COMPARING ATTITDUES TOWARDS PHYSICAL EDUCATION ONLINE AND THE REGULAR CLASSROOM/GYMNASIUM

By

Andrea, C. Clayton

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COMPARING ATTITDUES TOWARDS PHYSICAL EDUCATION

ONLINE AND THE REGULAR CLASSROOM/GYMNASIUM

APPROVED:

Jim Latham…… (Faculty Advisor)

Dr. Arden Henley…… (Principal of Canadian Programs)

Dedication or Acknowledgement Page

This work is dedicated to my husband, Darcy Clayton, without whose caring support it would not have been possible. Thanks to all my family for their support, patience, encouragement, and useful suggestions.

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Abstract

Students take Physical Education (PE) 10 online for various reasons. Some are very active in training for specific sports or are travelling and cannot be in the classroom for three times per week. Perhaps as many 70% of the class is taking PE 10 online because they do not like the traditional class. This project compares attitudes between students who took my regular PE 10 classes and those that were enrolled in my Online PE 10 group. I surveyed them on their feelings about PE, their physical fitness level, their view of what PE is, and their knowledge about health related topics at the beginning of their course. I also asked students to perform a fitness test, testing their cardiovascular endurance, flexibility, muscular strength, muscular endurance, and power. I want to see if their views, options, and fitness levels change after the course is over in June through another survey. My Online PE group had a fitness fact emailed to them weekly and was encouraged through their activity logs and health related assignments. My regular classes had my encouragement during class, a choice of two different activities, and a short four week course on fitness and health related topics.

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Chapter 1

The Problem

Introduction

Technology and the Internet have dramatically changed how education is delivered to the students of today. Virtual schools, distance education, interactive computer programs, and online courses are becoming the norm. These changes have benefited students in remote geographical areas, students with special needs, working students, students with timetable conflicts, and students who desire to work from home. With these changes, teachers must also change the way that they teach their courses and build relationships with their students. Non – academic courses like Physical Education traditionally needed face to face teaching to ensure that learning takes place and that motor movements and exercises are performed efficiently, correctly, and safely. At present, there are few studies on comparing face-to-face learning with online approaches (NASPE 2011). There needs to be more research on the attitudes of students towards Physical Education in these regular "classroom" settings and in the virtual classroom. The concept is new and enlightening. Does online learning cause similar attitudes as found in the classroom? Are they worse or better? What types of students take virtual Physical Education programs? Do females' attitudes differ from males?

Background to the Problem

The study was conducted at a school within British Columbia which serves a community in the Lower Mainland comprised of around 90,000 people. The School District was currently meeting the needs of about 15,000 students of all ages. The student population in the school district is made up of about 6% Aboriginal students, 2% of ESL students, 2% of International students, 9% of French Immersion students, and about 10% special needs students. The district vision is for every individual to feel valued and for all learners to reach their potential. This is all very reflective of the high school that the research studied, which is one of the six high schools in the district. The enrolment at the school is approximately 1100 students from Grades 8-12. The school population is very similar to the percentages at the District level, as noted above, and is a school that takes great pride in its innovative student learning and their academic achievements.

Within School A, is a new online learning program that the district is piloting with the intent to expand it with more course choices. The district is using teachers that are currently in classrooms to teach both traditional classes and online classes with the students that also attend their school with a few others from the neighbouring five high schools. This study involved six traditional Physical Education classes and one online class. My online class consisted of 30 students, the same as my traditional classes. All of the students registered in this course were not academically coded and do not have any medical issues that prevent them from taking a traditional Physical Education (PE) class. All of these students are taking this course to either free up time for their in school studies, are high level athletes that spend a lot of time training and competing, are taking a different course because of social reasons, to not get sweaty during

school time, or so as to not participate in various sport activities that they don't like. Regardless, these students wanted to complete the required PE 10 course in a different manner.

Currently, the district online program at School A is in its beginning stages. This program will no doubt evolve over time as the teachers within the program and the administration at the school work to refine and continually develop this program so that it best serves the needs of both the students and all of the schools in the district. There are several goals for the Physical Education online class: for the teacher to connect with the students get the students to commit to the course, and help the students incorporate a fitness program into their regular routine so that they can become physically aware as well as make and develop healthy lifestyle choices. In order for teachers to do this successfully, understanding the online learner's attitudes towards PE is important so that they can help create a successful program that meets students' needs.

Statement of the Problem

Can it be demonstrated that the attitudes of students towards PE be as positive in an online learning environment as in a regular PE class?

Purpose of the Study

I worked with various students in a regular PE class and an online class at School A who voluntarily agreed to participate in the questionnaires and fitness testing associated with this study. There are not many studies completed about students' attitudes towards PE that compare the two programs of traditional and online. I wanted to try and understand the type of student taking the online courses and how we as teachers can make this program successful for these

students. Success in Physical education is when students want to participate in physical activities when they leave the school setting. The main purpose of this project was to compare the attitudes towards Physical Education in grade 10 students taking class in school versus students taking the class on line. After a one year program do attitudes towards Physical Education change more between grade 10 students taking an online program vs. those taking a traditional Physical Education class? Does a classroom teacher do a better job of helping to positively influence a students' feelings about PE, their physical fitness level, their view of what PE is, and their knowledge about health related topics? Or can an online student get the same motivation and attention through sent online facts and teacher feedback?

Statement of Research Hypothesis

I believed that there will be differences in the student's attitudes towards Physical Education depending if they are in a regular class or one that is online. I postulated that;

1) There will be more negative attitudes from students initially in the online program. They may have had a bad prior experience or not see the value in taking the time to be physically active; and
2) There was going to be an increase in positive attitudes from student's in the online program after they had developed their own personal physical routine doing activities that they picked and enjoyed; and
3) The teacher really does help in influencing the student's attitudes about physical activity and their knowledge about their overall health.

Importance of the Study

This was a very important topic to study as research has proven that attitudes, interests and liking for a subject have a strong bearing on progress and learning outcomes. If more students have a positive attitude towards physical education and their health, they are more likely to benefit physically, both short and long term, and on emotional, physical, and even social levels. This project seeks to start the research into how to positively affect online PE students' attitudes, to develop "best practices" for teachers to follow, and to develop better ways to document physical activity between teacher and student with the ultimate goal of having more students value their physical health for life.

Definition of Terms

There are a number of terms that are important to clarify and will be utilized for the remainder of the paper. The following terms will be used in accordance to the definitions and descriptions detailed below:

Physical Activity is defined as bodily movement produced by skeletal muscles that result in an expenditure of energy (Wisconsin, 2007).

Physical Fitness is a set of attributes one has in regards to one's ability to perform physical activities that require aerobic fitness, endurance, strength, or flexibility (Wisconsin, 2007).

Online Physical Education is defined as student learning using a Web-based format and the Internet with no requirement to attend classes in person (Maeroff, 2003).

Attitudes are defined as a predisposition or a tendency to respond positively or negatively towards a certain idea, object, person, or situation. Attitude influences an individual's choice of action, and responses to challenges, incentives, and rewards (together called stimuli) (Google).

Scope of the Study

Students in Grades 10, aged 15-16 years old, enrolled in the School A and in the district online Physical Education program for the 2011-2012 academic school years.

The following were limitations in this study:

1) Participation in this study was voluntary;
2) Online students were contacted by mail and parents needed to give permission by mailing back the permission form in a pre-paid envelope;
3) The expectation was that students were honest in taking the questionnaires seriously; and
4) Participants completed the Physical Fitness Assessment, prior to, and at the completion of the program, a task that for many of the students was also daunting and challenging.

Summary

Students' attitudes towards Physical Education affect their overall value of their own health. By better understanding students' attitudes about PE both in the regular classroom and in the online classroom, teachers can better influence students' attitudes so that they will value their health for life. Teachers need to be trained on how to deal with students in the online world, and how to make positive connections with them for them to be not only successful in their course, but in their life-long management of their own personal health. By better understanding the students taking online classes, I believe that teachers can adapt their instructional methods to meet their unique needs. The benefits of physical activity are clearly outlined and acknowledged in society today and teacher and administrators in schools must seek to implement programs for

all students to ensure that all students are benefitting from physical activity and making it a regular part of their day, whether at home or at school.

Outline of the Remainder of the Paper

In the following chapters in this paper I report on differing attitudes of students towards Physical Education in the traditional classroom and the online classroom and how these affect students' life-long view of their physical health. In Chapter 2, research that has been done of the topic of attitudes towards PE in a regular classroom, attitudes towards PE in an online class, how student's attitudes towards a subject affect their learning, and how teachers can try and change these attitudes will be outlined. Within this chapter is also a review of past studies on similar topics as well as highlights of research that has already been done in this field of study. The research methodology, description of the participants, ethical considerations, and limitations of the research are described and evaluated in Chapter 3 in terms of how these topics affect the data collected. In Chapter 4, the presentation of the data collected from the questionnaire and the results of the physical fitness testing will be revealed. Finally, the summary, conclusion, and recommendations are presented in Chapter 5.

Chapter 2

Review of literature

Introduction

Research has studied and examined the attitudes of students in Physical Education classes but not the attitude of students in online classes, as there is little written about online Physical Education classes. Evidence has shown that online learning works for many students and that their attitude towards their course depends greatly on their overall experience (Chesebro, 2003). "When students know and understand the short term and long term benefits of physical activity, and the mental and social benefits of physical activity, it can positively affect their attitudes towards the Physical Education course" (Ayers and Sariscsany pg. 161, 2011). Research has also shown that teachers that make connections with their students greatly affect their student's attitudes towards their course and impact their overall grade (Rimm-Kaufman and Sandilos, 2014).

The following literature review will serve to show how the attitudes of students in regular physical education classes and students taking the course online can be influenced by the actual course, the individual student and their needs, and the course instructor. The benefits of physical activity will be briefly outlined, highlighting the need for children and youth to be taking part in regular daily physical activity. The short and long term benefits, and the mental health and social benefits of taking part in regular physical activity will be reviewed to prove that physical activity does not simply improve the muscles and bones of the body, but also has a significant impact on the brain, and direct influence on self-esteem, confidence as well as dealing with anxiety and depression. When students are aware of all of these benefits to their own health it

can greatly affect their overall attitude towards their own class and their overall health (NASPE, 2011). The benefits of learning in a classroom and the importance of students connecting with their instructor and peers will be discussed and examined in order to better understand how these can greatly influence a student's attitude towards a course. The benefits of online learning and strategies of how to connect through the computer will also be discussed and examined as these will also greatly influence how a student feels about the course. Finally, how to make life-long habits and how to change attitudes will be reviewed, as this is where all Physical Educators need to work on to keep all students coming through our Physical Education courses valuing physical activity and their health.

Benefits of Physical Activity

There are many benefits of physical activity when it comes to maintaining or improving one's health and preventing future risks and illnesses that students need to be aware of. Research studies have shown that more than half of Canadian children and youth are not active enough for optimal growth and development (Public Health Agency of Canada, 2010). Regularly challenging one's heart through moderate or strenuous exercise and cardiovascular activity helps strengthen your heart and its muscles, and this should be done 2-3 times per week for at least 15 minutes. It reduces stress, strengthens the heart and lungs, increases energy levels, helps you maintain and achieve a healthy body weight and it improves your outlook on life. Research shows that physical inactivity can cause premature death, chronic disease and disability (Health Canada www.hc-sc.gc.ca). Regular exercise is also beneficial for sharpening your mind, which does better with a healthy brain and positive outlook on life (Bell, 2006). These are just some of the primary short term benefits of maintaining regular physical activity in your life.

In addition, there are many long term benefits of making regular physical activity a standard part of your life. Some of the long term benefits closely associated with physical activity include reducing the risks of dying prematurely, dying from heart disease, developing diabetes, developing high blood pressure, becoming obese, and developing colon cancer (Pace, 2000). Other long term benefits of physical activity include an improved ability to control weight and often improving posture and balance (Alberta Center for Active Living, 2002). In addition to this, regular physical activity helps reduce osteoporosis (Concordia University, 2010a). Physical activity is also associated with motor skill development, coordination and motor performance in children and youth. This is why making physical activity a regular part of one's life is so valuable, especially at an early age, as it reduces many health concerns and helps the body become stronger. Physical activity levels are receiving increased attention from the government, and even employers, as it helps prevent increased spending on health care while increasing productivity and a reduction in absenteeism (Government of Western Australia, 2007). Based on the discussion above, it could be postulated that the more one takes part in physical activity during their youth and developmental years the greater the results and benefits they will experience as they age.

Physical fitness provides many great benefits to the body but it is not limited there as exercise helps to improve a person's health and overall outlook on life. When a person is physically active for approximately 15 minutes or longer, the body releases endorphins, proteins in the brain that act as the body's natural pain reliever, and often result in people experiencing a feeling of euphoria (Neeser, 2005). Physical activity can result in the reduction of anxiety, enhancement of mood, and a reduction of depression (Tuffey Riewald, 2010). Physical activity helps improve self-esteem and confidence (Government of Western Australia, 2007). The self-

discipline used to exercise spills over into other areas of one's life which increases confidence and can empower one in completing what they seek to accomplish. For children and youth who are attending school, participation in regular physical activity also improves concentration, enhanced memory and learning, and results in better performance at school (Government of Western Australia, 2007). The government of British Columbia, Canada has taken steps in this direction, requiring all students to take part in DPA (Daily Physical Activity), a minimum of 30 minutes of physical activity each day as part of their graduation requirements (BC Ministry of Education, 2010).

Many children take part in some form of recreational athletic event or team. Getting involved in community athletic events helps increase community cohesion (Government of Western Australia, 2007). Rates of involvement in community hockey, soccer, and baseball leagues remain steady as these popular sports, and others, help children develop their athletic abilities and provide many great learning experiences as the kids learn and participate in sporting events. Parents and families are often found in attendance at such sporting events, which often results in an improved family and community connectedness (Public Health Agency of Canada, 2010b). Sports and athletic events have become a unifying factor that brings people together. Through physical activity one is able to learn a lot about themselves and their bodies, as they make decisions, take risks, challenge themselves physically and mentally, as well as trying and learning new skills. Physical activity results in increased social contact and can be done individually or with small or large groups.

Students overall attitudes about Physical Education

Although student attitudes toward physical education vary, the majority (usually

80% or more) of students enjoy the subject (Carlson, 1993). Physical education includes sports, games and physical fitness activities, both individual and group, that appeal to many students. According to Carlson's study, the three strongest reasons for students liking Physical activity were: fun, liking sports in general, and liking the activity offered. The three most frequent negative reasons were that they disliked the activity offered, that there was too much teacher talk and not enough playing time, and that it was boring.

But even when students say that they like the subject of Physical Education, are they fully participating and understanding the purpose of lifelong participation? What about those students who don't enjoy their class? The top three reasons that students don't participate in traditional Physical Education classes are: meaninglessness, powerlessness, and isolation (Calabrese, 1984). Some students see no purpose for this subject in their lives (meaninglessness) and would rather be doing other academic subjects or activities. Other students feel that they have no control over what will happen in the gymnasium (powerlessness). They would like to choose the activities that they do and the intensity of them – competitive or recreational. Others feel alone, they withdraw, and feel isolated from their peers in physical education class, either socially or emotionally. They don't feel like they fit in with their classmates or feel poorly about themselves and lack confidence. (Carlson, 1995)

Researchers have looked into how educators can change Physical Education classes so that all students will find it valuable. Luke and Sinclair (1991) found that curriculum content was the most influential factor in the development of positive and negative attitudes toward physical education, regardless of gender or whether students elected or avoided physical education. Many students think that the activities taught in their physical education classes had no transfer to their choice of activities outside of school (Rikard and Banville, 2006). We need

to give students more variety of activities. Chung and Phillips (2002) found a significant positive relationship between high school student attitudes toward physical education and participation in leisure-time activities. Enjoyment is the primary intrinsic motivation for student participation in physical activity, both in the physical education setting and in the community (Rikard and Banville, 2006). Instead of focusing on the traditional high schools sports, more focus needs to be on leisure and fun activities that can be found around the community.

Another important factor that influences students' attitudes towards Physical Education is their teachers. Teachers influence student learning, motivation, and their attitudes towards this class (Rikard and Banville 2006). From the health education that students receive, the activities that they are exposed to, and the atmosphere of the class, these all impact the lifestyle choices of high school students as they grow to adulthood. Silverman and Subramaniam (1999) suggested that experiencing enjoyment in physical activity settings leads to positive attitudes toward physical education and perhaps lifelong pursuits of being physical active.

Connecting in the Classroom

How do we make Physical Education classes more meaningful? We need to make connections with the students.

> Those students who have close, positive and supportive relationships with their teachers will attain higher levels of achievement than those students with more conflictual relationships. If a student feels a personal connection to a teacher, experiences frequent communication with a teacher, and receives more guidance and praise than criticism from the teacher, then the student is likely to become more trustful of that teacher,

> show more engagement in the academic content presented, display better classroom behavior, and achieve at higher levels academically. Positive teacher-student relationships draw students into the process of learning and promote their desire to learn (given that the content material of the class is engaging and age appropriate). Teachers who experience close relationships with students reported that their students were less likely to avoid school, appeared more self-directed, more cooperative, and more engaged in learning (*Birch and Ladd, 1997; Klem and Connell, 268, 2004).

What do positive student-teacher relationships look like in the classroom? Teachers show their pleasure and enjoyment of students and interact in a responsive and respectful manner. Teachers offer students help by answering questions in timely manner, offering support that matches the children's needs. Students feel comfortable asking questions and getting involved in the area of study. They feel valued and safe. Classroom practices that foster the feelings of competence, autonomy and relatedness are likely to produce the engagement and motivation required for academic learning and success (Armour, 2014). Competence refers to a student's need to feel capable of academic work; autonomy suggests a feeling that he or she has some choice and ability to make decisions; and relatedness implies that a student feels socially connected to teachers or peers. Positive teacher-student relationships play an equally important role in students' success across all subjects (McCombs and Miller, 2006).

Online Classroom

How do positive student teacher relationships work in the online classroom? Online PE courses do service as a positive resource. They "may serve as an appropriate method of

instruction for individuals who are unable to be in school-based settings, such as students located in remote geographical areas, students with special needs, or working students" (NASPE, 2007). It could also be for schools that lack certified teachers or have inadequate facilities and equipment. It also might promote relevance and positive attitudes for some students – overweight, medical issues, anxiety, and social issues and might encourage family involvement in a student's fitness efforts. Students in online courses have the benefits of working independently, having time flexibility, and can better match their own personal learning styles and interests. They may take this course due to choice or scheduling conflicts or availability issues. The students may also find that their participation may be less intimidating, and the quality and quantity of interaction may be increased in online classes (Ni).

There are some noted difficulties with taking courses online, especially with a course like Physical Education that relies on participation in various activities. Student integrity is needed as it is difficult for teachers to know if the students are actually participating in physical activity. There are also the technical difficulties associated with computer programs and the online world. Both teacher and student need to be able to problem solve in this area and the will both need technical support in some cases. Online courses are also not meant for everyone. Students need to be self-organized, self-disciplined, and responsible to completing tasks and time management (NASPE, 2007). Carr (2000) reported dropout rates as high as 80% in online classes and suggested a rule of thumb that course completion rates are often 10 to 20% higher in traditional courses.

How can an online Physical Education course be successful?

Online Physical Education classes can be successful as long as the program is personalized so that it meets the students' different learning styles and the course is laid out with some structure. Individualized instruction is one of the key benefits to the online teaching and learning environment (Williams, 2013). In online Physical Education courses, students study health and fitness related content and learn how to develop and implement workouts and training programs that meet their individual needs and interest (Mosier, 2010). The tasks and learning materials need to be relevant and applicable to them and the assignments must offer many options for students to show their learning. Teachers also need to use direct instruction methods (Rink, 2010). This adds some structure to the course. Moore (1993) claims that the more structured a course is, the less student and teacher dialogue needs to occur for clarification purposes. This is what Moore calls the transactional distance. Rink says that structure can be provided by doing four things.

1. The teacher provides clear descriptions and demonstrations of what the student is to do.
2. The teacher assists students in understanding the content and helps them find structured tasks that will help them to master the content.
3. The teachers keep students accountable for meeting task goals and provide them with specific feedback.
4. The teachers evaluate the students' work and what they have learned with prompt feedback

A successful online program will have both direct instruction and individualized instruction.

Communication between the teacher and their students also helps an online course be successful and teachers must have good communication skills and instructional strategies. Online learning needs to focus on teaching and learning transactions that include communication and various modes of communications technologies (Garrison, 2000) Students are often online

during the evenings and weekends and in order to build a rapport with students, teachers need to be accessible during these times. Results from one study by Harland and Moore (2002) indicated online students expected immediate feedback on their submissions because they had the perception that the teacher was available anytime due to the online environment. Stating hours and days of availability are helpful and offering immediate and specific feedback will help the student immediately feel successful. Constant communication through emails, educational chat pages, and being available for face to face meetings (Kane and Wagner, 2007) and using programs like Eliminate and GoToMeeting (Williams, 2013) are great communication tools. Online teachers need to use technology to aid in their instruction (videotaping of skills), facilitate individual student development (pedometers), and support assessment (videotaping students' skills) (Daum, 2012). Online educators cannot be afraid of any new technology programs that could support their course.

The role of an online teacher is different too. The teacher is no longer the one who leads the class through one activity or subject. They are rather the guide who helps direct the student to learn more about themselves and help them achieve their own personal goals. Teachers are virtual facilitators who help students study health and fitness related content and learn about the importance of being active and fit for life. Students are presented with information about how to apply the health and fitness concepts and their own lives, and choose physical activities that they prefer to participate in within the comfort of their own homes and communities (Kane and Wagner 2007). The online PE teacher is also a motivator, an encourager, and assists students in creating workout plans to improve their overall fitness level. They also help set a minimum pace expectation to guide students, just like in any class (Williams, 2013). Students take responsibility for their own learning in this classroom

Currently, only a few studies have been conducted suggesting online physical education is a valid, beneficial option for secondary students (Kane and Wagner, 2007). The National Association for Sport and Physical Education (2011) made 4 recommendations for the future of PE. 1) Have a curriculum relevant to students, 2) have individualized choice for students, 3) have content that connects with family, 4) and have lessons that engage students in stabling long-term, positive lifestyle behaviors. More discussions and research needs to be made in this area as the online learning world is not going away.

Summary

Attitudes towards Physical Education classes will always be a conversation for educators. Trying to meet the needs of all of the students in their classes and make it a positive experience for all will always be what they are striving for. By offering both the traditional and the online Physical Education class options, educators are giving students more options and choices that hopefully give students a positive attitude towards this course. Having the knowledge to look after themselves and being exposed to various activities is our one chance to influence them as adults. “The key is to motivate students to want to participate in physical acitivities so that when they leave the school setting they will continue to partipate in those activities. They will become lifelong pariticipants, and exercise will not be just what happens during third period of sophomore year" (Kane and Wagner, 105, 2007).

Chapter III Methodology

Introduction:

For many years the delivery of physical education has occurred in school gymnasia and in associated sites, like community swimming pools and fields. The research on the attitudes of students towards physical education in these regular "classroom" settings and in the virtual classroom is new and enlightening. Does online learning cause similar attitudes as found in the classroom? Are they worse or better? What type of students takes virtual PE programs? Do females' attitudes differ from males?

This chapter will outline the methodology used to compare student's attitudes in the regular PE classroom and the online classroom, from the beginning of a fitness unit to two months later when it ended. For this study, data was collected through the use of a survey given once at the beginning of the unit and once at the end. This chapter examined the collected method of the data as well as the design of the program, ethical considerations, the strengths and weaknesses of the survey data, data analyses, assumptions made about the subjects involved in the study, the method used during the collecting of the data, and finally the limits of the research design. The number of students who took part in the surveys at SCHOOL A was 14 in regular classes and 4 online. The students were between the ages of 15-16 years old and all were in Physical Education 10 classes.

Description of Research Methodology:

For this research project, I wanted to study the attitudes of physical education on students' in both regular classrooms and those taking the course online. This topic really interests me, as a Physical Education teacher, a coach, and a person who enjoys physical activities. With the start of another school year in September 2011, I connected with staff and administration at SCHOOL A in order to work with students. Because of job action, and trying to obtain parent permission from the students, I wasn't able to implement my surveys and fitness tests until February 2012. Students started with a survey composed of 20 questions and a Physical Fitness Assessment. These were used to provide a baseline for each participant involved in this study. Out of a total of 90 students, 18 students, aged 15-16, participated in this study, with most students being female and from my regular PE classes. Throughout the two months, the students were regularly encouraged and given various health facts either in class or they were directly emailed to them.

In the classroom, students worked out on weights, went for runs, rode spinning bikes, did various floor exercises and worked on activities either as a class or on their own to meet their own individual fitness goals. Students had class three times per week for one hour.

Online, students handed in fitness logs weekly that included various activities of their choice that met the PLOs set out by the BC curriculum. Students would describe their activity, give an exertion rate, a time frame of how long that they did the activity for, and an adult witness/instructor verified the activity. At the end of the two months, on April 2012, the students took part in the same survey and fitness tests that they took back in February.

Research Design:

Online Physical Education classes and the traditional Physical Education classes are structured differently and both the teachers and students have different roles. In the regular class, students show up for 3 one hour sessions per week. There are usually about 25-30 peers in their unisex class. The teacher initiates the warm up, the activity, and the cool down. The teacher and student can develop a face to face relationship and students can get feedback on their participation and skill level immediately. Teachers can demonstrate activities, give verbal encouragement, and help set the tone of the class. Teachers also teach students about nutrition, the benefits of warming up and cooling down, first aid, the benefits of active living, and other health related topics. Students show up for class, participate in the activities, and socialize with their peers. They know that they are being evaluated for their participation, proper attire, good sportsmanship, leadership, and skill for that day. In the traditional Physical Education class, the structure is very teacher led.

The online Physical Education class requires students to be independent, and organized. Students are required to submit an activity log every week where they document what activity they did, for how long, their exertion level, and who can verify it. They must complete 100 hours of activity for the year in order to finish the course. Students must find their own activities to join, set their own schedules, record their hours, and motivate themselves to stay on track. Activities can be social or independent depending on the student's choosing. The variety of activities can be all sport related or fitness related, or a combination of both. Students also must complete 17 written assignments, ranging from nutrition, first aid, and other health related topics that a regular class would normally discuss and study. They would read online articles and

display their knowledge through question/answer, brochures, or other media devices. Students know that they are being evaluated on 100 activity hours and 17 written assignments only. Teachers in this course have a different role. They are encouragers, supporters in developing new work out plans, or giving weekly fitness/nutrition tips that they hope their students read. They phone home to verify activity hours with parents/instructors/coaches. They communicate by email or through Skype. They need to be available during the evenings as this is when students may email questions or concerns. The challenge for teachers is that this course is student directed and they need to encourage each student outside of the traditional 3 classes per week.

Selection of Subjects:

Permission from the School District was needed as this action research project involved students currently enrolled at SCHOOL A, one of six local high schools in the School District. In addition to this, the researcher communicated with the administrators from both SCHOOL A and the online school to inform them of the project and the participation of students attending the requirements and gain approval from City University of Seattle to conduct this research project.

Although I would have liked to have a much larger number of participants taking part in this research, getting both students and their parents' permission was difficult because of work to rule and labor conflicts between teachers and their employers. This may have caused fewer people to participate. For all of the participants from SCHOOL A and the ONLINE SCHOOL, a parent consent for the use of the data (Appendix A and B) of their son or daughter was sent home or mailed home and required a signature from the parent or guardian of the student as well as the student signature. This form outlined that information shared by me may be used for this

research project, that the information shared with the researcher may be used for informing best practice in schools/district and that the researcher would keep the information anonymously.

Ethical Considerations:

In both classes, students that were allowed to participate in this study were given a number. This number was used to identify whether they were male or female, in the traditional classroom or in the online classroom. In class surveys and fitness tests were completed by students in class, supervised and collected by one of my colleagues. Online surveys and fitness tests were mailed home to everyone, and students who chose to participate used the pre-paid return envelope provided. All surveys and fitness testing information was stored in a binder by number only, locked in my work filing cabinet.

Instrumentation:

One of the easiest ways for me to gather information from students who were in the classroom and online was to use a survey and a simple fitness test. The survey (Appendix C) was very short and easy to complete and the fitness test (Appendix D) could be completed anywhere. The survey was created by the researcher and consists of 20 statements that can be answered on a six point scale. For the 20 statements, the participants are asked to identify whether they strongly agree, agree, slightly agree, slightly disagree, disagree, or strongly disagree with each statement. The administration of this survey can be completed in just five minutes, and is easy to compare results. The physical fitness test contains five standard tests that most high schools use throughout the year to provide measurement and feedback on various components of fitness to the individual being tested. Students will perform these tests at the

beginning and at the end of this study. The purpose is that students will become more aware and be able to make healthy lifestyle choices and see improvements.

Data Collection and Recording:

Data collection was based on the surveys and fitness tests used both at the start and the end of the research. All the students received the surveys and fitness tests at the same time. The online students completed them on their own time within a two week period. After all of the surveys were completed, I entered the data into my computer in order to compare the differences and similarities between the results of the surveys and testing from February 2011 against May 2011.

Data Analyses:

The data collected from the surveys and fitness tests were put into numerous graphs to compare the information in a variety of ways. The surveys and fitness testing were compared by regular class versus online class, and boys versus girls. I found that the information was easier to compare looking at the data this way.

Methodological Assumptions:

The assumptions which made the survey possible were numerous. The first assumption that I made was that students would take an adequate amount to time to complete the questionnaires and would fill out the appropriate responses. This is always a difficult to determine due to the nature of students and their tendency to complete things quickly in order to be done with the work. The second assumption I made was that I assumed that the students

would understand what each and every question meant. The third assumption I made was that the students answered the survey questions and fitness components honestly. If any of these assumptions did not turn out to be correct, then my data would be affected to varying degrees.

Limitations:

The biggest limitation in my study is the small number of students who participated from the online program. I feel that if I had been able to get more students surveyed that my results might have varied. The time of year that the first survey was sent out might have changed the results too. September is the optimal time when things are fresh and new. In February many students are stressed and tired in a linear school. Another factor would be how a student felt the day that they filled out the survey and completed the fitness test. This would impact my research and data as it has the potential to greatly alter the way each students answers the survey questions. If they are going through a tough time at school or if they had a bad morning, it might change the way that they choose their responses.

Summary:

In this chapter I have outlined the steps taken to conduct my research, outlining my survey and fitness test and how I went about collecting my information from the students involved from the regular and online Physical Education classes at SCHOOL A. The majority of this chapter was outlining what I wanted to study, how I contacted the students and their parents, how the students completed the tests, and the limitations and assumptions of this study. With this information, I hope to draw some accurate conclusions and recommendations at the end of this project.

Chapter IV – Results

Introduction

In this chapter, I have presented and analyzed the results of the questionnaire, and the results from the physical assessments conducted in February and June 2013. I have organized the results by dealing with each topic on its own, breaking down the results by males, females, traditional classroom, and the online class for the 18 students who participated. After examining the results, I made connections from the project's findings to the material covered in the literature review from Chapter Two.

There were 18 students who participated in the project. All of the students were in grade 10, ages 15-16 and attended high schools in the same district. From SCHOOL A there were 10 females and 4 males. From the district online program there were 3 females and 1 male. It is important to note that there may have been fewer online students participating because of the forms having to be mailed home and then returned by mail back to the school. The study also took place later during the school year because of job action.

Presentation of Descriptive Statistics:

The questionnaire was an easy measurement of attitudes towards Physical Education for the students attending SCHOOL A and the District online school to fill out. The questionnaire was composed of 20 statements and seeks to determine how an individual feels about Physical Education on the following topics: the value of health benefits, if they learned something of value in the course, it they are planning to continue being active after this course, positive peer pressure, negative peer pressure, and the value of Physical Education as a course. Each topic has

two to four statements that the participants check as on a scale of one to six, with one being the extreme end of false, six being the extreme end of true, and three and four being in the middle range in between. The simplicity of this questionnaire was beneficial for these students as it only required a few minutes of their time and was easily completed by all participants. The totals from the February questionnaire and the June questionnaire were collected, calculated, and compared against each other in order to determine if growth, either positive or negative had occurred in how the participants felt about themselves. The following table shows the results from the Questionnaire taken in February and June.

Table #1: Results of the Questionnaire with all 18 students

Beginning
End
Please check the number which is the most correct statement for you. #1 means you strongly disagree with the statement; #6 means you strongly agree with the statement

		Disagree						Agree					
	Statement	1		2		3		4		5		6	
1	Physical Education class is a waste of my time.	11	10	4	2	1	3	1	1	1	1	0	1
2	I am active enough on my own time. I don't need PE class.	3	1	3	3	2	3	1	7	5	3	4	1
3	I learned valuable first aid information in my class.	0	0	1	2	5	0	5	4	3	7	4	5
4	I value fitness and health.	0	0	0	0	2	0	2	1	7	6	7	11
5	I felt encouraged and supported in my PE class.	0	0	3	0	5	1	5	5	0	7	5	5
6	I prefer individual activities over team activities.	5	1	3	1	4	6	3	4	3	5	0	1
7	I will continue to do physical activities after the course is finished.	0	0	0	0	0	0	3	0	6	4	9	14
8	Peer pressure makes it hard for me to like PE.	6	3	5	8	1	1	4	5	2	0	0	1
9	PE classes teach me how to deal with stress.	3	2	5	6	7	2	2	5	0	2	1	1
10	Nutrition is an important part of health.	0	0	0	0	0	0	4	2	6	3	8	13
11	I learned something about my health this year.	1	2	1	0	7	0	3	4	4	8	2	5
12	I don't like physical activity.	11	10	3	5	2	3	2	0	0	0	0	0
13	I will continue with my healthy habits after I finish this course.	0	0	0	0	1	0	4	2	6	6	7	10
14	I value my health.	0	0	0	0	0	0	5	1	3	2	10	15
15	I have a physical activity that I enjoy.	0	0	0	0	1	0	3	0	3	4	11	14
16	I don't like PE because I am not athletic.	8	11	4	3	3	2	1	1	1	1	1	0
17	PE should offer more choices in the activities offered.	1	2	1	1	4	3	5	6	4	2	3	4
18	I don't like exercising with others.	6	7	2	5	5	4	2	1	3	0	0	1
19	I enjoy physical activities with my friends.	1	0	2	0	1	1	2	5	3	4	9	8
20	I now know that physical activity is an important part of my daily routine.	0	0	0	0	0	0	4	0	6	4	8	14

Looking at the tabled results for all of the participants of this study, I noticed the following: When looking at the topic of whether the students value their health, (questions 14, 20), all changed to a stronger agree by the end of the course.

When asked if the students learned something of value in the course, (3, 4, 9, 10, 11) all groups agreed that they value their health, but many felt that they didn't learn enough about

dealing with stress, or their health. They did feel that they learned important information about first aid and nutrition.

Negative peer pressure to either participate or enjoy the course (5, 8) did not seem to be an issue for this group.

The questionnaire also looked at the value of Physical Education as a course (1, 2) Interestingly, students didn't find the PE class a waste of time, but they did believe that they didn't need it, as they were active enough on their own.

Everyone does like physical activities (12). Even the 2 students who didn't at the beginning changed their responses at the end of the course. Most students enjoy the social aspect of activity (19) but they like individual activities more than team (6, 18). 50% believed that PE should offer more choices in the activities offered (17). By the end of the course, all of the students either agreed or strongly agreed that they had an activity that they enjoyed (15).

When asked if they are planning to continue being active and making healthy choices after this course (7, 13), the number of students who agreed that they were going to continue being active and making healthy choices also increased.

Discussion of Descriptive Statistics:

Most of the research on the topic of online Physical Education focuses on the many reasons that the course exists and on how an online class should be structured for students' success. When looking at the topic of general students' attitudes about PE, I can see that 83% of the participants in this research study enjoyed being physically active and liked their actual Physical Education 10 course. This coincides with what Carlson (1995) stated – 80%. The study also agrees with Carlson in that students like sports and activity in general, but 100% of

the students at the end of the survey, agree that physical activity is important to have in their daily routine. Carlson also listed reasons why students do not like PE. From the survey, 67% said that there should be more choices in the activities offered. Calabrese (1984) calls this powerlessness. They want more choice in their activities. Switching the emphasis away from sports and competitive only games will also help students have positive attitudes in PE. Chung and Phillips (2002) found that students enjoy leisure type activities found throughout their communities. This will help students continue with activity after this course and hopefully make the numbers higher on questions 7, 13, 15, 17, and 20. 61% of students stated that they are active enough on their own time and don't need it as a class. This also goes with Calabrese's (1984) findings that some students would rather be doing other academic subjects or activities during this time. Question 8 asks about peer pressure. 1/3 of the students felt that they couldn't enjoy PE because of other classmates. This coincides with what Carlson (1995) says about reasons that students don't have a good attitude about PE. Luke and Sinclair (1991) said that the curriculum content needs to be more valuable to the student.

Presentation of Comparative Statistics:

I separated the two groups, classroom and online, and compared their end results. When looking at the topic of whether the students value their health (14, 20), both groups agreed and thought that physical activity was an important part of their daily routines.

When asked if the students learned something of value in the course (3, 4, 9, 10, 11) both groups said that they valued fitness and health, that nutrition is an important part of health, and that they learned something about their health this year.

93% of the classroom group said that they learned valuable first aid information and 75% of the online group said that they did. This is probably because the classroom group did a full first aid hands on unit, where the online group did a reading and answer questions about first aid.

Only 36% of the classroom group said that they learned how to deal with stress, compared to 75% of the online group.

Next I looked at how peer pressure affected their participation or enjoyment of the course (5, 8). Both groups felt encouraged and supported in their PE class. Only 14% of the classroom group felt that peer pressure makes it hard for them to like PE compared to 100% of the online group. It would be interesting to find out if this was the major reason for taking online PE.

When looking at the value of Physical Education as a course (1, 2), 86% of classroom students and 75% of online students did not believe that PE was a waste of their time.

57% of the classroom students and 75% of the online students believed that they were active enough and didn't need PE.

Everyone in both groups does like physical activities (12). Most students enjoy the social aspect of activity (19). 100% of the classroom group and 75% of the online group liked physical activities with their friends.

When looking at individual activities versus team (6, 18), 43% of the classroom group said that they prefer individual activities over team activities while the online group was rated at 100%. The classroom group liked exercising with others (100%) and the online group was only rated at 40%.

64% of the classroom students thought that PE should offer more choices in the activities offered (17), compared to 75% of the online students. By the end of the course, all of the students either agreed or strongly agreed that they had an activity that they enjoyed (15).

Both groups also agreed that they are planning to continue being active and making healthy choices after this course (7, 13).

Table #2: Results of the Questionnaire with 14 classroom students

Beginning
End
Please check the number which is the most correct statement for you. #1 means you strongly disagree with the statement; #6 means you strongly agree with the statement

		Disagree						Agree					
	Statement	1		2		3		4		5		6	
1	Physical Education class is a waste of my time.	10	10	2	1	1	1	0	0	1	1	0	1
2	I am active enough on my own time. I don't need PE class.	3	1	2	3	2	2	0	5	4	2	3	1
3	I learned valuable first aid information in my class.	0	0	0	1	3	0	4	2	3	6	4	5
4	I value fitness and health.	0	0	0	0	2	0	1	1	4	3	7	10
5	I felt encouraged and supported in my PE class.	0	0	2	0	2	0	0	4	0	5	5	5
6	I prefer individual activities over team activities.	4	1	3	1	4	6	2	4	2	2	0	0
7	I will continue to do physical activities after the course is finished.	0	0	0	0	0	0	3	0	3	2	9	12
8	Peer pressure makes it hard for me to like PE.	6	3	5	8	1	1	0	2	0	0	0	0
9	PE classes teach me how to deal with stress.	3	2	5	5	4	2	1	3	0	2	1	0
10	Nutrition is an important part of health.	0	0	0	0	0	0	2	1	4	1	8	12
11	I learned something about my health this year.	1	1	1	0	4	0	2	2	4	6	2	5
12	I don't like physical activity.	11	10	1	3	1	1	1	0	0	0	0	0
13	I will continue with my healthy habits after I finish this course.	0	0	0	0	1	0	2	2	4	5	7	7
14	I value my health.	0	0	0	0	0	0	4	1	0	2	10	11
15	I have a physical activity that I enjoy.	0	0	0	0	0	0	2	0	1	3	11	11
16	I don't like PE because I am not athletic.	7	11	3	2	3	0	0	1	0	0	1	0
17	PE should offer more choices in the activities offered.	1	2	1	1	4	2	3	3	2	2	3	4
18	I don't like exercising with others.	6	7	2	5	5	2	1	0	0	0	0	0
19	I enjoy physical activities with my friends.	1	0	0	0	0	0	2	3	2	3	9	8
20	I now know that physical activity is an important part of my daily routine.	0	0	0	0	0	0	3	0	3	3	8	11

Table #3: Results of the Questionnaire with 4 online students

Beginning
End
Please check the number which is the most correct statement for you. #1 means you strongly disagree with the statement; #6 means you strongly agree with the statement

		Disagree						Agree					
	Statement	1		2		3		4		5		6	
1	Physical Education class is a waste of my time.	1	0	2	1	0	2	1	1	0	0	0	0
2	I am active enough on my own time. I don't need PE class.	0	0	1	0	0	1	1	2	1	1	1	0
3	I learned valuable first aid information in my class.	0	0	1	1	2	0	1	2	0	1	0	0
4	I value fitness and health.	0	0	0	0	0	0	1	0	3	3	0	1
5	I felt encouraged and supported in my PE class.	0	0	1	0	3	1	0	1	0	2	0	0
6	I prefer individual activities over team activities.	1	0	0	0	0	0	2	0	1	3	0	1
7	I will continue to do physical activities after the course is finished.	0	0	0	0	0	0	1	0	3	2	0	2
8	Peer pressure makes it hard for me to like PE.	0	0	0	0	0	0	2	3	2	0	0	1
9	PE classes teach me how to deal with stress.	0	0	0	1	3	0	1	2	0	1	0	0
10	Nutrition is an important part of health.	0	0	0	0	0	0	2	1	2	2	0	1
11	I learned something about my health this year.	0	0	0	0	3	0	1	2	0	2	0	0
12	I don't like physical activity.	0	0	2	2	1	2	1	0	0	0	0	0
13	I will continue with my healthy habits after I finish this course.	0	0	0	0	0	0	2	0	2	1	0	3
14	I value my health.	0	0	0	0	0	0	1	0	3	0	0	4
15	I have a physical activity that I enjoy.	0	0	0	0	1	0	1	0	2	1	0	3
16	I don't like PE because I am not athletic.	1	0	1	1	0	2	1	0	1	1	0	0
17	PE should offer more choices in the activities offered.	0	0	0	0	0	1	2	3	2	0	0	0
18	I don't like exercising with others.	0	0	0	1	0	2	1	1	3	0	0	1
19	I enjoy physical activities with my friends.	0	0	2	0	1	1	0	2	1	1	0	0
20	I now know that physical activity is an important part of my daily routine.	0	0	0	0	0	0	1	0	3	1	0	3

I also compared the views between males and females. When looking at the topic of whether the students value their health (14, 20), all said that they valued their health and all know that physical activity is an important part of their daily routine.

When asked if the students learned something of value in the course (3, 4, 9, 10, 11), both females and males said that they valued their fitness and health, and that nutrition is an important part of their health. All of the females said that they learned valuable first aid information compared to the 40% of males.

100% of the female group said that they learned something about their health this year, compared to 80% of the males. With the topic of dealing with stress, 54% of females and only 20% of males said that they learned how to deal with stress.

With questions regarding negative peer pressure to either participate or enjoy the course (5, 8) 92% of females and 80% of males said that they felt encouraged and supported in their PE class.

38% of females and 20% of males said that peer pressure makes it hard for them to like PE.

The questionnaire also looked at the value of Physical Education as a course (1, 2). 69% of females and 40% of males believed that they were active enough and didn't need PE. 15% of females and 20% of males believed that PE is a waste of their time.

Everyone does like physical activities (12) and all of them enjoyed the social aspect of activity (19). 100% of the females liked exercising with others (6) compared to 80% of males.

62% of the females and 40% of the males preferred individual activities over team activities.

69% of the female students thought that PE should offer more choices in the activities offered (17), compared to 50% of the male students. By the end of the course, all of the students either agreed or strongly agreed that they had an activity that they enjoyed (15).

When asked if they are planning to continue being active and making healthy choices after this course (7, 13), the amount of students who agreed that they were going to continue being active and making healthy choices also increased. All students stated that they would continue to do physical activities after the course was finished and all said that they would continue with healthy habits after they finish this course.

Table #4: Results of the Questionnaire with 13 female students

Beginning
End
Please check the number which is the most correct statement for you. #1 means you strongly disagree with the statement; #6 means you strongly agree with the statement

		Disagree						Agree					
	Statement	1		2		3		4		5		6	
1	Physical Education class is a waste of my time.	8	7	3	1	1	3	1	1	0	1	0	0
2	I am active enough on my own time. I don't need PE class.	2	1	2	1	1	2	1	6	4	3	3	0
3	I learned valuable first aid information in my class.	0	0	1	0	5	0	1	3	2	5	4	5
4	I value fitness and health.	0	0	0	0	1	0	2	1	4	4	6	8
5	I felt encouraged and supported in my PE class.	0	0	1	0	3	1	5	3	0	5	4	4
6	I prefer individual activities over team activities.	3	1	3	1	3	3	2	3	2	4	0	1
7	I will continue to do physical activities after the course is finished.	0	0	0	0	0	0	3	0	4	3	6	10
8	Peer pressure makes it hard for me to like PE.	3	2	4	5	1	1	3	5	2	0	0	0
9	PE classes teach me how to deal with stress.	1	1	5	4	5	1	1	5	0	2	1	0
10	Nutrition is an important part of health.	0	0	0	0	0	0	4	2	4	3	5	8
11	I learned something about my health this year.	0	0	0	0	6	0	2	4	3	5	2	4
12	I don't like physical activity.	8	7	2	4	1	2	2	0	0	0	0	0
13	I will continue with my healthy habits after I finish this course.	0	0	0	0	1	0	3	2	4	3	5	8
14	I value my health.	0	0	0	0	0	0	3	1	3	1	7	11
15	I have a physical activity that I enjoy.	0	0	0	0	0	0	3	0	3	3	7	10
16	I don't like PE because I am not athletic.	5	8	2	2	4	2	0	1	1	0	1	0
17	PE should offer more choices in the activities offered.	1	0	0	1	4	3	4	5	2	2	2	2
18	I don't like exercising with others.	3	4	1	6	5	3	1	0	3	0	0	0
19	I enjoy physical activities with my friends.	1	0	2	0	0	0	2	4	2	4	6	5
20	I now know that physical activity is an important part of my daily routine.	0	0	0	0	0	0	4	0	4	3	5	10

Table #5: Results of the Questionnaire with all 5 male students

Beginning
End
Please check the number which is the most correct statement for you. #1 means you strongly disagree with the statement; #6 means you strongly agree with the statement

		Disagree						Agree					
	Statement	1		2		3		4		5		6	
1	Physical Education class is a waste of my time.	3	3	1	1	0	0	0	0	1	0	0	1
2	I am active enough on my own time. I don't need PE class.	1	0	1	2	1	1	0	1	1	0	1	1

3	I learned valuable first aid information in my class.	0	0	0	2	0	0	4	1	1	2	0	0
4	I value fitness and health.	0	0	0	0	1	1	0	0	3	2	1	3
5	I felt encouraged and supported in my PE class.	0	0	1	0	2	1	1	2	0	1	1	1
6	I prefer individual activities over team activities.	2	0	1	0	1	3	1	1	0	1	0	0
7	I will continue to do physical activities after the course is finished.	0	0	0	0	0	0	0	0	2	1	3	4
8	Peer pressure makes it hard for me to like PE.	3	1	1	3	0	0	0	0	1	0	0	1
9	PE classes teach me how to deal with stress.	2	1	1	2	1	1	1	0	0	1	0	0
10	Nutrition is an important part of health.	0	0	0	0	0	0	0	0	2	0	3	5
11	I learned something about my health this year.	1	1	1	0	1	0	1	0	1	3	0	1
12	I don't like physical activity.	3	3	1	1	1	1	0	0	0	0	0	0
13	I will continue with my healthy habits after I finish this course.	0	0	0	0	0	0	1	0	2	3	2	2
14	I value my health.	0	0	0	0	0	0	2	0	0	1	3	4
15	I have a physical activity that I enjoy.	0	0	0	0	1	0	0	0	0	1	4	4
16	I don't like PE because I am not athletic.	3	3	1	1	0	0	1	0	0	1	0	0
17	PE should offer more choices in the activities offered.	0	2	0	0	1	1	1	0	2	0	1	2
18	I don't like exercising with others.	3	3	1	1	0	0	1	0	0	0	0	1
19	I enjoy physical activities with my friends.	0	0	0	0	1	0	0	2	1	0	3	3
20	I now know that physical activity is an important part of my daily routine.	0	0	0	0	0	0	0	0	2	1	3	4

Physical Fitness Testing:

The measurement of growth and development while participating in physical activity was a requirement for students at the beginning and end of this study. Students in the classroom did this testing in their classroom and had opportunities during their regular class time to practice and train for their final testing. The online group had to do the testing on their own and had to go to a local track in order to complete the 12 minute run. The regular classroom showed greater improvements in the 12 minute run, pushups and long jump. The online class showed greater improvements in the flexibility and sit ups categories. There was a big difference in the sit-ups +50.25, as one student had a huge improvement and drastically skewed the results. The males had greater improvements in flexibility, pushups, sit ups, and long jump. The females had the only improvement in the 12 minute run.

Table #6: Physical Fitness Testing Result Averages for Classroom Students

Task	Preliminary Results	Final Results	Difference
12 Minute Run # of laps (Aerobic)	6.29	6.75	+.46
Sit and Reach Test CM (Flexibility)	34.79	35.18	+.39
Max Number of Push Ups In 1 minute (Muscular Strength)	20.93	27.79	+6.86
Max Number of Sit Ups (Muscular Endurance)	85.71	91.29	+5.58
Standing Long Jump CM (Power)	167.21	173.93	+6.72

Table #7: Physical Fitness Testing Result Averages for Online Students

Task	Preliminary Results	Final Results	Difference
12 Minute Run # of laps (Aerobic)	5.83	6	+.17
Sit and Reach Test CM (Flexibility)	28.88	33	+4.12
Max Number of Push Ups In 1 minute	14	18.5	+4.5

(Muscular Strength)			
Max Number of Sit Ups (Muscular Endurance)	30.5	80.75	+50.25
Standing Long Jump CM (Power)	136	139.25	+3.25

Table #8: Physical Fitness Testing Result Averages for Females

Task	Preliminary Results	Final Results	Difference
12 Minute Run # of laps (Aerobic)	6.12	6.35	+.23
Sit and Reach Test CM (Flexibility)	33.92	34.27	+.35
Max Number of Push Ups In 1 minute (Muscular Strength)	18.77	21.85	+3.08
Max Number of Sit Ups (Muscular Endurance)	62.69	70.62	+7.93
Standing Long Jump CM (Power)	151.38	156.31	+4.93

Table #9: Physical Fitness Testing Result Averages for Males

Task	Preliminary Results	Final Results	Difference
12 Minute Run # of laps (Aerobic)	7.5	7.5	0
Sit and Reach Test CM (Flexibility)	32.3	35.8	+3.5
Max Number of Push Ups In 1 minute	29	35.8	+6.8

(Muscular Strength)			
Max Number of Sit Ups (Muscular Endurance)	101.4	136.6	+35.2
Standing Long Jump CM (Power)	183.4	192	+8.6

Discussion of Comparative Statistics:

When comparing the traditional PE classroom with the online classroom, a few differences in the questionnaire results stood out. The issue of peer pressure stood out as being an issue for the online students liking PE. It would be interesting to find out if this was the major reason for these students to take this course online. Unfortunately students in the traditional class cannot always be with their friends in the same block. Feeling comfortable to sweat, perform a skill, and maybe try something new, is hard when you are not in a comfortable environment where you feel supported to take risks.

I also thought it was interesting that the regular classroom students felt that they didn't need a PE class to be active. This group of students was in numerous outside activities and they may have had a tough academic course load for their grade 10 year. They may have thought that they could use that extra hour better for their academic subjects. The online class could pick and choose when, where, and how long they exercised in comparison.

It was also of interest that the online class preferred individual activities over team and would rather exercise on their own. This may be because the online class is responsible for finding their own physical activities to perform in the community and many of them are individual. They would also be choosing when they do these activities and maybe their friends

are not available during that time. The classroom group doesn't do very many individual activities because the school doesn't have the facilities to accommodate them. The teacher has the responsibility to have all 30 students active during the hour PE session.

Next I looked at the topics covered in the PE classes: first aid, fitness, nutrition, and stress. It's interesting to note that the traditional class had a better experience with their first aid unit. I believe that this was because the traditional class did hands on unit with mannequins and received certificates of achievement, whereas the online class just read about first aid and answered some questions. The online class had a better experience with learning strategies with dealing with stress. The online class read about stress and how it affects us both physically and emotionally. They also read about strategies on how to deal with it and had to pick some that would work for them. The traditional class dealt with this topic as a discussion and students obviously weren't engaged in the conversation and did not personalize the strategies. Both classes found that the nutrition unit and fitness unit were similarly important. I believe that this is due to the fact that both classes had similar work sheets and used similar nutritional tools found online.

I also compared the views of males and females. When looking at the topics of first aid, fitness, nutrition, and stress, it was interesting to note that the females all said they learned valuable information in all four of these categories, while the males were lower by 20 – 60%. In a traditional class, the males usually want to get going and do an activity right away. This is their time to let off steam and have a break from their academics. I think that their scores are lower either because the material didn't make a personal connection with them, or that they were upset for losing their activity time. Taking more time to make these topics more meaningful (Calabrese, 1984) will help the males take more interest in them.

I thought it was also interesting that 29% more females felt that they were active enough and didn't need a PE class. Many of the girls are involved in dance and other team activities and are trying to juggle getting their academic homework completed. There are others though, that think that walking to and from school is enough. I think that more education on the amount, duration, and intensity of an activity that a healthy individual needs to do in their weekly routine would help in this area.

It was ironic to look at the findings that 100% of the females liked exercising with others, compared to 80% of males. But 22% more of the females preferred individual activities over team activities. 19% more of the females wanted more activity options available. In order to keep the students engaged in our physical education classes, we need to offer more leisure and fun activities (Rikard and Banville, 2006). We should be using our community centers and other facilities to help students find activities that they find fun and enjoyable. Timetabling restraints, transportation, and financial restraints are some of the barriers that current PE teachers have with making this happen.

I also looked at the physical fitness testing results. It was interesting to note that the online class showed greater improvements in the flexibility and sit ups categories. I hypothesize that this is because the online group makes up their own fitness program at home. Stretching is one of the components that they must include in the weekly logs, so this is done on a regular basis. Sit-ups are also an easy exercise to do in your home anywhere. I think that there is probably less stretching and fewer sit ups done in a regular classroom. The online class scored lower on the 12 minute run. Most students don't have access to a track by their house and many of the students didn't incorporate running as one of their cardio choices. Most chose walking, hiking, or biking instead. There was a big difference in the sit-ups (+50.25), as one student had a huge

improvement and drastically skewed the results. He actually trained so that he would do better on his final fitness assessment.

Practical Significance of the Study:

The purpose for this study was to compare online and traditional Physical Education classes and then to take these findings to improve the online course. We already know what makes a successful traditional class, but we now need to find out how to make a successful online one as the same strategies cannot be applied. An online class needs to be built with student flexibility, direct instruction, various modes of communications technologies, and a virtual facilitator.

Students taking online Physical Education classes have unique interests and needs. All of the assignments for this course need to give the students flexibility of when and how to show their learning (Williams, 2013). Making the assignments and topics relevant and applicable to the students can be a challenge too. Specific information can be given to students through online articles webpages, or videos, but what the students do with this knowledge to make it relevant to them, is the challenge. I have found that by listing 5 different options for assignments has really helped my students. Taking advantage of what students can do with technology, makes marking the assignments a lot of fun. Students have made online brochures and posters, videos, slide shows interviewed live people, created beautiful art work, made creative charts, or have written interesting essays and paragraphs. They love having the choice of how they do the assignment, and I love marking them because it shows how they related to the topic.

Direct Instruction is also an important component. This is the backbone of the course that gives it some structure and clarity. Rink (2010) says that direct instruction is made up of 4 things: clear instructions, teacher assistance, accountability, and prompt feedback. The course

assignments need to be clear on the website. What exactly do you need the student to do? This prevents student confusion and frustration. If the assignment is clear, the teacher's job is assisting the student with finding more information about the topic and guiding them to various ways to show their learning. Having a list of choices is very helpful as many students have difficulty coming up with ideas when they are new to the open possibilities that this course has. The teacher also keeps the student accountable. Regular submission of activity logs and assignments must be made. If a teacher doesn't hear from the student within the week, a reminder email needs to be sent. Phone calls and online discussions also help keep the students on track to course completion. Finally, prompt feedback from the teacher helps the student feel successful. Students often are working on their assignments during the evening and weekends. Harland and Moore (2002) found that online students expect immediate feedback. Setting hours and days of availability is a strong suggestion so that both teacher and student know when they can check in with questions and concerns.

Summary of Chapter:

Online physical education classes are here and as educators we need to design them with integrity and with the individual average student in mind. The goal of any PE class is to have students become lifelong participants of activity and to take ownership of their own health. When designing our courses, we need to remember this ultimate goal. We have learned that online students take this course for a number of reasons: remote geographical areas, students with special needs, working students, students with timetable conflicts, and students who desire to work from home. This study has shown that the students want to have choice in their activities and that they do value their health. We as teachers just need to make the content of our

course more meaningful to them and think outside the traditional classroom at the possibilities in our own communities and on the internet. We need to change our teacher roles from the leader to the guide. With these changes, I believe that we will see a positive attitude change in students and how they view Physical Education.

Chapter V – Summary and Recommendations

Summary

Exercise and physical activity are important aspects in one's everyday life. There are many benefits to staying physically active, and a healthy lifestyle often results from consistent participation in daily activity. There are physical benefits, both short and long term, as well as

social and mental benefits that result from active living. As one becomes more active on a regular basis, there is often a correlation to feeling better about themselves, their bodies, and the level of satisfaction in life. Students who have a positive attitude towards physical education and their health will see these benefits. As teachers, we need to try and connect with our students through this course to help them make positive, healthy choices for their lives.

For this project, I wanted to study PE students, both online and in the traditional gymnasium, to find out through a questionnaire what these students liked and did not like about their PE classes. With this information, I could see if the students who were taking online Physical Education had different needs and values than that of their peers and then look at how we as teachers could better connect with them. The findings from the online students were interesting and confirmed the research that stated that many students take online Physical Education for three reasons: meaninglessness, powerlessness, and isolation. 75% of the online students surveyed didn't see the value of a PE class and would rather spend their time on other activities. 100% of the online students said that they wanted more choices in physical activities. They also preferred individual ones comparted to the traditional team sports. 100% of the students also said that peer pressure made it hard for them to enjoy the class. Taking the course online helped solve two of these issues.

Recommendations:

The following recommendations are based on suggestions from the literature review as well as from the results of this study. The aim of the recommendations is to improve how we as teachers set up and run both our online and traditional PE classes. From this information,

Physical Education teachers can develop “best practices” to follow when teaching online PE and they can create a more meaningful course that will hopefully reach more students.

The focus of this course needs to change from one of competitiveness, repetitious skill development, and disconnect to the health topics to one of building relationships, having fun through movement, and valuable health topics that students can relate to. Students need to feel comfortable in their class and the teacher needs to spend time in creating a safe and caring environment. The teacher – student connection is the most valuable building block to attain this. Taking the time to talk to the students, and getting to know them as individuals, will go a long way to setting a positive attitude in the classroom. Putting more focus on leisure and fun activities both at school and in the community will help promote lifelong activity habits. If we want students to enjoy fitness and to be active, we will have to show them that it is easily assessable and fun. Changing the curriculum to important health and fitness topics that youth can relate to is also important as the Physical Education class is often the only school related course where this material is brought to the students’ attention.

Online physical education classes are here and as educators we need to design them with integrity and with the individual average student in mind. They need to be built with student flexibility, direct instruction, various modes of communications technologies, and a virtual facilitator. The flexibility for students allows them the choice of when and how to show their learning. With this flexibility is a needed structure to give this course clarity and purpose. The assignments and topics must be relevant and applicable to the students and given in clear, precise instructions. This direct instruction is the backbone of the course that gives it some structure and clarity and also keeps the students accountable. Phone calls, and online discussions can help keep the students on track and prompt feedback helps the student feel successful. Teachers will

also need to be available to answer questions and concerns during the evenings and will have to know how to direct students through the technology maze. Districts will also have to have a technical support for their online teachers, so that problems that will arise can be addressed quickly.

The goal of any PE class is to have students become lifelong participants of activity and to take ownership of their own health. When designing our courses, we need to remember this ultimate goal. This study has shown that the students want to have choice in their activities and that they do value their health. We as teachers just need to make the content of our course more meaningful to them and think outside the traditional classroom at the possibilities in our own communities and on the internet. We need to change our teacher roles from the leader to the guide. With these changes, I believe that we will see a positive attitude change in students and how they view Physical Education.

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Appendices

Appendix A – Parent Letter for the Classroom

Dear Parent or Guardian,

My name is Andrea Clayton and I am a teacher at A School where I teach PE 10 with your child. I am currently doing my Masters degree in Leadership at City University of Seattle. As part of my program, I am required to conduct a research study that will be of use to School A and to the ____ School District.

Your child has been invited to participate in a study that will compare the attitudes of grade 10 students taking an online program vs. those taking a traditional Physical Education class. This research study will work with students in PE 10 at School A and will study the attitudes of students from the beginning of their course to the end of their course. The study will look at whether their levels of self-esteem and physical self-concept, in conjunction to analyzing how their level of fitness might have decreased, stayed the same, or improved. These changes may determine their overall attitude of Physical Education. Research has shown the impact that physical activity can have on student's lives, physically, mentally, socially emotionally, and intellectually.

If your child decides to be part of this study they will be asked to complete two surveys about their own attitudes toward physical fitness once in March, and again in June. They will also be completing two fitness tests, a pre-test in March and posttest in June. This is intended to measure whether their attitudes towards Physical Educations and their fitness levels have changed.

The data collected from the surveys and fitness tests will be used in the research study. Participation in the surveys and fitness tests are voluntary and no negative consequence will occur if students refuse to participate or if they remove their agreement to participate at a later date.

Please read the attached informed consent, and if you are in agreement to allow your child to participate this survey and fitness testing, please sign the form and have your child return it to me by Wednesday, February 29, 2012. Students must return this signed form in order to participate in the surveys and interview.

If you have any questions, you can contact my research supervisor,
Thank you for your consideration.

Yours sincerely,
Mrs. Clayton

Appendix B – Parent Letter for the Online Class

Dear Parent or Guardian,

My name is Andrea Clayton and I am a teacher at School A School where I teach online PE 10 with your child. I am currently doing my Master's degree in Leadership at City University of Seattle. As part of my program, I am required to conduct a research study that will be of use to School A and to _____ school district.

Your child has been invited to participate in a study that will compare the attitudes of grade 10 students taking an online program vs. those taking a traditional Physical Education class. This research study will work with students in PE 10 online and will study the attitudes of students from the beginning of their course to the end of their course. The study will look at whether their levels of self-esteem and physical self-concept, in conjunction to analyzing how their level of fitness might have decreased, stayed the same, or improved. These changes may determine their overall attitude of Physical Education. Research has shown the impact that physical activity can have on student's lives, physically, mentally, socially emotionally, and intellectually.

If your child decides to be part of this study they will be asked to complete two surveys about their own attitudes toward physical fitness once in February, and again in June. They will also be completing two fitness tests, a pre-test in February and posttest in June. This is intended to measure whether their attitudes towards Physical Educations and their fitness levels have changed.

The data collected from the surveys and fitness tests will be used in the research study. Participation in the surveys and fitness tests are voluntary and no negative consequence will occur if students refuse to participate or if they remove their agreement to participate at a later date.

Please read the attached informed consent, and if you are in agreement to allow your child to participate this survey and fitness testing, please sign the form and have your child return it to me by Wednesday, February 29, 2012. Students must return this signed form in order to participate in the surveys and interview.

If you have any questions, you can contact my research supervisor.

Thank you for your consideration.

Yours sincerely,
Mrs. Clayton

Appendix C – Physical Education Questionnaire

Please check the number which is the most correct statement for you. #1 means you strongly disagree with the statement; #6 means you strongly agree with the statement

		Disagree					Agree
	Statement	1	2	3	4	5	6
1	Physical Education class is a waste of my time.						
2	I am active enough on my own time. I don't need PE class.						
3	I learned valuable first aid information in my class.						
4	I value fitness and health.						
5	I felt encouraged and supported in my PE class.						
6	I prefer individual activities over team activities.						
7	I will continue to do physical activities after the course is finished.						
8	Peer pressure makes it hard for me to like PE.						
9	PE classes teach me how to deal with stress.						
10	Nutrition is an important part of health.						
11	I learned something about my health this year.						
12	I don't like physical activity.						
13	I will continue with my healthy habits after I finish this course.						
14	I value my health.						
15	I have a physical activity that I enjoy.						
16	I don't like PE because I am not athletic.						
17	PE should offer more choices in the activities offered.						
18	I don't like exercising with others.						
19	I enjoy physical activities with my friends.						
20	I now know that physical activity is an important part of my daily routine.						

Participants will take the Physical Education Questionnaire at the beginning of the study and at the end.

Appendix D – Physical Fitness Assessment

Fitness Testing

You will complete this same test 2 times. Once in February and the other in June.

1. Cardiovascular Endurance: _____ laps

   Run around a track either at your school and neighbouring community center for 12 minutes. Record how many laps (include 1/2s) you complete.

2. Flexibility _____ cm

   Tape a measuring tape down to the floor with 60cm by the wall and 0cm facing away from the wall. Sit down on the floor facing the wall. In sock feet against the wall, with legs shoulder width apart, reach your fingers as far as you can towards your feet. Have a friend measure where your fingertips reach.

3. Muscular Strength _____ push ups

   Record how many FULL push ups that you can do in one minute. No stopping!

4. Muscular Endurance _____ sit-ups

   Record how many FULL sit-ups that you can do WITHOUT STOPPING. Keep going until you can't do any more. There is no time limit.

5. Power _____ cm

   Tape a measuring tape down to the floor. With shoes on, stand at the zero by your tape measure. Bending your knees, and swinging your arms, jump as far as you can. Record your results. Remember that this is a STANDING long jump, no running starts are allowed.

Appendix E – Physical Fitness Testing Results for all 18 Students

Table 1: Physical Fitness Testing Results for Student F-1

Task	Preliminary Results	Final Results	Difference
12 Minute Run # of laps (Aerobic)	8	8	0
Sit and Reach Test CM (Flexibility)	29	25	-4
Max Number of Push Ups In 1 minute (Muscular Strength)	22	30	+8
Max Number of Sit Ups (Muscular Endurance)	55	85	+30
Standing Long Jump CM (Power)	180	170	-10

Table 2: Physical Fitness Testing Results for Student F-2

Task	Preliminary Results	Final Results	Difference
12 Minute Run # of laps (Aerobic)	5.5	5.5	0
Sit and Reach Test CM (Flexibility)	41	48.5	+7.5
Max Number of Push Ups In 1 minute (Muscular Strength)	35	35	0
Max Number of Sit Ups (Muscular Endurance)	80	84	+4
Standing Long Jump CM (Power)	194	215	+21

Table 3: Physical Fitness Testing Results for Student F-3

Task	Preliminary Results	Final Results	Difference
12 Minute Run # of laps (Aerobic)	7.5	7	-.5
Sit and Reach Test CM (Flexibility)	40	38	-2
Max Number of Push Ups In 1 minute (Muscular Strength)	25	10	-15
Max Number of Sit Ups (Muscular Endurance)	110	100	-10
Standing Long Jump CM (Power)	155	155	0

Table 4: Physical Fitness Testing Results for Student F-4

Task	Preliminary Results	Final Results	Difference
12 Minute Run # of laps (Aerobic)	6	6	0
Sit and Reach Test CM (Flexibility)	32	36	+4
Max Number of Push Ups In 1 minute (Muscular Strength)	8	13	+5
Max Number of Sit Ups (Muscular Endurance)	61	82	+21
Standing Long Jump CM (Power)	185	195	+10

Table 5: Physical Fitness Testing Results for Student F-5

Task	Preliminary Results	Final Results	Difference
12 Minute Run # of laps (Aerobic)	6	6	0
Sit and Reach Test CM (Flexibility)	34	35	+1
Max Number of Push Ups In 1 minute (Muscular Strength)	11	12	+1
Max Number of Sit Ups (Muscular Endurance)	30	75	+45
Standing Long Jump CM (Power)	134	135	+1

Table 6: Physical Fitness Testing Results for Student F-6

Task	Preliminary Results	Final Results	Difference
12 Minute Run # of laps (Aerobic)	8	9	+1
Sit and Reach Test CM (Flexibility)	37	39	+2
Max Number of Push Ups In 1 minute (Muscular Strength)	60	65	+5
Max Number of Sit Ups (Muscular Endurance)	190	120	-70
Standing Long Jump CM (Power)	195	205	+10

Table 7: Physical Fitness Testing Results for Student F-7

Task	Preliminary Results	Final Results	Difference
12 Minute Run # of laps (Aerobic)	5	6	+1
Sit and Reach Test CM (Flexibility)	30	26	-4
Max Number of Push Ups In 1 minute (Muscular Strength)	18	22	+4
Max Number of Sit Ups (Muscular Endurance)	60	70	+10
Standing Long Jump CM (Power)	120	140	+20

Table 8: Physical Fitness Testing Results for Student F-8

Task	Preliminary Results	Final Results	Difference
12 Minute Run # of laps (Aerobic)	6.5	7	+.5
Sit and Reach Test CM (Flexibility)	34	34	0
Max Number of Push Ups In 1 minute (Muscular Strength)	12	23	+11
Max Number of Sit Ups (Muscular Endurance)	80	80	0
Standing Long Jump CM (Power)	155	155	0

Table 9: Physical Fitness Testing Results for Student F -9

Task	Preliminary Results	Final Results	Difference
12 Minute Run # of laps (Aerobic)	4	4	0
Sit and Reach Test CM (Flexibility)	33	28	-5
Max Number of Push Ups In 1 minute (Muscular Strength)	10	22	+12
Max Number of Sit Ups (Muscular Endurance)	4	21	+17
Standing Long Jump CM (Power)	115	125	+10

Table 10: Physical Fitness Testing Results for Student F -10

Task	Preliminary Results	Final Results	Difference
12 Minute Run # of laps (Aerobic)	5.5	6	+.5
Sit and Reach Test CM (Flexibility)	38	39	+1
Max Number of Push Ups In 1 minute (Muscular Strength)	7	5	-2
Max Number of Sit Ups (Muscular Endurance)	35	31	-4
Standing Long Jump CM (Power)	125	115	-10

Table 11: Physical Fitness Testing Results for Student F-11OL

Task	Preliminary Results	Final Results	Difference
12 Minute Run # of laps (Aerobic)	4	4	0
Sit and Reach Test CM (Flexibility)	28	30	+2
Max Number of Push Ups In 1 minute (Muscular Strength)	8	10	+2
Max Number of Sit Ups (Muscular Endurance)	10	20	+10
Standing Long Jump CM (Power)	115	120	+5

Table 12: Physical Fitness Testing Results for Student F-12 OL

Task	Preliminary Results	Final Results	Difference
12 Minute Run # of laps (Aerobic)	8	8	0
Sit and Reach Test CM (Flexibility)	27	27	0
Max Number of Push Ups In 1 minute (Muscular Strength)	20	25	+5
Max Number of Sit Ups (Muscular Endurance)	60	80	+20
Standing Long Jump CM (Power)	170	175	+5

Table 13: Physical Fitness Testing Results for Student F-13 OL

Task	Preliminary Results	Final Results	Difference
12 Minute Run # of laps (Aerobic)	5.5	6	+.5
Sit and Reach Test CM (Flexibility)	38	40	+2
Max Number of Push Ups In 1 minute (Muscular Strength)	8	12	+4
Max Number of Sit Ups (Muscular Endurance)	40	70	+30
Standing Long Jump CM (Power)	125	127	+2

Table 14: Physical Fitness Testing Results for Student M-1

Task	Preliminary Results	Final Results	Difference
12 Minute Run # of laps (Aerobic)	9.5	8.5	-1
Sit and Reach Test CM (Flexibility)	23	28	+5
Max Number of Push Ups In 1 minute (Muscular Strength)	30	40	+10
Max Number of Sit Ups (Muscular Endurance)	40	80	+40
Standing Long Jump CM (Power)	213	220	+7

Table 15: Physical Fitness Testing Results for Student M-2

Task	Preliminary Results	Final Results	Difference
12 Minute Run # of laps (Aerobic)	6.5	7.5	+1
Sit and Reach Test CM (Flexibility)	32	34	+2
Max Number of Push Ups In 1 minute (Muscular Strength)	20	25	+5
Max Number of Sit Ups (Muscular Endurance)	130	120	-10
Standing Long Jump CM (Power)	170	175	+5

Table 16: Physical Fitness Testing Results for Student M-3

Task	Preliminary Results	Final Results	Difference
12 Minute Run # of laps (Aerobic)	7	7	0
Sit and Reach Test CM (Flexibility)	45	45	0
Max Number of Push Ups In 1 minute (Muscular Strength)	35	36	+1
Max Number of Sit Ups (Muscular Endurance)	110	105	-5
Standing Long Jump CM (Power)	180	190	+10

Table 17: Physical Fitness Testing Results for Student M-4

Task	Preliminary Results	Final Results	Difference
12 Minute Run # of laps (Aerobic)	7	7	0
Sit and Reach Test CM (Flexibility)	39	37	-2
Max Number of Push Ups In 1 minute (Muscular Strength)	40	51	+11
Max Number of Sit Ups (Muscular Endurance)	215	225	+10
Standing Long Jump CM (Power)	220	240	+20

Table 18: Physical Fitness Testing Results for Student M-5OL

Task	Preliminary Results	Final Results	Difference
12 Minute Run # of laps (Aerobic)	N/A	N/A	N/A
Sit and Reach Test CM (Flexibility)	22.5	35	+12.5
Max Number of Push Ups In 1 minute (Muscular Strength)	20	27	+7
Max Number of Sit Ups (Muscular Endurance)	12	153	+141
Standing Long Jump CM (Power)	134	135	+1