic...but the teacher didn't explain that before. That's why I think this course was not helpful for me. I didn't gain any knowledge in this course. (Student 4)

Another student was upset because the instructor delivered only asynchronous courses. She felt difficulty when she was in the course.

I took the course of...we only had asynchronous courses. The instructor recorded lectures,

uploaded them on Moodle. We just downloaded lectures and listened to them...It was not

good for me because when I had a question about any topic, I had no chance to talk with

my peers or the teacher, I thought by myself. It was a bit hard for me because it was a

new course... so I hoped some of my classmates or my teacher could help me when I had

something difficult. When I could not understand something, I didn't get any help. So, I

did not like that feeling. (Student 5)

Another student shared a similar experience: "All we did was read and listen to it (pre-

recorded PPT) and then write a paper." (Student 10). He also mentioned that although some

instructors offered synchronous courses, they "sat at the front of cameras and then read the

PowerPoint presentation". He also had some different opinions about how instructors should

organize the synchronous course, and he gave two examples.

The first example was: "One instructor took 30 or 40 minutes to introduce classmates and

on greetings…asked each of them to turn on the camera and introduce themselves...a huge waste

of time". The second example:

One instructor would take a 30-minute break. We were doing a night course here. We

started at 5:30 pm or even 6:00 pm and finished at 9:00 pm. And you were taking 30

minutes break, did that make sense?... the teaching was ok, but she needed to fit herself

into the new teaching pedagogy, a different approach. We were all sitting in front of a

computer, what was the point to take a 30-minute break. (Student 10)

Sub-Theme Summary.

Although online courses are different from F2F, the students' desire for knowledge was

the same. In this study most students shared that they prefer synchronous lectures, but the design

and the organization of the synchronous course were critical because they directly affected student engagement. Students felt more relaxed and willing to engage in-class activities if the course design provided clear guidance, and instructors provided appropriate explanations to students during synchronous lectures which deepen students' understanding of the course materials through appropriate course organization. If the design and organization of courses were not coherent for students, confused them, or if the instructors did not provide an academic-type communication platform for students in the course design, students would feel more overwhelmed by the courses.

Facing a new teaching environment, students can feel instructors' efforts and difficulties, at the same time, they also expected that the instructors to adjust their organizational form in class to the online teaching environment. For students experiencing online classes for the first time, many were more comfortable with the familiar course organization similar to F2F courses.

Student-Faculty Interaction

According to the definition of 'student-faculty interaction' from NSSE, this sub-theme involves the academic interactions between students and instructors, including verbal and written communication. In the online environment, students recognized that the interaction with instructors changed both in and out of class, compared to a more traditional F2F class. Some students felt that they had more opportunities to interact with instructors. For example, a student said:

… now I was able to make appointments with them (instructors) and had their detailed feedback. I did a few times. Anytime I reached them, they were available. Because of the online course, they assigned us a lot of readings and summaries, and then they always gave us timely feedback, which was really helpful. (Student 7)

Another student held the same view. She felt that she received more guidance from instructors in online learning because "instructors also understand that there are a lot of things that students may not be able to understand" (Student 6). One example was:

>...the comments of the instructor were not very clear. I was not able to comprehend what the instructor was trying to say, so I had mailed my instructor and asked if he could explain to me the meaning... He rapidly replied and said that it was difficult to discuss things by email, let's just talk to each other, and he scheduled a meeting. He started explaining every comment of what he was expecting, what I had done, and what I could do differently. So that was quite interesting because I think this would not have happened if it would have been in the F2F class. (Student 6)

In this online learning environment, students shared that they communicated with instructors mostly in written form. For example, in the synchronous courses, students typed their questions or answers in a chat box. In the asynchronous courses, students communicated with their instructors mostly by email and occasionally via Moodle message. Some students interviewed felt that communicating by email reduced the efficiency of their communication with their instructors and increased the learning difficulty, especially when they did not get timely feedback from their instructors. A student stated:

>I remembered at a middle term my instructor asked us to complete a paper. After reading the outline of the paper, I was confused about whether I could use my thesis statement, but I didn't receive any response for three days. I got to start writing my paper with uncertainty. I didn't get a reply until finishing my paper...it increased the difficulty of the assignment. (Student 5)

She also shared another similar experience: "The assignment's outline was not clear. And I sent an email to the instructor, but the response was delayed. So, I didn't submit my assignment on time. I think this kind of learning was a waste of time" (Student 5). Another two students felt the same way. They believed that email was inefficient and took extra time communicating with instructors because they needed at least one day to receive instructors' replies (Student 2 & 6). Furthermore, there were times where along with instructors' initial response, new questions arose, and either they wrote back to instructors, or they did not have time to wait for further replies. Students also shared that instructors misunderstood the information by email. One student noted:

> I sent an email to my instructor looking for some help. Because I had some English writing problem, I thought my instructor understood what I said. But my instructor replied to me that L (student's name), you needed to do it by yourself, not let me help you to finish this project. But I didn't mean that, I meant some help on the project. (Student 1)

> Another student was facing difficulties communicating with her instructors in online

learning in general. She felt that she "got less valuable information by email" and she added up "It seems that some of the teachers did not care about the requirements of the students in the online class" (Student 4). She supported her argument with several examples. One example "Once I sent several questions to my instructor, a few days later I received his answer. He just answered my last question and ignored other questions". A further example "In another course, I asked questions, and the teacher said that you already in Master, and should search for the topic yourself, figure out your problems, and find out your answers. And it was like that she made an excuse". And she also experienced a few times that she did not get enough information as she expected. For example, "In another course, I wrote the instructor a message, asked for detail

about the assignment, but he just repeated the topic while I need more detailed information". The difference in written skills and expression, as well as the lag nature of written communication, could make students feel that they were not receiving enough attention from the instructor.

Restricted time was also a factor that affected student-faculty interaction in online education. Some students stated that synchronous lectures were shorter than F2F lectures, for this reason, they would only ask crucial questions to avoid taking up too much of their classmates' time. In some cases, even if they did not fully understand, they did not continue to ask questions. A student shared one of her experiences:

> I asked for an appointment with my instructor for one assignment. I asked if I correctly approached the assignment, but she misunderstood my question and explained it in another way. But the more she explained the messier it was... I did not feel that I should ask further. She was not an open-minded instructor and not a good listener. And I only had 30 minutes with her. It was not a qualitative appointment because, after the appointment, I got nothing. ...She said that actually, she was super busy with all researches and teaching the courses that semester. So, it was kind of stressful to have an appointment with her. (Student 3)

During synchronous courses, some instructors only read and explained their presentations, without offering any opportunities for students to ask questions, or interact with each other, resulting in a lack of student engagement. A student stated that it was difficult to "follow the instructor", and sometimes she could not understand what the instructor was saying in class (Student 8). Another two students also found that it was hard for them to engage if instructors went through the presentation during the whole synchronous sessions (Student 3 & 5). A student shared one example:

One day in class, I asked a question, but my instructor had to continue the class because of the time limitation. We just had one and half hour's class, and she had a lot of tasks to accomplish. She told me that we should have another time to talk about this question, we didn't have time for this now...I didn't make an appointment because at that moment I wanted to ask the question, but when I missed the time, I didn't want to ask this question anymore. I was not passionate anymore. (Student 5)

Students subjectively perceived less interaction with the instructors due to time constraints in and out of class, the students' English competence, instructors' type of teaching, instructors' accessibility, and instructors' timely response rate. These factors influenced student-faculty interaction in online learning. In this case, for students to feel less distanced, they would prefer to have more interaction with instructors. Due to the characteristics of asynchronous communication, such as emails, it was hard to reach the effectiveness as synchronous communication, such as F2F communication. Although in online educational settings, students still expected the interaction as in F2F. In all these interactions, students were sensitive to the timeliness of communication but overlooked the difference between different forms of synchronous and asynchronous communication and the applicable scenarios, which in turn affected student engagement.

Learning Behavior

This theme is related to students' academic and non-academic learning-related behavior and activities, including positive incidents that increased their interest in learning, and the barriers to learning in the online environment. Five sub-themes from the data have been identified including learning with peers, cognitive engagement, learning intensity, learning strategies, and social interaction.

Learning with Peers

According to the definition from NSSE (n.d.-a), the sub-theme 'learning with peers' in this study includes group work, group discussion, and factors that help and hinder these learning activities. According to NSSE, students benefit from learning with peers. In this study, students preferred learning with peers, rather than learning alone. They also felt there was a difference in group work between the online and F2F learning environments. A student found that in the online environment students were more considerate of each other.

When we do the project, we have some students from China and also a student from India. We were supposed to do a presentation together, which was hard because we were from three different time zones. First, we tried to used WeChat, but we realized that one student did not really have it, and then we used WhatsApp. We assigned each student some tasks, and then we set up appointments to rehearse together, and we did many times before the presentation. I do not think we would ever do that if in the F2F ... maybe you prepare before, but I don't think we would have liked a couple of weeks to prepare for it together. It took a lot of extra time, but, in the end, it is not only about the presentation, rather we know each other more… We try to understand each other, and because of the time zone, we try to consider each other more. (Student 7)

She also created a study group with other classmates, collaborated with them, and shared that they reminded each other about assignments' due dates (Student 7).

In the online environment, students feel difficulties inherent in group work have some similarities in both remote and F2F learning environments. Issues of responsibility and language are omnipresent. Other issues related only to remote learning included time zones and technology. Few students mentioned that in some of their courses they did not have any

interaction with their classmates. A few students mentioned that because of the time zone issues, they could hardly find a time to gather together to discuss their group work, therefore, they only communicated with email, WhatsApp, or other communication applications, which they felt made communication inefficient. Most students felt that classmates were less engaged in their group discussion or group work. A student stated:

…because three of my group members were in China and I was in Canada, so, we have time difference in the communication… and what they did, was like primary school students' work. In the end, we failed, and the teacher asked us to redo this project. The team members still did not want to work hard on their part. So, I helped them to complete their parts, and I did 99% of the entire project. Then I told them how they should talk about their parts in the presentation. Fortunately, we passed this time. The other group members thanked me, but they did not feel guilty. I think the root reason is the online course... If we were in F2F class, I could see what they did in the process... the instructor would watch us…could see our behaviors and our learning status. (Student 1)

Another student had a similar experience and held the same opinion. She was a bit disappointed when she could not accomplish the group work well because two of the team members did not actively participated, saying:

… we need to present a story in class for five minutes… the teacher explained this shortly and then assigned us to the breakout rooms to come up with stories. We were five people in the group, and one of us should act as a leader, but all of us should take a role as in the story. The problem was that we should make a story about a theme with five characters, but only three of us collaborated and delivered ideas about the story. The other two members said nothing; they were just quiet. And in the end, they said that they had the

same idea. I think this kind of participation did not help us expand our ideas to create a story about a special theme. We had not enough information and idea to enhance our roles to create a five-minute story in the class. (Student 4)

The other two students also had unpleasant experiences with group work. A student mentioned, "My group had five members, two of which never participated in the discussions. The remaining three had to take all the responsibilities so that we could present well in the class" (Student 6). Another student had a slightly different experience, she stated:

There were five people in the group from three countries... We simply divided the assignment into several parts, and then each person did one. One student was stronger, and she gave all the difficult tasks to others, and her task was the easiest, which caused the dissatisfaction of other students. (Student 8)

In the online learning environment, students needed to rely solely on their verbal and written skills because of the absence of expressions such as body language and facial expressions, which decreased student engagement in group discussion. A student stated that she was not able to fully understand the other peers because of some of the differences in wording, ways of expression, and accent during the group discussion (Student 5). In addition, she could not see the other peers' expressions and body language, which increased her difficulty to understand her classmates. Another student clearly stated that he thought that written communication was a waste of time. He explained: "…she (the classmate) kept sending me messages in the chat box to discuss the topic. I think it was a real waste of time and made me felt bored. Typing was slower than talking to each other" (Student 1).

In online learning, forums were a primary means of interaction among students. Therefore, another issue students were facing, was caused by written English. A student

mentioned that it was her first time to comment on classmates' posters on a forum; therefore, she was confused about how and what she should comment on; meanwhile, she also took comments from other classmates personally. An example was:

> ...and I just felt one comment was really strong. I even shared it with my colleagues, I said that I didn't know how to answer that. It was kind of pushy. But then the second class, we turned on the camera and I realized that she (the classmate) was curious about my perspective...but she was questioning a lot why on comment and for me was like a shock. But if in class, I would see her eyes and knew that she was curious about the topic and wanted to know more. But because online, from her words, I felt like it was a little rude. (Student 7)

Another student had "international education since childhood", therefore, she was aware of and sensitive about the language she used for her comments. She stated:

> We had discussion groups in an online posting, but it was quite different when compared to face-to-face...But there were peers who hadn't gone out of their home countries even once. Unknown to other cultural influences, could be difficult to discuss clearly in an online or remote class setting with classmates. Not sure of how they would react or take it personally even if it is a constructive critic...I make sure to end my online discussions, postings, or comments with smiley faces so they wouldn't take it harshly, just in case. (Student 2)

Further, she also noticed that students engaged less in the online discussion, or most of the students just meant to finish the work before the due date rather than provide valuable comments. She explicated:

Our professor asked us to peer review an assignment and gave the rubric ahead of time. But most of us did not follow the rubric, just saying "you did a nice job" or "there was a spelling or font mistake" which didn't cut for graduate level. (Student 2)

In remote learning, another primary means of interaction among students was in breakout rooms during and out of class. However, a student stated that she did not consider the discussion in the breakout room as an interaction because students simply took a turn to express their thought on a particular question, with no interaction (Student 3). Few students stated unequivocally that in breakout rooms, everyone muted at the beginning until one person took the initiative to speak the viewpoint first and began to consult others. Then other group members would express their views. After sharing their ideas, they muted again. However, there were always some students who simply agreed with others and were disengaged. Online discussions often ended up with everyone on mute, waiting for the set time over and back to the main rooms. A student shared an example:

There were four students in the breakout room. And at that time, we turned off our camera, just heard the voice of each other. One group member and I shared something, but the other two classmates were silent. They didn't share any ideas. I didn't know if they were hearing or not, because I couldn't see them...In group discussion online, sometimes I just encountered an awkward situation. (Student 5)

Some instructors also provided breakout rooms for students to discuss directly after synchronous lectures so that students could communicate their thoughts on course contents with fresh memories. Sometimes, that might be a stress for students. A student felt that her classmates were less engaged in the breakout rooms. She explained:

My instructor offered a 20-minute breakout room at the end of every synchronous course that we should work in pairs without the instructor monitoring...I talked a lot in a breakout room to encourage my peers to speak up their opinion, but some people just said OK, so I understand that they didn't want to explain further. Once, after we just logged in, the other peer asked if we could log out because he was tired and didn't want to talk. And I said that it's OK if you do not want to talk more. That happened because after a two-hour class that peer was tired, and then another 20 minutes were too much for him. And without the instructor's monitoring, he did not feel obligated to discuss more. I had no reason to keep him stay. (Student 3)

Relationship or a feeling of familiarity were also factors that influenced peer interaction. A student stated: "If in the group, we knew each other, we could have a very good conversation and I would like to listen to their point. But if we didn't know each other, for the most time, everyone muted themselves" (Student 8).

Students interacted less with their peers in online learning because of the limited time, type of communication, or due to a lack of relationship, or feeling of familiarity. Few students shared positive experiences and enjoyed the novel way of learning with peers. Most of the students preferred F2F communication to verbal communication, and verbal communication to written, as they felt that they could understand each other better. Another factor was that students felt the distance from their classmates in online learning, which made them reluctant to share ideas.

Cognitive Engagement

Combined with the definition in the CoI framework, the sub-theme 'cognitive engagement' in this study includes students' learning states in and out of class, as well as the influence of the environment on learning states.

In the online learning environment, students stated that they felt more relaxed and comfortable because they could learn at home or in their "comfort zone," or "comfortable corner". Several students agreed, describing their learning and engaging status as "less pressure," "brainstorming myself," "quite beneficial," and "stimulated".

Some students indicated that they needed more autonomy in online learning because there was fewer instructors' supervision. Students with a high level of autonomy could organize their learning proactively. Students with low autonomy, on the other hand, had significantly less interest in learning. A student noted, "Another important thing was self-control...we needed to figure out the due day for all the different courses. I created a to-do list... I'm learning with more purpose" (Student 7).

However, another two students had the opposite experience. They shared that because they did not need to turn on the camera and lacked instructors' supervision, they were significantly less engaged in class and had less motivated to learn (Student 5 & 8). One of them stated: "I didn't have a lot of power to do my assignments...I didn't even want to write my assignments, and I always finished them at the last minute" (Student 8). She then explained why her interest in learning was lower than in F2F. In addition to the lack of instructors' supervision, she emphasized the importance of the learning environment. She stated: "I needed an immersive environment for me to study, like in a library...At home, I didn't have any time to write my

assignment. I had too many other things to do, like shopping, cooking, and playing video games"
(Student 8). She gave an example:

> The course was interesting, but I felt that the teacher was far away from me without a
> sense of intimacy...There was a lot of interaction in class, but sometimes the teacher
> couldn't notice whether the students were participating or not, so I chose not
> participating...When I talked with my friends, they were also writing their assignments,
> not listening to the teacher...I didn't feel that I was in the class. I just felt that I was
> studying at home and looking at a computer. (Student 8)

Another student had a similar feeling. She said: "...I didn't need to turn on my camera,
just listen. So sometimes I played games, sometimes I shopped online. I knew it was not good for
me, but no one monitored me" (Student 5).

For students, who are independent learners, online learning was successful as they could
proactively adapt their learning approach to achieve the required learning outcomes for courses.
For students with less self-control, creating an immersive online learning environment was more
conducive to focus on courses, reduce other distractions, increase students' interest in learning
and engage cognitively. More important, student engagement also relied on students' attitudes
towards the courses and assignments.

Learning Intensity

The sub-theme 'learning intensity' in this study means the workload and students'
perspective on the workload.

Since online learning is a text-based learning environment (Garrison, 2011), students also
benefited from this learning modality - they strengthened their written English. A student
mentioned that in one of her courses, she got detailed feedback from the instructor which helped

her to improve her writing skills. She noted: "In articles, even in PowerPoint presentations, the teacher explained in detail about my problem, especially in grammar in my writing, and he told me how to fix them. It helped me a lot in my writing." (Student 4).

A few students mentioned that they had "a high reading load and the workload" (Student 7). Another student agreed:

> The teachers assigned a lot of resources and materials to us. We needed to read them, to accomplish the activity in class... So, I had a lot of reading materials to accomplish, about 100 pages per week. All of the materials and resources of the two courses made me feel stressed. (Student 5)

Another student felt the same. She noted: "The instructor could offer like ten materials to read per week, and it was too much...was not clear for me because the topics were very broad, for very big scale...And I wished that he focused more on the key points" (Student 3). In another course, she was both enjoyed and stressed. She indicated:

> The instructor had a very diverse perspective on how to conduct the course. The material was very diverse and informative. There were two readings per week, but the reading was quite long...one assignment, we needed to interview someone in the school district. And then, we summarized the interview, analyzed it based on the theoretical framework we learned from the course...I really liked it, but somehow it was very stressful. (Student 3)

For another course, she felt stressed for a different reason, as the instructor had too many activities during the synchronous courses and assignments (Student 3). She described a typical synchronous class. Before a synchronous class, she needed to finish a summary of the readings. Then during the class, they had Jamboard, in-class discussion, and group discussion after class, to discuss and summarize what they learned. However, she liked the instructor.

Taking full advantage of online teaching and assigning diverse tasks could indeed be beneficial to students. However, like F2F, a moderate workload and focused or explicit instruction of materials and assignments would increase student engagement, as some students mentioned that they read more in online courses than in F2F courses.

Learning Strategies

Referring to NSSE, the sub-theme 'learning strategies' in the study includes students' learning style and their learning time.

Students clearly stated that their learning becoming more organized and efficient. A student noted: "I knew which one was more important, and I would start the assignment a little earlier...I printed the course outline and looked at the due dates, so, I prepared the whole term at the beginning of the term" (Student 7). Another student felt the same way. He noted: "…most instructors had clear deadlines posted on Moodle page...Right now, Sunday automatically became my learning day, from morning to night...I would say, learning was more organized, and the more organized teaching worked, the more organized I was doing my homework" (Student 10).

A few students mentioned that their learning time became longer compared to F2F learning because, in remote learning, their learning relied heavily on themselves (Student 2, 3 & 6). One of them stated:

> Students themselves researched a lot because sometimes you missed what the instructor said or the materials were not sufficient for your understanding...The whole day and night, I was like reading and studying and doing the assignments… So, my learning time arose, which I found quite difficult for me. (Student 6)

However, this did not mean that their learning interest became less. Another student noted: "Learning time become much more...I was more involved with homework, assignments, and meeting deadlines...I was reading and continuing on with my other assignments...I was very much more interested. I had never been so interested in than ever before" (Student 2).

Students stated that they had more reading materials and assignments because they had fewer course hours in online learning. In addition, they had less interaction with peers, most of the time, they were on their own. Therefore, their learning time increased, and their learning strategies changed as well.

Social Interaction

Based on the definition of "Social Presence" in the CoI framework, the sub-theme 'social interaction' in this study refers to non-academic interactions, communication and relationships among students, and the impact of such communication and relationships on student engagement.

Most of the students mentioned that 'social skills' or 'networking' were crucial to them. A student noted that social skills were critical for everyone, especially for the graduate level, since everyone had diverse backgrounds and had a purpose for joining the program (Student 7). Because students were facing different issues in the online environment, they were getting more sensitive to other students' needs. However, most students felt that it was difficult for them to know their classmates, to have personal interaction during and after classes, to be friends with their classmates in the online learning environment. A student stated:

> Gaining knowledge was only one minor aspect of what I wanted. What I wanted was to
> build up personal connections and networks with other people...I didn't know my
> classmates...There were just simply no interactions. We went to the class, opened Zoom,

closed Zooms, etc. We didn't walk for coffee...So how could we even know each other, right? An example could be in my EDUC... course, four of us scheduled a BigBlueButton conversation, we went into the online meeting room, said "hi", worked on the assignment, then left. Many won't open the camera, we didn't see each other, it was all about getting the assignment done, no personal interactions or conversations at all. (Student 10)

Other students felt the same way. In synchronous classes, there was a time limit for group discussions. Four to five students were in a group, and instructors usually gave 15-20 minutes for discussion, and each student had less than five minutes, so there was no spare time to get to know each other (Student 5). In the online group discussions, students only discussed the questions or topics set by instructors, and there was no personal interaction (Student 2, 5 & 9).

The group discussions after class were like the example given by student ten, where students only discussed the assignments, divided the work, and that was it, making it difficult to make friends (Student 4 & 8). A student also mentioned a group assignment that she had. She did not know any of the group members; she found all the members' contact information on Moodle to get in touch with them and then could set up a WhatsApp group to discuss the assignment (Student 4). She also stated that she did not receive any emotional support from other students in the online learning modality, which also led to her lack of motivation to interact with students and participate in courses. She explained:

...I didn't get any feedback that motivated me to go through the activity…but in online learning, I was alone. I needed to do everything by myself, and nobody motivated me to continue and gave me hope…In the F2F courses, my classmates supported me more emotionally as they talked with me...I could not be friends with my classmates through a

meeting online...As an international student, accompanied by other international students provided me a supportive environment. I knew that I was not the only person struggling with these difficulties. By speaking with my international friends, I got motivated and was more confident to continue my path. (Student 4)

Another student also mentioned the feeling of distance from other students. He stated: "...in the synchronous sessions, the majority of people had their cameras off, mikes muted and so that in itself just created a disconnection between like you and the other learners in the class" (Student 9). Another student explained why he felt distance in online learning. He explained:

...I felt I was outside of the class...face to a computer was weird, like we entered a future society too fast. I could only saw my classmates in the very little picture. And they could not show their whole bodies, whole feelings, and emotions from the screen...We didn't have too much communication...I also felt I was like facing many robots. I didn't feel real because even though they could move, they couldn't walk or jump, just sit there. And I could only see half of them, like some GIF pictures. (Student 1)

This sense of distance not only led to less communication and interaction among students but also affected their classroom and group participation. A student said that because she was not familiar with her classmates, she was reluctant or concerned about expressing her point of view in group discussions (Student 8). Because she did not know her classmates, she was not sure what they would think; moreover, she knew that even if she made a mistake, no one would point it out and help her to fix it, and everyone simply expressed his or her point of view.

The main challenge, students were facing in the online learning environment was social interaction. Students did not have enough interaction to get to know each other, leading to a sense of distance. This sense of distance, in turn, affected student engagement and interaction,

resulting in lower participation in group discussion and class activities.

Supportive Environment

Two sub-themes have been extracted from the data: 'campus support' and 'program support'. Academic and non-academic support outside of classrooms from faculty and campus is conducive to student engagement. Students confirmed that the service they receive from each of the library, campus, and program was critical for understanding their course materials and assignments, expanding their knowledge, and increasing their motivation.

Campus Support

Based on the definition from NSSE, the sub-theme 'campus support' in this study indicates the support for students besides their program, such as the library or other departments on campus.

A student mentioned the support she received from a librarian:

...I booked an appointment with her, and I told her that I was struggling with one assignment. I did not understand the meaning of it, and I had to look for some websites outside of the TRU library…She told me that whatever websites and web pages that I have found, I could mail it to her, and she would help me out in finding their authenticity, and if they were good or bad for my topic… She helped me a lot in finding out the right resource from and outside of the library. So that was definitely helpful. (Student 6)

Another student mentioned one workshop, which motivated her. She stated that the workshop was regarding how to keep on with courses, motivated oneself, and keep mental health She enjoyed the workshop and felt the effort from the university offering better support to students. "These workshops, which were ongoing on the campus, were one of the biggest factors which motivated me" (Student 2).

Although students only mentioned two incidents regarding the campus support, they were all positive. The campus support offered students a sense of belongings. Through the support, students had opportunities to access other resources, explore the course content from different angles, critically reflect on their knowledge.

Program Support

The sub-theme 'program support' includes the academic support students receive from their program, which closely related to their major.

Several students shared their positive experiences with teaching assistants (TAs) in the graduate program. A student stated that he felt the support was more efficient and had been "exposure" (Student 10). He explained "before, I didn't know how powerful it could be. Somehow this semester, all of my instructors invited someone to our classroom and introduced us to it...I booked my first appointment...I got what I wanted. It was great" (Student 10). Another student also shared her positive experience with TAs, how they assisted and eased her learning understandably. She stated:

> I was struggling with an assignment and was able to understand what I needed to do. So, she (TA) would try to explain things in a much better, easier, and simpler way so that at least I got the idea of what had to be done. The better thing is that I can book multiple times, at least two to three times a week. If I do not understand concepts, they (TAs) were helpful. They listen friendly to our problems and try to understand what are those parts that we are not able to comprehend. So, they make things easier for me. (Student 6)

Another student not only expressed her experience with a TA but also how she benefitted from the flexible schedule the TAs was able to use.

…the work and the reading load are quite large. I have two tutors, they're very nice and helpful. They give me a lot of positive feedback on my summaries and my research direction...I find out the support hours we got from the writing center are really good too. They have all different schedules even open on the weekend. I feel very supportive, and I use the writing center a lot weekly. (Student 7)

A supportive environment has significant implications for student engagement. Students specified that the assistance they received, contributed to their engagement in learning. They identified being both academically and emotionally supported by the graduate writing centre. This support helps student to feel they are being considered as individuals by the faculty and the program.

Chapter Summary

In the interviews, students mentioned 'course design and organization,' 'student-faculty interaction,' 'learning with peers,' and 'cognitive engagement' most frequently. Students preferred synchronous, flexible, and varied lectures because instructors' explanations and the interaction with instructors and peers during classes contributed to their understanding of knowledge. The design and organization of courses were fundamental and determined to a large extent the student-student interaction, student-teacher interaction, students' critical thinking, and their cognitive engagement. The following concerned topics of students were 'technology,' 'social interaction' and 'learning intensity'. ERE relies on technology and the internet, so students were limited by technology and the internet while learning new technologies and enjoying the convenience of technology. Comparing to F2F, students experienced a heavier workload and less socialization with their peers. Third, campus and program support had a positive impact on student engagement. However, because the learning environment changed,

students had to adjust their learning time and methods. Overall, students preferred face-to-face

courses, or a teaching style similar to F2F courses.

Chapter Five: Discussion

To start this chapter, I will revisit the research questions of this study:

1. From students' perspective, are there differences in student engagement, when the same courses are switched from primarily F2F teaching to ERE modalities？

2. What are the main reasons causing these differences?

The significance of this research derives from ten interviews that students who experienced ERE. The answer to the first research question is affirmative. The findings of the study revealed different reasons for the changes in student engagement, some of which coincide with many previous studies and confirm previous findings, as well as provide some new indications. This chapter will discuss the results of this study, compare them to the current literature, outline the limitations of the study, and provide recommendations for future studies.

Discussion of Teaching Practice

During interviews, the most mentioned incidents from students were regarding 'course design and organization', which corresponded to the CoI Framework, where teaching presence is outlined as one of the foundations in online teaching and learning, which also influences social and cognitive presence. As with traditional F2F classes, course design and classroom organization are two essential elements to improving student engagement. Better course design and classroom organization can improve student engagement. Additionally, other studies indicated that instructors, course design, and organizations played a dominant role in online education, as students feel instructors' effort which consequently increased students' interest in learning (Ginns & Ellis, 2007; Kurt & Yıldırım, 2018; So, 2009). However, because of the dramatic changes and nature in delivery formats, course design, and organization in online education cannot simply be translated from the traditional F2F classroom; the focus of teaching

shifts from learner-centered to learning-centered (Garrison, 2011). Remote education has both synchronous and asynchronous modes, which are very different from F2F delivery. The design and organization of online courses should consider the different attributes of synchronous and asynchronous approaches. In this study, students preferred synchronous courses because synchronous courses better manifested the features of course design and organization that students enjoyed: curiosity, flexibility, structuring, variety, interactivity, reflectivity, and encouragement. In ERE, students were more reliant on instructors' guidance than they experienced in F2F. Instructors' explanations in the synchronous course were more instrumental for the students to understand the main points of course contents, whereas asynchronous course design is part of the advantages of online education, which can better highlight the merit of online education with more flexibility (Berg, 2020). Therefore, a structured course design based on the nature of synchronous and asynchronous instruction is crucial for students to improve their learning engagement. It is also evidenced in this study that when teaching switches from F2F to ERE, both students and teachers need to adapt well and adequately for both synchronous and asynchronous instruction, and the degree of this adaptation partially influences student engagement.

The results of the study showed that the second concern of students was student-faculty interaction. "interaction is seen as a challenging but critical aspect of distance learning" (Berg, 2020, p. 224). In the online environment, teacher-student interactions inside and outside the classroom have changed both in form and time. More options for interaction have increased the opportunities for and enriched the content of teacher-student interactions (Carrillo & Flores, 2020). For example, diverse communication platforms like Moodle message, emails, Big Blue Button, Zoom, and brainstorming tools like Jamboard. The use of email and other

communication tools has made it possible to initiate such interactions in any way one chooses, synchronously and asynchronously. Some students felt positively about this freedom of choice and flexibility for communication (Student 6 & 7), which facilitated their academic success and eventually increased student engagement. Synchronous interaction also reduced students' sense of isolation (Hisham et al., 2005; Berg, 2020). In response to the interaction with the instructor, students' positive impressions occurred in synchronous settings, such as being encouraged by the instructor in class and having a one-on-one session with the instructor (Student 1, 6 & 7). However, as noted in other studies, Berg (2020) and Carrillo and Flores (2020), not all synchronous interactions were positively evaluated by students, who preferred interactions with depth and in specific context rather than simple greetings. At the same time, there are some challenges. In this study, students were uncomfortable with both synchronous and asynchronous interaction modalities. Consistent with other research findings, students perceived both synchronous and asynchronous forms of communication as having a time lag and not being as timely as F2F interactions (Esmail et al., 2010; Huang, 2020). The time lag, or the frequency of interaction with instructors, can affect students' feelings and, in turn, their engagement (Lee & Martin, 2017; Berg, 2020). For example, student four explicitly stated that she felt unappreciated by the teacher because the teacher did not respond promptly. Moreover, it also added to the learning difficulty of students and indirectly affected their engagement (Student 5). This maladjustment was also evidenced by the teacher. Teachers without experience in online instruction were also uncomfortable with asynchronous communication, preferring timely communication. In the example shared by student six, the instructor chose to explain to the students through synchronous meetings.

The reliance on technology is much greater than in a traditional F2F classroom. Association for Educational Communications and Technology (AECT) (2007) defined educational technology as "The study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources" (p. 1). The support for the use of technology is a necessary and integral element of classroom practice in distance education (National Center for Education Statistics, 2019; Weiner et al., 2019). For online instruction, supporting technology replaces the most fundamental parts of traditional F2F instruction: the building, the classroom, the physical form of teaching aids, etc. This raises a problem while in a traditional F2F classroom, typically, the learning and use of basic teaching tools are only required of the teacher, in an online teaching environment, students are also required to be proficient with these technologies. In addition, instructors should guide students on how to use it, rather than leaving them to figure it out on their own, as research has shown that students' mastery of technology affects student engagement (Aljaber, 2018; Henrie et al., 2015). This stems from the fact that distance education is equally technology-dependent for both teachers and students; both need to learn new technologies and become skilled in their application to make distance education possible. In this study, students shared the tremendous impact that technology has had on their learning engagement. It is noticeable that students' use of technology can be divided into two stages. The first stage is learning and using basic technology that enabled students' online learning; this process sparked their interest and increased engagement, which they generally stated in interviews. The second stage is the acquisition of more skills and the proper use of technology. For example, in the interview, student five indicated that she had increased her courage to express herself by purposefully choosing how to transmit interactive information. This demonstrated that smooth access to the

internet and skillful use of technology tools can increase student engagement. This also applies

to teachers, whose adaptability to new tools and diverse employment based on new technologies

also contribute to student engagement. In contrast, this study also shows the limitations of

technology on student engagement. Modern web-based technology was not developed

specifically for online teaching and learning; online education is just one aspect of its application

(Woo & Reeves, 2008). This limitation was sometimes reflected in students' confusion about

employing technology, as mentioned by student one. Sometimes it manifested itself in the form

of technological instability, as noted by student two. When the confusion caused by the

limitation interferes with the instructional interaction (Student 1), it directly affected student

engagement. In this study, additional technology learning did not always lead to more interest in

learning, and in some cases additional technology learning and application increased feelings of

burden as was observed in the interviews with Student nine.

In the discussion in this subsection, this study explored student engagement in the context

of teaching practices in three separate directions: course design and organization, student-faculty

interaction, and technology. In the beginning, when teaching pivoted from traditional F2F to

ERE, the learning and using new technologies, new forms of classroom organization, and more

diverse forms of student-faculty interaction positively influenced student engagement. The

challenges were mainly in adjusting to both synchronous and asynchronous modalities of ERE.

The maladjustment included both synchronous and asynchronous course design and

organization, as well as both synchronous and asynchronous student-faculty interaction. By

comparing literature and reviewing the interviews of this study, this study argues that this

maladjustment constitutes a major challenge to increase student engagement in learning within

the context of teaching practices when teaching shifted from traditional F2F to ERE. The impact

of technology support, on the other hand, worked at both using technology basically and skillfully. However, a larger impact came from technological shortcomings alone. Given the short period for the massive application of online technology caused by this major public health and safety crisis, it was unrealistic to expect perfect online teaching and learning technology to emerge in such a short duration of practice. Therefore, this study argues that the challenges of student engagement due to technological shortcomings will be a long-term issue that needs to be addressed over time.

Discussion of Learning Behavior

As noted in the NSSE results and discussed in this study, students preferred to and benefited from learning with their peers rather than on their own (Kuh, 2003). Interaction among students in online learning is also an essential factor in increasing student engagement (Carrillo & Flores, 2020; Murdock & Williams, 2011). The result regarding this theme was discouraging in this study. For most students, the imperfection of interaction technology in online settings resulted in less effective learning and collaboration with peers. Online communication was severely limited in terms of information compared to the F2F, as it is difficult for students to get information from the body language and facial expressions of their peers. Time-zone and geographic conflicts and language barriers were ubiquitous, resulting in limited time for communication and less interaction. Even group discussions were inefficient because they rely primarily on text. Most students noted that there was an absence of peer relationships or familiarity. Students interviewed generally expressed a preference for F2F communication over online communication, voice-based communication over text-based communication; further, the efficiency of communication heavily influenced the understanding of both parties involved in the interaction. Students in the study from Zhang et al. (2005) also indicated that they preferred to

communicate by phone rather than by email. At the same time, the sense of distance caused by online communication had further reduced students' willingness to share ideas. Garrison (2011) also noted that text-based communication was more likely to create a sense of distance. A relatively radical view was that communicating online by text was simply a waste of time (Student 1). However, few students shared positive experiences and enjoyed novel ways of learning with their peers. Students in the interviews reflected that they became more considerate of each other due to their time zone and geographic differences, which allowed them to interact more smoothly and effectively. In addition, students had more communicative alternatives in the online environment, as mentioned earlier in the technology discussion, where they could choose to transmit video or audio-only, and this variety facilitated positive communication and engagement. Considering the significance of interaction for teaching and learning, this study argues that effective and positive interaction is more significant in an online learning environment, as interaction can alleviate students' sense of distance to a certain extent.

The effect of cognitive engagement on differences in student engagement is a double-edged sword, reflecting wide variation by student autonomy. Previous research has also shown that online learning requires more learner autonomy and self-discipline (Gao, 2020; Lee & Martin, 2017; Russ et al., 2010). Students who were more self-directed, who learned more actively and autonomously, whose learning strategies and methods timely adapted to the nature of online instruction, and who were better organized, complained less about changes in learning intensity. As the same findings in the research from Poluekhtova et al. (2020), students in this study also stated that they had more workload than F2F. For students who were less self-directed, less tutor supervision reduced their commitment to learning to a certain extent, and they always "finish their work at the last minute" (Student 8).

This differentiation due to student autonomy was noticeable as time progressed. At the beginning of the ERE, students maintained their F2F study routine, were not used to planning ahead, and simply followed courses' and instructors' steps to read materials and do assignments. From the second semester on, some students mentioned that they started to plan their learning schedule for the day, or the whole semester according to their time, or started to plan when they would do their assignments instead of rushing to finish them the day before the deadline.

Interpersonal interaction and relationships affect students in various ways, including improving their learning and sense of belongings in both F2F and online educational settings (Astin, 1993; Bowman, 2013; Carrillo & Flores, 2020; Gowing, 2019; Hisham et al., 2005; Murdock & Williams, 2011; Newcomb, 1943). Similar to the findings of learning with peers, in this study, students expressed dissatisfaction that learning in an online environment significantly reduced their social communication among peers outside of class. Other studies addressing ERE, Alqurshi (2020) and Poluekhtova et al. (2020) have also shown a decrease in interaction among students. Most students in this study stated that 'socializing' and 'networking' were critical for them, but distance and the virtual online environment prevented them from developing friendships. The students in Kurt and Yıldırım's (2018) study also clearly demonstrated the value of socialization for them. Due to the unfamiliarity and lack of trust, students were more apprehensive to express their own opinions or ask questions in class, and in many cases choose to remain silent. A sense of distance affected students' participation and interaction and consequently, reduced student engagement in learning.

The discussion in this section involves people's reliance on interaction carriers. In terms of the content of communication, Hunt-Gierut (2011) mentioned that firstly, communication contained both the sender and the receiver of information; secondly, communication included

sensory information and context information. In terms of the process of communication,

Mehrabian (1971) stated that 7% of the human communication process was through mere

language, 38% was means of expression, and 55% was non-verbal communication. In terms of

the quality of communication, Lengel and Daft (1984) initially introduced the concept of the

richness of the information contained in the communication media. According to their theory, the

order of information richness of communication media from most to least were "(1) face-to-face,

(2) telephone, (3) personal documents such as letters or memos, (4) impersonal written

documents, and (5) numeric documents" (Daft & Lengel, 1986, p. 560). Face-to-face

communication involved the most cues, words, expressions, voice, intonation, body language,

and timely feedback (Daft & Lengel, 1984; Giesbers et al., 2014); therefore, it allowed for the

clearest and most accurate communication of information, avoiding equivocation and

misunderstanding (Allen & Griffeth, 1997; Daft & Lengel, 1986). Some studies have indicated

that text-only communication styles, such as emails, had limited visual information and almost

no auditory information, which could easily lead to miscommunication; moreover, the senders

often believed that the message they sent by email was clear (Barry & Fulmer, 2004; Kruger et

al., 2005). In the context of online learning, "it has been shown that asynchronous

communication often leads to a misinterpretation of written contributions (like a post on a

discussion forum) because of a lack of shared context, body language or writing style" (Giesbers

et al., 2014). Furthermore, "synchronous two-way e-learning differs from face-to-face

communication in that participants are not co-located in the same physical space during

interactions and thus, some important communication cues may not be conveyed effectively"

(Blau et al., 2017, p. 3). Similar incidents were mentioned by students in this study as well. For

example, misinterpretation caused by emails and forums, applying emoticons 'smiley face' out

of concern of being misunderstood, and failed to fully understand other students due to insufficient communication bandwidth (voice only).

Online interaction is still a long way from perfection, and the technology is now hovering at the level of 'capable' rather than 'fully interactive' and considering many factors required for technological advancement, this study concludes that the challenges of student engagement due to inadequate online interaction technologies will persist for a long time. On the positive side, technology is always developing, and optimizing interaction skills within the existing technology base can improve the deficiencies caused by technology.

Discussion of supportive environment

Qualitative interaction and supportive environment positively related to students' satisfaction and sense of belongings (Astin, 1968, 1993, NSSE, n.d.; Rocconi & Kinzie, 2013). Studies during ERE showed that students were facing extra depression and isolation (Gao, 2020; J. K. Green et al., 2020). Therefore, a supportive environment was more significant for students in ERE. Both campus-based and program-based support are well-established approaches to instructional support. They can be functional in both F2F and online teaching modalities. The campus-based and project-based support that have been established and accumulated in the F2F modality can be transferred to the online modality, but the support is more dependent on the online technology but can be well inherited. Students in this study mentioned two incidents of on-campus support that were positive responses. The supportive environment provided students with a sense of belonging. Through support, students had the opportunity to access additional resources, explore course content from different perspectives, and critically reflect on their knowledge. Project-based support is equally important, and the assistance they received facilitated their engagement in learning. They felt they were supported academically and

emotionally, and this support helped students to receive a sense of caring. So, the findings

showed that a supportive environment had an appositive impact on student engagement.

Limitations of the Study

It is important to note the limitations of this study. This study interviewed only graduate-

level students and was limited to education majors. This study used the CIT to recruit

participants and conduct the study. While the representation of graduate students recruited from

education majors was able to reveal the research phenomenon that was covered by the subject of

this study, the small sample size could not be generalized to the online learning experiences of

all populations within the subject of the study. Further, the subjects recruited for this study were

from different regions, which made the sample size from the same region even smaller and

showed limitations in terms of variability. The purpose of this study was to explore from the

student's perspective whether there was a difference in student engagement when the same

courses changing from F2F to ERE. The subjects in this study were in an online learning

environment that was different from an ideal online education or distance education. ERE was

not an ideal research context or a purposeful distance education research environment. All of this

exposes this study to possible biases. Open-ended interviews were the only source of data for this

study. On the one hand, as with other qualitative studies, the interview questions were designed

based on the researcher's cognitive system and previous theories of F2F and distance education,

which may be one-sided or biased. On the other hand, the perceptions shared by participants may

also be biased. Qualitative analysis is a narrative approach; this study only employed research-

relevant elements to the research topic, which may also present a partial understanding of the

researcher. In future follow-up studies, if the interviews were expanded to a larger age range and

multiple majors, the findings would undoubtedly be richer and more adequate, which in turn

would increase the objectivity of the study. However, this study may also serve as a pilot study for future research that delves into student engagement in online education.

Recommendations for Future Study

This pandemic will eventually pass, and as future educational programs are updated and educational theories evolve, ERE will be integrated with traditional online education, and the need for continued depth in this study exists. For future studies of this research topic, this study suggests three implications.

Targeted Comparative Studies of Synchronous and Asynchronous Classrooms and Interactions at Specific Times

Many challenges to the online learning experience in this study emerged as a result of the discomfort with the synchronous and asynchronous delivery methods of online teaching and learning during the transition from F2F to ERE, particularly for students who were more used to F2F. A foreseeable scenario is that traditional F2F will return to the education system as the pandemic passes away. Because of the long-standing presence and continued impact of ERE, and the coexistence of F2F and online learning cannot be seen as a return to traditional education, but rather as a new beginning. In this process, the shifts and transitions discussed and studied in this study would once again emerge in some way. Confronting this probability, further research into the differences and attributes between synchronous and asynchronous classrooms and synchronous and asynchronous interactions in online education would help institutions consider what kinds of different hybrid and blended models might be introduced as they shift back to campus post-pandemic.

Comparative Study on The Effectiveness of Different Interactive Forms

A comparative study on the effectiveness of different interactive forms of student engagement based on existing online technology will be necessary. In F2F or distance education, interactionism is the mainstream of modern education, which refers to that students learn through autonomy, cooperation with instructors and peers, and reflection (Kutbiddinova et al., 2016). The teaching and learning process is a dynamically developing and unified process with interactive influences and interactive activities. In this study, online interaction in teaching and learning posed a challenge to learning engagement because of the limitations of the technological tools. The technological tools require an investment of time to progress, and the technological landscape does not provide highly reliable predictions. Online interaction models with different application techniques and organizational forms would then be an effective means to alleviate the lack of a technological base. Comparing the features of techniques of various interaction modes to improve the efficiency of interaction and to meet the need for interactionism in modern education becomes a meaningful study to promote learning engagement.

In-Depth Study about Fostering Social Interaction and Networking in Online Teaching

An in-depth study about how to foster social interaction and networking in online teaching models is also a possible research direction. According to the definition of 'social presence' in the CoI framework, 'social interaction' refers to non-academic interactions, communication, and relationships among students (Garrison, 2011). The majority of students in this study referred to 'social skills' or 'networking' as being crucial to them. However, most students found that it was difficult for them to get to know their classmates in the online learning environment, to interact personally during and after class, and to become friends with their classmates. The main challenge students faced in the ERE was social interaction. Students did

not have sufficient interactions to get to know each other, causing a sense of distance. This sense

of distance, in turn, affected student engagement and interaction, led to low participation in

group discussions and classroom activities. However, social interaction itself is a definition of

blurring the boundaries between in-class and out-of-class. It can be achieved either through

specialized online teaching tools or through other online social interaction tools. Sometimes,

even other social interactions beyond e-learning might affect students' online learning

experience in certain forms and scopes, such social interactions beyond the classroom could also

be considered as part of social interaction in online education. Whether this type of social

interaction should be guided, how to identify the relationship to the online learning experience,

and in what ways this potential association will exert influence on online learners, are interesting

questions for in-depth study of student engagement.

In-Depth Study about Culture Lens on Student Engagement

Nine of ten participants in this study were international students from countries outside of

Canada. A previous study indicated that online learning should consider cultural context, as

culture influences how students engage in an online learning environment (Gunawardena, 2020).

Since the cultural lens was not the focus of this research study, I did not discuss and explore this

direction in depth. This lens may have indicated different factors that affect student engagement

in ERE if the participants were domestic. Further research might help identify if cultural

backgrounds influence student engagement in online education, and to the extent that this

influences student engagement. Identifying the main elements that influence student engagement

in terms of culture, and how could course designers and instructors mitigate or reduce the impact

of culture on student engagement, are critical topics that need further research in the future.

Chapter Six: Conclusion

The purpose of this study is to recognize reasons causing differences in student engagement, when courses shifting from F2F to ERE. This chapter is an overall conclusion for the study.

Conclusions of Teaching Practice

The teaching practices in this study included three subthemes: technology, course design and organization, and student-faculty interaction. Based on the comparison of previous literature and the discussion in chapter five, this study concludes that the course design and organization should fully recognize the different nature of synchronous and asynchronous courses, should organize and design courses in a targeted manner. In other words, asynchronous lectures should include more inspirational components. Synchronous lectures should involve more instructional elements. In this process, it is crucial that not simply adopting the design of traditional F2F courses. The tailored course design could reduce the discomfort of shifting from traditional F2F to online education, take advantage of the online education format, and weaken the impact on student engagement. The discussion of technology revealed that smooth access to the internet and proficiency in using technology tools could increase student engagement. Nevertheless, technological shortcomings and constraints in using technology did limit student engagement. When the distress caused by these limitations interfered with student-faculty interaction, it directly affected student engagement in learning. Excessive technology learning and application can also increase a sense of burden for students. The reliance on technology in student-faculty interaction also highlighted the impact of technology support on student engagement. Unlike F2F education, student-faculty interaction in online education requires more intentional interaction guidance from instructors. The purpose of the guidance is to enable students to make more

conducive interaction choices based on the different characteristics of synchronous and asynchronous interactions, to avoid interaction failures and even interaction errors caused by blind choices of interaction.

Conclusions of Learning Behavior

This theme covered students' academic and non-academic behaviors and activities, included positive incidents that increased their engagement, as well as challenges they encountered in the ERE. There were five subthemes: learning with peers, cognitive engagement, learning intensity, learning strategies, and social interactions. The findings of this study indicated that the imperfections of supporting technologies created challenges to online learning behaviors. The positive aspect was that technology was gradually improving, and optimization of interaction skills under the existing technological tools may be a trustworthy means of improving online learning behavior. Advances in online technology itself can improve the online learning experience. Technology itself and the use of technology are two sides of the same coin. As discussed in chapter five, the lack of information in online interactions challenged the efficiency of interactions; however, it also motivated the improvement of students' learning autonomy. In online teaching practices, instructors intentionally guide students to address such beneficial improvements could be an effective attempt to enhance the online learning experience from the students' perspective and increase their engagement in learning.

Conclusions of Supportive Environment

Different from the many novel components of online learning, the campus and program support were well established in F2F education. The supportive environment performed equally well both in the traditional F2F and online delivery modalities. In this study, the campus support partially eliminated the isolation experienced by online learning students and enhanced the

learning experience. The program support compensated for the learning barriers created by insufficient online interaction and improved the efficiency and quality of online learning. Therefore, the supportive environment was beneficial to improve student engagement.

Recommendations

At the time of writing, we are still engaged in ERE and might be for some time. Based on the discussion in this study, thinking forward about changes that have been positive, blended education might be a preferable option, where students can continuously enjoy the benefit of online learning, the flexibility, the comfort, and the variety. At the same time, F2F lectures can reduce the sense of distance, and improve the social interaction among students. Building a trustful environment at the beginning of courses is critical, as it affects student engagement in various aspects. Further, since text-based communication has the least cues, instructors should employ rich communication media appropriately to enhance the familiarity among learners, develop their higher-order thinking, and boost engagement. Offering students technique support is the foundation of online learning. Another helpful element is introducing and encouraging students to the access of support of the campus and program areas, which will be a constructive factor to improve student engagement. These recommendations are based on the results of this study; therefore, considerate combinations of practical situations are recommended.

References

Ahlfeldt, S., Mehta, S., & Sellnow, T. (2005). Measurement and analysis of student engagement in university classes where varying levels of PBL methods of instruction are in use. *Higher Education Research and Development*, *24*(1), 5–20. https://doi.org/10.1080/0729436052000318541

Aljaber, A. (2018). E-learning policy in Saudi Arabia: Challenges and successes. *Research in Comparative and International Education*, *13*(1), 176–194. https://doi.org/10.1177/1745499918764147

Allen, D. G., & Griffeth, R. W. (1997). Vertical and lateral information processing: The effects of gender, employee classification level, and media richness on communication and work outcomes. *Human Relations*, *50*(10), 1239–1260. https://doi.org/10.1177/001872679705001003

Alqurshi, A. (2020). Investigating the impact of COVID-19 lockdown on pharmaceutical education in Saudi Arabia – A call for a remote teaching contingency strategy. *Saudi Pharmaceutical Journal*, *28*(9), 1075–1083. https://doi.org/https://doi.org/10.1016/j.jsps.2020.07.008

Anderson, L. W. (n.d.). *A measure of student involvement in learning: Time-on-Task. University of South Carolina*. (ED110504). ERIC. https://eric.ed.gov/?id=ED110504.

Anderson, T. (2008). *The theory and practice of online learning.* (2nd ed.). AU Press.

Andersson, B.-E., & Nilsson, S.-G. (1964). Studies in the reliability and validity of the critical incident technique. *Journal of Applied Psychology*, *48*(6), 398–403. https://doi.org/10.1037/h0042025

Askham, P. (2008). Context and identity: Exploring adult learners' experiences of higher

education. *Journal of Further and Higher Education*, *32*(1), 85–97.

https://doi.org/10.1080/03098770701781481

Association for Educational Communications and Technology. (2007). Definition. In A.

Januszewski & M. Molenda (Eds.), *Educational technology: A definition with commentary*

(pp. 1–14). Lawrence Erlbaum Associate.

Astin, A. W. (1968). *The college environment*. American Council on Education.

Astin, A. W. (1985). Involvement the cornerstone of excellence. *Change: The Magazine of*

Higher Learning, *17*(4), 35–39. https://doi.org/10.1080/00091383.1985.9940532

Astin, A. W. (1993). *What matters in college?: Four critical years revisited*. Jossey-Bass.

B.C. universities switching to online classes to avoid COVID-19 spread. (2020, March 13). *CBC*.

https://www.cbc.ca/news/canada/british-columbia/bc-sfu-ubc-online-1.5497847

Barry, B., & Fulmer, I. S. (2004). The medium and the message: The adaptive use of

communication media in dyadic influence. *The Academy of Management Review*, *29*(2),

272–292. https://doi.org/10.2307/20159033

Bellei, C. (2009). Does lengthening the school day increase students' academic achievement?

Results from a natural experiment in Chile. *Economics of Education Review*, *28*(5), 629–

640. https://doi.org/10.1016/j.econedurev.2009.01.008

Bissessar, C., Black, D., & Boolaky, M. (2019). An analysis of intercultural students' self-

determination in graduate online programmes: Implications for praxis. *European Journal of*

Open, Distance and E-Learning, *22*(1), 36–52.

Biwer, F., oude Egbrink, M. G. A., Aalten, P., & de Bruin, A. B. H. (2020). Fostering effective

learning strategies in higher education: A mixed-methods study. *Journal of Applied*

Research in Memory and Cognition, *9*(2), 186–203.

https://doi.org/10.1016/j.jarmac.2020.03.004

Blau, I., Weiser, O., & Eshet-Alkalai, Y. (2017). How do medium naturalness and personality traits shape academic achievement and perceived learning? An experimental study of face-to-face and synchronous e-learning. *Research in Learning Technology*, *25*. http://dx.doi.org/10.25304/rlt.v25.1974

Boud, D., Cohen, R., & Sampson, J. (2014). *Peer learning in higher education: Learning from and with each other*. Routledge.

Bowen, B. S. (2005). Engaged learning opinion. *Peer Review*, *7*(2), 4–8.

Bower, B. L., & Hardy, K. P. (2004). From correspondence to cyberspace: Changes and challenges in distance education. *New Directions for Community Colleges*, *2004*(128), 5–12. http:// doi.org/10.0.3.234/cc.169

Bowman, N. A. (2013). How much diversity is enough? The curvilinear relationship between college diversity interactions and first-year student outcomes. *Research in Higher Education*, *54*(8), 874–894. https://doi.org/10.1007/s11162-013-9300-0

Bozkurt, A. (2019). From distance education to open and distance learning: A holistic evaluation of history, definitions, and theories. In S. Sisman-Ugur & G. Kurubacak (Eds.), *Handbook of Research on Learning in the Age of Transhumanism* (pp. 252–273). IGI Global.

Bozkurt, A., Jung, I., Xiao, J., Vladimirschi, V., Schuwer, R., Egorov, G., Lambert, S., Al-Freih, M., Pete, J., Olcott Jr., D., Rodes, V., Aranciaga, I., Bali, M., Alvarez Jr., A., Roberts, J., Pazurek, A., Raffaghelli, J., Panagiotou, N., de Coëtlogon, P., … Paskevicius, M. (2020). A global outlook to the interruption of education due to COVID-19 Pandemic: Navigating in a time of uncertainty and crisis. *Asian Journal of Distance Education*, *15*(1), 1–126. https://doi.org/10.5281/zenodo.3878572

Brooks, D. C., & Grajek, S. (2020, March 12). Faculty readiness to begin fully remote teaching. *Educause Review*. https://er.educause.edu/blogs/2020/3/faculty-readiness-to-begin-fully-remote-teaching

Brown, B. W., & Saks, D. H. (1987). The microeconomics of the allocation of teachers' time and student learning. *Economics of Education Review*, *6*(4), 319–332. https://doi.org/10.1016/0272-7757(87)90015-X

Butterfield, L. D., Borgen, W. A., Amundson, N. E., & Maglio, A.-S. T. (2005). Fifty years of the critical incident technique: 1954-2004 and beyond. *Qualitative Research*, *5*(4), 475–497. http://10.0.4.153/1468794105056924

Carrillo, C., & Flores, M. A. (2020). COVID-19 and teacher education: A literature review of online teaching and learning practices. *European Journal of Teacher Education*, *43*(4), 466–487. https://doi.org/10.1080/02619768.2020.1821184

Casey, D. M. (2008). A journey to legitimacy: The historical development of distance education through technology. *TechTrends: Linking Research & Practice to Improve Learning*, *52*(2), 45–51. https://doi.org/doi.org/10.1007/s11528-008-0135-z

Castellanos-Reyes, D. (2020). 20 years of the community of inquiry framework. *TechTrends*, *64*(4), 557–560. https://doi.org/10.1007/s11528-020-00491-7

Chickering, A. W., Gamson, Z. F., & American Association for Higher Education DC., W. (1987). Seven principles for good practice in undergraduate education. *AAHE Bulletin*, 3–7.

Christenson, S. L., Wylie, C., & Reschly, A. L. (2012). *Handbook of research on student engagement*. Springer Science+Business Media. https://doi.org/10.1007/978-1-4614-2018-7

Coates, H. (2007). A model of online and general campus-based student engagement. *Assessment and Evaluation in Higher Education*, *32*(2), 121–141.

https://doi.org/10.1080/02602930600801878

Cole, D. (2007). Do interracial interactions matter? An examination of student-faculty contact and intellectual self-concept. *The Journal of Higher Education*, *78*(3), 249–281.

Collins Dictionary. (n.d.). Cognition. In *Collinsdictionary.com dictionary*. Retrieved September 20, 2020, from https://www.collinsdictionary.com/dictionary/english/cognition.

Connell, J. P., & Wellborn, J. G. (1991). Needs: Competence, autonomy and relatedness. In M. R. Gunnar & L. A. Sroufe (Eds.), *The Minnesota symposia on child psychology* (pp. 43–77). Lawrence Erlbaum Associates.

Creswell, J. W. (2015). *Educational research planning, conducting, and evaluating quantitative and qualitative research* (5th ed.). Pearson Education.

Crick, T., Knight, C., Watermeyer, R., & Goodall, J. (2020). The impact of COVID-19 and "Emergency Remote Teaching" on the UK computer science education community. *United Kingdom & Ireland Computing Education Research Conference.*, 31–37. https://doi.org/10.1145/3416465.3416472

Cuseo, J. (2018). Student–Faculty engagement. *New Directions for Teaching and Learning*, *2018*(154), 87–97. https://doi.org/10.1002/tl.20294

Daft, R. L., & Lengel, R. H. (1984). Information richness: A new approach to managerial behavior and organizational design. *Research in Organizational Behavior*, *6*, 191–233.

Daft, R. L., & Lengel, R. H. (1986). Organizational information requirements media richness and structural design. *Management Science*, *32*(5), 554–571.

Davidson, N., & Major, C. H. (2014). Boundary crossings: Cooperative learning, collaborative learning, and problem-based learning. *Journal on Excellence in College Teaching*, *25*(3&4), 7–55. https://doi.org/10.1136/bmj.f6556

Denzin, N. K., & Lincoln, Y. S. (1998). *The landscape of qualitative research: Theories and issues*. Sage Publications.

Dewey, J. (1897). *My Educational Creed*. E.L. KELLOGG & CO.

Dewey, J. (1902). The child and the curriculum. In *Social Text*. University of Chicago Press.

Dixson, M. D. (2015). Measuring student engagement in the online course: The online student engagement scale (OSE). *Online Learning Journal*, *19*(4). https://doi.org/10.24059/olj.v19i4.561

Dolmans, D. H. J. M., Loyens, S. M. M., Marcq, H., & Gijbels, D. (2016). Deep and surface learning in problem-based learning: A review of the literature. *Advances in Health Sciences Education*, *21*(5), 1087–1112. https://doi.org/10.1007/s10459-015-9645-6

Donovan, T., Bates, T., Seaman, J., Mayer, D., Martel, E., Pau, R., Desbiens, B., Forssman, V., & Poulin, R. (2019). *Tracking online and distance education in Canadian universities and colleges: 2018*.

Dumford, A. D., & Rocconi, L. M. (2015). Development of the Quantitative Reasoning Items on the National Survey of Student Engagement. *Numeracy*, *8*(1), 5. https://doi.org/10.5038/1936-4660.8.1.5

Dunlap, J. C., & Lowenthal, P. R. (2018). Online educators' recommendations for teaching online: Crowdsourcing in action. *Open Praxis*, *10*(1), 79. https://doi.org/10.5944/openpraxis.10.1.721

Esmail, B., Whittaker, T., & Yang, Y. (2010). Mixing it up: More experiments in hybrid learning. *Journal of Computing Sciences in Colleges*, *25*, 97–103.

Filak, V. F., & Sheldon, K. M. (2008). Teacher support, student motivation, student need satisfaction, and college teacher course evaluations: Testing a sequential path model.

Educational Psychology, *28*(6), 711–724. https://doi.org/10.1080/01443410802337794

Flanagan, J. C. (1954). The critical incident technique. *Psychological Bulletin*, *51*(4), 327–358. https://doi.org/10.1037/h0061470

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research*, *74*(1), 59–109. https://doi.org/10.3102/00346543074001059

Gao, X. (2020). Australian students' perceptions of the challenges and strategies for learning Chinese characters in emergency online teaching. *International Journal of Chinese Language Teaching*, *1*, 83–98. https://doi.org/https://doi.org/10.46451/ijclt.2020.06.04

Gardner, H. (1983). *Frames of mind : The theory of multiple intelligences.* Basic Books.

Garrison, D. R. (2003). *E-Learning in the 21st Century : A Framework for Research and Practice*. Routledge.

Garrison, D. R. (2011). *E-learning in the 21st century : A framework for research and practice.* (2nd ed.). Routledge.

Garrison, D. R., Anderson, T., & Archer, W. (1999). Critical inquiry in a text-based environment: Computer conferencing in higher education. *Internet and Higher Education*, *2*(2–3), 87–105. https://doi.org/10.1016/S1096-7516(00)00016-6

Garrison, D. R., Anderson, T., & Archer, W. (2001). Critical thinking, cognitive presence, and computer conferencing in distance education. *International Journal of Phytoremediation*, *21*(1), 7–23. https://doi.org/10.1080/08923640109527071

Giesbers, B., Rienties, B., Tempelaar, D., & Gijselaers, W. (2014). A dynamic analysis of the interplay between asynchronous and synchronous communication in online learning: The impact of motivation. *Journal of Computer Assisted Learning*, *30*(1), 30–50.

https://doi.org/https://doi.org/10.1111/jcal.12020

Ginns, P., & Ellis, R. (2007). Quality in blended learning: Exploring the relationships between on-line and face-to-face teaching and learning. *The Internet and Higher Education*, *10*(1), 53–64. http://10.0.3.248/j.iheduc.2006.10.003

Gladwell, M. (2010). *Outliers: The story of success*. Black Bay Book.

Goodsell, A. S. (1992). *Collaborative learning: A sourcebook for higher education*. National Center on Postsecondary Teaching, Learning, and Assessment (NCTLA).

Gowing, A. (2019). Peer-peer relationships: A key factor in enhancing school connectedness and belonging. *Educational & Child Psychology*, *36*(2), 64–77.

Green, J. K., Burrow, M. S., & Carvalho, L. (2020). Designing for transition: Supporting teachers and students cope with emergency eemote education. *Postdigital Science and Education*, *2*, 1-906–922. https://doi.org/https://doi.org/10.1007/s42438-020-00185-6

Groccia, J. E. (2018). What is student engagement? *New Directions for Teaching & Learning*, *2018*(154), 11–20. https://doi.org/10.0.3.234/tl.20287

Gunawardena, C. N. (2020). Culturally inclusive online learning for capacity development projects in international contexts. *Journal of Learning for Development*, *7*(1), 5–30.

Henrie, C. R., Bodily, R., Manwaring, K. C., & Graham, C. R. (2015). Exploring intensive longitudinal measures of student engagement in blended learning. *International Review of Research in Open and Distributed Learning*, *16*(3), 131–155.

Hisham, D., Rozhan, M. I., & Hanafi, A. (2005). Interaction in open distance learning: Research issues in Malaysia. *Malaysian Journal of Distance Education*, *7*(2), 63–77.

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). *The difference between emergency remote teaching and online learning*. EDUCAUSE Review.

https://er.educause.edu/ articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning

Horspool, A., & Lange, C. (2012). Applying the scholarship of teaching and learning: Student perceptions, behaviours and success online and face-to-face. *Assessment and Evaluation in Higher Education*, *37*(1), 73–88. https://doi.org/10.1080/02602938.2010.496532

Hossler, C.-A., Others, A., & Consortium on Educational Policy Studies IN., B. (1988). The relationship of increased instructional time to student achievement. *Policy Bulletin: Consortium on Educational Policy Studies*, *1*.

Hu, S., & Kuh, G. D. (2001). *Being (dis)engaged in educationally purposeful activities: The influences of student and institutional characteristics*. American Educational Research Association, Seattle, WA. (ED452776). ERIC. https://files.eric.ed.gov/fulltext/ED452776.pdf.

Huang, J. (2020). Successes and challenges: Online teaching and learning of chemistry in higher education in china in the time of COVID-19. *Journal of Chemical Education*, *97*(9), 2810–2814. https://doi.org/10.1021/j.jchemed.0c00671

Hughes, J. N., Luo, W., Kwok, O.-M., & Loyd, L. K. (2008). Teacher-student support, effortful engagement, and achievement: A 3-year longitudinal study. *Journal of Educational Psychology*, *100*(1), 1–14. https://doi.org/10.1037/0022-0663.100.1.1

Hunt-Gierut, D. (2011). How my daughter taught me to teach: The importance of active communication. *Multicultural Education*, *19*(3), 26–28.

Ian, H. (2020, March 12). *B.C. health officials discourage travel outside Canada, ban events larger than 250 people*. CTVNews. https://vancouverisland.ctvnews.ca/b-c-health-officials-discourage-travel-outside-canada-ban-events-larger-than-250-people-1.4850903

Johnson, N. (2019). *Tracking online education in Canadian universities and colleges: National survey of online and digital learning 2019 national report*. https://onlinelearningsurveycanada.ca/download/781/

Jones International University. (n.d.). *About JIU*. Jones International University. https://www.jiu.edu.rs/about-JIU/index.html

Jones, J. H., & Schwartz, C. (2005). *Prisoners of time: Report of the national education commission on time and learning*. National Education Commission on Time and Learning. (Original work published 1994).

Jones, M., & Ryan, J. (2014). Learning in the practicum: Engaging pre-service teachers in reflective practice in the online space. *Asia-Pacific Journal of Teacher Education*, *42*(2), 132–146. https://doi.org/10.0.4.56/1359866X.2014.892058

Kahu, E. R. (2013). Framing student engagement in higher education. *Studies in Higher Education*, *38*(5), 758–773. https://doi.org/10.1080/03075079.2011.598505

Kanuka, H., Rourke, L., & Laflamme, E. (2007). The influence of instructional methods on the quality of online discussion. *British Journal of Educational Technology*, *38*(2), 260–271. https://doi.org/10.1111/j.1467-8535.2006.00620.x

Kent, C., Laslo, E., & Rafaeli, S. (2016). Interactivity in online discussions and learning outcomes. *Computers and Education*, *97*, 116–128. https://doi.org/10.1016/j.compedu.2016.03.002

Knowles, M. (1973). *The adult learner: A neglected species*. Gulf Publishing Company (ED084368). ERIC. https://files.eric.ed.gov/fulltext/ED084368.pdf.

Kruger, J., Epley, N., Parker, J., & Ng, Z.-W. (2005). Egocentrism over e-mail: Can we communicate as well as we think? *Journal of Personality and Social Psychology*, *89*(6),

925–936. https://doi.org/10.1037/0022-3514.89.6.925

Küçükali, R. (2019). Determining the difficulties experienced by postgraduate students in their education. *Lisansüstü Eğitim Öğrencilerinin Eğitimlerinde Yaşadıkları Zorlukların Belirlenmesi.*, *23*(3), 987–1006.

Kuh, G. D. (2003). What we're learning about student engagement from NSSE. *Change*, *35*(2), 24–32.

Kuh, G. D. (2009). The national survey of student engagement: Conceptual and empirical foundations. *New Directions for Institutional Research*, *2009*(141), 5–20. https://doi.org/10.1002/ir.283

Kuh, G. D., Cruce, T. M., Shoup, R., Kinzie, J., & Gonyea, R. M. (2008). Unmasking the Effects of Student Engagement on First-Year College Grades and Persistence. *The Journal of Higher Education*, *79*(5), 540–563.

Kuh, G. D., Kinzie, J., & Buckley, J. A. (2006). *What matters to student success: A review of the literature.* National Postsecondary Education Cooperative National Symposium on Postsecondary Student Success. https://nces.ed.gov/npec/pdf/Kuh_Team_Report.pdf.

Kuh, G. D., Pace, C. R., & Vesper, N. (1997). The development of process indicators to estimate student gains associated with good practices in undergraduate education. *Research in Higher Education*, *38*(4), 435–454. https://doi.org/10.1023/A:1024962526492

Kurt, S. Ç., & Yıldırım, İ. (2018). The students' perceptions on blended learning: A Q method analysis. *Educational Sciences: Theory & Practice*, *18*(2), 427–446. https://doi.org/10.0.49.194/estp.2018.2.0002

Kutbiddinova, R. A., Eromasova, A. A., & Romanova, M. A. (2016). The use of interactive methods in the educational process of the higher education institution. *International Journal*

of Environmental and Science Education, *11*(14), 6557–6572.

Laird, T. F. N., Shoup, R., & Kuh, G. D. (2005, May 14-18). *Measuring deep approaches to learning using the National Survey of Student Engagement*. Annual Meeting of the Association for Institutional Research, Chicago, IL. https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.169.5030&rep=rep1&type=pdf.

Lawrence-Benedict, H., Pfahl, M., & Smith, S. J. (2019). Community of Inquiry in online education: Using student evaluative data for assessment and strategic development. *Journal of Hospitality, Leisure, Sport and Tourism Education*, *25*. https://doi.org/10.1016/j.jhlste.2019.100208

Lee, J., & Martin, L. (2017). Investigating students' perceptions of motivating factors of online class discussions. *International Review of Research in Open and Distributed Learning*, *18*(5), 148–172.

Lengel, R., & Daft, R. (1984). *Organizations as information processing systems: An exploratory analysis of the relationship between media richness and managerial information processing*. Department of Management Texas A&M University.

Leshkovska, E. A., & Spaseva, S. M. (2016). John Dewey's educational theory and educational implications of Howard Gardner's multiple intelligences theory. *International Journal of Cognitive Research in Science, Engineering & Education (IJCRSEE)*, *4*(2), 57–66. https://doi.org/10.0.23.49/IJCRSEE1602057A

Lewis, A., & Smith, D. (1993). What is higher order thinking? *Theory Into Practice*, *32*(3), 131–137.

Martin, J., & Martin, N. (2010). Rousseau's Emile. In R. B. Barrow & D. Carr (Eds.), *The SAGE handbook of philosophy of education* (pp. 85–98). SAGE Publications.

Mather, M., & Sarkans, A. (2018). Student perceptions of online and face-to-face learning. *International Journal of Curriculum and Instruction*, *10*(2), 61–76.

McClure, J. (2007). International graduates' cross-cultural adjustment: experiences, coping strategies, and suggested programmatic responses. *Teaching in Higher Education*, *12*(2), 199–217. https://doi.org/10.0.4.56/13562510701191976

McCormick, A. C., Gonyea, R. M., & Kinzie, J. (2013). Refreshing engagement: NSSE at 13. *Change: The Magazine of Higher Learning*, *45*(3), 6–15. https://doi.org/10.1080/00091383.2013.786985

Means, B., Bakia, M., & Murphy, R. (2014). *Learning online: What research tells us about whether, when and how*. Routledge.

Mehrabian, A. (1971). *Silent messages*. Wadsworth Publishing Company.

Merriam-Webster. (n.d.). Pedagogy. In *Merriam-Webster.com dictionary*. Retrieved October 4, 2020, from https://www.merriam-webster.com/dictionary/pedagogy

Merriam, S. B. (1988). *Case study research in education : A qualitative approach.* (1st ed.). Jossey-Bass.

Merriam, S. B. (1995). What can you tell from an N of 1?: Issues of validity and reliability in qualitative research. *PAACE Journal of Lifelong Learning*, *4*, 51–60.

Montessori, M. (1912). *The Montessori method: Scientific pedagogy as applied to child education in "the Children's Houses" with additions and revisions*. (A. E. George, Trans.). Frederick A Stokes Company. https://doi.org/10.1037/13054-000

Murdock, J., & Williams, A. (2011). Creating an online learning community: Is it possible. *Innovative Higher Education*, *36*(5), 305–315. https://doi.org/10.0.3.239/s10755-011-9188-6

National Center for Education Statistics. (2018). *Number and percentage of undergraduate students enrolled in distance education or online classes and degree programs, by selected characteristics: Selected years, 2003-04 through 2015-16.* https://nces.ed.gov/programs/digest/d18/tables/dt18_311.22.asp

National Center for Education Statistics. (2019). *Distance learning.* https://nces.ed.gov/fastfacts/display.asp?id=80

National Institute of Education. (1984). *Involvement in learning: Realizing the potential of American higher education. Final Report of the Study Group on the Conditions of Excellence in American Higher Education.* U.S. Department of Education. (ED246833). ERIC. http://files.eric.ed.gov/fulltext/ED246833.pdf.

National Survey of Student Engagement. (n.d.-a). *Engagement indicators.* https://nsse.indiana.edu/nsse/survey-instruments/engagement-indicators.html#top

National Survey of Student Engagement. (n.d.-b). *NSSE's conceptual framework (2013).* NSSE. https://nsse.indiana.edu/nsse/psychometric-portfolio/conceptual-framework-new-version.html

National Survey of Student Engagement. (2001). *Origins and potential of the national survey of student engagement.* NSSE. https://nsse.indiana.edu/nsse/about-nsse/general-nsse-info-facts/origins.html#:~:text=The NSSE was conceived in,in the spring of 2000

National Survey of Student Engagement. (2013). A fresh look at student engagement: Annual results 2013. In *Indiana University Center for Postsecondary Research.* https://doi.org/10.5967/r4w1-bt95

Newcomb, T. M. (1943). *Personality and social change; attitude formation in a student community.* Dryden Press.

O'Neill, P. B., & Flynn, D. T. (2013). Another curriculum requirement? Quantitative reasoning in economics: Some first steps. *American Journal of Business Education*, *6*(3), 339–346.

Pace, C. R. (1990). *The undergraduate: A report of their activities and progress in college in the 1980's*. Center for the Study of Evaluation, University of California. (ED373701). ERIC. http://files.eric.ed.gov/fulltext/ED375701.pdf.

Panitz, T. (1999). *Collaborative versus Cooperative Learning: A Comparison of the Two Concepts Which Will Help Us Understand the Underlying Nature of Interactive Learning.* (ED448443). ERIC. https://files.eric.ed.gov/fulltext/ED448443.pdf.

Pascarella, E. T. (1980). Student-Faculty informal contact and college outcomes. *Review of Educational Research*, *50*(4), 545–595.

Pascarella, E. T., & Terenzini, P. T. (1978). Student-Faculty informal relationships and freshman year educational outcomes. *The Journal of Educational Research*, *71*(4), 183–189.

Piaget, J. (1977). *The development of thought: Equilibration of cognitive structures.* (Trans A. Rosin). Viking.

Poluekhtova, I. A., Vikhrova, O. Y., & Vartanova, E. L. (2020). Effectiveness of online education for the professional training of journalists: Students' distance learning during the COVID-19 pandemic. *Psychology in Russia. State of the Art*, *13*(4), 26–37. https://doi.org/10.0.45.101/pir.2020.0402

Redmond, P., Abawi, L. A., Brown, A., Henderson, R., & Heffernan, A. (2018). An online engagement framework for higher education. *Online Learning Journal*, *22*(1), 183–204. https://doi.org/10.24059/olj.v22i1.1175

Reed, J. G. (1976). *The identification of relevant dimensions for the environmental assessment of a college library using the critical incident technique*. [Unpublished master's

thesis].Towson State College. (ED125667). ERIC.

https://files.eric.ed.gov/fulltext/ED125667.pdf.

Reeve, J., & Tseng, C. M. (2011). Agency as a fourth aspect of students' engagement during

learning activities. *Contemporary Educational Psychology*, *36*(4), 257–267.

https://doi.org/10.1016/j.cedpsych.2011.05.002

Richardson, J. C., & Swan, K. (2003). Examining social presence in online courses in relation to

students' perceived learning and satisfaction. *Journal of Asynchronous Learning Network*,

7(1), 68–88. https://doi.org/10.24059/olj.v7i1.1864

Robbins, S., & Hoggan, C. (2019). Collaborative learning in higher education to improve

employability: Opportunities and challenges. *New Directions for Adult & Continuing

Education*, *2019*(163), 95–108. https://doi.org/10.0.3.234/ace.20344

Rocconi, L., & Kinzie, J. (2013). *NSSE engagement indicators: A conversation about transition

and use*. Southern Association for Institutional Research Conference in Memphis, TN.

https://creativecommons.org/licenses/by/4.0/.

Rodríguez, C., Chavez, C. R., & Klauber, C. (2019). International graduate student challenges

and support. *International Research and Review*, *8*(2), 49–64.

Romero-Hall, E., & Vicentini, C. (2017). Examining distance learners in hybrid synchronous

instruction: Successes and challenges. *Online Learning*, *21*(4), 141–157.

http://dx.doi.org/10.24059/olj.v21i4.1258

Russ, C. L., Mitchell, G. W., & Durham, S. K. (2010). Components that Affect Success in

Distance Learning as Perceived by Career and Technical Educators. *Business Education

Innovation Journal*, *2*(2), 73–79.

Saldana, J. (2016). *The coding manual for qualitative researchers* (J. Seaman (Ed.)). SAGE

Publications.

Seaman, J. E., Allen, I. E., & Seaman, J. (2018). *Grade increase: Tracking distance education in the United States*.

Seidman, I. (2006). *Interviewing as qualitative research: A guide for researchers in Education and the Social Sciences* (3rd ed.). Teachers College Press.

Shin, M., & Hickey, K. (2020). Needs a little TLC: examining college students' emergency remote teaching and learning experiences during COVID-19. *Journal of Further and Higher Education*, 1–14. https://doi.org/10.1080/0309877X.2020.1847261

Shulman, L. S. (2002). Making differences: A table of learning. *Change: The Magazine of Higher Learning*, *34*(6), 36–44. https://doi.org/10.1080/00091380209605567

Skinner, E. A., & Belmont, M. J. (1993). Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. *Journal of Educational Psychology*, *85*(4), 571–581. https://doi.org/10.1037/0022-0663.85.4.571

Skinner, E. A., Wellborn, J. G., & Connell, J. P. (1990). What it takes to do well in school and whether I've got it: A process model of perceived control and children's engagement and achievement in school. *Journal of Educational Psychology*, *82*(1), 22–32. https://doi.org/10.1037/0022-0663.82.1.22

So, H.-J. (2009). Is blended learning a viable option in public health education? A case study of student satisfaction with a blended graduate course. *Journal of Public Health Management & Practice*, *15*(1), 59–66.

Summers, J. J., Waigandt, A., & Whittaker, T. A. (2005). A comparison of student achievement and satisfaction in an online versus a traditional face-to-face statistics class. *Innovative Higher Education*, *29*(3), 233–250. https://doi.org/10.1007/s10755-005-1938-x

Sutton, M. R. (1978). *The concept of equilibration in Piaget's theory of cognitive development*. [Unpublished master's thesis]. The University of British Columbia.

Swan, K., & Ice, P. (2010). The community of inquiry framework ten years later: Introduction to the special issue. *Internet and Higher Education*, *13*(1–2), 1–4. https://doi.org/10.1016/j.iheduc.2009.11.003

Swan, K., Shea, P., Fredericksen, E., Pickett, A., Pelz, W., & Maher, G. (2000). Building knowledge building communities: Consistency, contact and communication in the virtual classroom. *Journal of Educational Computing Research*, *23*(4), 359–383. https://doi.org/10.2190/W4G6-HY52-57P1-PPNE

Synytsia, A. (2020). Education as a means of affirming democracy values in John Dewey's pragmatism: Modern perspective. *Journal of Education, Culture and Society*, *11*(1), 30–41.

Thompson Rivers University. (2020a). *Factbook Fiscal Year 2019-20*. https://www.tru.ca/__shared/assets/2019-202051980.pdf

Thompson Rivers University. (2020b, March 15). COVID-19 updates: Transitioning away from face-to-face classes. *Thompson Rivers University*. https://www.tru.ca/covid-19/updates.html

Thomson, S. (2011). Sample size and grounded theory. *JOAAG*, *5*(1), 45–52.

Törnroos, J. (2005). Mathematics textbooks, opportunity to learn and student achievement. *Studies in Educational Evaluation*, *31*(4), 315–327. https://doi.org/10.1016/j.stueduc.2005.11.005

Trowler, V. (2010). *Student engagement literature review*. The Higher Education Academy.

Tukibayeva, M., & Gonyea, R. M. (2014). High-impact practices and the first-year student. *New Directions for Institutional Research*, *2013*(160), 19–35. https://doi.org/10.1002/ir.20059

UNESCO. (2020, April 20). *School closures caused by Coronavirus (Covid-19)*.

https://en.unesco.org/covid19/educationresponse

van den Berg, G. (2020). Context matters: student experiences of interaction in open distance learning. *Turkish Online Journal of Distance Education*, 223–236. https://doi.org/10.17718/tojde.803411

Vibert, A. B., & Shields, C. (2003). Approaches to student engagement: Does ideology matter? *McGill Journal of Education*, *38*(002), 221–240.

Villegas, A. M., & Lucas, T. (2002). Preparing culturally responsive teachers rethinking the curriculum. *Journal of Teacher Education*, *53*(1), 20–32. https://doi.org/10.1177/0022487102053001003

Weiner, E., McNew, R., Gordon, J., Trangenstein, P., & Wood, K. (2019). Twenty plus years of distance learning: Lessons learned. *Studies in Health Technology and Informatics*, *264*, 1807–1808. https://doi.org/10.3233/SHTI190658

Williamson, B., Eynon, R., & Potter, J. (2020). Pandemic politics, pedagogies and practices: Digital technologies and distance education during the coronavirus emergency. *Learning, Media and Technology*, *45*(2), 107–114. https://doi.org/10.1080/17439884.2020.1761641

Woo, Y., & Reeves, T. C. (2008). Interaction in asynchronous web-based learning environments. *Journal of Asynchronous Learning Networks*, *12*(3–4), 179–194.

Woolsey, L. K. (1986). The critical incident technique: An innovative qualitative method of research. *Canadian Journal of Counselling*, *20*(4), 242–254.

Yan, V. X., Thai, K. P., & Bjork, R. A. (2014). Habits and beliefs that guide self-regulated learning: Do they varywith mindset. *Journal of Applied Research in Memory and Cognition*, *3*(3), 140–152. https://doi.org/10.1016/j.jarmac.2014.04.003

Yang, S.-K. (2011). An international comparison of the historical development of educational

philosophy. *Bulletin of Educational Research*, *57*(3), 1–36.

Young, S., & Duncan, H. (2014). Online and face-to-face teaching: How do student ratings

differ? *Journal of Online Learning and Teaching*, *10*(1), 70.

Zascavage, V., Masten, W. G., Schroeder-Steward, J., & Nichols, C. (2007). Comparison of

critical thinking in undergraduates and graduates in special education. *International Journal*

of Special Education, *22*(1), 25–31.

Zhang, W., Perris, K., & Yeung, L. (2005). Online tutorial support in open and distance learning:

students' perceptions. *British Journal of Educational Technology*, *36*(5), 789–804.

http://10.0.4.87/j.1467-8535.2004.00492.x

Appendix A

Introduction Letter

THOMPSON RIVERS UNIVERSITY

Introduction Letter

Hello,

My name is Hongran Cui, a MEd student at TRU, and conducting a research project for my thesis.

The outbreak of COVID-19 in early 2020 has affected most countries in the world, including Canada. TRU announced on March 15, 2020, that all on-campus courses would be changed to online courses from March 16 (Thompson Rivers University, 2020). I would like to find out, from the students' perspective, if there are changes in student engagement, and what are the main reasons for these changes?

The interview will remain strictly confidential. Participants' confidentiality will be protected through anonymity, the use of pseudonyms for the qualitative data reports. This interview will conduct online through Microsoft teams due to the pandemic.

You can withdraw from the study at any time and/or refuse to answer any questions, without suffering any negative consequences. If you choose to withdraw, the data will be destroyed and not used in the study.

The result of this research study could be helpful for students or TRU to modify the learning environment. Your participation will be appreciated.

If you are interested or have any questions, please feel free to contact me at cuih19@mytru.ca, or by phone at 250-879-5993.

Thank you for your time!

Sincerely yours,
Hongran Cui

Appendix B

Research Ethics Board Approval

THOMPSON RIVERS UNIVERSITY

December 08, 2020

Ms. Hongran Cui
Faculty of Education and Social Work\Education
Thompson Rivers University

File Number: 102577
Approval Date: December 08, 2020
Expiry Date: December 08, 2021

Dear Ms. Hongran Cui,

The Research Ethics Board has reviewed your application titled 'Face to Face, Online or something in Between: Student Perceptions of Student Engagement in Different Learning Environments'. Your application has been approved. You may begin the proposed research. This REB approval, dated December 08, 2020, is valid for one year: December 08, 2021.

Throughout the duration of this REB approval, all requests for modifications, renewals and serious adverse event reports are submitted via the Research Portal. To continue your proposed research beyond December 08, 2021, you must submit a Renewal Form before December 08, 2021. If your research ends before December 08, 2021, please submit a Final Report Form to close out REB approval monitoring efforts.

If you have any questions about the REB review & approval process, please contact the Research Ethics Office via 250.852.7122. If you encounter any issues when working in the Research Portal, please contact the Research Office at 250.371.5586.

Sincerely,

Joyce O'Mahony
Chair, Research Ethics Board

Appendix C

Participant Consent Form

THOMPSON RIVERS UNIVERSITY

PARTICIPANT CONSENT FORM

Title of Research Project:
Face to Face, Online or something in Between: Student Perceptions of Student Engagement in Different Learning Environments

Researcher: Hongran Cui, TRU 00643768, M.Ed. Candidate, cuih19@mytru.ca, 250-879-5993

Project Description:
Research Purpose: According to UNESCO (2020), in April 2020 almost 90% of schools from 192 countries were closed due to the pandemic, COVID-19. The entire society was forced to drift into emergency remote education rather than continue the dominant delivery mode of face-to- face (F2F) learning. This study will ask questions about what differences in student engagement student perceive because of this learning shift.
Research Procedure: This research will use the critical incident technique (CIT) and use the engagement indicators (EIs) from the National Survey of Student Engagement (NSSE) as the research framework. The project will be conducted using the online platform Microsoft Teams. The interview will take about 30 minutes. During the interview, participants will reflect on their experience of engagement in the learning process through the interview questions.

Consent: I am invited to participate in the abovementioned research study conducted by Hongran Cui, TRU 00643768 for the purposes of her Thesis in Master of Education.

Participation: My participation will consist of an online audio interview during which I will answer questions pertaining to the research topic. The audio of online interview(s) will be recorded for transcription as part of the data collection for the research project.

Benefits: There is renewed interest in student engagement. This time in education, which includes possibly the largest shift in learning/teaching style in history, is important, and under-researched. My participation in this study will help create a body of knowledge about the changes in student engagement. The results of the research study may help students and the university to consider the issues of student engagement more appropriately. I will be able to read the summary of the findings and utilize the information therein to benefit my learning.

Risks: My participation in this study will not require me to release any personal confidential information or any confidential individual student information. I have received assurance from the researcher that every effort will be made to ensure that information I provide will be treated with sensitivity to ensure that a positive image of my institution and program is demonstrated in the research report and any ensuing presentations or other material.

Confidentiality: I have received assurance from the researcher that the information I will share will remain strictly confidential. I understand that the contents will be used for the purposes mentioned above (the thesis), and potential in conferences, or academic journals, or other publications. My confidentiality will be protected through anonymity in the interview, the use of pseudonyms for the qualitative data reports, and the secure storage of my interview transcription notes as per Thompson Rivers University IT Security policies and practices.

Conservation of data: The data collected (tape recordings of interviews, transcripts, and all relevant work term/program documents) will be kept securely electronically on an encrypted device, and all hard copies will be securely stored on university property in a locked cabinet in Dr. Victoria Handford's office. Data will be kept for five years. After this, it will be discarded by permanently deleting electronic files and shredding paper copies.

Voluntary Participation: I am under no obligation to participate and if I choose to participate, I can withdraw from the study at any time and/or refuse to answer any questions, without suffering any negative consequences. If I choose to withdraw, all the data will be destroyed and not used in the study.

If you have any concerns about this study or need to file a complaint, please contact my supervisor Dr. Victoria Handford at vhandford@tru.ca, or by phone at 250-852-6353, and/or the Dean of the Faculty of Education and Social Work (Dr. Arini) at airini@tru.ca, or by phone at 250-828-5249, and/or TRU's Chair of the Research Ethics Board at TRU-REB@tru.ca or by phone at 250-828-5000. If you feel upset, distressed, or disturbed during the research, please contact TRU Counseling Department by phone at 250-828-5023.

Copies of The Consent Form and The Summary of The Research Findings

Each participant will receive a soft copy of the consent form and the summary of the research finding.

If you would like to receive a copy of the executive summary of completed projects and updated information during the course of the research, please contact me, and tell me the way you prefer to receive them. If you would like to review your transcript so you can feel reassure that it is reflective of what you said, please contact me, and tell me the way you prefer to receive them.

Acceptance: I,_____, agree to participate in the above research study conducted by Hongran Cui of the Faculty of Human, Social and Educational Development at Thompson Rivers University.

If I have any questions or further questions about the study and the procedure, I may contact the

researcher.

Participant's signature: (Signature)   Date: (Date)

Researcher's signature: (Signature)   Date: (Date)

Appendix D

Interview Questions

THOMPSON RIVERS UNIVERSITY

Interview questions using Critical Incidents Technique (CIT)

Title of Research Project:
Face to Face, Online or something in Between: Student Perceptions of Student
Engagement in Different Learning Environments

Researcher: Hongran Cui, TRU 00643768, M.Ed. Candidate, cuih19@mytru.ca, 250
879 5993

Introductory: The outbreak of COVID-19 in early 2020 has affected most countries in
the world, including Canada. TRU announced on March 15, 2020, that all on-campus
courses would be changed to online courses from March 16 (Thompson Rivers
University, 2020). This study will through the following questions to find out what
differences in student engagement student perceive because of this learning shift.
The interview will remain strictly confidential. Your confidentiality will be protected
through anonymity, the use of pseudonyms for the qualitative data reports.
You can withdraw from the study at any time and/or refuse to answer any questions,
without suffering any negative consequences. If you choose to withdraw, all the data
will be destroyed and not used in the study.

Interview Questions

1. 1a) When ERE learning became the main learning modality, it changed your
   learning experiences and learning environment. Can you describe what parts of
   these learning experiences you like, what has increased your interest in learning?

   1b) What parts of these changes in learning environment you have not liked, or
   have reduced your interest in learning?

2. 2a) You mentioned that your learning and your interest changed. Can you tell me
   about a specific situation where your learning and/or your interest changed because
   of the learning environment?

   2b) How did this affect your interest in learning?

3. It has been two or three semesters since you switched to emergency remote learning
   (ERE). Please describe the changes in your learning methods and learning plan
   during this period. If you like, please share your methods with us.

4. Please describe the scenarios that greatly/very well stimulated your interest in learning after switching to emergency remote learning (ERE). What factors stimulated your interest? Are these factors more likely to appear online or face-to-face?

Probing Questions

Trigger

1. Issue: Academic Challenge: higher-order learning, reflective & integrative learning, learning strategies, qualitative reasoning.

    Probes:
    - When ERE learning is the main learning modality, are your grades higher or lower?
    - Are you more or less interested in courses?
    - Has your learning time become more or less?

2. Issue: Learning with Peers: collaborative learning, discussion with diverse others

    Probe:
    - When ERE learning is the main learning modality, did your interactions with your classmates increase or decrease? Interaction could be in a study group, teamwork, group discussion, or simple communication with classmates about anything.

3. Issue: Experiences with Faculty: student-faculty interaction, effective teaching practices

    Probes:
    - When ERE learning is the main learning modality, did your interactions with your instructors increase or decrease?
    - What do you think is the main reason for the changes?
        o Is it because interaction content increased/ decreased, or interaction ways changed, or interaction willingness changes, or other reasons?

4. Issue: Campus Environment: quality of interactions, supportive environment

    Probe:
    - When ERE learning is the main learning modality, did your interactions with other faculty members increase or decrease?
    - What do you think has changed in the support from school / campus?

5. Issue: Better (professional) equipment

    Probe:

- When ERE learning is the main learning modality, do you think you need better or professional equipment? Could you please describe some functions you would like to have in your new equipment?

6. Issue: More or less synchronous or asynchronous courses

   Probe: Do you prefer to have more or less synchronous or asynchronous courses? What is the reason?

Action：
1. Did something change your actions in learning style?

2. When you changed your learning style, did anyone else participate in changing your learning style?

Appendix E

Examples of Adjustment for Quotation from the Interviews

Example one:

Original: That app can let the teacher make some interesting videos and make some interesting course content to the students.

Adjustment: Teachers can use that app to create interesting videos and course content for students.

Example two:

Original: I took a course called … and the in the course, the instructor introduce us many different apps to support our classroom teaching.

Adjustment: I took a course called … and in the course, the instructor introduced us many different apps to support our classroom teaching.

Example three:

Original: …for us, in China, we have the internet block… Sometimes I got disconnection with my network, because it's unstable.

Adjustment: … for us, in China, we have network restrictions… Sometimes, I lost the connection because my network was unstable.

Example four:

Original: She would divided us to breakout room and we talking and sharing the idea with her suggested question.

Adjustment: She divided us into breakout rooms; we talked and shared ideas about her suggested question.