

DISSERTATION

EXPLORING THE IMPACT OF DIFFERENTIATED INSTRUCTION ON ENGAGEMENT  
IN PHYSICAL AND HEALTH EDUCATION

Submitted by

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# DECLARATION FORM



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1. This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

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3. This dissertation is the result of my own independent work / investigation, except where otherwise stated.

Other sources are acknowledged by explicit references. A bibliography is appended.

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## **ABSTRACT**

### **EXPLORING THE IMPACT OF DIFFERENTIATED INSTRUCTION ON ENGAGEMENT IN PHYSICAL AND HEALTH EDUCATION**

The purpose of this dissertation was to understand the impact of differentiated instruction on student engagement within the context of physical and health education. This study uses the theoretical framework grounded in Self-Determination Theory, which suggests that all humans have three basic psychological needs: autonomy, competence, and relatedness in fostering intrinsic motivation. This research investigates how an individualized approach to physical and health education can impact students' engagement levels. Quantitative and qualitative data was collected at three key intervals—pre-intervention, mid-intervention, and post-intervention. Pre-intervention themes revealed that students' mixed feelings about personal performance and relationships with their peers impacted their engagement. Mid-intervention findings highlighted students' appreciation for individualization and increased self-reflection. Post-intervention themes determined that a strong connection with their teacher, enjoyment of personalization, and consistency with self-reflection helped to increase engagement. Analysis of the data presenting five emergent themes: positive teacher influence, goal setting and achievement, enjoyment of personalization, self-reflection and awareness, and social dynamics and enjoyment. The research combines insights from experts in differentiated instruction and engagement and shows how differentiated instructions can enhance engagement by aligning curriculum goals and the individual needs of the student.

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# **CHAPTER 1: INTRODUCTION**

## **Chapter Introduction**

This chapter presents background information of the study conducted in relation to differentiated instruction and its impact on engagement levels. The study is situated within the relevant literature and explores their application in academic programs. The chapter will state the rationale for the study and will lead to the formation of the primary research question.

Additionally, this chapter will provide an outline of the study's objective, an overview of the study's structure, and provide a general overview of the study group involved. Lastly, this chapter will include a general overview of the study group and discuss the researcher's motivation for completing this study.

## **Background and Historical Context**

The concept of student engagement in school has been a central theme in discussions of researchers for years (Kuh, 2009; Romba, 2013). There is a considerable amount of literature surrounding the concept of engagement in school, and the contribution that it might have on academic success (Kuh, 2009; Veiga, Reeve, Wentzel, & Robu, 2014). Student engagement should be defined as a multifaceted construct which included three key dimensions: cognitive engagement which refers to the idea of investment, emotional engagement which involves students' positive and negative responses to learning, and behavioral engagement which draws on the idea of participation (Fredricks et. al., 2004; Veiga et al., 2014).

The concept of engagement has been used by researchers to explain student behaviours in traditional classroom subjects, however, there is far less research that has been completed on engagement in physical and health education (PHE) (Hastie, Stringfellow, Johnson, Dixon, Hollet, & Ward, 2020). Engagement in PHE takes on a much different meaning than in the traditional classroom setting (Hastie et al. 2020). In their examination of engagement in PHE, Hastie et al. (2020) discuss that being engaged in PHE class is more than just participating, but it also requires a purpose or connection to an activity. An example of this could be to enhance or maintain fitness levels, to increase muscle endurance or strength, or to create positive habits for life-long health (Ogilvie, n.d.). Herein lies the problem. Often students are missing the initial purpose or connection to want to be engaged in PHE, and teachers find it difficult helping students find this connection (Hastie et al., 2020).

Through my experience teaching at Holy Cross Regional Secondary School, in Surrey, British Columbia, Canada, student engagement in PHE class is something that continues to be a concern. This is something that has become more common, as engagement levels in PHE class have been declining over the last number of years (Griggs & Fleet, 2021). Students in British Columbia are only required to participate in PHE until grade ten (Government of British Columbia, 2018) and for many students at Holy Cross they are thrilled to no longer take PHE class. As a teacher, it is disheartening to see students celebrate the idea that they never have to participate in PHE again. For teachers it becomes difficult to achieve the curriculum outcomes when students are unwilling to participate fully. While there are some students that are fully engaged regardless of the activity, there are several students that only participate during certain activities that they enjoy (Griggs & Fleet, 2021). Often PHE programs fail to meet the diverse needs or interests of students, and lack fun and creativity (Griggs & Fleet, 2021).

Griggs & Fleet (2021) suggest a shift towards more activity variety to help improve engagement in PHE. Using a differentiated instruction framework is one way to do this. The body of literature on differentiated instruction is robust, however, there is limited research that investigates differentiated instruction in PHE (Baumoel, 2021; Blegur & Hardiansyah, 2024; Colquitt, Pritchard, Johnson, & McCollum, 2017; Ellis, Lieberman, & LeRoux, 2009). The concept of differentiated instruction in PHE is used by teachers to tailor activities and expectations to meet student's abilities and in doing so create an environment that is positive and inclusive (Bailey, 2006; Colquitt et al., 2017; Lockwood, Sunada, Horricks, & Gleddie, 2008). Teachers use differentiated instruction to alter the size of equipment that is used, modify the playing area, and adjust the rules of games to better match the skill level, readiness, and interest of the students playing (Baumoel, 2021; Ellis et al., 2009). One goal of this study is to try and improve engagement levels for students so that every student not only enjoys their experience but can also have success within PHE. By using differentiated instruction teachers can provide the appropriate challenge that enables students to thrive (Wormeli, 2015).

### **Purpose of the Study**

The purpose of this mixed methods study is to determine if differentiated instruction is an effective tool to help improve engagement for students within PHE at Holy Cross Regional

Secondary School. The aim of the study is to determine whether an individualized approach to PHE has an impact on student's overall engagement in the course.

### **Research Questions**

This study sought to address the following research questions:

- What is the impact of differentiated instruction on student engagement levels in PHE?
- How does the use of differentiated instruction encourage students to be more engaged?
- How do individualized units and goals impact students' engagement?
- How might students' idea of engagement and teachers' assessment of their engagement align?

### **General Overview of the Study Group**

For this research study, data was collected from twenty-eight tenth grade students attending Holy Cross Regional Secondary School in Surrey, British Columbia, Canada. Of the twenty-eight students who were included in this study, fifteen students were male, and thirteen students were female. This group included thirteen White or European Canadian students, thirteen Asian Canadian students, and two African Canadian students.

### **Researcher Motivation**

Over the past ten years I have taught as a PHE teacher and held the role of PHE Department Head for seven years. I have a passion for physical education, and I understand the important role that physical health plays in our lives. Through my personal experience over the last ten years, I have noticed that engagement in PHE has slowly started to decline. Specifically, after returning to school after the Covid-19 pandemic, I noticed a big change in my students. My motivation for doing this research study is to help bring a spark back to my classes. The research shows that differentiated instruction is successful in the traditional classroom environment, and I want to know if it could also be successful in a PHE environment.

### **Summary**

This chapter provided the background information for the research study in relation to differentiated instruction and its impact on engagement levels. This chapter started to introduce

some of the relevant literature as it connects to academic programs. This chapter also discussed the rationale for the study, provided an outline for the study's objectives, an overview of the study's structure, and introduced the primary research question that will be investigated. This chapter concluded with a general overview of the study group and discussed the researcher's motivation for completing the study.

The following chapter will discuss the pertinent literature in relation to the issues regarding differentiated instruction and student engagement. Additionally, there will be connections made between the theoretical framework used for the study and differentiated instruction.

## **CHAPTER 2: LITERATURE REVIEW**

### **Chapter Introduction**

The review of the literature will discuss the relevant information in relation to the issues regarding differentiated instruction and student engagement. The body of literature on student engagement is vigorous and insightful. This chapter will examine three key dimensions of student engagement: behavioral, emotional and cognitive (Fredricks, Blumenfeld, & Paris, 2004). Similarly, the body of literature on differentiated instruction is also robust, however, there is limited research that investigates differentiated instruction in PHE (Baumoel, 2021; Blegur & Hardiansyah, 2024; Colquitt et al., 2017; Ellis et al., 2009). This chapter will discuss an overview of differentiated instruction and how it can be used in PHE (Bailey, 2006; Subban 2006; Gregory and Chapman, 2012). Lastly, this chapter will investigate self-determination theory as part of the theoretical framework that helped shape the study. All three aspects covered in this chapter are essential frameworks in educational psychology and address the ways that students acquire information and interact with their learning environments. Through this exploration of the literature on student engagement, differentiated instruction, and self-determination theory, connections are made to better understand how active engagement and motivation are fundamental for success in PHE.

### **Student Engagement Background**

According to Skinner, Kindermann, & Furrer (2009), engagement refers to the extent of a student's active involvement in a learning activity or school more generally. The concept of engagement has been studied in literature since the 1940's and its construct is complex and constantly changing (Kuh, 2009; Romba, 2013). The research shows that students who are more engaged in school are often more likely to persevere through challenges when compared to more disengaged students and when studied correctly, engagement can predict students' learning, grades, patterns of attendance, and achievement test scores (Romba, 2013; Skinner, Furrer, Marchand, & Kindermann, 2008).

In their assessment of engagement, Veiga et al. (2014) provide a review on the tools that are available to measure engagement. The study analyzed tools that have been used to assess engagement in the past and determined how appropriate and effective they are at understanding engagement in different educational settings (Veiga et. al, 2014). The authors determined that

engagement should be defined as a multifaceted construct which included the following: behavioral, emotional and cognitive engagement (Veiga et. al, 2014). Fredricks et al., (2004) took a closer look at the three constructs:

- **Behavioral engagement** draws on the idea of participation including academic, social, and extracurricular activities (Fredricks et. al., 2004). Appleton, Christenson & Furlong (2008) note that these actions can be reflected in things like attendance, attention, and effort.
- **Emotional engagement** involves students' positive and negative responses to learning, including their feelings towards their teachers, classmates, and the school (Appleton et al., 2008; Fredricks et al., 2004). This also impacts the students' connection to the school and impacts their willingness to complete schoolwork (Fredricks et. al., 2004).
- **Cognitive engagement** refers to the idea of investment including thoughtfulness and willingness to exert effort to comprehend and master complex ideas and challenging skills (Fredricks et al., 2004).

### **The Importance of Student Engagement in Education**

Given its multidimensional character, careful attention needs to be paid to how one assesses engagement (Veiga et al., 2004). Skinner et. al (2008) suggest that high quality learning is the result of a variety of behaviours and emotions including things like exertion, persistence, interest, and enjoyment. This is important because it impacts the motivation to master specific tasks or academic material. Additionally, Skinner et al. (2008) argue that students' engagement is impacted by how well they believe to understand something or how much they believe they are in control of their learning. This will directly impact their cognitive engagement and reinforce their willingness to exert themselves in school. When students believe that they can succeed and that their efforts matter, they are more likely to be engaged (Appleton et al., 2008; Skinner et al., 2008). This perspective reinforces the idea that engagement is not static, but rather something that is continuing to evolve, and shift based on interactions within our learning environment (Romba, 2013; Skinner et al., 2009).

Students that are more engaged not only achieve better grades in school, but also develop a stronger connection with their peers, have better social skills, and have a more positive outlook

towards their educational institutions (Kuh, 2009). This is important because when students feel a connection with their surroundings, their emotional engagement is triggered in a positive way. Positive engagement is also essential for institutional effectiveness, and it has been shown that engaged student populations demonstrate higher retention and overall success rates (Kuh, 2009). Institutions that are committed to the goal of increasing student engagement, often see long term success from their students (Romba, 2013). One area that this can be particularly important is physical and health education. Engaging students in physical activities promotes better physical health and an appreciation for lifelong participation in physical activity (Bailey, 2006; Appleton et al., 2008).

According to Skinner et al. (2009) engagement is important to prevent academic burnout. When students are engaged, they tend to have a more positive outlook on their learning, which leads to a more resilient attitude towards challenges (Skinner et al., 2009). When students are willing to participate in activities, both inside and outside of the classroom, they create positive behavioural engagement, which ultimately leads to more successes (Skinner et al., 2009; Fredricks et al., 2004).

### **Differentiated Instruction**

Differentiated instruction is an educational philosophy or framework that involves modifying teaching strategies to address the diverse needs of students in a learning environment (Tomlinson, 2005; Whitley, Duquette, Gooderham, Elliot, Orders, & Klan, 2021). Teachers that use differentiated instruction in their classrooms understand that students benefit from having different ways to access information, have variety in the way they demonstrate learning, and have a range of supports (Whitley et. al., 2021).

The theory itself has evolved from Vygotsky's general theory of cognitive development (McLeod, 2024). Vygotsky theorized that it was important to understand the exact level of the capabilities of a child so that the child could be challenged to an appropriate level (Rasheed & Wahid, 2018; McLeod, 2024). Vygotsky also stressed the importance of the student-teacher relationship as collaborative, not just the teacher teaching to the student (Subban, 2006; McLeod, 2024). This is important because students learn best when their teachers are willing to accommodate individual differences and readiness levels (Tomlinson, 2005). Differentiated instruction has brought about a positive shift in the way that teachers approach their practice.

Rasheed & Wahid (2018) describe differentiated instruction as one of the sensational theories in education because it has forced teachers to adapt to the needs of the learners in their classrooms.

Education is constantly evolving and current trends in education have reflected the change in the student populations that have emerged over the last few decades (Romba, 2013). While discussing the shift in classroom make-up, Subban (2006) noted that teachers have had to rethink their approach to teaching and learning based on the varying needs in their classrooms, including things such as English second language speakers, students with disabilities, or students on accelerated programs. These challenges have forced teachers to shift from standardized instruction to a more personalized approach (Tomlinson & Strickland, 2005). This is not always an easy thing to accomplish as teachers struggle to balance the requirement to cover curriculum while also trying to respond to the variety of needs within a classroom (Whitley, Gooderham, Duquette, Orders, & Cousins, 2019). To increase student motivation and achievement teachers must take into consideration several factors in their classroom configuration including race, gender, interest, and learning preferences (Tomlinson & Strickland, 2005).

There are many ways that teachers differentiate instruction in a classroom, and often students may not even realize that it's happening (Wormeli, 2017). Wormeli (2017) explains that when teachers rephrase a question, extend deadlines, give alternate examples to help with understanding, or give choice how to submit an assignment, they differentiated instruction. According to Tomlinson (2001), there are four main ways that differentiated instruction can be implemented into teachers' practice: content, process, product, and learning environment.

- **Content:** Making adjustments to what students learn and how they are assessed based on their ability (Tomlinson, 2001). This could include things like how interested students are in a particular topic, how much prior knowledge they have or readiness levels (Tomlinson, 2001; Santangelo & Tomlinson, 2012).
- **Process:** Adapting the way that students are presented information to accommodate the learner (Tomlinson, 2001). This could include using a variety of different methods to teach similar content such as videos, graphic organizers, and PowerPoint presentations (Tomlinson, 2001; Gregory & Chapman, 2012).
- **Product:** Allowing students to display their understanding in a variety of methods (Tomlinson, 2001). This could include giving students choice how they would like to

complete an assignment such as a presentation, a written assignment, or a creative project (Tomlinson, 2001; Subban, 2006).

- **Learning environment:** Using different environments to support the different needs of students (Tomlinson, 2001). This could include altering the configuration of the classroom or changing the learning environment such as going to an outdoor space or moving into a quieter location.

A few of the principles that help guide differentiated instruction are quality curriculum, continual assessment, and flexible grouping (Rasheed & Wahid, 2018). If the curriculum changes frequently, then teachers cannot reuse resources and then differentiation becomes a challenge for the teacher (Rasheed & Wahid, 2018). Differentiated learning requires that the teacher is constantly assessing and reassessing the needs of the learner (Whitley et al., 2019). While assessing teachers must not be scared to make changes quickly. Flexible grouping puts an emphasis on social learning, and it is important for the teacher to group learners that have similar interests together (Rasheed & Wahid, 2018). Differentiated instruction forces teachers and students to collaborate to ensure the most success for the student. While the use of the term differentiated instruction is a relatively modern term, teachers have been using different forms of the practice for a long time (Whitley et al., 2021; Wormeli, 2017).

### **Differentiated Instruction in Physical and Health Education**

While differentiated instruction has grown in popularity over the last number of years, it has received limited attention in physical and health education (Colquitt et al., 2017). However, physical and health education is the perfect subject to use differentiated instruction because students may vary widely in skill level, ability, and interest (Colquitt et al., 2017; Lockwood et al., 2008). Often students are required to take physical and health education class and this variance in ability and interest is noticeable (Colquitt et al., 2017; Government of British Columbia, 2018). Using differentiated instruction allows teachers to tailor activities and expectations to meet student's abilities and in doing so create an environment that is positive and inclusive for all students (Bailey, 2006; Colquitt et al., 2017; Lockwood et al., 2008).

Differentiation is important for physical and health education teachers to manage the diversity that exists in their classes (Lockwood et al., 2008). Once a teacher has developed an

understanding of students' interests and readiness levels, they can then use differentiation to enhance inclusivity (Colquitt et al., 2017). For example, teachers can offer individuals choice if they would like to play in a more advanced or leisure game of basketball or create a complex or beginner set of training exercises (Bailey, 2006; Lockwood et al., 2008). This ensures that all students are challenged appropriately and remain engaged (Subban, 2006; Gregory & Chapman, 2012).

Like the traditional classroom setting, differentiated instruction in physical and health education puts the student at the center of learning (Lockwood et. al., 2008). Allowing students greater student choice, not only supports autonomy and engagement, but also fosters a relationship of mutual respect (Lockwood et al., 2008; Tomlinson, 2001). By allowing students opportunities to participate in activities that they enjoy and have success at, teachers can create a positive and inclusive learning environment (Bailey, 2006; Lockwood et al, 2008; Santangelo & Tomlinson, 2012).

### **Self-Determination Theory Introduction**

This study was guided by Edward Deci and Richard Ryan's self-determination theory (1985). Their theory was created to explain what drives human behaviour and focuses on the factors that impact intrinsic motivation (Deci & Ryan, 1985). Self-determination theory centers around the idea that individuals have three fundamental psychological needs: autonomy, competence, and relatedness (Deci & Ryan, 1985).

- **Autonomy** refers to having control over one's actions or decisions (Deci & Ryan, 1985). In terms of autonomy, Deci & Ryan (2000) discuss that monetary or extrinsic rewards, and threats or surveillance undermine people's intrinsic motivation.
- **Competence**: refers to feeling of being capable of mastery and being effective in one's outcomes (Deci & Ryan, 1985). In terms of competence Deci & Ryan (2000) discuss that positive or negative feedback could either enhance or undermine intrinsic motivation.
- **Relatedness**: refers to feeling connected to others and to have a sense of belonging with others and the community (Deci & Ryan, 1985). In terms of relatedness Deci & Ryan (2000) discuss that people with a secure sense of relatedness have a strong intrinsic motivation.

### **Self-Determination Theory in Education**

Self-determination theory is of much importance in education, especially when considering student intrinsic motivation and academic engagement (Niemiec & Ryan, 2009). Teachers play a large role in creating an environment that fosters intrinsic motivation by supporting the three pillars of self-determination theory (Deci et al., 1991; Ryan & Deci, 2002). First, teachers can support student autonomy by giving student choice in the way that they complete a project (Niemiec & Ryan, 2009). Additionally, teachers can support student competence by providing timely feedback and tasks that are appropriately challenging (Niemiec & Ryan, 2009). Lastly, teachers can support relatedness by providing students opportunities to collaborate with their peers and creating a positive classroom environment (Niemiec & Ryan, 2009). When all these needs are met, students are more likely to be intrinsically motivated, which leads to stronger overall engagement (Deci & Ryan, 2000; Niemiec & Ryan, 2009).

### **Differentiated Instruction and Self Determination Theory**

According to Niemiec & Ryan (2009) teachers can support their student's engagement by focusing on the three psychological needs of autonomy, competence, and relatedness. Self-determination theory and differentiated instruction align well in meeting these needs for students by personalizing instruction (Deci & Ryan, 2000; Tomlinson, 2001). An example of this could be in a physical and health education setting where teachers can differentiate activities based on skill level or interest (Colquitt et al., 2017; Lockwood et al., 2008). This approach not only supports students' psychological needs but also enhances their overall engagement and participation (Ryan & Deci, 2002; Santangelo & Tomlinson, 2012). Physical and health education teachers can use self-determination theory to help guide their practice. For instance, allowing students to choose which activity they would like to participate in encourages autonomy, giving specific and timely feedback for the activities improves competence, and working together in teams promotes relatedness.

### **Summary**

This review of the literature has discussed some relevant information in relation to issues regarding differentiated instruction and engagement. This chapter examined three key dimensions of student engagement and provided practical examples at how they can be

identified. Next, this chapter discussed an overview of differentiated instruction, including the four main ways that teachers can implement differentiation into their practice. Additionally, a connection was made between differentiated instruction and how it can be presented to improve engagement in physical and health education classes. Lastly, this chapter investigated self-determination theory as part of the theoretical framework that helped shape this research study.

The following chapter locates the methodology that was used for the study. The chapter will look at the research paradigm and discuss the research design of the study. It will then give an overview of the data collection methods and tools, followed by the framework for data analysis. Finally, it will then discuss the research participants and the ethical principles that helped guide the research and protect the participants from any harmful effects of the research.

## **CHAPTER 3: METHODOLOGY**

### **Chapter Introduction**

This chapter seeks to outline the methodology and research design of the study conducted. First, the chapter will discuss the research paradigm, and its importance in addressing the concerns of ontology and epistemology. Secondly, the chapter will discuss the research design, and provide the reason that this research study was best completed using this approach. Next, an overview of the data collection methods and tools will be provided, followed with the framework for data analysis during the study. Lastly, an introduction to the participants that took part in the study will be provided, as well as the ethical principles that helped guide the research and protect the participants from any harmful effects of the research.

### **Research Paradigm**

The research study that was conducted followed the post-positivist paradigm. The post-positivist paradigm is a research paradigm that tries to acknowledge the limitations of positivism which emphasizes empirical observation and measurement (Guba & Lincoln, 1994). Guba and Lincoln (1994) argue that post positivism recognizes the importance of context and subjectivity in social research, but also understands the important role that the researcher has in shaping the research process. Additionally, this paradigm was appropriate because this study was more concerned with objective reality, unlike positivist research which looks to form one single truth, post-positivist research understands that “the absolute truth is nowhere to be found” (Panhwar, Ansarim & Shah, 2017, p. 257). Panhwar et al. (2017) explain this phenomenon in more simplistic terms when they say that “post-positivist research is only an attempt to explore a phenomenon as much as possible” (p. 253). This is important because it allows the researcher to gather a more refined, rigorous, and insightful understanding of the topic, while not focusing on trying to find a single truth. This paradigm worked well for this study because it allowed for flexibility to use multiple methods to carry out research, and while it acknowledges that personal bias exists, it helped to reflect on my own assumptions and biases in the research process.

### **Research Design**

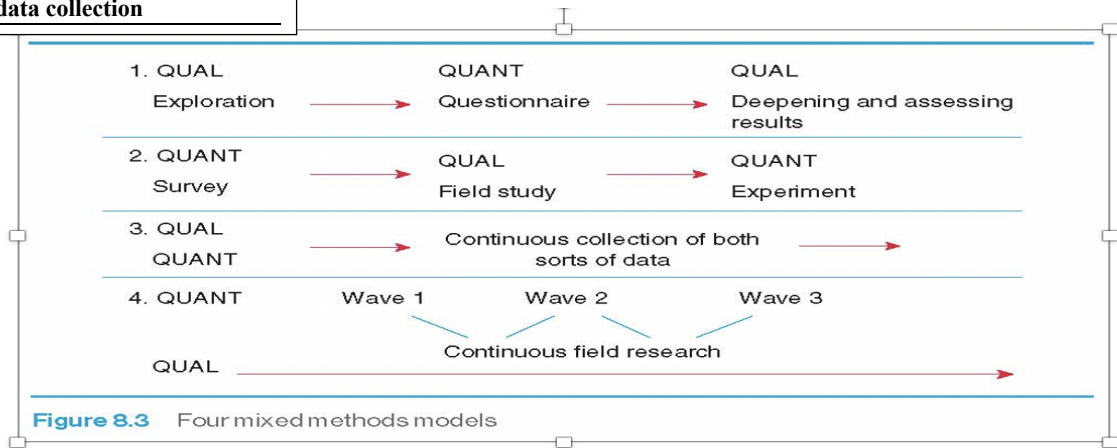
The post-positivist perspective puts an emphasis on using a hybrid design, where both quantitative and qualitative data is collected and recognized as important and useful (Johnson &

Onwuegbuzie, 2004; Panhwar et al., 2017). Greene, Caracelli, & Graham (1989) discuss five major rationales for mixed methods research: a) triangulation (i.e., seeking convergence and corroboration of results from different methods); b) complementarity (i.e. seeking elaboration, enhancement, illustration, and clarification of the results from one method with results from the other); c) development (using the findings of one method to help inform the other method); d) initiation (discovering paradoxes and contradictions that lead to a re-framing of the research question); and e) expansion (seeking to expand the breadth and range of research by using different methods for different inquiry components) (Johnson & Onwuegbuzie, 2004). Using both qualitative and quantitative data collection offered an advantage over a single method evaluation, including increased validity and reliability of results and more comprehensive understanding of the intervention being evaluated (Greene et. al., 1989). Lastly, using this type of approach allowed me to investigate my research question from different perspectives, with a variety of tools and methods (Panhwar et. al., 2007). I offered participants different options to share their experiences in a way that best suited them. This allowed me to gather and analyze different types of information, and ultimately have a stronger understanding of my research.

Both quantitative and qualitative research have weaknesses and limitations (Verhoef & Casebeer, 1997). Using mixed methods approach provided me an opportunity to blend the insights provided by qualitative and quantitative research to have a more cohesive understanding of my study (Johnson & Onwuegbuzie, 2004). By combining both methods, a researcher can use the strengths of one method to overcome the weakness of another (Johnson & Onwuegbuzie, 2004). For example, taking the results of the student engagement questionnaire and pairing it with themes that were identified from student journals would provide a deeper understanding of the experiences of the students.

Once I understood that this research study was best completed with a mixed methods approach, it was then important to decide how to best collect the data for my study. Gray (2014) provides the following graph which outlines different mixed method models for data collection (p. 200):

**Figure 1: Mixed method data collection**



Taking into consideration the four different models that the graph provided, this study followed model number three, where qualitative and quantitative data were collected simultaneously. By continuously collecting both types of data I was able to use participant’s experiences, emotions and perceptions to better understand the measurable data (Verhoef & Casebeer, 1997).

The primary purpose of this study was to obtain a thorough understanding of whether the use of differentiated instruction in Physical and Health Education class would have an impact on student’s engagement levels. The research schedule for the project took place over a ten-week period starting at the beginning of April and ending in the beginning of June (see Appendix A). Students were given an introductory lesson on differentiated instruction and provided an example of how differentiated instruction could be used in PHE class (see Appendix K). At the beginning of the ten-week period students were tasked with creating their own unit plan, which included personalized goals and an individualized final summative rubric. Throughout the process students completed journal entries, a student engagement questionnaire, and took part in a focus group. Concurrently, I completed a teacher engagement questionnaire and participant observations. These quantitative and qualitative components combined to produce “findings that are greater than the sum of the parts” (Bazeley, 2009, p. 204; Verhoef & Casebeer, 1997).

### Methods/Tools

Four different methods were used to collect data for the study: student and teacher engagement questionnaires for quantitative data, participant pre-intervention, mid-intervention, and post-intervention journals for qualitative data, participant observations for qualitative data,

and a focus group at the end of the study for qualitative research. Each method will be discussed in more detail below.

### **Engagement: Student Reports**

The first questionnaire that was used was an adapted version of the Engagement vs Disaffection with Learning (EDL) (Skinner et al., 2008) (see Appendix B). This questionnaire has been previously validated and used in several different studies as an effective tool to measure engagement (Hastie, Stringfellow, Johnson, Dixon, Hollett, & Ward, 2020). For this study, I decided to use this questionnaire to have the participants assess their own engagement levels because only the individual can truly determine how engaged they are during an activity.

The EDL is a 20-item instrument that assesses not only the presence of engaged learning, but also disaffected behavior (Veiga et al., 2014). Engaged learning happens when learners relate to their subject matter, they are actively interested in what they are learning, and they are willing to put in effort into understanding or mastering the material (Skinner et. al., 2008). Whereas the absence of engagement or disaffection with learning happens when learners have a lack of interest in the learning process. They may feel disconnected or withdrawn from the learning material, experience boredom, and struggle to see value in what they are learning (Ritosa, Danielsson, Sjöman, Almqvist, & Granlund, 2020; Skinner et. al., 2008). For this study, it was important to see when students were feeling engaged or disaffected because the hope was that through differentiated instruction intervention taking place, that it may impact these students' engagement levels.

Differing from other engagement measurement tools, the EDL assesses behavioral and emotional engagement, as well as behavioral and emotional disaffection. Sample items from the questionnaire include questions such as: “in class, I work as hard as I can.” (behavioral engagement); “in class, I do just enough to get by.” (behavioral disaffection); “when in class I feel good.” (emotional engagement); “when I’m doing work in this class, I feel bored” (emotional disaffection) (Skinner et. al., 2008; Veiga et. al., 2014, p.45). Responses were indicated on a 4-point Likert scale with the following responses: 1-not true at all, 2-not very true, 3-sort of true, and 4-very true. The EDL works well for this study because it can be used with a wide range of students starting in late elementary all the way through to university aged students, with higher scores indicating affective engagement (Skinner et.al., 2008; Veiga et al., 2014).

Participants completed the questionnaire in week two to set a baseline before the intervention, and then again in week eight to see if any difference occurred after the intervention. This provided time for the students to complete their unit plans, work through the goals that they set for themselves, and have their summative assessment using their individualized rubrics.

### **Engagement: Teacher Reports**

The second questionnaire is an adapted version of the Teacher-Report Engagement questionnaire (Skinner et al., 2008) (see appendix C). This was also used to quantitatively assess participant engagement levels, but instead of having the students report on their own engagement levels, it was used to “measure teachers’ perception of student behavioral and emotional engagement” (Shen et al., 2012, p. 236). This questionnaire was also previously validated and used in several different studies as an effective tool to measure teachers' perception of student engagement (Hastie, Stringfellow, Johnson, Dixon, Hollett, & Ward, 2020).

Sample items from the questionnaire include questions such as: “in my class, this student works as hard as he/she can (behavioral engagement); “in my class, this student is enthusiastic” (emotional engagement); “in my class, this student comes unprepared (behavioral disaffection); “when working on classwork, this student seems worried” (emotional disaffection) (Ritosa et al., 2020, p.9). Similarly, to the EDL, responses were indicated on a 4-point Likert scale with the following responses: 1-not true at all, 2-not very true, 3-sort of true, and 4-very true. I completed one questionnaire for each student in week two to set a baseline and then again in week eight to see if I noticed any difference after the intervention. This took place at the completion of the unit and after student’s summative assessment for the units using their individualized rubrics.

### **Student Journals**

Student journals are an effective tool to help gain insight into participants’ experiences, thoughts, feelings, opinions, circumstances, and perspectives (Eidse & Turner, 2014). For this study, student journals were used as a method to collect qualitative data from participants. Eidse and Turner (2014) have observed that journal writing allowed people the appropriate amount of time to reflect on their experiences for deeper understanding.

Three different journals were used for this study: one pre intervention written in week one (see Appendix D), one mid intervention in week four (see Appendix E), and one post

intervention in week seven (see Appendix F). Some examples of prompt questions for the journals were: “Reflecting on previous PHE classes, do you feel that you always work to the best of your ability” (pre-intervention journal); “Are you feeling like you are more engaged in this unit than in previous units this year? Explain.” (mid-intervention journal); “Reflecting on this unit, do you feel like the goals that you set for yourself were the right level of difficulty? Did you achieve your goals? Explain.” (post intervention journal). The journals were important because they allowed the participants to record their own experiences in real time and they provided an opportunity for participants to share experiences that they may not share in a face to face or group setting (Eidse & Turner, 2014). The decision to only collect three journals rather than more frequently was made because I felt that the time between each journal response was appropriate for the students to reflect on their experiences and feel improvements in their performance.

### **Participant Observations**

Participant observations were also used to collect qualitative data for this study. Participant observations offered me an opportunity to participate and make observations notes while allowing the students to work freely through their activities (Carnevale, Macdonald, Bluebond-Langner, & McKeever, 2008). Participant observations allow the researcher to monitor the impact of the intervention while permitting the students to be in a natural setting and continue with normal activities (Carnevale et al., 2008). They also allowed for flexibility. I could adapt my focus or strategies along the way to collect and interpret different types of data (Carnevale et al., 2008).

While it was not possible to observe all the students at the exact same time due to the size and nature of the PHE class, I instead focused my attention on three or four students per class and jotted down notes in my research journal. This allowed me to observe all students at least two times throughout the study. Doing these observations also helped me gather information to make judgements while filling in the teacher engagement questionnaire.

### **Focus Groups**

Lastly, the students took part in focus groups at the end of the study. Focus groups were the last collection of qualitative data for the study. Focus groups provided an opportunity for

participants to discuss their experiences, opinions, and perspectives openly in a group dynamic (Smithson, 2000). The focus group sessions took place during week nine and ten of the study and due to the size of the class, the focus groups were divided into groups of nine to ten students. The groups were split up alphabetically and I divided the group so that there were five boys and at least four girls in each session. Sessions lasted between thirty and forty-five minutes, and I typed up focus group notes as the students were responding.

Open dialogue was encouraged, and prompt questions were used to ensure that conversation flowed (See Appendix G). Some of the prompt questions that were asked included: “How might the practice of differentiated instruction be improved if we were to try using it in the future?”; Does personal motivation play a factor in student engagement?”; “Overall, did you feel that individualization benefited or hurt the engagement levels in our class? Explain why.” One concern that was noted in the focus groups was that not everyone participated, and some students dominated the conversations.

### **Data Analysis**

As mentioned previously, this study was completed using mixed methods where quantitative and qualitative research concepts and techniques are combined in a single study (Johnson & Onwuegbuzie, 2004). Analyzing data in a mixed research method is what Onwuegbuzie and Combs (2011) call mixed analysis. Mixed analysis is very challenging for researchers because they need to be capable of analyzing both the quantitative and qualitative data and integrate their findings in a coherent and meaningful way (Onwuegbuzie and Combs, 2011). Data collection for this study happened concurrently, although a deeper investigation of the data that was collected took place after the initial collection phase (Gray, 2014; Onwuegbuzie and Combs, 2011).

Two important aspects of mixed analyses are the time sequence (refers to whether the quantitative and qualitative analysis components occur in chronological order) and the priority of analytical components (if emphasis is given to quantitative or qualitative analysis, or equal priority) (Onwuegbuzie and Combs, 2011). For this study the quantitative and qualitative analyses were conducted sequentially in more than two phases and the quantitative analysis component was given higher priority (Onwuegbuzie and Combs, 2011). This analysis is a

qualitative-dominant mixed analysis, where the inclusion of quantitative data and analysis helps to give a stronger understanding (Onwuegbuzie and Combs, 2011).

Lastly, Greene et. al., (1989) identified five purposes for mixing quantitative and qualitative data: triangulation, complementarity, development, initiation, and expansion. In the context of this study the rationale for mixing quantitative and qualitative analysis in this study was triangulation and complementarity. Triangulation allowed me to validate information across different measures, which enhanced the reliability of the results. Complementarity allowed for richer, more refined understanding as qualitative data gave insights into emotions and perceptions of students, and quantitative data gave measurable information.

### **Participants**

For this research study, data was collected from twenty-eight tenth grade students attending Holy Cross Regional Secondary School in Surrey, British Columbia, Canada. Surrey is one of the fastest growing cities in the country with a population that has increased nearly 10% from 2016-2021 (Statistics Canada, 2021). Most families living in the area are of middle-class socioeconomic status, with a large increase of young families over the last number of years (Statistics Canada, 2021). The Province of British Columbia requires that all students in the province take Physical and Health Education classes from kindergarten to grade ten (Government of British Columbia, 2018 & 2023) and because of this I decided to conduct the study with my grade ten students. This allowed for the most accurate representation of student experience in Physical and Health Education class as not all students are consistently engaged in class activities.

Holy Cross is a private, Roman Catholic high school, with an ethnically diverse school population. Of the twenty-eight students who were included in this study, fifteen students were male, and thirteen students were female. This group included thirteen White or European Canadian students, thirteen Asian Canadian students, and two African Canadian students. The school follows a linear school model which means that students participated in Physical and Health Education class every other day throughout the entirety of the school year. Permission to conduct the study was obtained prior to the investigation from the university review board, the school district, the participants, and their parents. To maintain student confidentiality, a coding system was used for this study. All students were given either an M for male or F for female to

identify their gender, and a number which was associated with their position on the class list (i.e. M4 or F7). Only one student did not want to participate in the study, and no students withdrew themselves from the study once it started.

### **Ethical Issues**

As the researcher in this study, it was important to ensure that my project followed the basics for ethical principles. My ethical position served as the guide through this process. The goal for this study was to create an environment that the participants felt respected, where they could share openly without judgment, and that they understood that their rights and well-being were always protected. I first had to gain approval for my study through the university (See Appendix H). Next, I gained consent from the school board and from my school principal to conduct my study (See Appendix J). From there I sent an information letter home to all the parents explaining the details involved with my project. Since my project worked with students under the age of 18, all students that took part in the study needed to have an informed consent and permission letter signed by a legal guardian (See Appendix I).

Here are a few of the principles that helped guide my research. The first ethical principle was respect for free and informed consent (Bhandari, 2024; Gardiner 2024). Students were able to make decisions about participation in the project without external pressures or considerations. For example, participation in this study did not impact their course grade or opportunities for learning in Physical and Health Education class. They were given all the appropriate information prior to taking part in the study and were free to ask questions whenever they needed. Students or their guardians could choose to not participate in the project or could withdraw at any time if they did not feel comfortable.

The second ethical principle was respect for vulnerable persons (Bhandari, 2024; Gardiner 2024). As mentioned previously because I was working with students under the age of 18, they had to complete an informed consent. Special care was taken to ensure that students' physical, mental and emotional health was considered throughout the entire study.

The third ethical principle was respect for privacy and confidentiality (Bhandari, 2024; Gardiner 2024). All information that was collected during this project was only seen by me. No other students, staff members, or parents/guardians had access to the raw information. Once the research was completed, students and guardians could request access to the final

submission. Students' names and information were removed from all documents to protect their privacy, and physical copies of information collected were stored in a locked filing cabinet.

The last ethical principle was balancing harms and benefits (Bhandari, 2024; Gardiner 2024). This project had very little risk attached to it. Students were only dealing with the same risks associated with regular Physical and Health Education classes. The benefit for the students was to see if there is a way to improve overall engagement in our classes through differentiated instruction. This will hopefully allow for a more enjoyable overall experience for our students.

### **Summary**

This chapter described the methodology that was used for the study within the post positivist paradigm considering the issues of ontology and epistemology. Additionally, a rationale was provided for the research design and details for the data collection methods and tools was provided, followed with the framework for data analysis during the study. Lastly, an introduction to the participants that took part in the study was provided and ethical principles that helped guide the research and protect the participants from any harmful effects was discussed.

The following chapter focuses on the quantitative and qualitative data that was gathered and analysed for my research study. The quantitative data will provide statistical support to help answer my research questions. The qualitative data will help to identify themes that exist within my study.

## **CHAPTER 4: RESULTS, FINDINGS AND DISCUSSION**

### **Chapter Introduction**

In the previous chapters, I described the relevant information for the completion of this study including: the historical context, the literature review, and the methodology used to complete research. The purpose of this mixed methods study was to determine if differentiated instruction is an effective tool to help improve engagement for PHE students. Specifically, if an individualized approach to PHE could impact student's overall engagement in the course. The following questions guided the study:

- What is the impact of differentiated instruction on student engagement levels in PHE?
- How does the use of differentiated instruction encourage students to be more engaged?
- How do individualized units and goals impact students' engagement?
- How might students' idea of engagement and teachers' assessment of their engagement align?

This chapter presents the findings that were gathered and analysed for my research study on the impact of differentiated instruction on student engagement in PHE. Quantitative data will be presented to provide statistical evidence to support the research. Key results will be shared at the outset of the chapter. Additionally, qualitative data will be analyzed to identify key themes that exist within the study and connections will be made to the review of literature that was presented previously.

### **Summary of Hypothesis**

My study hypothesizes that the implementation of differentiated instruction will have a positive increase on student's engagement levels in PHE class. I used the Engagement vs Disaffection with Learning Questionnaire and the Teacher Report Engagement Questionnaire to collect data for this study (Skinner et al, 2008). Students completed their questionnaires independently under my supervision during class time and I completed the teacher reports the same day. Using information collected at the beginning and end of a fitness and conditioning unit I attempted to understand if a personalized unit design with an individualized summative rubric would have a positive impact on engagement levels. I believe that students who experienced differentiated instruction would show higher levels of emotional and behavioral engagement (Skinner et al., 2008). Additionally, using differentiated instruction aligns well with Deci &

Ryan's (1985) Self-Determination Theory principles which promote autonomy, competence, and relatedness which should lead to a positive shift in students' attitudes and connection to PHE class. Part of the questionnaire also measured student disaffection, and although I was not measuring disaffection specifically, my hypothesis would predict that as student engagement levels increased, disaffection would likely decrease. The null hypothesis for this study is that the implementation of differentiated instruction will have no significant change in student's engagement levels in PHE class. This would mean that there would be no significant difference in behavioral or emotional engagement based on the introduction of differentiated instruction measures.

### Student Engagement vs Disaffection Results

The quantitative data below presents findings from the research that was done during this study. The analysis examines the change that took place while measuring the students' emotional and behavioral engagement using Skinner et al.'s (2008) Engagement vs Disaffection with Learning Questionnaire. Information was also included that measured student emotional and behavioral disaffection. Table 1 and 2 below provide the information collected from the pre- and post-intervention Student Engagement vs Disaffection with Learning Questionnaire.

**Table 1**

*Pre-Intervention Student Engagement vs Disaffection with Learning Questionnaire*

|                         | N  | Mean   | Std. Deviation |
|-------------------------|----|--------|----------------|
| Emotional Engagement    | 28 | 3.0000 | .66667         |
| Behavioral Engagement   | 28 | 3.1214 | .68061         |
| Emotional Disaffection  | 28 | 1.8286 | .72565         |
| Behavioral Disaffection | 28 | 2.1714 | .65707         |
| Valid N (listwise)      | 28 |        |                |

All scales ranged from 1 (not true at all for me) to 4 (very true for me)

**Table 2**

*Post-Intervention Student Engagement vs Disaffection with Learning Questionnaire*

|                       | N  | Mean   | Std. Deviation |
|-----------------------|----|--------|----------------|
| Emotional Engagement  | 28 | 3.5000 | .43033         |
| Behavioral Engagement | 28 | 3.4786 | .37054         |

|                         |    |        |        |
|-------------------------|----|--------|--------|
| Emotional Disaffection  | 28 | 1.5000 | .44721 |
| Behavioral Disaffection | 28 | 1.7571 | .45658 |
| Valid N (listwise)      | 28 |        |        |

All scales ranged from 1 (not true at all for me) to 4 (very true for me)

Here is the analysis for the student reported questionnaire:

- **Emotional Engagement:** The mean score for emotional engagement increased from 3.00 (SD= 0.67) pre-intervention to 3.50 (SD = 0.43) post intervention.
- **Behavioral Engagement:** The mean score for behavioral engagement increased from 3.12 (SD =0.68) pre-intervention to 3.48 (SD = 0.37) post intervention.
- **Emotional Disaffection:** The mean score for emotional disaffection decreased from 1.83 (SD = 0.73) pre-intervention to 1.50 (SD = 0.45) post intervention.
- **Behavioral Disaffection:** The mean score for behavioral disaffection decreased from 2.17 (SD = 0.66) pre-intervention to 1.76 (SD = 0.46) post intervention.

### Teacher Report Engagement Results

The quantitative data below presents findings from the research that was done during this study. The analysis examines the change that took place while measuring my perceptions of student emotional and behavioral engagement using Skinner et al.'s (2008) Teacher Report Engagement Questionnaire. Information was also included that measured my perceptions of student emotional and behavioral disaffection. Table 3 and 4 below provide the information collected from the pre- and post-intervention Teacher Report Engagement Questionnaire.

**Table 3**

*Pre-Intervention Teacher  
Report Engagement  
Questionnaire*

|                         | N  | Mean   | Std. Deviation |
|-------------------------|----|--------|----------------|
| Emotional Engagement    | 28 | 2.8857 | .57973         |
| Behavioral Engagement   | 28 | 2.6214 | .78569         |
| Emotional Disaffection  | 28 | 2.0679 | .56046         |
| Behavioral Disaffection | 28 | 2.2143 | .59611         |
| Valid N (listwise)      | 28 |        |                |

All scales ranged from 1 (not true at all for this student) to 4 (very true for this student)

**Table 4***Post-Intervention Teacher**Report Engagement**Questionnaire*

|                         | N  | Mean   | Std. Deviation |
|-------------------------|----|--------|----------------|
| Emotional Engagement    | 28 | 3.4071 | .37508         |
| Behavioral Engagement   | 28 | 3.1714 | .42414         |
| Emotional Disaffection  | 28 | 1.4679 | .36622         |
| Behavioral Disaffection | 28 | 1.5000 | .48838         |
| Valid N (listwise)      | 28 |        |                |

All scales ranged from 1 (not true at all for this student) to 4 (very true for this student)

Here is the analysis for the student reported questionnaire:

- **Emotional Engagement:** The mean score for emotional engagement increased from 2.89 (SD= 0.58) pre-intervention to 3.41 (SD = 0.37) post intervention.
- **Behavioral Engagement:** The mean score for behavioral engagement increased from 2.62 (SD =0.79) pre-intervention to 3.17 (SD = 0.42) post intervention.
- **Emotional Disaffection:** The mean score for emotional disaffection decreased from 2.06 (SD = 0.56) pre-intervention to 1.46 (SD = 0.37) post intervention.
- **Behavioral Disaffection:** The mean score for behavioral disaffection decreased from 2.21 (SD = 0.60) pre-intervention to 1.50 (SD = 0.49) post intervention.

### Summary of Results

Overall, the information collected from the Student Engagement vs Disaffection and Teacher Report Engagement Questionnaires suggests that the intervention helped improve student engagement and lowered student disaffection. Tomlinson (2001) discusses that a differentiated approach that is centered around the learner helps to foster a strong emotional response which explains a positive shift in students' emotional engagement. When students are given autonomy in a supportive environment, there is a positive shift in their behavioral engagement (Appleton et al., 2008; Skinner, Pitzer, & Steele, 2016). When students feel more included in their learning, they experience fewer negative emotions (Katz, 2013). This decrease demonstrates that fewer students felt emotionally disengaged after the intervention. Subban (2006) states that through differentiated instruction students become more engaged and less

behaviorally disengaged and this explains why fewer students felt behaviorally disengaged after the intervention.

Differentiated instruction encourages both students and teachers to be more positively engaged in the learning process. Addressing students' individual learning needs ties directly back to the Self-Determination Theory principles of students' autonomy, competence, and relatedness (Deci & Ryan, 1985). Increasing these principles helps meet students' intrinsic needs and enhance overall engagement (Deci & Ryan, 2000).

### **Emergent Themes**

Throughout the data collection process, participants shared their experiences about the research study and five positive themes were identified: (1) **positive teacher influence**, throughout the process students felt motivated by their interactions with the teacher; (2) **goal setting and achievement**, students felt a sense of accomplishment when they were able to achieve the goals they set for themselves; (3) **enjoyment of personalization**, students appreciated the opportunity to personalize unit plans that catered to their interests; (4) **self-reflection and awareness**, students expressed greater awareness of their abilities and limits, which led to improved self-esteem and confidence; and (5) **social dynamics and enjoyment**, students supported each other more than prior to the study. While most of the feedback was very positive, there were two themes that were identified that were areas of concern: (1) **self-perception and peer pressure**, social dynamics impacted student performance or confidence levels and (2) **desire for structure and support**, some students expressed a desire for more structure and guidance.

### **Positive Teacher Influence**

One of the prevailing themes that existed throughout the study was that students felt their motivation and engagement was influenced by the teacher's approach to the study. Throughout the process students felt motivated by their interactions with the teacher. This aligns well to Deci & Ryan's (1985) Self-Determination Theory principle for relatedness. When students felt that they were supported and valued by their teacher they were more likely to participate fully. For example, in his post-intervention journal student M5 indicated, "Mr. Sorace gave me positive comments when we did well, but when I didn't hit my goal or was having an off day, he was still

positive and gave words of encouragement. This made me motivated to work harder.” Similarly, student L9 also noted a positive interaction with their teacher as she wrote in her post intervention journal that “my teacher was very energetic and fun, which made the class enjoyable and made me want to participate more.” Tomlinson (2001) highlights the role of the teacher-student relationship in fostering engagement, especially when working in differentiated environments.

During focus group # 3 student L11 said, “One of the things I liked the most about having individualized unit plans was building the rubric together with Mr. Sorace. Together we came up with goals that were challenging but attainable.” This was the trickiest part of the study as students had different perceptions of where they thought they should be evaluated. Some students chose goals that were too easy, and some were too hard. This is where I was able to step in and help guide the students to set appropriate goals for themselves. As the teacher during this study, I found this to be a very rewarding experience. I did my best to bring out the best in my students and overall, I believe that they rose to the challenge.

### **Goal Setting and Achievement**

Another theme that emerged from the study was goal setting and achievement. The process of setting specific, challenging goals contributed to increased engagement. Students felt a sense of accomplishment when they were able to achieve the goals they set for themselves. This sense of accomplishment when achieving goals enhanced their sense of competence (Deci & Ryan, 1985). Student M2 noted, “I enjoyed having a specific goal and pushing myself to meet it. I was happy with myself at the end of the unit.” On May 18<sup>th</sup> I wrote in my teacher research journal, “I see how happy some of the students are when they hit their goals, in particular the students who traditionally did not have success in PHE class.” To me this was the biggest accomplishment of the study. Traditional assessment in PHE does not allow every student to have success, but with differentiation, students were evaluated based on their own goals.

During focus group # 2 I asked the group “Does having individualized goals improve overall engagement?” Student M6 responded:

At the beginning of this project, I kind of thought this was stupid. Like why are we wasting our time doing this and not just playing in the gym. When I built my goals at first, I just rushed through them to get it done. Mr. Sorace made me redo

them, so I put more care into it. I'm happy that I did because normally I don't always push myself in PE, but with these goals I got competitive, especially with my friends. I worked harder during this unit than I normally do in PE, and I really think it was because of these goals.

Hearing this was very rewarding, especially because over the last few years I have felt that student engagement has declined. Student L8 also contributed this to the conversation:

PE isn't my favorite subject and sometimes I don't try my hardest. In my regular classes I always try my best because I want to get good grades, but I don't really care as much about my PE mark. This activity gave me similar motivation then in the regular classes. I tried hard, especially for the running part. I even went for some runs on my own time because I wanted to get that extending mark. I think if we did PE like this all the time, I would try harder.

### **Enjoyment of Personalization**

The next theme that emerged from the study was enjoyment of personalization. During the intervention phase this became noticeable as students expressed their appreciation to be able to personalize their unit plans according to their interests. Differentiated instruction should allow for flexibility to meet the needs of diverse learners (Tomlinson, 2001). During their mid intervention journal student M7 wrote, "I enjoyed having my own plan based on things I enjoy and was already doing this year," and student L1 wrote, "I found it to be more realistic for me to accomplish, which made me motivated to work harder." This personalization fostered a sense of autonomy, which increased motivation (Deci & Ryan, 1985).

During focus group # 1, I posed the question "what did you like about having individualization in our units?" Student M3, said "That the personalized goals forced me to be responsible for my outcome, not relying on anyone else." This is important because when students take ownership of their goals there is a sense of pride and autonomy. On May 9<sup>th</sup>, I made this note in my research journal, "I haven't had anyone complain to me about the activities that we are doing in PE class since we started working through this unit." I believe that working independently and at their own pace, shifted the perception of some of the students who used to complain.

### **Self-Reflection and Awareness**

The next theme that emerged from the study was self-reflection and awareness. Students expressed a greater awareness of their abilities and limits through this unit, which led to improved self-esteem and confidence. In her mid-intervention journal student L4 said, “I liked that I was able to measure the difficulty of my goals based on my own skills.” This reflective process is important because it helps students assess their progress and set accurate goals in the future. Student M1 said, “I realized that I had a limit. Once I knew what it was it was easier to set more realistic goals for myself.”

For some students this process of self-reflection and awareness was a new concept that they struggled with. In his post-intervention journal student M4 said, “I want to try this more. This process taught me that self-awareness and improvement is an ongoing journey.” As the teacher/researcher this is one area that I felt I struggled with in the study. I believe that I needed to help and challenge students a bit more in their reflections. Often students have a skewed perception of themselves, both positively and negatively, and helping the students identify areas for improvement was an opportunity that I missed during the study. This points to the need for better guidance in differentiated settings as discussed by Tomlinson & Strickland (2005).

Self-reflection on performance takes on a different perspective in the post-intervention phase as students shifted their mentality away from the study and now focused on future growth. In their post intervention journal student M9 said, “This project left me wanting more. I play sports, but I haven’t really considered what I am going to do after I stop playing. This idea of lifelong health is important to me.” This speaks to Deci and Ryan’s (1985) principles of autonomy and competence where students look for control and the ability to master certain tasks.

### **Social Dynamics and Enjoyment**

The last of the positive themes that emerged was social dynamics and activity preferences. Students supported each other much more than prior to the study. Social dynamics and enjoyment focused on the importance of a supportive classroom environment. Kuh (2009) notes that positive social interactions within learning environments foster a sense of belonging, which is important for continual engagement. This also ties into the self-determination principle relatedness (Deci and Ryan, 1985). During focus group # 3 I asked the group “were you more

likely to work harder on your unit goals if your friends were working on similar activities?”

Student M14 responded with the following:

Not necessarily. Yeah, it's fun to do things with your friends, but I just felt like everyone was working together on this. I don't know, maybe because we were all working towards a similar goal, but it just felt like everyone was supportive. I was happy for people when they would hit a max lift or timed run. It was pretty cool.

Student L12 added to his response:

I agree with what he said. When we're playing sports in class like basketball or volleyball were competing. This was more individual, and it felt like even though we had our own goals we could show support for our classmates. There was no competition. I still trained in a group with my friends, but even if I didn't, I think I would have been fine without them.

This was something that I observed as well. On April 27<sup>th</sup> I wrote in my research journal that “the energy of the class feels great. I see that people are working through their activities in small groups and everyone is participating.”

### **Self-Perception and Peer Pressure**

While most of the feedback from the study was positive, there were some concerns that were identified. One example of this was student self-perception and peer pressure. How students felt they were perceived by their peers, could negatively impact their performance and confidence levels. Peer influence can either motivate or discourage students. While the intention of differentiation is that all students can perform to the best of their abilities, some students still felt concern about their performance. In her post intervention journal student L13 said, “Sometimes I felt embarrassed if I couldn't do something well, and it made me not want to try as hard.” Similarly, M12 stated, “When there were better athletes in the group, I felt like I was the worst person, and it lowered my motivation.” When I saw this comment, I was reminded that social pressure for teenagers will always exist, and while the intention of differentiation is positive, some students will continue to feel self-conscious about their abilities.

### **Desire for Structure and Support**

Another concern that was identified was a desire for structure and support. While many students appreciated the autonomy, some wanted or needed more guidance during this process. Santangelo & Tomlinson (2012) explain that while differentiation promotes autonomy, students still need support to not feel overwhelmed. In their mid-intervention journal student L3 said, “I didn’t like that when I was making my personalized plan that I had to create my own proficiencies. This was difficult, and I needed more help to do this.” A similar message was shared during focus group # 3 when I asked the question, “What did you not like about having individualization in our unit?” Student L10 shared the following response:

The one thing I didn’t really like was making my own rubric. I had to tweak mine a few times because you (Mr. Sorace) didn’t think it was challenging enough. Eventually I thought my goals were good, but it took some time to get it right. When I started working through my unit plan, I found it hard at first because I didn’t think I’d hit my goals, but it kind of forced me to work harder.

### **Summary**

This chapter presented the results, findings, and discussion for the research to determine if differentiated instruction is an effective tool to help improve engagement for PHE students. First, I presented the hypothesis that the implementation of differentiated instruction would have a positive increase on student’s engagement levels in PHE class and the null hypothesis that the implementation of differentiated instruction would have no significant change in student’s engagement levels in PHE class. Next, I presented the quantitative data and analysis for the study which included the Student Engagement vs Disaffection Questionnaire and the Teacher Engagement Report Questionnaire. The analysis showed that the implementation of differentiated instruction did help improve student engagement and lowered student disaffection. This was supported by the qualitative data collection that identified five positive emergent themes: (1) positive teacher influence, (2) goal setting and achievement, (3) enjoyment of personalization, (4) self-reflection and awareness, and (5) social dynamics and enjoyment. While much of the feedback was positive, two themes were identified that were areas of concern (1) self-perception and peer pressure, and (2) desire for structure and support.

The following chapter will provide a clear and unambiguous statement of my conclusion for the study. Included in the chapter will be a summary of the findings, a discussion about the strengths and limitations of the study, and what future research may be needed for this topic.

## **CHAPTER 5: CONCLUSION**

### **Chapter Introduction**

The chapter provides a final summary of the study conducted and will provide a clear statement of conclusion. Included in this chapter will be an interpretation of the data that was collected, a summary of the findings, a discussion about the strengths and limitations of the study, implications of this study and what future research may be needed for this topic.

In the previous chapters, I described the relevant information for the completion of this study including: the historical context, the literature review, the methodology used to complete research, and the results and findings of the data. The purpose of this mixed methods study was to determine if differentiated instruction is an effective tool to help improve engagement for PHE students. The study used the Engagement vs Disaffection and Teacher Report Engagement Questionnaires (Skinner et al., 2008) to measure the changes in emotional and behavioral engagement. My study used the Self-Determination Theory (Deci & Ryan, 1985) as the theoretical framework and tried to determine if differentiation could increase students' engagement by addressing the needs for autonomy, competence and relatedness (Deci & Ryan, 1985).

### **Findings Related to the Research Questions**

The study focused on student's engagement in PHE class at Holy Cross Regional Secondary School in Surrey, British Columbia, Canada. Specifically, if an individualized approach to PHE could impact student's overall engagement in the course. The following questions guided the study:

- What is the impact of differentiated instruction on student engagement levels in PHE?
- How does the use of differentiated instruction encourage students to be more engaged?
- How do individualized units and goals impact students' engagement?
- How might students' idea of engagement and teachers' assessment of their engagement align?

### ***What is the impact of differentiated instruction on student engagement levels in PHE?***

The quantitative findings of this study demonstrated that differentiated instruction did have a positive impact on student's emotional and behavioral engagement and helped reduce

both emotional and behavioral disaffection in PHE. This was also supported with qualitative research which stated that the creation of individualized unit plans and personalized rubrics promoted a sense of autonomy and competence. Additionally, one of the emergent themes from the qualitative research was that the positive role of the teacher reinforced the need for relatedness (Deci & Ryan, 1985). Many students reported that their interactions with the teacher significantly influenced their motivation and participation.

### ***How does the use of differentiated instruction encourage students to be more engaged?***

Differentiated instruction is a wonderful tool to enhance student engagement by addressing individual needs (Tomlinson, 2001). Many of the students who participated in the study expressed how much they enjoyed using differentiated instruction. I noticed that when the students were actively involved in their learning experiences, engagement increased. Throughout the study students started to gain confidence in their abilities and it was clear that their engagement was positively impacted. This was especially true when doing activities that they chose based off personal preference. It was apparent that students preferred activities that they felt more proficient in. Kuh (2009) states that student engagement increases when learning experiences are aligned with student interest and ability. This demonstrates the importance of using differentiated instruction to customize teaching to and planning around the strengths of the individual student.

### ***How do individualized units and goals impact students' engagement?***

One of the emergent themes that presented itself during the research was the idea of enjoyment of personalization. Individualized units and goal setting played a key role in maintaining student engagement. Numerous students expressed their appreciation in being able to personalize their unit plans according to their interests. Tailoring goals to the individual puts the onus back on the student. This personalization fosters a sense of autonomy that increases intrinsic motivation (Deci & Ryan, 1985).

### ***How might students' idea of engagement and teachers' assessment of their engagement align?***

Prior to this study I believed that students' idea of engagement centered around the idea that if they participated, they were engaged and in many ways teacher's assessment of student engagement may have aligned with this idea. However, I now have a better understanding of what being engaged means. Hastie et al. (2020) discuss that being engaged in PHE class is more than just participating, but it also requires a purpose or connection to an activity. I believe that creating these individualized plans gave students this purpose or connection to this activity. After going through this process, I think my students have a deeper understanding of what it means to be engaged, and my assessment of their engagement aligns well.

### **Summary of Findings**

This study demonstrated that differentiated instruction did in fact have a positive impact on my student's engagement. I noticed personal growth from my students throughout this research study. At the beginning of the study, students expressed mixed feelings about their performance and reported a wide range of levels of engagement. The students described a variety of reasons for not being fully engaged in class, including things such as not liking certain activities, self-confidence issues, and poor social dynamics with their peers. After creating individualized unit plans and personalized summative rubrics, the data showed that both emotional and behavioral engagement improved. This was supported with qualitative data that suggested personalized goal setting, support from the teacher, and self-reflection helped students feel a stronger connection to their learning.

### **Implications**

The results from this study support the existing research on differentiated instruction by confirming its importance in creating more engaged learning environments. The findings of this study also focused on the importance of using differentiated instruction in PHE to address the challenges related to varied student ability, preference, and enthusiasm for the subject. The study aligns with previous research from Katz (2013), Subban (2006), Tomlinson (1999, 2001, 2002, 2005), and Whitley (2019, 2021) that suggests that differentiated instruction can help with the diverse needs of all learners and encourage students to be more actively involved in their learning. Lastly, the alignment with the Self-Determination Theory suggests that when students' intrinsic needs are met, they are more likely to be engaged in their learning environments.

### **Limitations and Future Research**

Overall, this study produced many positive results, however there are limitations that need to be considered. For example, the sample size was limited to a single group that consisted of only twenty-eight students within one specific school. This may impact the generalizability of the findings. Future research should include a larger, more diverse sample set of students. This study only focused on one specific unit on fitness and conditioning. There are generally six to eight units in a school year in PHE. Creating this study using another unit may have produced different results. This study only focused on a ten-week period with no long term follow up. Exploring long term impacts of differentiated instruction on engagement would give stronger insight. Lastly, the students only worked with one teacher. Teacher-student relationships or teaching styles could impact engagement. Having multiple teachers involved, with different teaching styles, could influence engagement.

### **Summary**

After considering all the research, it appears that differentiated instruction is an encouraging approach for improving student engagement. Working closely with the students and creating a learning environment where students feel respected and challenged promotes strong intrinsic motivation. The differentiated instruction approach proved effective in increasing student engagement by catering to individual needs and promoting a sense of autonomy, competence, and relatedness. This study successfully reinforced the need for personalized, inclusive teaching practices and provided the foundation to use differentiated instruction more regularly in my teaching practice.

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## APPENDICES

### Appendix A

#### Schedule of events:

| Research Schedule   |                                                                                                                         |                                                                                                |                                                                           |                                                                                                                       |
|---------------------|-------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>         | April 4-8<br>-Two classes this week                                                                                     | April 11-14<br>-Two classes this week                                                          | April 19-22<br>-Two classes this week                                     | April 25-29<br>-Three classes this week                                                                               |
| <b>Student work</b> | -Complete pre-intervention journal<br>-start designing unit plans                                                       | -Students complete the student engagement questionnaire # 1<br>-Continue working on unit plans | -Students complete unit design                                            | -Students train for their unit assessment goals<br>-At the end of the week students complete mid-intervention journal |
| <b>Teacher work</b> | -Introduce the theory of differentiated instruction to the students<br>-assist students with designing their unit plans | -Teacher engagement questionnaire # 1<br>-assist students with designing their unit plans      | -Review student unit plans, making suggestions for their assessment goals | -Participant observations                                                                                             |

| Research Schedule   |                                                             |                                                             |                                                                                               |                                                         |
|---------------------|-------------------------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------|
| <b>Date</b>         | May 2-6<br>-Two classes this week                           | May 9-13<br>-Three classes this week                        | May 16-19<br>-Two classes this week                                                           | May 24-27<br>-Two classes this week                     |
| <b>Student work</b> | -Students continue to train for their unit assessment goals | -Students continue to train for their unit assessment goals | -Students complete their summative assessment<br>-Students complete post-intervention journal | -Students complete student engagement questionnaire # 2 |
| <b>Teacher work</b> | -Participant observation                                    | -Participant observations                                   | -Participant observations                                                                     | -Teacher engagement questionnaire # 2                   |

| Research Schedule   |                                         |                                              |
|---------------------|-----------------------------------------|----------------------------------------------|
| <b>Date</b>         | May 30-June 3<br>-Two classes this week | June 6-9<br>-Two classes this week           |
| <b>Student work</b> | -Take part in focus groups # 1 and 2    | -Focus Group #3<br>-Free play                |
| <b>Teacher work</b> | -Lead focus group                       | -Lead focus group<br>-Transcribe focus group |

## Appendix B

### **Engagement vs Disaffection with Learning Student Questionnaire:**

1. I try to do well in PHE class.  

|                    |                  |                 |              |
|--------------------|------------------|-----------------|--------------|
| 1. Not true at all | 2. Not very true | 3. Sort of true | 4. Very true |
|--------------------|------------------|-----------------|--------------|
2. I enjoy learning new things in PHE class.  

|                    |                  |                 |              |
|--------------------|------------------|-----------------|--------------|
| 1. Not true at all | 2. Not very true | 3. Sort of true | 4. Very true |
|--------------------|------------------|-----------------|--------------|
3. When we work on something in PHE class, I feel discouraged.  

|                    |                  |                 |              |
|--------------------|------------------|-----------------|--------------|
| 1. Not true at all | 2. Not very true | 3. Sort of true | 4. Very true |
|--------------------|------------------|-----------------|--------------|
4. In PHE class, I do just enough to get by.  

|                    |                  |                 |              |
|--------------------|------------------|-----------------|--------------|
| 1. Not true at all | 2. Not very true | 3. Sort of true | 4. Very true |
|--------------------|------------------|-----------------|--------------|
5. PHE class is fun.  

|                    |                  |                 |              |
|--------------------|------------------|-----------------|--------------|
| 1. Not true at all | 2. Not very true | 3. Sort of true | 4. Very true |
|--------------------|------------------|-----------------|--------------|
6. In PHE class, I work as hard as I can.  

|                    |                  |                 |              |
|--------------------|------------------|-----------------|--------------|
| 1. Not true at all | 2. Not very true | 3. Sort of true | 4. Very true |
|--------------------|------------------|-----------------|--------------|
7. When I'm in PHE class, I feel unhappy.  

|                    |                  |                 |              |
|--------------------|------------------|-----------------|--------------|
| 1. Not true at all | 2. Not very true | 3. Sort of true | 4. Very true |
|--------------------|------------------|-----------------|--------------|

8. When I'm in PHE class, I listen very carefully.
1. Not true at all      2. Not very true      3. Sort of true      4. Very true
9. When I'm in PHE class, I feel anxious.
1. Not true at all      2. Not very true      3. Sort of true      4. Very true
10. When we work on something in PHE class, I get involved.
1. Not true at all      2. Not very true      3. Sort of true      4. Very true
11. When I'm in PHE class, I get distracted with other things.
1. Not true at all      2. Not very true      3. Sort of true      4. Very true
12. When we work on something in PHE class, I feel interested.
1. Not true at all      2. Not very true      3. Sort of true      4. Very true
13. PHE class is not all that fun for me.
1. Not true at all      2. Not very true      3. Sort of true      4. Very true
14. When I'm in PHE class, I just act like I'm working.
1. Not true at all      2. Not very true      3. Sort of true      4. Very true
15. When I'm in PHE class, I feel good.
1. Not true at all      2. Not very true      3. Sort of true      4. Very true

16. When I'm in PHE class, my mind wanders.

- |                    |                  |                 |              |
|--------------------|------------------|-----------------|--------------|
| 1. Not true at all | 2. Not very true | 3. Sort of true | 4. Very true |
|--------------------|------------------|-----------------|--------------|

17. When I'm in PHE class, I participate in class discussions.

- |                    |                  |                 |              |
|--------------------|------------------|-----------------|--------------|
| 1. Not true at all | 2. Not very true | 3. Sort of true | 4. Very true |
|--------------------|------------------|-----------------|--------------|

18. When we work on something in class, I feel bored.

- |                    |                  |                 |              |
|--------------------|------------------|-----------------|--------------|
| 1. Not true at all | 2. Not very true | 3. Sort of true | 4. Very true |
|--------------------|------------------|-----------------|--------------|

19. I don't try very hard in PHE class.

- |                    |                  |                 |              |
|--------------------|------------------|-----------------|--------------|
| 1. Not true at all | 2. Not very true | 3. Sort of true | 4. Very true |
|--------------------|------------------|-----------------|--------------|

20. I pay attention in PHE class.

- |                    |                  |                 |              |
|--------------------|------------------|-----------------|--------------|
| 1. Not true at all | 2. Not very true | 3. Sort of true | 4. Very true |
|--------------------|------------------|-----------------|--------------|

## Appendix C

### Teacher Report Engagement Questionnaire:

**Name:**

1. In my class, this student works as hard as he/she can.

1. Not true at all      2. Not very true      3. Sort of true      4. Very true

2. When working on classwork in my class, this student appears involved.

1. Not true at all      2. Not very true      3. Sort of true      4. Very true

3. When I explain new material, this student listens carefully.

1. Not true at all      2. Not very true      3. Sort of true      4. Very true

4. In my class, this student does more than required.

1. Not true at all      2. Not very true      3. Sort of true      4. Very true

5. When this student does not do well, he/she works harder.

1. Not true at all      2. Not very true      3. Sort of true      4. Very true

6. In my class, this student is enthusiastic.

1. Not true at all      2. Not very true      3. Sort of true      4. Very true

7. In class, this student appears happy.
1. Not true at all      2. Not very true      3. Sort of true      4. Very true
8. When we start something new in class, this student is interested.
1. Not true at all      2. Not very true      3. Sort of true      4. Very true
9. When working on classwork in my class, this student seems to enjoy it.
1. Not true at all      2. Not very true      3. Sort of true      4. Very true
10. For this student, learning seems to be fun .
1. Not true at all      2. Not very true      3. Sort of true      4. Very true
11. When we start something new in class, this student thinks about other things.
1. Not true at all      2. Not very true      3. Sort of true      4. Very true
12. In my class, this student comes unprepared.
1. Not true at all      2. Not very true      3. Sort of true      4. Very true
13. When faced with a difficult assignment, this student does not even try.
1. Not true at all      2. Not very true      3. Sort of true      4. Very true

14. In my class, this student does just enough to get by.
1. Not true at all      2. Not very true      3. Sort of true      4. Very true
15. When we start something new in class, this student does not pay attention.
1. Not true at all      2. Not very true      3. Sort of true      4. Very true
16. When we work on something in class, this student appears to be bored.
1. Not true at all      2. Not very true      3. Sort of true      4. Very true
17. When doing work in class, this student looks bored.
1. Not true at all      2. Not very true      3. Sort of true      4. Very true
18. When working on classwork, this student seems worried.
1. Not true at all      2. Not very true      3. Sort of true      4. Very true
19. In my class, this student is anxious.
1. Not true at all      2. Not very true      3. Sort of true      4. Very true
20. In class, this student seems unhappy.
1. Not true at all      2. Not very true      3. Sort of true      4. Very true

21. In my class, this student appears to be depressed.

1. Not true at all      2. Not very true      3. Sort of true      4. Very true

22. In class, this student is angry.

1. Not true at all      2. Not very true      3. Sort of true      4. Very true

23. When working on classwork, this student appears frustrated.

1. Not true at all      2. Not very true      3. Sort of true      4. Very true

24. When I explain new material, this student does not seem to care.

1. Not true at all      2. Not very true      3. Sort of true      4. Very true

25. When working on classwork in my class, this student seems uninterested.

1. Not true at all      2. Not very true      3. Sort of true      4. Very true

## **Appendix D**

### **Pre-Intervention Journal**

**Name:** \_\_\_\_\_

1. Reflecting on previous PHE classes, do you feel like your teacher has created a positive or negative experience? Explain
  
  
  
  
  
  
  
  
  
  
2. Reflecting on previous PHE classes, do you feel like you were able to perform all the skills for activities to a level that you were happy with? Explain?
  
  
  
  
  
  
  
  
  
  
3. Reflecting on previous PHE classes, do you feel that you always work to the best of your ability? Explain
  
  
  
  
  
  
  
  
  
  
4. What activities do you like to do in PHE? What activities do you not enjoy in PHE? Do these activities affect your engagement in PHE?

## Appendix E

## Mid-Intervention Journal

**Name:** \_\_\_\_\_

1. What have you enjoyed about your own personalized unit plan and goals?
2. What have you disliked about your own personalized unit plan and goals?
3. What would you change about this unit?
4. Are you feeling like you are more engaged in this unit than in previous units this year? Explain?

## Appendix F

### Post-Intervention Journal

Name: \_\_\_\_\_

1. Reflecting on this past unit, do you think your teacher created a positive or negative experience with your individualized unit? Explain
  
  
  
  
  
  
  
  
  
  
2. Reflecting on this unit, do you feel like the goals that you set for yourself were the right level of difficulty? Did you achieve your goals? Explain
  
  
  
  
  
  
  
  
  
  
3. Reflecting on this unit, do you feel that you always worked to the best of your ability? Explain
  
  
  
  
  
  
  
  
  
  
4. Has this unit changed how engaged you were in PHE?

## APPENDIX G

### **Focus Group Prompt Questions:**

What did you like about having individualization in our units?

What did you not like about having individualization in our unit?

How might this idea of differentiated instruction be improved if we were to try using it in the future?

Are there other suggestions on how to improve student engagement levels in PHE?

Does personal motivation play a factor in student engagement?

Does having individualized goals improve overall engagement?

Were you more likely to work harder on your unit goals if your friends were working on similar activities?

Overall, did you feel that individualization benefit or hurt the engagement levels in our class?

## APPENDIX H

### APPLICATION FOR ETHICAL APPROVAL

**In order for research to result in benefit and minimise risk of harm, it must be conducted ethically. A researcher may not be covered by the University's insurance if ethical approval has not been obtained prior to commencement.**

The University follows the OECD Frascati manual definition of **research activity**: “creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications”. As such this covers activities undertaken by members of staff, postgraduate research students, and both taught postgraduate and undergraduate students working on dissertations/projects.

The individual undertaking the research activity is known as the “principal researcher”.

Ethical approval is not required for routine audits, performance reviews, quality assurance studies, testing within normal educational requirements, and literary or artistic criticism.

**Please read the notes for guidance before completing ALL sections of the form.**

**This form must be completed and approved prior to undertaking any research activity.** Please see Checklist for details of process for different categories of application.

**Delete the Guidance Notes at the end of the form BEFORE submitting your application**

#### SECTION A: About You (Principal Researcher)

|   |                             |                          |                             |                                     |                               |
|---|-----------------------------|--------------------------|-----------------------------|-------------------------------------|-------------------------------|
| 1 | Full Name:                  | Antonio Sorace           |                             |                                     |                               |
| 2 | Tick all boxes which apply: | Member of staff:         | <input type="checkbox"/>    | Honorary research fellow:           | <input type="checkbox"/>      |
| 3 | Undergraduate Student       | <input type="checkbox"/> | Taught Postgraduate Student | <input checked="" type="checkbox"/> | Postgraduate Research Student |

|                      |                                       |                                                     |
|----------------------|---------------------------------------|-----------------------------------------------------|
| 4                    | Institute/Academic Discipline/Centre: | School of Sport, Health and Outdoor Education/UWTSD |
| 5                    | Campus:                               | Carmarthen                                          |
| 6                    | E-mail address:                       | Tonysorace16@gmail.com                              |
| 7                    | Contact Telephone Number:             | 778-242-1640                                        |
| <b>For students:</b> |                                       |                                                     |
| 8                    | Student Number:                       | 2007240                                             |
| 9                    | Programme of Study:                   | MA Physical Education, Sport and Physical Literacy  |

|    |                                 |                              |
|----|---------------------------------|------------------------------|
| 10 | Director of Studies/Supervisor: | Nalda Wainwright/Karen Sirna |
|----|---------------------------------|------------------------------|

## SECTION B: Approval for Research Activity

|   |                                                                                                                                                                                                              |                              |                                     |      |                          |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------|------|--------------------------|
| 1 | Has the research activity received approval in principle?<br>(please check the Guidance Notes as to the appropriate approval process for different levels of research by different categories of individual) | YES                          | <input checked="" type="checkbox"/> | NO   | <input type="checkbox"/> |
|   |                                                                                                                                                                                                              |                              |                                     | Date |                          |
| 2 | If Yes, please indicate source of approval (and date where known): <b>Approval in principle must be obtained from the relevant source prior to seeking ethical approval</b>                                  | Research Degrees Committee   | <input type="checkbox"/>            |      |                          |
| 3 |                                                                                                                                                                                                              | Institute Research Committee | <input checked="" type="checkbox"/> |      |                          |
| 4 |                                                                                                                                                                                                              | Other (write in)             | <input type="checkbox"/>            |      |                          |

## SECTION C: Internal and External Ethical Guidance Materials

|   |                                                                                                                                                                                                                                                                                                                                                    |  |  |  |                                     |
|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|-------------------------------------|
|   | Please list the core ethical guidance documents that have been referred to during the completion of this form (including any discipline-specific codes of research ethics, and also any specific ethical guidance relating to the proposed methodology). Please tick to confirm that your research proposal adheres to these codes and guidelines. |  |  |  |                                     |
| 1 | <b><u>UWTSD Research Ethics &amp; Integrity Code of Practice</u></b>                                                                                                                                                                                                                                                                               |  |  |  | <input checked="" type="checkbox"/> |
| 2 | <b>UWTSD Research Data Management Policy</b>                                                                                                                                                                                                                                                                                                       |  |  |  | <input checked="" type="checkbox"/> |
| 3 | <b>TRI Council Policy Statement on Ethical Conduct (TCPS 2: CORE)</b>                                                                                                                                                                                                                                                                              |  |  |  | <input checked="" type="checkbox"/> |

## SECTION D: External Collaborative Research Activity

|    |                                                                                                                                                                                                                                     |                               |                                     |                          |                                     |                                     |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------|--------------------------|-------------------------------------|-------------------------------------|
| 1  | Does the research activity involve collaborators outside of the University?                                                                                                                                                         | YES                           | <input checked="" type="checkbox"/> | NO                       | <input type="checkbox"/>            |                                     |
| 2  | If Yes, please provide the name of the external organisation and name and contact details for the main contact person and confirmation this person has consented to their personal data being shared as part of this collaboration. |                               |                                     |                          |                                     |                                     |
| 3  | Institution                                                                                                                                                                                                                         | Holy Cross Regional Secondary |                                     |                          |                                     |                                     |
| 4  | Contact person name                                                                                                                                                                                                                 | Chris Blesch                  |                                     |                          |                                     |                                     |
| 5  | Contact person e-mail address                                                                                                                                                                                                       | cblesch@holycross.bc.ca       |                                     |                          |                                     |                                     |
| 6  | Has this individual consented to sharing their details on this form?                                                                                                                                                                | YES                           | <input checked="" type="checkbox"/> | NO                       | <input type="checkbox"/>            |                                     |
| 7  | Are you in receipt of a KESS scholarship?                                                                                                                                                                                           | YES                           | <input type="checkbox"/>            | NO                       | <input checked="" type="checkbox"/> |                                     |
| 8  | Is your research externally funded                                                                                                                                                                                                  | YES                           | <input type="checkbox"/>            | NO                       | <input checked="" type="checkbox"/> |                                     |
| 9  | Are you specifically employed to undertake this research in either a paid or voluntary capacity?                                                                                                                                    | Voluntary                     | YES                                 | <input type="checkbox"/> | NO                                  | <input checked="" type="checkbox"/> |
| 10 |                                                                                                                                                                                                                                     | Employed                      | YES                                 | <input type="checkbox"/> | NO                                  | <input checked="" type="checkbox"/> |

|    |                                                                                                            |                                                                         |     |                                     |    |                                     |
|----|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|-----|-------------------------------------|----|-------------------------------------|
| 11 | Is the research being undertaken within an existing UWTSD Athrofa Professional Learning Partnership (APLP) | If YES then the permission question below does not need to be answered. | YES | <input type="checkbox"/>            | NO | <input checked="" type="checkbox"/> |
| 12 | Permission to undertake the research has been provided by the partner organisation                         | (If YES attach copy)<br>If NO the application cannot continue           | YES | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/>            |

### Where research activity is carried out in collaboration with an external organisation

|    |                                                                                                |     |                          |    |                                     |
|----|------------------------------------------------------------------------------------------------|-----|--------------------------|----|-------------------------------------|
| 13 | Does this organisation have its own ethics approval system?                                    | YES | <input type="checkbox"/> | NO | <input checked="" type="checkbox"/> |
| 14 | If Yes, please attach a copy of any final approval (or interim approval) from the organisation |     |                          |    |                                     |

### SECTION E: Details of Research Activity

|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                             |                    |               |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------|
| 1 | Indicative title:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Exploring the impact of differentiated instruction on engagement levels in a Physical and Health Education 10 class at Holy Cross Regional Secondary School |                    |               |
| 2 | Proposed start date of your research (not your course start date):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | October 1, 2021                                                                                                                                             | Proposed end date: | June 30, 2023 |
| 3 | <b>Introduction to the Research (maximum 300 words)</b><br><b>Ensure that you write for a <u>Non-Specialist Audience</u> when outlining your response to the three points below:</b> <ul style="list-style-type: none"> <li><i>Purpose of Research Activity</i></li> <li><i>Proposed Research Question</i></li> <li><i>Aims of Research Activity</i></li> <li><i>Objectives of Research Activity</i></li> </ul> Demonstrate, briefly, how <b><u>Existing Research</u></b> has informed the proposed activity and explain <ul style="list-style-type: none"> <li><i>What the research activity will add to the body of knowledge</i></li> <li><i>How it addresses an area of importance.</i></li> </ul> |                                                                                                                                                             |                    |               |
| 4 | <b>Purpose of Research Activity</b><br>The purpose of this study is to examine what happens to the engagement levels of a group of 10 <sup>th</sup> grade students when they are given differentiated instruction. Ultimately, the goal of this study is to see if students will increase their engagement levels when a unit is designed specifically for their needs.<br><br>(this box should expand as you type)                                                                                                                                                                                                                                                                                    |                                                                                                                                                             |                    |               |
| 5 | <b>Research Question</b><br>The research question that I will be trying to determine is "What is the impact of differentiated instruction on student engagement levels in Physical and Health Education."                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                             |                    |               |

|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | (this box should expand as you type)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 6 | <p><b>Aims of Research Activity</b></p> <p>The aim of this study is to see if an individualized approach to Physical and Health Education has an impact to student's overall engagement in the course.</p> <p>(this box should expand as you type)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 7 | <p><b>Objectives of Research Activity</b></p> <p>1)How does the use of differentiated instruction encourage students to be more engaged?<br/> 2) How do individualized units and goals impact students engagement?<br/> 3)How might students idea of engagement and teachers assessment of their engagement align?</p> <p>(this box should expand as you type)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 8 | <p><b>Proposed methods (maximum 600 words)</b></p> <p>Provide a brief summary of all the methods that <b>may</b> be used in the research activity, making it clear what specific techniques may be used. If methods other than those listed in this section are deemed appropriate later, additional ethical approval for those methods will be needed.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 9 | <p>I will be using a mixed method approach to gather data for my study. The data will be gathered from a convenience group of approximately 30 students in my grade 10 PHE mixed gendered class at Holy Cross Regional Secondary. The tools that I will be using to collect data are questionnaires, student journals, participant observations, and a focus group.</p> <p>The first questionnaire that is being used is an adapted version of the Engagement vs Disaffection with Learning (EDL) (Skinner et al., 2008). The EDL is a 20-item instrument that “assesses not only the presence of engaged learning, but also its absence (Veiga et al., 2014). The EDL uses a 4 point response scale, and can be used with a wide range of students starting in late elementary all the way through to college/university aged students (Veiga et al., 2014). The second questionnaire is an adapted version of the teacher-report engagement questionnaire (Skinner et al., 2008) This questionnaire was used to “measure teachers’ perception of student behavioural and emotional engagement in physical education” (Shen et al., 2012). Both of these questionnaires are previously validated questionnaires to assess engagement. These questionnaires will be used at the beginning, middle and end of my unit to help evaluate the impact that differentiated instruction has on the students engagement levels.</p> <p>Student journals are a great tool to get a better understanding of students’ perceptions of their own engagement levels. Three different journal prompts will be used for this study, one pre intervention, one mid intervention, and one post intervention. The journals will give perceptive to how students are changing throughout the study.</p> <p>Participant observations will also be used to help understand the impact that differentiated learning has on student engagement. Participant observations will allow for the researcher to monitor the impact of the intervention while allowing the students to be in a natural setting, and continuing on with normal PHE practices. While it is not possible to observe all the</p> |

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>students at the exact same time due to the size and nature of the PHE class, the researcher will instead focus attention on select students during different lessons.</p> <p>Lastly, the students will take part in a focus groups at the end of the study. Due to the size of the class, the focus groups will be divided into groups of 8-10 students. Open dialogue will be encouraged, and prompt questions will be used to have to conversation flow. The focus group will be recorded and will be transcribed by the researcher.</p> <p>(this box should expand as you type)</p> |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|  |  |
|--|--|
|  |  |
|--|--|

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10 | <b>Location of research activity</b><br>Identify all locations where research activity will take place.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 11 | Holy Cross Regional Secondary<br>16193 88 <sup>th</sup> Avenue<br>Surrey, BC, Canada<br>V4N 1G3<br><br>(this box should expand as you type)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 12 | <b>Research activity outside of the UK</b><br>If research activity will take place overseas, you are responsible for ensuring that local ethical considerations are complied with and that the relevant permissions are sought. Specify any local guidelines (e.g. from local professional associations/learned societies/universities) that exist and whether these involve any ethical stipulations beyond those usual in the UK (provide details of any licenses or permissions required). Also specify whether there are any specific ethical issues raised by the local context in which the research activity is taking place, for example, particular cultural and/or legal sensitivities or vulnerabilities of participants. |
| 13 | BC Teacher Regulation Branch-Standards for the Education, Competence and Professional Conduct of Educators in BC<br><br>(this box should expand as you type)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

|    |                                                                                                                                                                                                                                                                                             |                         |                                                                 |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------------------------------------------------------|
| 14 | Use of documentation not in the public domain: Are any documents <b><u>NOT</u></b> publicly available?                                                                                                                                                                                      | <b>NO</b><br><b>YES</b> | <input checked="" type="checkbox"/><br><input type="checkbox"/> |
| 15 | If Yes, please provide details here of how you will gain access to specific documentation that is not in the public domain and that this is in accordance with prevailing data protection law of the country in question and England and Wales.<br><br>(this box should expand as you type) |                         |                                                                 |

**SECTION F: Scope of Research Activity**

| 1  | Will the research activity include:                                                                                                                                                             | YES                                 | NO                                  |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------|
| 2  | Use of a questionnaire or similar research instrument?                                                                                                                                          | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 3  | Use of interviews?                                                                                                                                                                              | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 4  | Use of diaries?                                                                                                                                                                                 | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 5  | Participant observation with their knowledge?                                                                                                                                                   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 6  | Participant observation without their knowledge?                                                                                                                                                | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 7  | Use of video or audio recording?                                                                                                                                                                | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 8  | Access to personal or confidential information without the participants' specific consent?                                                                                                      | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 9  | Administration of any questions, test stimuli, presentation that may be experienced as physically, mentally or emotionally harmful / offensive?                                                 | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 10 | Performance of any acts which may cause embarrassment or affect self-esteem?                                                                                                                    | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 11 | Investigation of participants involved in illegal activities?                                                                                                                                   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 12 | Use of procedures that involve deception?                                                                                                                                                       | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 13 | Administration of any substance, agent or placebo?                                                                                                                                              | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 14 | Working with live vertebrate animals?                                                                                                                                                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 15 | Other primary data collection methods, please explain in this box<br>For example, 'focus groups'. Please indicate the type of data collection method(s) in this box and tick the accompany box. | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 16 | Details of any other primary data collection method:<br><br>(this box should expand as you type)                                                                                                |                                     |                                     |

If NO to every question, then the research activity is (ethically) low risk and **may** be exempt from **some** of the following sections (please refer to Guidance Notes).

If YES to any question, then no research activity should be undertaken until full ethical approval has been obtained.

**SECTION G: Intended Participants**

| 1 | Who are the intended participants:                         | YES                      | NO                                  |
|---|------------------------------------------------------------|--------------------------|-------------------------------------|
| 2 | Students or staff at the University?                       | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3 | Adults (over the age of 18 and competent to give consent)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4 | Vulnerable adults?                                         | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

|    |                                                                                                                                      |                                     |                                     |
|----|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------|
| 5  | Children and Young People under the age of 18? (Consent from Parent, Carer or Guardian will be required)                             | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 6  | Prisoners?                                                                                                                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 7  | Young offenders?                                                                                                                     | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 8  | Those who could be considered to have a particularly dependent relationship with the investigator or a gatekeeper?                   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 9  | People engaged in illegal activities?                                                                                                | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 10 | Others (please identify specifically any group who may be unable to give consent) please indicate here and tick the appropriate box. | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 11 | Other – please indicate here:<br><br>(this box should expand as you type)                                                            |                                     |                                     |

|    |                                                                                                                                                                         |                                                                                                                                                                               |                                                   |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| 12 | <b>Participant numbers and source</b><br>Provide an estimate of the expected number of participants. How will you identify participants and how will they be recruited? |                                                                                                                                                                               |                                                   |
| 13 | How many participants are expected?                                                                                                                                     | There will be approximately 28 students, depending on if any students opt out of the study from the researcher's PHE class<br><br><i>(this box should expand as you type)</i> |                                                   |
| 14 | Who will the participants be?                                                                                                                                           | The participants will be students who are already taught by myself, the researcher in this study<br><br><i>(this box should expand as you type)</i>                           |                                                   |
| 15 | How will you identify the participants?                                                                                                                                 | Participants will be asked if they would like to participate in the study and will have to ability to decline<br><br><i>(this box should expand as you type)</i>              |                                                   |
| 16 | <b>Information for participants:</b>                                                                                                                                    | <b>YES</b>                                                                                                                                                                    | <b>NO</b> <b>N/A</b>                              |
| 17 | Will you describe the main research procedures to participants in advance, so that they are informed about what to expect?                                              | <input checked="" type="checkbox"/>                                                                                                                                           | <input type="checkbox"/> <input type="checkbox"/> |
| 18 | Will you tell participants that their participation is voluntary?                                                                                                       | <input checked="" type="checkbox"/>                                                                                                                                           | <input type="checkbox"/> <input type="checkbox"/> |

|    |                                                                                                                                                     |                                     |                          |                          |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------|--------------------------|
| 19 | Will you obtain written consent for participation?                                                                                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20 | Will you explain to participants that refusal to participate in the research will not affect their treatment or education (if relevant)?            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 21 | If the research is observational, will you ask participants for their consent to being observed?                                                    | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 22 | Will you tell participants that they may withdraw from the research at any time and for any reason?                                                 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 23 | With questionnaires, will you give participants the option of omitting questions they do not want to answer?                                        | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 24 | Will you tell participants that their data will be treated with full confidentiality and that, if published, it will not be identifiable as theirs? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 25 | Will you debrief participants at the end of their participation, in a way appropriate to the type of research undertaken?                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 26 | If NO to any of above questions, please give an explanation                                                                                         |                                     |                          |                          |
| 27 | <i>(this box should expand as you type)</i>                                                                                                         |                                     |                          |                          |

|    |                                                                                                                                                    |                          |                                     |                          |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------|--------------------------|
| 28 | <b>Information for participants:</b>                                                                                                               | <b>YES</b>               | <b>NO</b>                           | <b>N/A</b>               |
| 29 | Will participants be paid?                                                                                                                         | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 30 | Is specialist electrical or other equipment to be used with participants?                                                                          | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 31 | Are there any financial or other interests to the investigator or University arising from this study?                                              | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 32 | Will the research activity involve deliberately misleading participants in any way, or the partial or full concealment of the specific study aims? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 33 | If YES to any question, please provide full details                                                                                                |                          |                                     |                          |
| 34 | <i>(this box should expand as you type)</i>                                                                                                        |                          |                                     |                          |

## SECTION H: Anticipated Risks

|     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                               |     |                          |    |                                     |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------------------------|----|-------------------------------------|
| 1   | Outline any anticipated risks that may adversely affect any of the participants, the researchers and/or the University, and the steps that will be taken to address them.<br><br>If you have completed a full risk assessment (for example as required by a laboratory, or external research collaborator) you may append that to this form.                                                                                                                                                                                                                                  |                                                                                                                                                                               |     |                          |    |                                     |
| 2   | Full risk assessment completed and appended?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <table border="1"> <tr> <td>Yes</td> <td><input type="checkbox"/></td> </tr> <tr> <td>No</td> <td><input checked="" type="checkbox"/></td> </tr> </table>                     | Yes | <input type="checkbox"/> | No | <input checked="" type="checkbox"/> |
| Yes | <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                               |     |                          |    |                                     |
| No  | <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                               |     |                          |    |                                     |
| 3   | <b>Risks to participants</b><br>For example: emotional distress, financial disclosure, physical harm, transfer of personal data, sensitive organisational information                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                               |     |                          |    |                                     |
| 4   | <b>Risk to Participant:</b><br>There will be very little risk to participants besides the regular risks associated with PHE class.<br><br><i>(this box should expand as you type)</i>                                                                                                                                                                                                                                                                                                                                                                                         | <i>How will you mitigate the Risk to Participant</i><br>N/A<br><br><i>(this box should expand as you type)</i>                                                                |     |                          |    |                                     |
| 5   | If research activity may include sensitive, embarrassing or upsetting topics (e.g. sexual activity, drug use) or issues likely to disclose information requiring further action (e.g. criminal activity), give details of the procedures to deal with these issues, including any support/advice (e.g. helpline numbers) to be offered to participants. Note that where applicable, consent procedures should make it clear that if something potentially or actually illegal is discovered in the course of a project, it may need to be disclosed to the proper authorities |                                                                                                                                                                               |     |                          |    |                                     |
|     | The nature of my study does not include sensitive, embarrassing, or upsetting topics, but if any potential issues were to arise then students could be referred to Grade Level Advisors or in serious situations school counsellors.<br><br><i>(this box should expand as you type)</i>                                                                                                                                                                                                                                                                                       |                                                                                                                                                                               |     |                          |    |                                     |
| 6   | <b>Risks to investigator</b><br>For example: personal safety, physical harm, emotional distress, risk of accusation of harm/impropriety, conflict of interest                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                               |     |                          |    |                                     |
|     | <b>Risk to Investigator:</b><br>The risks for the investigator are minimal and are in line with a regular PHE teachers risk<br><br><i>(this box should expand as you type)</i>                                                                                                                                                                                                                                                                                                                                                                                                | <i>How will you mitigate the Risk to Investigator:</i><br><br>Take all necessary precautions as I would during every class<br><br><i>(this box should expand as you type)</i> |     |                          |    |                                     |
| 7   | <b>University/institutional risks</b><br>For example: adverse publicity, financial loss, data protection                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                               |     |                          |    |                                     |
|     | <b>Risk to University:</b><br>The research in this study will not be fabricated, falsified, or plagiarised data<br><br><i>(this box should expand as you type)</i>                                                                                                                                                                                                                                                                                                                                                                                                            | <i>How will you mitigate the Risk to University:</i><br><br>Meet all ethical obligations that are required for the research                                                   |     |                          |    |                                     |

|  |  |                                      |
|--|--|--------------------------------------|
|  |  | (this box should expand as you type) |
|--|--|--------------------------------------|

|    |                                                                                                                                                                                 |                                     |                          |                          |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------|--------------------------|
| 8  | Disclosure and Barring Service                                                                                                                                                  |                                     |                          |                          |
| 9  | If the research activity involves children or vulnerable adults, a Disclosure and Barring Service (DBS) certificate must be obtained before any contact with such participants. | YES                                 | NO                       | N/A                      |
| 10 | Does your research require you to hold a current DBS Certificate?                                                                                                               | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

## SECTION I: Feedback, Consent and Confidentiality

|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | <p><b>Feedback</b></p> <p>What de-briefing and feedback will be provided to participants, how will this be done and when?</p> <p>At the end of the study, participants and guardians will have access to the final report upon request. Students and guardians will be told that the final report will be available on the informed consent form.</p> <p>(this box should expand as you type)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 2 | <p><b>Informed consent</b></p> <p>Describe the arrangements to inform potential participants, before providing consent, of what is involved in participating. Describe the arrangements for participants to provide full consent before data collection begins. If gaining consent in this way is inappropriate, explain how consent will be obtained and recorded in accordance with prevailing data protection legislation.</p> <p>The potential students will be informed of the study a few weeks before the study takes place. The informed consent form (See Appendix I) will be distributed in class and an email will be sent home to all parents/guardians explaining the details of the study. The participants and their parents/guardians will be informed of all potential risks, that the study is completely voluntary, and that they can remove themselves from the study at any time</p> <p>(this box should expand as you type)</p> |
| 3 | <p><b>Confidentiality / Anonymity</b></p> <p>Set out how anonymity of participants and confidentiality will be ensured in any outputs. If anonymity is not being offered, explain why this is the case.</p> <p>Participants names and any other information that would identify them will be removed, and instead replaced with a code that will be kept on the researcher's password protected computer. Also, all materials that are worked on will only be done so for academic purposes, and will not be sold.</p> <p>(this box should expand as you type)</p>                                                                                                                                                                                                                                                                                                                                                                                    |

## SECTION J: Data Protection and Storage

In completing this section refer to the University's Research Data Management Policy and the extensive resources on the University's Research Data Management web pages (<http://uwtsd.ac.uk/library/research-data-management/>).

|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                          |                                     |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------|
| 1 | Does the research activity involve personal data (as defined by the General Data Protection Regulation 2016 "GDPR" and the Data Protection Act 2018 "DPA")?                                                                                                                                                                                                                                                                                                                                                               | YES                      | NO                                  |
|   | <i><b>"Personal data"</b> means any information relating to an identified or identifiable natural person ('data subject'). An identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person.</i>                           | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2 | If YES, provide a description of the data and explain why this data needs to be collected:                                                                                                                                                                                                                                                                                                                                                                                                                                |                          |                                     |
|   | <i>(this box should expand as you type)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                          |                                     |
| 3 | Does it involve special category data (as defined by the GDPR)?                                                                                                                                                                                                                                                                                                                                                                                                                                                           | YES                      | NO                                  |
|   | <i><b>"Special category data"</b> means sensitive personal data consisting of information as to the data subjects' –<br/>(a) racial or ethnic origin,<br/>(b) political opinions,<br/>(c) religious beliefs or other beliefs of a similar nature,<br/>(d) membership of a trade union (within the meaning of the Trade Union and Labour Relations (Consolidation) Act 1992),<br/>(e) physical or mental health or condition,<br/>(f) sexual life,<br/>(g) genetics,<br/>(h) biometric data (as used for ID purposes),</i> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4 | If YES, provide a description of the special category data and explain why this data needs to be collected:                                                                                                                                                                                                                                                                                                                                                                                                               |                          |                                     |
|   | <i>(this box should expand as you type)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                          |                                     |

|    |                                                                                                                |                                     |                                     |
|----|----------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------|
| 5  | Will the research activity involve storing personal data and/or special category data on one of the following: | YES                                 | NO                                  |
| 6  | Manual files (i.e. in paper form)?                                                                             | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 7  | University computers?                                                                                          | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 8  | Private company computers?                                                                                     | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 9  | Home or other personal computers?                                                                              | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 10 | Laptop computers/ CDs/ Portable disk-drives/ memory sticks?                                                    | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 11 | "Cloud" storage or websites?                                                                                   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |

|    |                                                                                                                                                                                                                       |                                     |                                     |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------|
| 12 | Other – specify:                                                                                                                                                                                                      | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 13 | For all stored data, explain the measures in place to ensure the security of the data collected, data confidentiality, including details of password protection, encryption, anonymisation and pseudonymisation:      |                                     |                                     |
|    | The data will be stored on a password protected computer and students names will be removed from all raw data.<br><br><i>(this box should expand as you type)</i>                                                     |                                     |                                     |
| 14 | <b>All Data Storage</b>                                                                                                                                                                                               |                                     |                                     |
| 15 | Will the research activity involve any of the following activities:                                                                                                                                                   | <b>YES</b>                          | <b>NO</b>                           |
| 16 | Electronic transfer of data in any form?                                                                                                                                                                              | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 17 | Sharing of data with others at the University?                                                                                                                                                                        | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 18 | Sharing of data with other organisations?                                                                                                                                                                             | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 19 | Export of data outside the European Union or importing of data from outside the UK?                                                                                                                                   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 20 | Use of personal addresses, postcodes, faxes, emails or telephone numbers?                                                                                                                                             | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 21 | Publication of data that might allow identification of individuals?                                                                                                                                                   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 22 | Use of data management system?                                                                                                                                                                                        | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 23 | Data archiving?                                                                                                                                                                                                       | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 24 | If YES to any question, please provide full details, explaining how this will be conducted in accordance with the GDPR and DPA (and/or any international equivalent):                                                 |                                     |                                     |
|    | Data will be stored on a password protected computer and will only be shared with my supervisors Nalda Wainwright and Karen Sirna<br><br><i>(this box should expand as you type)</i>                                  |                                     |                                     |
| 25 | List all who will have access to the data generated by the research activity:                                                                                                                                         |                                     |                                     |
|    | Antonio Sorace, Nalda Wainwright, Karen Sirna<br><br><i>(this box should expand as you type)</i>                                                                                                                      |                                     |                                     |
| 26 | List who will have control of, and act as custodian(s) for, data generated by the research activity:                                                                                                                  |                                     |                                     |
|    | Antonio Sorace<br><br><i>(this box should expand as you type)</i>                                                                                                                                                     |                                     |                                     |
| 27 | Give details of data storage arrangements, including security measures in place to protect the data, where data will be stored, how long for, and in what form. Will data be archived – if so how and if not why not. |                                     |                                     |

|    |                                                                                                                                                                                                                                            |            |                                     |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------------------------|
|    | The data will be stored on a password protected computer and paper data will be stored in a locked classroom file cabinet. After five years the paper data analysis will be shredded and destroyed.                                        |            |                                     |
|    | <i>(this box should expand as you type)</i>                                                                                                                                                                                                |            |                                     |
| 28 | Please indicate if your data will be stored in the UWTSD Research Data Repository (see <a href="https://researchdata.uwtsd.ac.uk/">https://researchdata.uwtsd.ac.uk/</a> ). If so please explain. <i>(Most relevant to academic staff)</i> |            |                                     |
|    | <i>(this box should expand as you type)</i>                                                                                                                                                                                                |            |                                     |
| 29 | Confirm that you have read the UWTSD guidance on data management (see <a href="https://www.uwtsd.ac.uk/library/research-data-management/">https://www.uwtsd.ac.uk/library/research-data-management/</a> )                                  | <b>YES</b> | <input checked="" type="checkbox"/> |
|    |                                                                                                                                                                                                                                            | <b>NO</b>  | <input type="checkbox"/>            |
| 30 | Confirm that you are aware that you need to keep all data until after your research has completed or the end of your funding                                                                                                               | <b>YES</b> | <input checked="" type="checkbox"/> |
|    |                                                                                                                                                                                                                                            | <b>NO</b>  | <input type="checkbox"/>            |

## SECTION K: Declaration

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                |                             |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------|
| 31 | <p>The information which I have provided is correct and complete to the best of my knowledge. I have attempted to identify any risks and issues related to the research activity and acknowledge my obligations and the rights of the participants.</p> <p>In submitting this application I hereby confirm that I undertake to ensure that the above named research activity will meet the University's Research Ethics and Integrity Code of Practice which is published on the website: <a href="https://www.uwtsd.ac.uk/research/research-ethics/">https://www.uwtsd.ac.uk/research/research-ethics/</a></p> |                |                             |
|    | Signature of applicant:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Antonio Sorace | Date:<br>September 15, 2021 |

### For STUDENT Submissions:

|    |                                 |                              |       |
|----|---------------------------------|------------------------------|-------|
| 32 | Director of Studies/Supervisor: | Nalda Wainwright/Karen Sirna | Date: |
| 33 | Signature:                      |                              |       |

### For STAFF Submissions:

|    |                                    |       |
|----|------------------------------------|-------|
| 34 | Academic Director/ Assistant Dean: | Date: |
| 35 | Signature:                         |       |

**Checklist:** Please complete the checklist below to ensure that you have completed the form according to the guidelines and attached any required documentation:

|                                     |                                                                     |
|-------------------------------------|---------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | I have read the guidance notes supplied before completing the form. |
| <input checked="" type="checkbox"/> | I have completed <b>ALL RELEVANT</b> sections of the form in full.  |

|                                     |                                                                                                                                                                                                                                                            |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | I confirm that the research activity has received approval in principle                                                                                                                                                                                    |
| <input type="checkbox"/>            | I have attached a copy of final/interim approval from external organisation ( <b>where appropriate</b> )                                                                                                                                                   |
| <input type="checkbox"/>            | I have attached a full risk assessment (and have NOT completed Section H of this form) (where appropriate) <b>ONLY TICK IF YOU HAVE ATTACHED A FULL RISK ASSESSMENT</b>                                                                                    |
| <input checked="" type="checkbox"/> | I understand that it is my responsibility to ensure that the above named research activity will meet the University's Research Ethics and Integrity Code of Practice.                                                                                      |
| <input checked="" type="checkbox"/> | I understand that before commencing data collection all documents aimed at respondents (including information sheets, consent forms, questionnaires, interview schedules etc.) must be confirmed by the DoS/Supervisor, module tutor or Academic Director. |
| <input checked="" type="checkbox"/> | I have deleted the guidance notes before submitting the PG2 for consideration                                                                                                                                                                              |

#### RESEARCH STUDENTS AND STAFF ONLY

All communications relating to this application during its processing must be in writing and emailed to [pgresearch@uwttd.ac.uk](mailto:pgresearch@uwttd.ac.uk), with the title 'Ethical Approval' followed by your name. You will be informed of the outcome of your claim by email; therefore it is important that you check your University and personal email accounts regularly.

**STUDENTS ON UNDERGRADUATE OR TAUGHT MASTERS PROGRAMMES** should submit this form (and receive the outcome) via systems explained to you by the supervisor/module leader.

**This form is available electronically from the Academic Office web pages:**

<https://www.uwttd.ac.uk/academic-office/appendices-and-forms/>

### Application Process

**All staff research projects and all research students** must submit the Ethical Approval Form to the **University Research Ethics Committee** via the Academic Office ([pgresearch@uwttd.ac.uk](mailto:pgresearch@uwttd.ac.uk)). Staff research directly in relation to personal study for taught undergraduate or Masters programmes should be submitted via the Institute procedures explained below.

**Taught masters and taught undergraduate research Ethical Approval Forms** are considered **within Institutes**. Institutes will provide details of the specific processes for this. Where the Ethical issues within any single ethical application are of particular concern the Institute will refer these to the University Research Ethics Committee. Any student activity that involves the collection of primary data needs to undergo Ethical approval, this includes assignment work as well as dissertations.

## APPENDIX I

### Informed Consent

#### *Authorization for a minor to serve as a research participant*

March 10, 2022

Dear Parent/Guardian,

Samples of students' work help teachers, parents and others to understand more about teaching and learning. I will be conducting a study in our classroom to determine the impacts of differentiated instruction on student engagement in Physical and Health Education. I am completing a Masters of Arts in Physical Education in the Sport, Health and Outdoor Education Department at the University of Wales Trinity Saint David.

I am writing to ask permission to use the information I collect from your child during this process. Participation in this study involves only regular classroom activities. These work samples will include student experience journals, student questionnaires, and a focus group. My research will run between April and June 2022.

Your child's safety is of the utmost importance to me. I will protect your child's privacy by **removing** his or her name and any other information that would identify them. The teaching and curriculum involved in this study are part of our regular teaching practice and requirements relating to the Provincial curriculum. The materials I am working on will not be sold for profit and will only be used for academic purposes, such as being assessed by my instructor or presenting a summary of my work in my dissertation.

I would be happy to discuss any element of my project with you. Furthermore, this project will have no impact on your child's progress or grade in the courses I teach. If your child or you wishes not to have his or her work included at any point during the investigation, you or s/he can request to not have the work included. If you are comfortable with my request at this time, please complete the form below.

Thank you for your help.

Antonio Sorace  
[asorace@holycross.bc.ca](mailto:asorace@holycross.bc.ca)  
778-242-1640

As the parent/guardian of \_\_\_\_\_,

- I give permission ... (or) ☐ I do not I give permission ...

... to Mr. Sorace to make copies of work my child has done as part of his educational program during the 2021/2022 school year. I understand that my child's privacy will be protected and the material will not be sold for profit.

---

*Name (Please print)*

---

*Signature*

---

*Address*

---

*Date*

## APPENDIX J

### SCHOOL AUTHORIZATION

*Authorization for Holy Cross Regional Secondary to Serve in an Research Study for:  
BMPE7008: Dissertation Summer School Research Methods*

|                                         |                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Project:</b>                         | Exploring the impact of differentiated instruction on engagement levels in a Physical and Health Education 10 class at Holy Cross Regional Secondary School                                                                                                                                                                   |
| <b>Researcher:</b>                      | Antonio Sorace                                                                                                                                                                                                                                                                                                                |
| <b>Phone number:</b>                    | 778-242-1640                                                                                                                                                                                                                                                                                                                  |
| <b>Location of the study:</b>           | Holy Cross Regional Secondary                                                                                                                                                                                                                                                                                                 |
| <b>Supervising instructor:</b>          | Dr. Nalda Wainwright, Programme Director: MA Physical Education, Sport and Physical Literacy <a href="mailto:n.wainwright@uwtsd.ac.uk">n.wainwright@uwtsd.ac.uk</a><br>Dr. Karen Sirna, Coordinator, Graduate Diploma in Physical and Health Education <a href="mailto:sirnak@douglascollege.ca">sirnak@douglascollege.ca</a> |
| <b>Purpose of the study:</b>            | The purpose of this study is to examine the effects of differentiated instruction on engagement levels within Physical Health and Education                                                                                                                                                                                   |
| <b>Procedures:</b>                      | Within their Physical and Health Education classes students will be creating differentiated instruction units with myself. Students will be asked to complete questionnaires, journals, and take part in a focus group of the period of the study                                                                             |
| <b>Time and duration:</b>               | Between January and March 2022                                                                                                                                                                                                                                                                                                |
| <b>Benefits of the study:</b>           | To improve overall student engagement levels within Physical and Health Education classes                                                                                                                                                                                                                                     |
| <b>Persons with access to raw data:</b> | Only the following people will have access to the raw data:<br>Antonio Sorace, Dr. Nalda Wainwright (if requested), and Dr. Karen Sirna (if requested)                                                                                                                                                                        |
| <b>Raw data destruction dates</b>       | Any records with personal information on them will be kept for five years and destroyed after                                                                                                                                                                                                                                 |

I understand that participation in this project is voluntary, and I understand that a parent or guardian may withdraw his/her child from this study at any time by notifying the researcher.

Statement of confidentiality:

The participation of the students in this project is confidential. Only the researcher, collaborators, and supervising instructor will have access to the students' identities and to information that can be associated with their identities.

## Appendix K

### INDIVIDUALIZED RUBRIC EXAMPLE:

#### Traditional Mile Run Proficiency Rubric:

|                  | <b>Emerging</b>                     | <b>Developing</b>                  | <b>Proficient</b>                 | <b>Extending</b>                           |
|------------------|-------------------------------------|------------------------------------|-----------------------------------|--------------------------------------------|
| <b>Timed Run</b> | My time was 10:00 minutes or longer | My time was between 8:00 and 10:00 | My time was between 6:15 and 8:00 | My time was below 6 minutes and 15 seconds |

#### Individualized Mile Run Proficiency Rubric:

|                        | <b>Emerging</b>                                                                  | <b>Developing</b>                                                                 | <b>Proficient</b>                                                                | <b>Extending</b>                                                                           |
|------------------------|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| <b>Timed Run</b>       | My time was 10:00 minutes or longer                                              | My time was between 8:00 and 10:00                                                | My time was between 6:15 and 8:00                                                | My time was below 6 minutes and 15 seconds                                                 |
| <b>Stoppages</b>       | I stopped to walk <b>2 or more times</b> during the mile run                     | I stopped to walk <b>1 time</b> during the mile run                               | I did not stop running at any point during the mile run                          | I did not stop running at any point during the run, and my pace got faster on the last lap |
| <b>Gender specific</b> | I finished <b>below the top 10</b> male/females in the class during the mile run | I was the <b>7th to 10th</b> fastest male/female in the class during the mile run | I was the <b>3rd to 6th fastest</b> male/female in the class during the mile run | I was the <b>1st or 2nd</b> fastest male/female in the class during the mile run           |
| <b>Improvement</b>     | My time was <b>the same or worse</b> than the last mile run                      | My time improved by <b>1 to 10 seconds</b> from the last mile run                 | My time improved by <b>11 to 29 seconds</b> from the last mile run               | My time improved by more than <b>30 seconds</b> from the last mile run                     |

#### Example Proficiency Rubric

|                                    | <b>Emerging</b>                                                            | <b>Developing</b>                                                           | <b>Proficient</b>                                                          | <b>Extending</b>                                                       |
|------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------|
| <b>Timed Run (4 lap run)</b>       | My time was 10:30 or longer                                                | My time was between 9:00 and 10:30                                          | My time was between 7:00 and 9:00                                          | My time was below 7 minutes                                            |
| <b>Gender specific (2 lap run)</b> | I finished <b>below the top 12</b> males in the class during the 2 lap run | I was the <b>9th to 11th</b> fastest male in the class during the 2 lap run | I was the <b>5th to 8th fastest</b> male in the class during the 2 lap run | I was <b>1st to 4th</b> fastest male in the class during the 2 lap run |
| <b>Plank</b>                       | I could not hold proper plank form for <b>at least 30 seconds</b>          | I can hold proper plank form between <b>30 and 59 seconds</b>               | I can hold proper plank form between <b>1</b>                              | I can hold proper plank form for <b>1</b>                              |

|                                               |                                                                          |                                                                              | <b>minute and 1 minute<br/>29 seconds</b>                                       | <b>minute and 30<br/>seconds</b>                                    |
|-----------------------------------------------|--------------------------------------------------------------------------|------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------|
| <b>Bench<br/>Press</b><br>(175 pound<br>lift) | I was not able to get<br><b>more than 3</b> reps at<br>175 pounds        | I was able to get <b>4-7<br/>reps</b> at 175 pounds                          | I was able to get <b>8-11<br/>reps</b> at 175 pounds                            | I was able to get <b>12<br/>or more reps</b> at 175<br>pounds       |
| <b>Squat</b>                                  | I was not able to squat<br><b>at least 115 pounds</b><br>at least 1 time | I was able to squat<br>between <b>115 and 149<br/>pounds</b> at least 1 time | I was able to squat<br>between <b>150 and 199<br/>pounds</b> at least 1<br>time | I was able to squat<br><b>200 pounds or more</b><br>at least 1 time |