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á Akureyri

Gender Issues in Physical Education

Sarah Smiley

**Kennaradeild
Hug- og félagsvísindasvið
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30 eininga lokaverkefni sem er hluti af
Magister Educationis-prófi í menntunarfræði

Leiðsögukenndari
Andrea Hjálmsdóttir

Kennaradeild
Hug- og félagsvísindasvið
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Kennaradeild

Hug- og félagsvísindasvið

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Ágrip

Íþróttir barna í grunnskóla eru hugsaðar til þess að efla heilbrigðan lífstíl og hreyfingu með því að veita börnum tækifæri til að hreyfa sig í öruggu og kunnuglegu umhverfi í þeirri von að upplifun verði jákvæð. Margar þjóðir, Íslendingar meðtaldir, hafa áhyggjur af minnkandi hreyfingu á unglingsárunum og þá sérstaklega hjá stúlkum. Í viðtölum við fjóra íþróttakennara og fjóra skólastjóra í grunnskólum Akureyrar voru viðhorf þeirra könnuð til íþróttakennslu, mikilvægi hennar, kynjamun í íþróttaiðkun og gildi þess að hafa kynin saman eða sitt í hvoru lagi í kennslustundum.

Kennarar og skólastjórar voru sammála hvað varðar markmið og skilvirkni íþróttakennslu þeirra. Skólar á Íslandi fá engar leiðbeiningar í gegnum aðalnámskrá frá menntamálaráðuneytinu varðandi kynjaskiptingu í íþróttakennslu og ræður þá hugmyndafræði kennara og stjórnenda í hverjum skóla fyrir sig, þrátt fyrir takmarkaða formlega fræðslu um áhrif þess að hafa kynjaskipta kennslu eða ekki. Kennararnir fjórir voru allir á sama máli um að auðveldara væri að virkja stúlkur þegar þær væru án drengjanna, sérstaklega á ungingastigi og þegar um mikla líkamlega áreynslu væri að ræða. Kennararnir voru samt sem áður allir hlynntir því að hafa stundum kynjaskiptingu og stundum ekki til þess að efla félagsfærni nemenda. Meiri munur var á skoðunum viðmælenda um hversu karllæg þeirra námskrá væri hvað íþróttakennslu varðar. Þar að auki gáfu kennarar í skyn að stúlkur þyrftu meiri hvatningu og persónulega athygli kennara til þess að taka virkari þátt. Niðurstaða þessarar ritgerðar er að formleg fræðsla (nám) um kynjamun í íþróttum ætti að vera skylda fyrir íþróttakennara og ennfremur að mjög gott væri að skólar skoðuðu hvort þeir uppfylli þarfir beggja kynja þegar kemur að íþróttakennslu.

Abstract

Physical education programs in schools are designed to promote lifelong habits of physical activity by providing children with both the opportunity to be physically active and positive experiences of that activity. In many nations, including Iceland, there is general concern that levels of physical activity decrease during adolescence, and that girls are even less active than boys. Interviews with four physical education teachers and four principals at the elementary school level in Akureyri, Iceland, explored current beliefs about the effectiveness and value of physical education, gender issues within the physical education system, as well as the value of coed and same sex physical education.

A general consensus was found amongst educators regarding the goals and effectiveness of their physical education program. Schools in Iceland have no guidelines from the Ministry of Education curriculum as to when, or whether to use single sex or coed classroom environments; and that current school physical education program set-ups are developed based on the opinions and beliefs of the educators who have very little formal education regarding the use of single sex and coed environments. All four teachers found it easier to activate girls in a single sex teaching environment, specifically, when taking part in activities that were more physical in nature and in the upper grades. However, all teachers were in favour of a mix of coed and single sex teaching environments within their programs in order that students benefit from the social interaction. Educators had a variety of opinions regarding to what degree their programs could be considered “masculinized”. In addition, the teachers indicated that girls in general needed more motivation or individual attention on behalf of the teachers in order to achieve greater levels of participation. This paper concludes that formal education regarding gender issues in physical education should be a requirement for physical education teachers. Furthermore, that schools should investigate whether their physical education programs are truly meeting the needs of both genders.

Foreword

This paper constitutes a Master's thesis worth 30 ECTS credit points in Educational Studies (Primary Education) in the Faculty of Education of the University of Akureyri. The thesis was written under the supervision of Andrea Hjálmsdóttir. I would like to thank her for her continuous support and encouragement. I also want to thank my mother Alison Smiley for editing this paper and my husband Ingvar Þór Jónsson for his support and patience.

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1 Introduction

In many countries around the world the health of future generations is at risk due to the growing problem of obesity and overweight. The World Health Organization [WHO] (2010) has identified physical inactivity as the fourth leading risk factor for global mortality. Physical education programs in schools are designed to promote lifelong habits of physical activity by providing children with both the opportunity to be physically active and positive experiences of that physical activity. In many nations, including Iceland, there is general concern that levels of physical activity decrease during adolescence, and that girls in particular are less active than boys. If this is the case, we need to investigate the effectiveness of our physical education programs at the elementary school level.

By interviewing 4 physical education teachers and 4 principals at the elementary school level in Akureyri, Iceland, this paper intends to explore current beliefs about the effectiveness and value of physical education, gender issues within the physical education system, as well as the value of coed and same sex physical education. This paper begins with a literature review which focuses on the following: health risks associated with obesity and overweight and the significance that physical activity plays in health; the effect that gender and age have on physical activity and the potential social influences of this effect; and finally, the effectiveness of physical education programs as well as gender issues in physical education. Following the literature review is the methods section, which provides a description of the qualitative research, used to collect data; subsequently, the results section outlines that data. The discussion section reflects the data in relation to the literature review and the conclusion follows.

2 Literature Review

2.1 Children and Activity

This section of the literature review covers the immediate and long term social and health consequences of physical inactivity and childhood obesity on children. The benefits of physical activity are reviewed as well as the current global recommendations for physical activity, which are necessary to achieve in order to enjoy those benefits. This section also covers in detail the current health status of Icelandic children as well as Icelandic government recommendations for physical activity.

Physical Inactivity

According to the WHO (2010), “physical inactivity has been identified as the fourth leading risk factor for global mortality (6% of deaths globally). This follows high blood pressure (13%), tobacco use (9%) and high blood glucose (6%). Overweight and obesity are responsible for 5% of global mortality” (p.10). The WHO explains that a person’s rate of physical activity or inactivity effect the risk factors of non-communicable diseases such as, raised blood pressure, raised blood sugar, and being overweight and according to the WHO, non communicable diseases now account for almost half of global deaths. In addition, the WHO states, “physical inactivity is estimated as being the principal cause for approximately 21–25% of breast and colon cancer burden, 27% of diabetes and approximately 30% of ischemic heart disease burden” (p.10).

Childhood Obesity

According to the WHO (2012), obesity is increasing at an “alarming rate” globally. The WHO (2014) states that the rate of obesity world-wide has doubled since 1980, that 65% of adults live in countries where overweight and obesity kills more people than being underweight and that more than 11% of the world’s population is considered obese. The WHO’s (2012) report furthermore, shows that the growing trend of obesity has not only been found in adult populations but also in children. The report found that globally, 170 million children, under the age of 18, are considered to be overweight.

According to Must and Strauss (1999), possible immediate physical consequences of childhood obesity include: bowing of the legs, the development of gallstones, hepatitis, sleep-disorders, intracranial pressure and menstrual abnormalities. There are also social consequences of obesity, which may include, being more likely to be described as “lazy, cheating, sloppy, dirty, ugly and stupid” (Must & Strauss, 1999, p. 4). Moreover, Must and Strauss explain that obese children may be more likely to have low self-esteem or low confidence and this may lead to lowered academic success and therefore future personal economic consequences. Of great consequence, it has been found that childhood obesity leads to a greater likelihood for continued obesity in adulthood (Must & Strauss, 1999). The long-term effects of obesity are dangerous and can include: the development of hypertension, cardiovascular disease, type 2 diabetes, cancer and osteoarthritis (Avenell et. al, 2004).

According to the WHO, “the fundamental cause of obesity and overweight is an energy imbalance between calories consumed and calories expended” (2014, n.p.). The WHO explains that globally there has been an “increased intake of energy-dense foods that are high in fat; and an increase in physical inactivity due to the increasingly sedentary nature of many forms of work, changing modes of transportation, and increasing urbanization” (2013, n.p.). Lobstein, Baur and Uauy (2004) highlight the current social changes that have contributed to an increase in obesity in both children and adults worldwide. The authors reported the following social trends, amongst others, as problematic: increase in motorized transport, decrease in opportunities for recreational physical activity, increased sedentary recreation (including television, computer games and internet), an increase of the marketing of energy dense foods, widespread food purchasing opportunity, and the rising use of soft drinks to replace water. Lobstein et al., recommends that these social changes and their health consequences be recognized by countries worldwide and suggest different social changes as obesity prevention measurements, for example: public funding of physical education programs and sporting facilities, providing the public with safe parks, playgrounds and pedestrian zones; encouraging food companies to market lower energy, more nutritious food to children; developing criteria for advertising that encourages healthier eating; and encouraging schools to develop comprehensible food, nutrition and physical activity policies (Lobstein et al., 2004).

The Benefits of Physical Activity

The WHO (2010) states that regular physical activity will reduce the risk of non-communicable diseases such as: coronary heart disease, stroke, diabetes, hypertension, colon cancer, breast cancer and depression. Furthermore the

WHO explains that regular physical activity is a fundamental factor in controlling weight. Additionally, the WHO has found through research that overall health benefits to children ages 7-17, who participate in regular physical activity, include increased physical fitness, reduced body fatness, favourable cardiovascular and metabolic disease risk profiles, enhanced bone health and reduced symptoms of depression. Furthermore, the WHO has found evidence which supports that higher amounts of physical activity achieved by children in this age group lead to improved cardiorespiratory and metabolic health and lower rates of morbidity from cardiovascular disease and diabetes later in life. According to Khan et al. (2000) it has been observed that high rates of physical activity in childhood, particularly before and until the end of puberty, will lead to increased measures of bone density which persist into adulthood. Khan states that regular activity during childhood may therefore greatly reduce occurrences of the degeneration of bones known as osteoporosis later on in life.

Physical Activity Recommendations

In order to benefit from the well documented health advantages of regular physical activity, including cardiorespiratory fitness, muscular endurance, and muscular strength, decrease in overweight, reduced risk of depression and anxiety, and the reduction of risk of non-communicable diseases, the WHO (2010, p.20) has created the following guidelines for the minimum necessary physical activity in children ages 7-17:

1. Children and youth aged 5–17 should accumulate at least 60 minutes of moderate- to vigorous intensity physical activity daily.
2. Amounts of physical activity greater than 60 minutes provide additional health benefits.
3. Most of the daily physical activity should be aerobic. Vigorous-intensity activities should be incorporated, including those that strengthen muscle and bone, at least 3 times per week.

Recommendations in Iceland

The Public Health Office of Iceland (2013) recommends that children and adolescents are physically active for at least 60 minutes daily at a moderate to difficult level; and that the total time may be made up from short intervals of activity, for example bouts of 10-15 minutes. The Public Health Office advises that the physical activity engaged in be as varied as possible in order to develop different components of fitness, including: cardiovascular

capacity, muscle strength, flexibility, and coordination. The Public Health Office emphasizes that some of the activity be vigorous in order to develop the bone formation and bone mineral density, which is an essential part of development during puberty. Furthermore, the Public Health Office advises no more than 2 hours of sedentary time per day in front of either a television or computer screen.

The current status of children's health in Iceland reflects that which is occurring globally. Þórsdóttir (2005), found that 15-20% of Icelandic children, ages 2-15, were considered overweight based on international standards. Another study by Johannsson, Arngrimsson, Thorsdóttir and Sveinsson (2006), investigated overweight in children and found that at the age of 6, the children in the study who were born in 1994 were significantly more overweight than those who were born in 1988, demonstrating a rise in obesity within the Icelandic population in only a short time.

Further studies have indicated that Icelandic children are not meeting their minimum recommendations for physical activity. Magnússon, Arngrimsson, Sveinsson and Jóhannsson (2011), concluded that only 5% of 9 year olds and 9% of 15 year olds reached the recommended 60 minutes of moderate to vigorous daily physical activity. Furthermore, Gunnarsdóttir (2005) found that only one third of Icelandic children in grades 6-10 reached the recommended 60 minutes of daily physical activity. The diets of Icelandic children are also of concern. A study by Bjarnason, Jónsson, Ólafsson, Hjalmsdóttir and Ólafsson (2006) looked at the health behaviours of students in grades 6-10, and discovered while 65% of grade 6 children consumed fruit 5 times or more per week, only 39% of children in grade 10 did the same. The study also concluded that 7% of those in grade 6 consumed candy 5 times or more per week while 21% of those in grade 10 did the same. A 2010 continuation of the same study found that while on average, grade 6 children were physically active more than 60 minutes a day 4.2 days a week, grade 10 children did this only 3.6 days a week (Bjarnason, Hjalmsdóttir, Arnarsson, 2010).

Summary: Children and Activity

Obesity and overweight in children is an ever increasing problem in many countries around the world. This is an alarming problem because of the negative immediate and long term physical, psychological and economic impact associated with obesity and overweight in children. Physical activity has been found to improve physical fitness, reduce body fat, and improve overall physical and psychological health and is therefore a key factor in battling obesity and overweight in children. In order for children to benefit from the health advantages associated with physical activity they need to be

active for a minimum of 60 minutes a day. It is therefore of great concern that not enough children in Iceland are meeting these standards. In order to understand why children are not meeting their daily recommended levels of physical activity one must look at the different factors affecting this age group.

2.2 Gender and Age Effect on Physical Activity

This section of the literature review examines how age and gender affect the physical activity levels of children. Furthermore this section reviews how social factors during childhood and adolescents affect physical activity including: self-perception, role models, social environment, as well as peer and parental influence. The effects of gender, age and social factors on physical activity in Iceland are also reviewed.

Age, Gender and Physical Activity

Research evidence suggests that the exercise habits formed in adolescence tend to continue on into adulthood (Schwarz & Peterson, 2010). It is therefore of great concern that levels of physical activity seem to decline steadily from the age of ten (Efrat, 2009). Of further concern is that girls are overall less active than boys (Riddoch et. al, 2004), which puts girls at an even greater risk for underachieving recommended levels of physical activity. A study by Klasson-Heggebo and Anderssen (2003) conducted on Norwegian children ages 9-15 found significant differences in the amount of physical activity between boys and girls, as well as a decrease in physical activity during adolescence. Klasson-Heggebo and Anderssen found that approximately 12% of boys and 20% of girls in the 9-year-old group did not reach the recommended 60 minutes of moderate physical activity per day; whereas, approximately 39% of boys and 50% of girls from the 15-year-old age group did not reach the recommended 60 minutes of moderate physical activity. Furthermore, a study that assessed levels of physical activity in children ages 9 to 15, in four countries across Europe (Norway, Estonia, Denmark and Portugal) came to similar conclusions (Riddoch et al., 2003). Riddoch et al. found that at age 9, boys were 21% more active than girls, and at the age of 15, boys were 26% more active than girls. In addition, there was a significant reduction of physical activity with age. In activities which were of moderate intensity or higher, at 9 years of age boys were 94% more active than their 15 year old counterparts; and 9 year old girls, 129% more active than their 15 year old counterparts.

Some studies have attempted to see whether the physical changes of

puberty affect activity levels of children during adolescence. Finnel, Bucksch, Lampert and Kolip (2011) looked at the effects of physical maturation on physical activity and found that chronological age was a far more important factor in the decline of physical activity than the timing of puberty or puberty status. The authors suggest that there therefore may be more social factors than physical factors influencing the decline of physical activity during adolescence.

Self-Perception and Activity

Perceptions that children and adolescents have about themselves and physical activity can greatly affect their levels of participation. Body dissatisfaction has been found to be associated with a decrease in physical activity. Finnel et al. (2011) found that girls who felt “too fat” and boys who felt “too thin”, were more at risk for infrequent physical activity. Perceiving one’s body type in a negative way could therefore affect how one feels about attending physical education classes where one’s body and abilities are very much on display.

The way boys and girls perceive themselves and each other are also strong social influencers in physical activity. A study involving semi-structured interviews of adolescent girls and boys was conducted to discuss perceptions of gender and physical activity (Vu, Murrie, Gonzalez, and Jobe, 2006). While girls were more likely to see other active girls as motivating, healthy and fit, boys often regarded physically active girls in a more negative way, sighting that active girls were trying to be like boys and were less attractive. The study also found that both boys and girls saw girls who were very physically active and participated in sports as too aggressive, or as “tomboys”. Furthermore, Vu et al., found that the adolescent girls in this study considered boys to be their greatest barrier to physical activity. The girls interviewed in the study explained that they felt teased by the boys, that the boys said they did not know the rules to games and that the boys made them feel low in confidence about their abilities. Both the boys and girls groups in this study also identified girls themselves as a main hindrance to participating in physical activity. The boys said that the girls did not care for sports and did not want to get dirty or sweaty. The girls stated that, lack of interest, self-esteem and shyness were the reasons why they did not want to be involved in physical activity (Vu, Murrie, Gonzalez, & Jobe, 2006).

Australian research from the New South Wales Department of Education and Communities has given further indication as to why girls are less likely to participate in sporting activities than boys. The department found the top reasons listed for girls not wanting to participate in sports were when the activity was: “repetitive and boring, it’s serious and competitive, it is played

with boys, boys watch girls play, girls are treated differently from boys, and girls are made to feel inadequate, because of a lack of skills” (NSW, 1997, n.p.). It is clear that perceptions that girls and boys have about themselves, or the opposite sex, can strongly influence their participation in physical activity.

Sporting Role Models and Environment

Another possible social reason for the under representation of girls in sports and lower rates of physical activity may be related to the perceived masculinity or femininity of a given sport or activity. In most countries around the world males outnumber females who participate in sport (Right to Play, 2012). Although the gender gap in participation rates has been decreasing over the past few decades (Women’s Sports Foundation, 2013), there still seems to be difference in choice of sport between genders. For example, Klomsten, Marsh and Skaalvik (2005) found that more girls participate in sports such as dance, horse riding, figure skating and aerobics, whereas more boys participate in sports such as ice hockey, martial arts, football and boxing. A report from the Sports Council of Wales (2009) indicated that football and rugby are still the number one choice of sport for boys, whereas dance and swimming have the highest number of participating girls.

Masculinity and femininity can be described as the personality traits, interests or behaviours associated with a given gender (Howard & Hollander, 1997). What we consider to be *masculine* and *feminine* traits may originate from the biological and physiological characteristics of the sexes. For example, women were child bearers and took care of children so certain behaviours and activities, such as nurturing and caring for children, became associated with that sex (Beal, 1997). Over time and across cultures the roles of men and women have varied considerably, so much so that we can observe that gender roles and expectations are socially constructed and subsequently learned by children (Beal, 1997). For example, what used to be considered an inappropriate activity for women, running, is now considered acceptable in Western culture. However, whether or not a sport is considered acceptable for a boy or girl is still affected by its masculine or feminine status. For example, it is still socially unacceptable for girls to participate in American football, which can be characterized as competitive, aggressive, strength and speed based, as well as violent (all masculine traits). Participation levels of girls in team sports, which until recently were only seen as acceptable for boys, is now on the rise, and this is leading changing perceptions of these sports (Everhart & Pemberton, 2001).

A major change in the rights of women and girls to participate in sports occurred in 1972 when the United States put in place the education amendment, Title IX. The Title IX law states, "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any educational program or activity receiving federal financial assistance" (Women's Sports Foundation, 2013, n.p.). Since the inauguration of Title IX, participation by girls in high school sports has increased by 900% (Women's Sports Foundation, 2013). This has been a factor in increasing the number of amateur and professional female athletes globally in the past 4 decades, and has led as well to female athletes, such as the soccer player Mia Hamm, or the tennis playing sisters Venus and Serena Williams becoming international stars (Daniles and Wartena, 2011). It can therefore be assumed that girls' right to participate in sports and availability of female sports roles models has improved in many countries around the world. Unfortunately, female athletes in the media still do not receive as much coverage as their male counterparts, are often photographed in sexual poses, and their feminine attributes are highlighted in articles. The 2012 Olympics marked a historic year for women in athletics. According to Kian, Bernstein and McGuire (2013), it was the first Olympics where every competing country sent at least one female athlete to compete. Furthermore, Kian et al., found that the participation of women reached an all time high of 45%, and it was the first year where all sports had events for both men and women. However, Kian et al., also found that the media covering the 2012 Olympics, covered with higher frequency women's sports, which can be considered more feminine, covered more athletes that are known for their heterosexual appeal, and broadcasters emphasized women for their femininity by referring to them as girls or referring to their family status.

It is therefore no surprise that girls have trouble identifying with female sports role models. A study by Colley, Berman, and Millingen (2005), looked at gender differences in the perception of sports by having children draw what they considered to be sports figures. Colley et al., explain that previous research has shown that when asked to draw figures, boys and girls tend to draw figures of their own sex. In the Colley et al. study, however the boys drew male versions of sporting figures whereas girls drew *both* male and female figures. This study demonstrates that children are exposed to more male athletic role models.

The environment of a given sports association can also dictate the levels of participation based on gender. An Icelandic study by Vilhjálmsson and Kristjansdóttir (2003) found that the lower levels of enrolment of girls in sports associations, as well as higher incidence of withdrawal from sports associations, accounted for lower levels of physical activity overall in

comparison with that of boys. Vilhjálmsón and Kristjansdóttir, theorize that despite recent increases in female enrolment in sports associations, the associations are still more male friendly environments and therefore less inviting to girls. The authors explain that the majority of executives and board members in the Icelandic associations are men and that the associations emphasize competitive sports such as: soccer, handball and basketball, where males still outnumber female participants. In conclusion, Vilhjálmsón and Kristjansdóttir (2003) stated, “by reflecting girls’ and women’s as well as boys and men’s perspectives and interests, offering a broader array of sports and exercises, and developing linkages with the primary school system, we believe organized sport programs could recruit more children and adolescents into sport and exercise, and reduce or eliminate gender disparities” (p.372).

Peer and Parental Influences

Research evidence supports that peer and parental influences can greatly impact the physical activity level of children and adolescents (Ornelas, Perreir & Ayala, 2007; Trost & Loprinzi, 2011). In 2011 the Canadian Fitness and Lifestyle Research Institute in collaboration with ParticipACTION, a Canadian non-profit health organization, came to the conclusion that parental enjoyment of physical activity was the strongest predictor of their children’s levels of physical activity. They found that parental support and encouragement can influence their children’s level of participation in physical activity; and that greater support is associated with greater intensity of physical activity in children. A research review by Trost and Loprinzi (2011) also found that parents can greatly influence their child’s level of physical activity by: actively playing with their child; watching their child participate in an activity; signing up their child for activities and providing transportation to the activities; positively reinforcing their active behaviour; and teaching their child how to play active games and sports. Furthermore, a study by Ornelas, Perreir and Ayala (2007) found that parental involvement could have a positive effect on adolescents in grades 6 through 12. According to the authors, family cohesion, parent-child communication and parental engagement specifically were predictors of adolescents meeting daily moderate to vigorous physical activity guidelines. These research studies suggest that parental involvement could play a part in increasing the number of children who stay physically active throughout their adolescence.

According to Fitzgerald, Fitzgerald and Aherneb (2012), as children reach adolescence they start to spend significantly more time with their peers; and this can therefore be a contributing social factor which influences their level of physical activity. The authors found evidence that overweight

adolescents were more likely to engage in intense physical activity when in the presence of peers, and that peer norms could influence attitudes about, and intention to participate in physical activity. In conclusion, Fitzgerald et al., stated: “friendship quality and peer acceptance in adolescence was crucial for sport continuation, perceived self-competence, and enjoyment of physical activity” (p.954). Efrat (2009) also found connections between peer influences and physical activity levels of children. Efrat found that peer modeling (watching others partake in an activity) could significantly affect physical activity levels in girls and also improve the self-efficacy (belief in one’s ability) levels for physical activity, in children with low self-efficacy. The study also indicated that changing beliefs about physical activity could change levels of physical activity in girls and boys. Efrat suggests that interventions where girls are motivated to engage in physical activity to increase their attractiveness and where boys are motivated to engage in physical activity to increase their popularity may have an impact on physical activity levels. Furthermore Efrat found that peer victimization (bullying and teasing), had a negative effect on physical activity levels in children.

Age and Gender Differences in Iceland

Considering impacts of age and gender on physical activity, the current findings of physical activity levels in Icelandic children seem to reflect the international research. Bjarnason et al. (2006) found that 30% of boys in grade 6 and 19% of boys in grade 10 participated in daily physical activity outside of school; whereas even fewer girls, 22% in grade 6 and 10% in grade 10 did the same. Furthermore, in the 2010 continuation of this study, Bjarnason et al., found that while grade 6 children spent on average 74 minutes per day on the Internet during weekdays, grade 10 children spent 167 minutes per day. Arnardóttir (2008) also concluded that the amount of time children spent in front of screens increased with age, and was especially high in boys. Arnardóttir found that less than 10% of 9-year-old children spent an hour or more on the Internet during weekdays whereas, 50% of 15-year-old children did the same. She found that while only 1.1% of 9 year old girls and 4.2% of 15 year old girls spent 3 or more hours playing computer games during the weekdays, 10.2 % of boys aged 9 and 33.3% of 15 year old boys did the same. Arnardóttir also found that screen time was negatively associated with bouts of moderate or greater intensity activity; as well as amount of vigorous activity participated in on the weekends.

As cited in the Children and Activity section, Magnússon et al. (2011), found that only 5% of 9 year olds and 9% of 15 year olds, reached the recommended 60 minutes of moderate to vigorous daily physical activity in Iceland. The study goes on to explain that in their findings, younger children did indeed move more overall than their older peers, but with more frequent

lighter movements, which is consistent with findings that overall physical activity decreases during adolescence. Magnússon et al. also found that boys moved much more overall than girls when considering moderate to vigorous amounts of activity. In the 9-year-old group 8.5% of boys met the daily-recommended 60 minutes of moderate to vigorous physical activity, whereas only 2% of girls met the same recommendation. In the 15-year-old group, 14.5% of boys and 1.5% of girls met the recommendation (Magnússon et al., 2011). In addition, Vilhjalmsón and Kristjansdóttir (2003) found that boys are also more active than girls in sports associations; boys were enrolled at a rate of 57% and girls at 44%. Furthermore girls were found to have higher rates of withdrawal from sport associations. A large survey by Jónsdóttir, Björnsdóttir, Ásgeirsdóttir and Sigfúsdóttir (2002), done in the Reykjavík area, found that the type of sports in which children participated was very differentiated by gender. When looking at participation in ball sports (soccer, handball, basketball or volleyball), Jónsdóttir et al. found that 18%-36% of boys and 23-40% of girls in grades 5-8 took part in ball sports a few times a month, up to two times per week. However, when Jónsdóttir et al., looked at participation in ball sports at a rate of 3 times per week or more, they found that 49-50% of boys and only 19-23% of girls in the grades 5-8 took part at this rate. Moreover when the Jónsdóttir et al. study looked at participation in gymnastics (which can be considered a more female friendly activity) at a rate of 3 times per week or more, they found that 1-5% of boys and 5-8% of girls in the grades 5-8 took part at this rate. The study found overall in grade 8, 52% of boys and 34% of girls trained or competed with a sports club three times a week or more. The studies from Iceland clearly reflect what appears to be happening in other countries: that physical activity decreases starting in adolescence, that boys are more active than girls, have higher levels or registration in sports associations and that boys' dominant participation is in what are considered more "masculine" sports and that girls have higher registration in more "feminine" sports.

Summary: Gender and Age Effect on Physical Activity

It has been found that levels of physical activity in children in Iceland and in many places around the world decrease during adolescence. This is of great concern because the exercise habits formed during adolescence often continue into adulthood and furthermore physical activity during adolescence is key to the developmental health of the individual. Also of great concern is that girls have been found to be less active than boys both in Iceland and worldwide. It has been suggested that decrease in physical activity during adolescence is related more to social factors than to chronological age. For example, studies show how the influence of parents and peers are an important factor in levels of physical activity during childhood and adolescence, specifically through peer or parental modeling and

encouragement. The self-image or body perception of the individual adolescent can also affect his level of participation in physical activity. Moreover, how boys and girls perceive what is socially acceptable for their own gender, including sporting role models, effects their choice of activity as well as their likelihood of participating in sport.

2.3 Physical Education

This section of the literature review covers the goals and benefits of a physical education program, as well as different elements, which encourage an effective physical education program. The section reviews briefly the physical education program requirements in a variety of countries including Iceland.

Physical Education Goals and Benefits

One way to meet the physical activity recommendations from the WHO is to provide students with regular access to physical education at school. Research has found that physical education programs in school can contribute to physical activity levels during childhood and later on in life (Penney, 2010). The main goal of physical education, available in most westernized schools around the globe, can be defined as “preparing students to live physically active, healthy lives by providing a carefully planned scope and sequence of learning experiences. These experiences must be designed to foster the developmentally appropriate acquisition of motor skills, health-related fitness knowledge, confidence in being physically active, and an appreciation of the benefits of physical activity” (Pettifor, 1999, p. 5). Regular physical education in schools can help children reach recommended guidelines for daily activity, increase their physical fitness, and can help motivate children to maintain a physically active lifestyle (Penney, 2010). A physical education program can also provide children with the movement skills and physical competence that are arguably critical to engagement in lifelong activity (Penney, 2010). Physical education can therefore lead to a healthier future including a decreased risk of obesity and overweight and therefore decreased risk of morbidity from non-communicable diseases.

Pettifor (1999) explains that a regular physical education program can lead to benefits that are not only physical, but also emotional, social, and cognitive. For example, Pettifor points to a major emotional benefit of regular exercise as the reduced likelihood of suffering from depression or anxiety; and furthermore that positive physical activity experiences can lead to increased self-esteem in children. Additionally, Pettifor explains that one

of the main goals of physical education is to teach, develop, and reinforce social skills. Bailey (2006) argues that well organized physical education programs have been found to have social benefits such as improving children's moral reasoning, fair play, sportsmanship, and sense of personal responsibility. Furthermore, Bailey suggests that increasing amount of school time dedicated to physical education may have positive academic benefits. Moreover Bailey argues that physical activity increases blood flow to the brain, improves mood and increases mental alertness, having a positive effect on a child's academics. A well-organized physical education program can furthermore engage its students cognitively, by offering games and activities that focus on problem solving and strategy (Pettifor, 1999).

Effective Physical Education

Fairclough and Stratton (2005) measured levels of heart rate in children ages 11-14 during physical education classes. The data were used to assess whether or not physical education could be effective in reaching recommended daily physical activity levels. Fairclough and Stratton found many factors that affected how active the children were during their classes. One of these factors was level of physical ability. Students with the highest ability levels (as rated by their teachers) were the most active, and this concurs with most research. Fairclough and Stratton theorize that because students of lower ability may not have the necessary motor skills required to participate in a certain activity, this demonstrates the need for more individualized teaching in order to increase likelihood of activating all students. It is important to motivate all students to be engaged and enjoy the physical activity because this can affect their likelihood of participating in physical activity outside of school hours as well as later on in life. The Fairclough and Stratton data also revealed that the boys were more active than the girls, consistent with other research findings. It is important to note that the boys and girls were however in single sex education classes (the classes were separated by gender). Fairclough and Stratton found that in the girls' lessons there was more dance and gymnastics taught, whereas the boys participated in more games. The authors furthermore found that games, as well as individualized stations (running, swimming), produced higher levels of vigorous activity. However, they also noted that gymnastics and dance could benefit strength and flexibility of the children, which is also an essential part of fitness. Moreover, Fairclough and Stratton theorized that the girls might have been less motivated in their gym classes to move vigorously. In conclusion Fairclough and Stratton emphasized that there would be value in understanding the perception of the girls in order to increase their enjoyment of physical activity during lessons and help them understand the relevance of physical education.

Fairclough and Stratton (2005) found that the children operated at moderate to vigorous levels of activity for approximately 18 minutes per class. This brought the individual child one third of the way to meeting their 60 minutes of moderate activity levels recommended per day. Unfortunately, very few physical education programs in Western education, offer daily physical education. Fairclough and Stratton argue that children would benefit from daily physical education because it increases the likelihood that they reach their daily recommendations for physical activity, and that research has shown that increased time in physical education is not detrimental to academic performance in other subjects. Supporting their argument, Dale, Corbin & Dale (2000):

Reported that third and fourth graders were significantly more active on days when they attended physical education class compared to non-physical education days. Furthermore, this study demonstrated how children did not compensate after school or in the evenings with increased activity when school-based activity, such as physical education, was restricted (p.240).

Bailey (2006) supports the argument that physical education is not detrimental to academic performance. Bailey states:

Overall, the available research evidence suggests that increased levels of physical activity in school—such as through increasing the amount of time dedicated to PES [physical education] —does not interfere with pupils' achievement in other subjects (although the time available for these subjects is consequently reduced) and in many instances is associated with improved academic performance (p.399).

A research review by Rink and Hall (2008) discusses the necessary elements of a physical education program in order for it to be effective in the development of a physically active lifestyle for all students. The national standards for physical education in the United States identify six critical areas to encourage the development of a physically active lifestyle, which are to: “develop motor skills, impart knowledge needed for a physically active lifestyle, encourage regular participation in physical activity, facilitate the development and maintenance of fitness, cultivate responsible personal and social behaviours, and help students to value participation” (Rink & Hall, 2008, p.208). Rink and Hall explain that the activities in which active adults take part are wide and varied. Some adults take part in home aerobics, whereas others take part in recreational sports teams. The authors argue that developing the fundamental motor skills required to take part in a wide variety of physical activities is therefore a critical part of an effective physical education program if children are to continue to be active in their adult life. According to Rink & Hall, fundamental motor skills, which are

critical to involvement in a variety of activities, include, “loco motor patterns (skipping, hopping, jumping, etc.), manipulative patterns (throwing, catching, striking, and receiving objects), and body-management skills (balancing, rolling, transferring the weight of the body)” (p.209). The authors furthermore state that the school’s physical education program is responsible for developing these motor skills in all children. Additionally they indicate that effective physical education programs are ones in which children are given the opportunity to build these motor skills over time; rather than programs which emphasize specialized sports skills which exceed the current motor skill abilities of the child. Moreover, Rink and Hall argue that effective physical education programs encourage its students to participate in a wide variety of physical activities such as: dance, gymnastics, games and different ball sports; in order to acquire motor skills and experience a great opportunity to enjoy movement.

Rink & Hall (2008) argue that effective physical education teaching requires an environment, which is positive and stimulates learning. Moreover, Rink and Hall state that “it is well organized, expectations are clear, and the teacher is consistent in enforcing and maintaining behaviours conducive to a quality learning environment” (p.211). The authors explain that in order to provide an effective learning environment, physical education teachers must be ‘good managers’, who can effectively manage students, equipment, space, and time so that the goals of the lesson can be met. Furthermore according to Rink and Hall, effective teachers can motivate and challenge students to succeed at level appropriate tasks; they encourage students to use their own improvement as a measure of success, rather than comparing themselves to others; and they provide students with quality feedback and positive reinforcement.

If an effective physical education environment is to motivate students to be physically active throughout childhood as well as for a lifetime, it is critical that students are in a learning environment that they enjoy and where they develop positive attitudes towards health and fitness. A year long intervention study by Digelidis, Papaioannou, Laparidis and Christodoulidis (2001) looked at the effects of changing the physical education environment in order to increase student motivation, goal orientation and attitudes towards exercise and healthy diets. The intervention was complex, focusing on: a personal goal setting program, students exercising in stations, goal oriented activities, teacher to student feedback, decreasing the percentage of competitive tasks, verbal emphasis from the teacher concerning the value of the task, the use of positive mental imagery and self talk techniques, lessons that connected health and exercise, and increasing the quality and quantity of student’s interactions. Digelidis et al. found that, “after the end of the intervention, students in the experimental classes had more positive attitudes

towards exercise and eating fruits, they were less ego-oriented and the students of the three teachers [in the study] were more task-oriented than the students in the typical classes” (p.206). The study indicates that through an effective and appropriate learning environment, student’s attitudes towards physical education can be changed.

Physical Education Program Requirements

Physical education programs around the globe are varied. Often countries apply national standards to their programs; but school administration and physical education teachers often dictate how programs are run. For example, in France, compulsory physical education is 3 hours a week; whereas in Spain, physical education is only 3 sessions of 45 minutes per week (Weichselbaum, et. al, 2012). In Canada and the United States, there is no uniform policy for physical education programs; rather the policies vary by province or state (Iannotti, Kogan, Janssen, & Boyce, 2009). According to the Iceland’s Ministry of Education, Science and Culture in the national physical education curriculum (2007), physical education is divided into two programs, skólaíþróttir (which will be referred to as physical education in this paper) and skólasund (which will be referred to as swimming in this paper). The curriculum states that it is the right of all students to have at least 3 teaching periods per week in physical education and that the school principal has the right to increase this time if he or she sees fit. Specifically, the Ministry of Education, Science and Culture (2013) states that the total amount of time dedicated to physical education per week is 480 minutes for grades 1-4 and 360 minutes for grades 5-10. The goals of the physical education program according to the Ministry of Education, Science and Culture include, an interconnection of physical education within all school subjects in order to promote a healthy environment for students where there is an emphasis on “exercise, positive self-image, nutrition, rest, mental wellbeing, creative thinking, positive communication, security, hygiene, sexual health and understanding of one’s own feelings and those of others” (p.187).

Summary: Physical Education

Physical education has been shown not only to help children meet their daily 60 minutes of recommended physical activity but to help them begin healthy lifestyle habits which should continue into adulthood. It has been argued that physical education also benefits children on social and academic levels. In order to meet these physical education goals, according to the research, effective physical education requires effective teachers who motivate individuals regardless of their ability, organize their lesson plans to

incorporate moderate to vigorous activity, help children develop a variety of motor skills, and allow children to experience a wide variety of physical activities. Effective teachers furthermore have clear expectations; are consistent in their classroom management (behaviour, time and space), so that lesson goals can be met; and provide students with quality feedback. Fundamentally, the effective physical education environment should therefore have the same qualities of any effective school environment.

2.4 Gender Issues and Physical Education

This section of the literature reviews different gender issues specific and broad, which arise in physical education. Furthermore this section provides an overview of different recommendations that may reduce gender issues and improve physical education.

Gender Issues in Physical Education

As has been discussed, children in Iceland and many places around the world are not meeting their daily recommendations for physical activity, and moreover, that adolescents and in particular, girls are more at risk for not meeting these recommendations. It can therefore be seen as critical that adolescents and in particular girls, are active during physical education lessons and furthermore enjoy their experience; in order to increase the likelihood that they maintain healthy activity habits for life. Unfortunately, there are many issues in physical education that may make the environment uncomfortable or negative during adolescence for boys, and more frequently for girls.

Decrease in enjoyment of physical education classes is one factor that might help identify why boys and girls become less active during adolescence. Cairney et al. (2012) in their study examining perceived confidence in physical education (i.e. confidence in physical abilities), found that children, both boys and girls, who reported high levels of perceived confidence, reported high levels of physical education enjoyment over time. The study also found that children who reported low levels of perceived competence, reported lower levels of enjoyment of physical education. Cairney et al. found that boys who reported early on low perceived competence had stable low levels of physical education enjoyment throughout school. On the other hand, the study found that girls who early on reported low levels of enjoyment and low perceived competence decreased their level of enjoyment more rapidly throughout school. Cairney et al.

concluded that it was necessary to examine how to improve children's self-competence in physical education, especially in girls.

In addition, there may be broader, *whole school*, issues that creates a negative experience of physical education. For example, the New South Wales [NSW] Education Department (1999-2011a) in Australia state concern over the unfair organization of sports programs and facilities at schools. The department claims that some schools emphasize only traditional male sports for their extra curricular, and female students may not receive as much encouragement as their male counterparts to participate. The NSW Education Department furthermore claims that some schools put more funding to pay for coaches, referees, travel and uniforms into their male sporting programs. There is also concern from the department that because of the nature of boys' play during recess, running games and different sports, they often take over the majority of the space in the school yard.

A Canadian study by Chorney and Weitz (2012) examined possible reasons why girls are less likely than boys to continue into non-compulsory physical education courses when they reach high school. In their review, the authors suggested that a sexist and competitive environment, which favours male athleticism, could begin turning off girls at an early age. Chorney and Weitz found that girls often felt uncomfortable when a physical activity, such as running or push-ups, was used as punishment, or when they were subject to derogatory comments by male students or male physical education teachers. A Spanish study by Andrés, Granados, Ramírez and Mesa (2012) investigated how gender stereotypes were being conveyed through communication in the physical education environment. Andrés et al., found that communications between teachers and male and female students were unequal. The authors observed that male students received more individualized communications, whereas the girls received more communication via the group setting. Furthermore, it was observed that male teachers were more likely than female teachers to give male students more explanations when teaching sports skills. Other findings from the Andrés et al. study included: more frequent use of male students to demonstrate skills to the class, preference of the male teachers to group the students based on gender, and higher frequency of reprimands for discipline for male students, especially by female teachers. The Australian, Canadian and the Spanish studies demonstrate that a key factor to level of enjoyment by girls in physical education may be related to a lack of a female friendly environment.

Improving Physical Education Programs

Because of the decrease among girls in enjoyment of physical education, as well as decrease in the rates of daily physical activity among adolescent girls,

as they grow older, it is important to consider how schools can improve their physical education programs to meet the needs of adolescent girls in particular. A Scottish study by Kirby, Levin and Inchley (2011), examined how the environment of the physical education program, including: the school's physical activity initiatives, sporting facilities, total time spent in physical education, and opportunities to be physical provided by the school, could be associated with the physical activity levels of adolescent girls. Kirby et al. found that the strongest predictor of activity level among girls was the total amount of time spent in physical education. That is, the authors found that in the schools that allocated more time to physical education lessons, the girls showed higher levels of physical activity overall. This reflects the study by Dale, Dale and Corbin (2000), which found that children who spent time in physical education were more likely to continue to be active outside of school hours. Kirby et al. did not find an association between more school sports facilities and higher levels of physical activity. However, they found that a predictor for higher levels of physical activity was the availability of sports clubs and extra-curricular activities at the school. Kirby et al. argue that previous studies have shown that more sports facilities are associated with higher levels of physical activity, but they suggested that their study could indicate that lack of sports facilities or funds do not need to be a barrier to creating opportunities for physical activity. Furthermore, Kirby et al. found that more program diversity and greater number of sports clubs available at the school could increase the level of activity amongst girls. The authors suggested that offering girls more options allows them more freedom to choose a sport they feel confident is appropriate to their level of skill and that they find enjoyable.

The NSW Education Department (1999-2011b), recommends different practical solutions for schools to improve rates of physical activity amongst girls. Some of these practical solutions suggested by the department coincide with what was considered effective physical education in this the earlier section in this paper entitled "Effective Physical Education". For example, the NSW Education Department recommends giving effective feedback to both boys and girls, setting realistic goals to ensure that both boys and girls can be successful while at the same time being challenged and ensure that expectations are based on individual merit, rather than comparisons to others within the same class. The department also makes several recommendations to ensure that the environment is a non-sexist one. They recommend: teaching children about the social construction of masculine and feminine stereotypes in sport, as a part of the physical education program; using both boys and girls to demonstrate a variety of activities, and encouraging students to be aware of sexist comments or statements made and see them as unacceptable; as well as the physical education teacher being aware of his or her own use of language. Furthermore the NSW Education Department

recommends different practical solutions for catering to different needs of female students. They suggest for example, eliminating myths about female participation in physical activity, surveying all students to find out what activities they like best and ensure that there is a balance of activities between what both genders enjoy, being sensitive to the different abilities and experiences of boys and girls, and ensuring use of a variety of teaching methods and organization to meet those needs. The NSW Education Department also recommends a practical solution that has been much debated in circles of physical education administrators, educators and researchers around the world, that is, determining whether girls and boys prefer single sex or coed environments for their physical education.

Summary: Gender Issues in Physical Education

In summary, there are many identifiable gender issues in physical education that may affect levels of physical activity in girls during adolescence and different suggestions as to how to combat this problem. Gender issues include: low levels of enjoyment as well as low levels of perceived competence amongst girls, unbalance of funds and focus towards male sports programing in schools, as well as lack of a female friendly physical education environment. Suggestions to improve physical education for girls include: increasing the amount of time in physical education, offering a greater variety of extra curricular programing, focusing on individualized programing, facilitating student discussion on gender stereotypes, surveying what activities students enjoy, and investigating when to use single sex and coed education.

2.5 Single Sex vs. Coed Physical Education

This section of the literature review defines and briefly reviews a history of single sex and coed physical education. The objective of this section is to examine the different arguments for and against single sex and coed teaching environments. This section also reviews in detail a recent study conducted in Iceland examining physical education program set-ups and teacher preferences for single sex and coed teaching environments.

Single Sex vs. Coed Physical Education Arguments

In our Western school history, most physical education programs started out as “single sex”, meaning, girls and boys partook in gender separated physical education classes (Keay, 2007). As laws about education changed to incorporate issues of gender equality, for example Title IX in the United

States, physical education became “coed”, meaning a mixed gender physical education experience (Ronspies, 2011). Many credit the Title IX law for major positive change in women’s education as well athletics (Title IX, 2013).

Equal rights for men and women in education is still a much discussed issue in many countries, as are growing concerns about the levels of physical activity amongst children and adolescents. It could be these factors which have encouraged the discussion amongst physical education teachers, administrators and researchers, as to whether or not to return to the single sex physical education format; in hopes of creating more gender equity and more physically active youth. Although single sex and coed education formats have been much debated and somewhat researched amongst physical educators, parents, students and researchers alike, no consensus has been reached as to which is the better system. It is therefore difficult to determine if a single sex program benefits both genders, more or less, than a coed program. Within this debate, some argue strongly for single sex education, some against it, while others argue for the use of both. At the same time, arguments have been made that neither single sex, nor coed environments, can create equal opportunities for genders because there are other hidden issues such as the masculinization of the school environment which will later be examined.

The findings of an American study by Derry (2002) are supportive of the single sex teaching environment. Derry examined perceived attitudes amongst girls and teachers towards coed and single sex physical education environments. In the study, girl’s ages 12-15 years of age were interviewed. The girls were participants in both single sex and coed physical education environments, and while the majority of the girls had previous experience with coed physical education, less than half of the girls had experience with single sex education classes. When discussing attitudes toward the coed environment, Derry found common themes that arose during the interviews included: feelings that the boys saw themselves as athletically superior; that the size, strength and competitive nature of the boys made them intimidating to be with; and a concern for the criticizing remarks from boys towards girls. Conversely, Derry found themes that emerged from interviews with the girls referring to the single sex environment included: feelings that their individual participation level was much higher in the single sex environment rather than in the coed environment, including that boys were no longer dominating the activities; feelings of relief of no longer being in front of boys and worrying about their appearance, or about their critical remarks; feelings that the single sex environment was safer and more supportive and that they were more likely to grow athletically and challenge themselves; and feelings that coed was acceptable in elementary school but now that they were starting to

mature the single sex environment was more comfortable. Overall, when asked in which environment they would rather have their physical education Derry found that overall, 75% of the girls responded in favour of the single sex environment. In the single sex classes, it was found that 84% of the girls responded that they would want to continue in single sex classes; whereas only 63% of the girls in coed classes responded that they would rather switch to single sex classes (however, it was noted by Derry that only 43% of these girls had experienced single sex classes and that this number could possibly be higher had the girls previous experience in single sex classes). Derry cited arguments for not switching to a single sex environment, which arose during the interview, included a desire to be challenged physically by the boys. Derry explained that the majority of girls who responded in favour of coed classes rated themselves as highly capable athletes.

Derry (2002) furthermore interviewed teachers concerning coed and single sex teaching environments. Two-thirds of the teachers, the majority of whom had teaching experiences in both environments, felt that single sex classes required less behaviour management. Furthermore Derry noted that teachers observed their highly skilled female students as more social and active in coed classes, whereas the lesser skilled female students were more likely to display signs of shyness and intimidation, and were less likely to participate. Derry cited other concerns reported by the teachers including: concern by all that female students, regardless of skill, on their appearance, and the potential impact the coed environment could have on suppressing the development of the boy's skills. Derry asked the teachers why they believed that girls were dropping out of physical education when it became non-compulsory, the teachers responded that they felt the girls lost interest due to not wanting to be sweaty or concern over their appearance. In the interviews, one teacher pointed out that the preference for teaching team sports in physical education was not in favour to the interests of the female students. Derry found that a total of 80% of the teachers responded that they would prefer teaching a single sex environment, with special concern over allowing the less athletically skilled girls a chance to participate.

Pearson and Web (2010) present findings which also argue for a single sex teaching environment. The Pearson and Web study investigated the perceptions of elementary school teachers concerning levels of performance and physical activity amongst students in coed and single sex physical education settings through both qualitative (interviews) and quantitative (questionnaire) research formats. Pearson and Web found that the large majority, 82%, of teachers believed that a single sex environment was preferable to helping students achieve physical education goals. Moreover, Pearson and Web found that the majority of teachers believed that the single sex environment could increase physical activity levels among girls during

physical education classes, especially during contact sports. The teachers in the study indicated that because the boys were growing physically girls were participating less in games of physical strength and contact such as, soccer, hockey or basketball. Pearson and Web found that the majority of teachers felt there was a large level of skill difference between boys and girls and that reducing the disparity in skill difference, in for example games such as volleyball or golf; could best be achieved in a single sex environment. An implication of participating in contact and skills sports in a coed environment, as suggested by Pearson and Web, as well as other researchers is that the development of both boys and girls will be hindered, due to lack of competition for boys and under participation by girls. Teachers in the Pearson and Web study also identified peer pressure as a contributing factor to influencing participation levels amongst both boys and girls; as both boys and girls in adolescence are concerned with keeping a certain favourable image towards the opposite sex and that these “distracting” behaviours could be lessened within a single sex environment. Furthermore, Pearson and Web indicated that teachers also identified intimidation as an influencing factor on participation levels in both single sex and coed environment. The teachers noted that within the single sex environment, boys and girls who have higher levels of abilities can often dominate the environment, leaving boys and girls of lower ability feeling intimidated. However, Pearson and Web found that most teachers agreed intimidation levels increased during coed environments, where girls of lower ability were greatly intimidated by dominating boys and that boys of lower ability felt in adept in comparison towards girls of high ability.

Further studies have shown a variety of conclusions concerning single sex and coed teaching environments. A study by Wilson (2012) looked at the physical effects of coed and single sex gender groupings in grade 6 physical education. Wilson found that students in the single sex grouping performed better on physical fitness tests where motivation influenced the outcome. For example, Wilson found that both boys and girls in the single sex groupings performed better on tests of chin-ups, sit-ups and distance runs. Wilson theorized that feeling more comfortable in the single sex environment allowed the students to exert themselves more fully than in the coed environment. In addition, the study also found that single sex and coed environments affected attitudes of the students. Specifically, Wilson found that boys who participated in coed environments had significantly more positive attitudes towards girl’s participation in sports than did boys in the single sex environment.

In a study by Ronspies (2011), a small sample of boys and girls ages 12-13 years old were interviewed and the results interpreted slightly contradicted those of the Derry study. Ronspies found the children had a

variety of perceptions about same sex and coed physical education. Of the boys and girls interviewed, Ronspies found that 4 out of the 6 would rather have coed physical education; this was mainly for social reasons, including opportunities to show off or to make friends. Desire to interact with the other gender as a reason for wanting to continue coed physical education has also been found in other studies (Furrer, 2010). At the same time, in the Ronspies (2011) study, both the boys and girls also listed reasons why they were reluctant to be in coed classes including, the girls felt embarrassed about making mistakes in coed classes and they felt that the boys disrupted class and wasted class time; whereas, the boys felt that they could not have as competitive games when the girls were involved, and that many of the girls did not try their best. Ronspies concluded that it is critical to listen to the voices of the students; that clearly the students have social needs and this is an important part of their whole school development experience and at the same time, that the environment of the class needs to be one that is safe as well as challenging and motivating. Ronspies suggested that perhaps different opportunities to participate in coed and same sex activities or classes might be a way to address to diversity of student needs.

Other relevant studies have argued the case for a mixed physical education program, which would offer both single sex and coed physical education environments. Greenwood and Stillwell (1999) surveyed approximately 750 middle school students (grades 7 and 8) with the aim of improving school curriculum by determining the interests of boys and girls. Boys and girls were found to have some similar, and some dissimilar interests. For example, the boys in the study preferred activities such as bowling, flag football and wrestling, while the girls preferred gymnastics, softball and tennis. In conclusion, Greenwood and Stillwell suggested that single sex classes may be appropriate for activities of dissimilar interests. Conversely, Greenwood and Stillwell also suggested coed classes would be appropriate where both boys and girls had similar interests, such as, basketball, cycling, soccer and swimming.

Other studies have argued that single sex education environments are not always beneficial. A report by McKenzie, Prochaska, Sallis, and LaMaster (2004), which was based on 4 years of physical education research of grades 6-8, both single sex and coed classes, interpreted data to assess and discuss levels of moderate to vigorous physical activity amongst boys and girls in both learning environments. McKenzie et al. found that in the single sex environments, boys were more active than girls, by a total of approximately 4 minutes. Furthermore the report indicated that when the classes were coed, the boys were found to be similarly active, whereas the girls had higher levels of activity in comparison to their activity levels during single sex classes. McKenzie et al. suggested that the difference in activity levels

between those of the female only classes and the coed or male only classes could be attributed to the higher accumulated time spent working on skill development activities during the female only classes. McKenzie et al. indicated that during the coed or boys single sex classes there was more time accumulated in game play activities which they argue produced more vigorous activity levels than the skill development on which the girls' classes focused. In conclusion McKenzie et al. questioned why the female only classes had allocated more time towards skill development, and theorized that this was to help the girls develop the necessary skills needed to partake in a greater variety of physical activities. They furthermore questioned whether or not the time dedicated to skill development paid off in the long term in regards to better motor skills amongst the girls and importantly, a greater interest in physical activity. Although physical activity levels were higher in coed classes in comparison to female only classes, this cannot be the only determining factor as to whether or not one type of class environment holds more value to the other.

Of note is that some researchers have argued that regardless of the teaching environment, coed or single sex, the two genders are being treated differently. Wright (1997) examined how gender was constructed through language use in both coed and single sex physical education environments. Wright observed that in coed classes, girls developed more inter-personal relationships with their teachers, which often seemed to be facilitated or encouraged by the teacher. Conversely, Wright observed that boys in the coed classes received more simple instructions, which were task oriented, and they were also subject to quicker and more frequent discipline. Furthermore, Wright found that boys were praised more often than the girls, receiving statements such as "good catch" or "well done"; whereas, the girls received more statements from the teacher such as "bad luck" or negative statements about the way they were participating in an activity or playing a game. In the single sex classes, Wright observed that the girls received more lengthy instructions, which explained why a certain task was at hand, as if the girls were expected to resist, ask more questions or need reassurance that they had the competence to complete the task. Furthermore Wright observed that the girls received more instructional feedback during skills practice. Conversely, boys observed in the single sex classes received simple instructions as if expected to get to the task straight away, had no questions and had the abilities to complete the task. Wright noted these observations regardless of what sex the teacher was, male or female.

Single Sex and Coed Physical Education in Iceland

There has been one small study conducted in Iceland investigating the merits of single sex and coed physical education. Stefánsson (2010), interviewed

three elementary physical education teachers at three different schools in order to investigate whether the schools were using any type of single sex education, and what the experiences of the teachers were who taught physical education concerning gender dividing practices. The three teachers interviewed (referred to as teacher A, teacher B and teacher C) in the Stefánsson study were teaching in very different environments; teacher A taught both coed classes and single sex classes; teacher B taught coed classes and occasional single sex classes; and teacher C only taught coed classes.

Stefánsson (2010) found that teacher A, who taught both coed classes and single sex classes, was satisfied with the current system in the school, which was being taught for the first time. The teacher explained that the students participated in coed physical education classes until grade 6, when they switched to single sex swimming classes, as well as one coed and one single sex class a week at the school. Ball sports were only taught during single sex classes, whereas stations and games were taught during coed classes. Teacher A interviewed by Stefánsson found that in this current system, all students were more active during ball sports and seemed to enjoy themselves more. The teacher indicated that the change had been brought about because of concern for under-participating girls during coed ball sports. Teacher A in the Stefánsson study also emphasized that separating boys and girls in swimming classes during the adolescent grades created a more focused environment. The teacher, who had 30 years of teaching experience, felt that the current system he was teaching with was the best that he had ever used in terms of activating and focusing his students. Teacher A in the Stefánsson study furthermore believed that it was not necessary to begin single sex classes before the grade 6 as strength and size differences were not as evident between boys and girls; and that students in grade 6 and above benefited from having one time a week where they were taught in a coed environment.

Stefánsson (2010) found that teacher B who taught coed classes with the occasional single sex class was not satisfied with the current system at his school. The teacher had many years previous experience with single sex teaching environment and found this preferable. Teacher B in the Stefánsson study found that teaching coed classes was challenging and that he could not activate students to the same degree. The teacher furthermore felt that teaching fitness, stretching and stations was reasonable during coed classes but that any ball sports or other physical sports were especially difficult to teach. Teacher B in the Stefánsson study also felt that teaching single sex classes was more beneficial for both sexes. This teacher believed that in the single sex environment the girls had better attendance, felt more comfortable, were more active and focused, and communicated better with their teachers. Teacher B in the Stefánsson study also believed that boys in the single sex environment were able to exert themselves on a higher level. The teacher,

who had 25 years experience, mostly in teaching single sex classes, believed that only single sex classes should be taught in all grades, both in physical education and swimming.

Stefánsson (2010) found that teacher C who taught only coed classes was relatively satisfied with the school's current system. The teacher felt that having coed classes was a positive way for the classes to be active together and therefore improve their class moral. Teacher C in the Stefánsson study found however that while some girls were very active in the coed classes that others stepped to the side. The teacher also found that boys did not always exert themselves to the fullest. Teacher C in the Stefánsson study believed that single sex classes could be beneficial during the adolescent ages, especially to assist girls in becoming more active during ball sports and physical sports; and that the boys could equally benefit by the ability to be more competitive. The teacher believed it was not necessary to begin single sex classes before grade 6 because all students were on rather equal levels. Teacher C in the Stefánsson study furthermore believed that it was important to have the classes as coed for part of the physical education as it could improve class dynamics and moral, but that for activities that were physical and involved ball sports would indeed be better off in a single sex environment.

In conclusion to his study, Stefánsson (2010) found it relevant that all three teachers agreed that girls tended to be less active during coed experiences of sports, which were physical in nature, and that boys did not exert themselves fully during coed classes. Stefánsson found that all three teachers seemed interested in having some type of single sex teaching system. Stefánsson however concluded that his study was limited by its size and recommended completing larger studies involving more teachers in Iceland.

Summary: Single Sex vs. Coed Physical Education

In summary, the arguments for and against single sex education are varied. Both the Derry 2002 study and the Pearson and Web 2010 study found that teachers in their studies overwhelmingly preferred the single sex environment in order to activate both girls and boys to a greater degree, as well as make the environment more supportive and effective. Both studies argue that this is due to: a tendency for boys to dominate the coed environment because of physical strength and size, girls being able to feel more comfortable in a single sex environment and therefore have higher levels of participation, and that boys would be provided with more competition in a single sex environment. There are also arguments in favour of the coed environment. For example, a teacher in the Iceland Stefánsson

(2010) study found that the coed environment promoted class bounding. Furthermore, Wilson (2010) found that the attitudes of the boys in his study were more positive regarding girls in physical education if they were involved in coed classes. There are also arguments for a mixed program, which include opportunities for both single sex and coed physical education environments. For example, Greenwood and Stillwell (1999) found that the interests of boys and girls were sometimes the same and sometimes different and argued that physical education could be coed when activity interests were similar and single sex when the interests of boys and girls were different. Conversely, some researchers and educators have pointed out that the challenges facing adolescent girls in particular lie within the deep rooted gender roles that have been established in physical education.

2.6 The Masculinization of Physical Education

This final section of the literature review examines briefly a history of the masculinization of physical education in schools both in Iceland and elsewhere.

The Masculinization of Physical Education

Researchers have argued that girls are disadvantaged in the physical education environment not only because of physical strength or skill ability but because the physical education environment has been masculinized since its inauguration. Jóhannesson (2004) explains that in Iceland schools were originally founded for men not women; and that boys who attended school (it was not originally obligatory), were being educated to become officials in society. Furthermore Jóhannesson explains that at this time children were, for the most part, educated by their parents and that gender roles were very clear; and that this lasted far into the 20th century. Jóhannesson makes the argument that today's schools are still modeled after those founded in the 19th century with the exception that now both girls and boys can attend.

Keay (2007) argues different ways in which physical education has become masculinized in the United Kingdom. For example, Keay identifies a post World War II increase in secondary school education as a time when a large number of men entered the physical education field and introduced competitive sport into boys' curriculum's in private schools across England. It has been suggested that games requiring physical strength and skill favour boys more than they do girls (Pearson & Webb, 2010). After the change in physical education format, Keay (2007) suggests that female physical education teachers, wanting to increase equality in their female programs,

felt it necessary to adapt to these changes as well. Keay argues that by adapting to the male physical education model, females could be seen as losing their independence, or on the other hand, as female physical education claiming *power*. Keay states, “the change in the PE curriculum for girls therefore became a double-edged sword, because although, in adopting the curriculum offered to boys, women were ensuring that their provision was valued and in a sense gained power by aligning with the dominant form of the subject, at the same time they lost independence and therefore power” (p.211). It can therefore be argued that in modern masculinized environment of physical education, girls can be considered powerless. For example, in order for girls to be seen as “good” in sports or to claim respect from their male classmates, they need to achieve the same level of performance as the boys (Pearson & Webb, 2010). However, according to Keay (2007), it is essential that while achieving high levels of sporting performance, the girl maintains her femininity and that deviation from this image can be met with criticism from society, rendering the women or girl as *powerless*.

Keay (2007) argues that this masculinized sporting environment has changed very little over the years and that teachers, both male and female feel pressured to keep the environment the same. For example, Keay explains that female teachers who are new to the profession may be able to identify some gender issues in their teaching environment, however, they may not feel they are in a position of power to promote change, as the majority of managerial positions in physical education teaching are still held by men. Moreover Keay suggests that, because girls have lowered levels of physical activity during adolescence and their attitudes towards physical education become more negative, they are often seen as the problem, not the way that they are being taught; and that because boys are considered easier to teach in physical education, the natural response for physical education teachers is to look for masculinized ways of dealing with the girls. In support of this argument a study by Rich (2007) interviewed 6 novice female physical education teachers and found that their goals were to encourage and motivate girls into more sports and physical education participation, therefore, in their minds, increase gender equality in the classroom environment. In his study, Rich states:

The stories are illustrative of a process of social reproduction and the possible negative implications of the dominance of a position of liberal individualism and equal opportunities – where the role is to facilitate access and opportunity as key objectives, rather than address the nature of gender power relations itself (p.230).

The teachers in the study believed that changing the girls’ attitudes about sports and physical education was the key factor in the solution, not changing the physical education environment.

3 Research Goal

Children need to have positive experiences of physical activity and education to help influence their levels of physical activity throughout life. If physical activity decreases in adolescence and girls are less active than boys overall, then the effectiveness of physical education as well as the experience of girls in physical education requires further investigation. By interviewing 4 physical education teachers and 4 principals at the elementary school level in Iceland, the research goal of this paper is to explore current beliefs about the effectiveness and value of physical education, gender issues within the physical education system, as well as the value of coed and same sex physical education.

4 Method

4.1 Qualitative Social Research

This research study investigates different school arrangements, as well as the value of coed and single sex physical education. As such it is considered within the category of social research. Social research is the process of study which one undertakes to discover more, or answer questions about the social world that we live in (Neuman, 2004). This research study can more specifically be referred to as qualitative social research.

Qualitative research differs from quantitative research in many ways. For example, Neuman (2004) stresses that while quantitative research follows a linear path, qualitative research follows a non-linear path where investigation and data collection may lead to the broadening or changing of a study. Neuman also emphasizes that in this non-linear way there are no direct steps followed but rather, a study may move forwards or backwards or even cyclically and moreover, “with each cycle or repetition, a researcher collects new data and gains new insights” (p.83). Furthermore Neuman’s work explains that qualitative research is more inductive than quantitative research as it falls in line with grounded theory, the building of theory through the collection and analysis of data. For example, the research question may start out to be very vague or broad and become more focused as the data collection begins. According to Neuman, developing the research questions is inherently “part of the data collection process, during which the researcher actively reflects on and develops preliminary interpretations” (p.84). Finally, in qualitative research empirical data are collected through direct or indirect observation (Neuman, 2004). The collection of data involves “documenting real events, recording what people say (with words, gestures, and tone), observing specific behaviours, studying written documents, or examining visual images. These are all concrete aspects of the world” (Neuman, 2004, p. 87).

According to Bogden and Biklen (2007) there are five features of qualitative research. The first feature referred to by Bogden and Biklen, is the *naturalistic* approach; meaning that researchers will enter the environment of those that they are studying or observing in order to better understand the context of which the subject is a part. Furthermore Bogden and Biklen

emphasize that observation of the subject in their natural environment is critical because of the assumption that human nature is influenced by its social context. The second feature of qualitative research according to Bogden and Biklen is *descriptive data*. Descriptive data are often referred to as “soft”, or empirical, meaning, they are descriptive of “people, places and conversations and cannot be easily handled by statistical procedures” (Bogden & Biklen, 2007, p.2). The third feature referred to Bogden and Biklen is *concern with process*, meaning the research is more concerned with the process of study than with the outcome of the study. The fourth feature, from Bogden and Biklen is, as mentioned above, *induction*. This is a reference to the research being a “bottom up process”. The fifth feature referred to by Bogden and Biklen is *meaning*, where the researcher hopes to gain insight into how the subjects perceive their personal experiences and produce meaning.

4.2 Reliability and Validity

In order for a study to be considered “reliable”, within some types of research, such as quantitative research, “the expectation exists that there will be consistency in result of observations made by different researchers or by the same researcher over time” (Bogden & Biklen, 2007, p.39). In social qualitative research different data recording methods are used such as video or interview in order to make consistent observations. However according to Neuman (2004), when the study is that of social life, qualitative researchers must accept that the subjects and content they are studying will adapt and change over time. Moreover, Bogden and Biklen (2007) emphasize that the background of the researchers themselves, for example their education and experiences, may further affect the type of data or observation that is produced. Qualitative researchers therefore “tend to view reliability as a fit between what they record as data and what actually occurs in the setting under study, rather than the literal consistency across different observations” (Bogden & Biklen, 2007, p.40). Qualitative researchers are furthermore concerned with validity and specifically, authenticity, which according to Neuman (2004) means, “giving a fair, honest and balanced account of social life from the viewpoint of someone who lives it every day” (p.117).

4.3 Interview Method

A variety of different methods can be applied in order to collect data and explore a social research topic. This study involved an in-depth, face to face interview technique. According to Seidman (1998), the purpose of an in-depth interview is the “interest in understanding the experience of other

people and the meaning they make of that experience” (p.3). If certain guidelines are followed, there can be many advantages to using this type of technique. For example, Neuman (2004) found that: interviews have the highest of response rates, the interviewer can make observations of the subject in their natural environment, and the interviewer can ask complex and probing questions which may reveal unexpected data. Neuman emphasizes the following guidelines for the interviewer to follow: asking the questions and letting the subjects do the responding; keeping one’s own feelings and opinions private; refraining from judgment and not attempting to change the subject’s opinions or beliefs; and, controlling the topic direction and pace in order to keep the interview on track.

The interviews themselves were conducted in a semi-structured format using a combination of open and closed questions, which are provided in the Appendix. Closed questions are structured and require a fixed response, whereas open ended questions are unstructured and allow for free responses (Neuman, 2004). Closed questions were asked in order to have a basic outline of the roles of the interviewees, as well as the different specific situations and programming in their schools. Open ended questions were used in order to gain insight into the perspectives and experiences of the interviewees at their individual schools. According to Neuman (2004) advantages of open ended questions include: that they permit an unlimited range of responses; responses can produce unexpected findings; they allow for descriptive responses to complex issues; they allow for rich detail and free self expression from the respondent; and they may reveal the respondent’s frame of reference. Disadvantages of using open ended questions referred to by Neuman may include: new ideas revealed in a question may produce opinions that did not exist beforehand; responses may be irrelevant; it is difficult to compare and code responses; and respondents could become intimidated by questions or defensive about their responses.

4.4 Population Sample

Across a sample of 4 schools, a physical education teacher and a school principal will be interviewed from each school. For the purpose of finding the most variety in school program arrangements, as well as different experiences among school principals and physical education teachers, it was ensured that the 4 schools were not using the same arrangement of coed and single sex education within their programs. This can be referred to as *purposive sampling*, which uses “the judgment of an expert in selecting cases or it selects cases with a specific purpose in mind” (Neuman, 2004, p.138).

In this study, the principals interviewed had between 2 years and 16 years of experience in their current position. The teachers interviewed had between 9 years and 34 years of physical education teaching experience. There were 5 men and 3 women interviewed. The work experience and gender (all interviewees are referred to in the masculine) of each individual interviewee were not disclosed in the results, in order to protect their anonymity.

One disadvantage of this study is that it includes only local schools in Akureyri and is a relatively small sample size. This study could therefore overlook a variety of opinions and experiences of different subjects from different areas. However it should be noted, “qualitative researchers focus less on a sample’s representativeness or on detailed techniques for drawing a probability sample. Instead they focus on how the sample of a small collection of cases, units, or activities illuminates social life” (Neuman, 2004, p.137).

4.5 Data Recording

The individual interviews were between 25 and 45 minutes long. The interviews were recorded using a high quality digital voice recording device. The interviewer also made additional hand written observations as were necessary. For example, the interviewees occasionally made physical gestures to better express their point of view, and these were then noted. The interviews were conducted in Icelandic; quotations in the results section of this paper have been translated into English.

4.6 Data Analysis and Interpretation

Bogden and Biklen (2007) offer definitions as to the meaning of data analysis and interpretation. According to Bogden and Biklen:

Data interpretation refers to developing ideas about your findings and relating them to the literature and to broader concerns and concepts. Analysis involves working with the data, organizing them, breaking them into manageable units, coding them, synthesizing them and searching for patterns (p.159).

Bogden and Biklen suggest different techniques for making interpretation and analysis a continual part of the data collection process, which are appropriate to this study. They are: narrowing the focus of the study, the development of analytical questions and taking field notes during interviews. In addition to those considerations, coding categories will be developed

during the analysis and interpretation stage of this study. Bogden and Biklen (2007) suggest developing code in several steps. The first step is to search the materials for any patterns and different topics to be discovered. The next step is to name these different patterns and topics and develop categories. From this step the descriptive data can then be organized with more ease and sequentially sorted and compared. A disadvantage to social research and the interview technique is possible bias on the part of the researcher. For example, the interviewer in this study has her own set of values and opinions, which come from a unique background of education and experiences, which could possibly influence how the data from the study are interpreted (Bogden & Biklen, 2007).

5 Results

This chapter will describe findings based on the interviews with the four school principals and four physical education teachers. In order to protect the identity of the individual interviewees, all quotations, comments and references in this section are described using the pronoun “he”. The first section, Physical Education Programs, describes the data regarding the goals and effectiveness of the school programs, as well as, what it means to be an effective physical education teacher and to have an effective school program. The second section describes the data regarding the health awareness and initiatives of each school. The third section, Single Sex and Coed Physical Education, describes the data regarding how the school programs are organized in terms of coed and single sex groupings. It also describes the opinions of the principals and then the teachers regarding the advantages and disadvantages of single sex and coed physical education, as well as the teaching environment preferences of the teachers. The fourth and final section, Gender Issues, describes the data regarding masculine and feminine influences in physical education, equality in physical education, and the treatment of male and female students.

5.1 Physical Education Program

Goals and Effectiveness of Program

The school principals and school teachers were asked to describe what they felt the goals of their physical education program were and what values, knowledge and skills they wanted to see their students graduate with.

The teacher from School A indicated that he wanted his students to graduate with a desire to be physically active and an understanding of why it was important. The school principal from the same school wished that his students would find a type of physical activity that they enjoyed and would continue in. Both the teacher and school principal from School A were unsure whether their school program was motivating for students to continue to be active after graduation. The teacher felt that in previous years the program had been poorly designed with too many children in each class. Now that they had reduced the class size he felt that he might see a better result after the year was finished. The principal hoped that their program was

reaching out to students but felt that the teacher could better answer that question.

The teacher from School B indicated that ideally he would like to see everyone graduate from the program with fit and healthy bodies. However, he acknowledged that there were many outside influences that prevented this from happening. This teacher was mostly concerned for students who were graduating from the school and not practicing any sport. The principal from School B stated that he would like to see his students graduate with a desire to be physically active and an understanding that physical activity is not just for athletes but is necessary for everyone. The teacher from School B felt that the school's program was indeed motivating for the students to be active beyond school graduation. The teacher described how he began many of his physical education lessons by reminding kids of why they need to be active and that they should use their time well. This teacher also makes trips into the school classroom of the oldest grades to present information on the importance of physical activity and to really try to get their attention on the subject. The teacher explained:

I always start by asking, have you started thinking about what you will study in the future? I want to be a computer specialist . . . and you . . . a nurse . . . and what happens when your health becomes poor at the age of 50 because you have not taken care of your body? Because you have not used the most important years to build up your fitness? They [the students], find this motivating.

On the other hand, the principal of this school felt that while the school's program was motivating for some students, the school staff were not able to reach out to all individuals at the school, some of whom did not have a positive experience of physical education.

The teacher from School C wanted to see his students' graduate with the knowledge that physical activity is important, a positive experience of physical activity, as well as having found some kind of physical activity that they enjoy as an individual. The principal from School C was concerned that the students graduate having experienced a variety of different activities and finds enjoyment in some kind of physical activity. The teacher from School C felt that the school was able to motivate students to be active beyond graduation, because the school was concerned about this and because he believed the non-competitive atmosphere and variety that is provided in their program helps ensure this. Conversely, the school principal from School C felt that although he finds many students enjoy their physical education program, he is not sure that they are able to reach out all students. He explained that many students come to him trying to find ways to get out of physical education with different excuses and by providing medical notes.

The teacher from School D felt that the main goal of physical education program is to let students experience a variety of different activities. He felt this was a very strong focus at their school and that the educators emphasized having as much variety as possible. The principal from School D wanted to see the students increase their movement abilities and learn about their body and nutrition. He also hoped that they had the opportunity to try as many activities as possible and find something, which appealed to them so that they can continue to be active when they graduate. While the teacher felt that their physical education program was indeed motivating for students to continue being active, he recognized that students today are becoming so diverse, with many practicing sport intensely and many who are completely inactive, lacking the middle group of moderately active individuals which used to exist. The school principal was unsure whether or not the school's program was motivating for students to continue to be active beyond graduation. He was however pleased that his students seemed to be practicing a wide variety of sports outside of school.

It seems as though all teachers and principals had very similar ideas concerning the goals of their physical education program, including, graduating with a positive experience of physical activity, and specifically experiencing a wide variety of activities in order to increase the likelihood that students will find something appealing to them. Whether or not they believed in the effectiveness of their program showed more disparity between where teachers and principals stood on the matter. Three out of the four teachers answered more positively about their abilities to motivate students towards future physical activity. At the same time, all four principals seemed unsure about whether or not their program was able to reach out to all individuals.

Effective Teachers and Teaching in Physical Education

Both the school principal and teacher were asked to indicate what they felt made an effective physical education teacher. The teachers were also asked to describe how they were able to activate all students within class time.

The principal from School A felt that an effective teacher was one who taught a wide variety of physical activities and was able to engage the interests of all students, not only those who show higher levels of ability. The teacher from School A also felt that an effective physical education teacher needed to teach a variety of activities and to reach out to all students. He stated:

You can fall into a pattern, for example if I was interested in football I could just teach football all the time, that's no problem, I could do that

for a whole winter ... But that's not good for the kids. You have to teach everything ... You have to teach variety and reach out to the kids with everything. Also show them it is not always the most fun things that need to be done. Also, that the 'boring' things can be fun.

The teacher also felt it was important for the students to find his classroom atmosphere to be positive. In order to ensure that all students were active during class time, the teacher from School A felt that firstly one had to get to know the kids. He described having to look out for the students who were not as motivated as others and try to motivate them. The teacher also felt that sometimes it is necessary to alter certain activities so that the students who were behind or not as motivated could also be successful. However, he found this type of individual teaching to be very challenging in an environment with many students.

The principal from School B felt that concern for students well being was the most important part of being an effective physical education teacher. He described how concern for the individual or, meeting the student's individual needs, has become an important part of modern day teaching in all subjects. The teacher from School B also felt concern for the individual was critical in being an effective physical education teacher. He stated:

You have to be friends with your students . . . I put a lot of effort into achieving a personal connection with my group . . . In order to be close to your students it is most important that they understand I am trying to give them positive advice and motivation to be active, (especially) if they are not practicing anything . . . I always invite them to talk to me if they want that.

The teacher also gives the students individual advice about how to be active, and how to find something they are interested in. He stated, "this does not happen unless they have a positive experience of me [as a teacher]". In order to ensure that all of his students were active, the teacher from School B indicated different efforts that are made to motivate more individuals. For example, he explained that in the current semester the school is undergoing an experiment where students are working in smaller groups and going through different activity stations. So far the teacher is finding that the size of the groups (smaller than normal) prevents students from trying to sit out of the activity. He furthermore creates different rules in games to ensure that all students are involved. For example, all students on one team must touch the ball once before a goal is scored. The teacher from School B also spends a lot of time trying to motivate individuals on a personal level through one on one discussion about the importance of physical activity and what is available to them.

The principal from School C felt that reaching out to the kids was the most important part of being an effective physical education teacher. He described an effective teacher as being fair and determined while at the same time having a sense of humour, as well as being a good listener. The teacher from School C felt that it was important to personally enjoy physical activity and education as well as the importance of the subject so that he could help share that enjoyment and make it fun for the kids. In order to ensure that all students were active the teacher from School C felt that it was critical to organize time well and to include a variety of activities in hopes of including more students.

The principal from School D felt that an effective physical education teacher is one who focused on a variety of activities. He pointed out that many physical activity teachers are also coaches and that it was critical for them to not only focus on their own sport but to introduce them to as many sports or physical activities as their facilities would allow. The principal from School D also pointed out that an effective physical education teacher was encouraging to all students, especially those who are further behind the group and ensured that they had activities that suited their needs and abilities. The teacher from School D felt that being positive and kind were critical characteristics of an effective physical education teacher. He also felt that being organized and always outlining the day's lessons before the class began was critical. In order to ensure that all of his students are active, the teacher from School D felt that an effective warm up (including warm up games) was critical in engaging all student physically. The teacher from School D also mentioned that they tried to ensure all students were moving during class time and if someone sat out they would be encouraged to continue. He furthermore highlighted that he felt it more challenging to get students moving today than it was in the past due to weight issues.

Out of the group of 8 *educators* (4 principals and 4 teachers), 7 described reaching out to the students by being positive, kind or showing them individual concern, as being effective characteristics of a physical education teacher. Another common theme appeared to be the use of variety, teaching different activities, as well as the altering of activities in order to meet more individual needs, in order to be an effective teacher and/or to ensure that all students were active during class time.

5.2 Health Awareness and Initiatives

Health Awareness and Initiatives

Both the school principals and school teachers were asked whether they were aware that it has been found that two thirds of Icelandic children are not getting the recommended guideline of 60 minutes of daily physical activity. They were asked if any school initiatives were in place in order to encourage students to be more active. Furthermore, the principals and teachers were asked to discuss whether they would include daily physical education in their education program if it was an option and if there were any possible barriers to initiating more physical education.

The principal from School A was not aware that two thirds of Icelandic children were not meeting the 60 minutes of recommended of daily physical activity. He was aware however that children are not moving enough in general and felt that the school was indeed concerned about this fact. He mentioned that the school was taking part in “Göngum í skólann” (www.gongumiskolann.is), a walking to school initiative in which primary schools across Iceland take part. However, he was not so sure that it was working. He also explained that the school tried to encourage the teachers of classroom subjects to do more lessons outside in order to help students become more active. The principal from school A stated:

We are also trying to have the teachers use the environment more, go outside more with the kids, even though it is not exactly physical education, just go outside to study math and be physically active and play games, I do not find that this is going any better either. I would like to see much more of this. But we are trying.

The teacher from School A was aware that two thirds of Icelandic children are not meeting daily physical activity requirements and also felt that the school showed concern over this fact. For example, he was satisfied in general with the school principal’s reaction to recent requests from the physical education teachers to decrease class size and re-schedule physical education lessons in order to better improve the quality of class time. The teacher from School A also mentioned that they took part in “Göngum í skólann” and recently added “Skóla-hreysti”, a school fitness competition, to their school program. He felt it was very important for the physical education teachers to encourage the school board and principal into different initiatives and that it was not just the responsibility of the principal to come up with all of the ideas. Both the principal and teacher from school A responded positively that they would like to see daily physical education or activity in their school.

Both the principal and teacher from School B were aware that two thirds of Icelandic children were not meeting the 60 minutes of recommended of daily physical activity. The principal felt the school staff was conscious of this fact and because of this took part in events such as “Göngum í skólann”, Olympic games at the school and outside physical activity days. He was however concerned that many kids did not enjoy physical education at the school and that perhaps the solution was not to add more physical education but find ways to make it more enjoyable. The teacher from School B felt that the school was indeed concerned about lack of physical activity in students. He did however feel that the subject of physical education was not regarded to have the same level of importance as other subjects. Both the principal and teacher from school B responded positively that they would like to see daily physical education in their school.

While the teacher from School C was aware that two thirds of Icelandic children were not meeting the 60 minutes of recommended of daily physical activity, the principal from School C had not heard the statistic but was aware that it was quite a large number. The principal felt that the school was concerned about level of physical activity amongst its students. He also explained that while they took part in events such as “Göngum í skólann”, there was no specific school program to increase physical activity. He explained that at one time they would take the students hiking. When bus money became an issue this activity had to be cancelled. The teacher from School C also made similar comments that although the school showed its awareness by taking part in events such as “Göngum í skólann”, school ski and skating trips; that nothing extra was done to increase physical activities levels. He explained that in previous years one teacher had offered extra game times for the students in the gymnasium outside of teaching hours, but that when he wanted to be paid for the overtime, the program had to be cancelled. Both the principal and teacher from School C responded positively that they would like to see an increase in amount of physical education offered in their school.

Both the principal and teacher from School D were aware that two thirds of Icelandic children are not meeting the 60 minutes of recommended of daily physical activity. The principal from school D felt that yes the school was concerned about lack of physical activity amongst students and took part in many health promoting initiatives. He explained that the school took part in events such as “Göngum í skólann”, school runs and school games; and also encouraged healthy daily eating habits. The principal also mentioned concern for students who were practicing up to 20 hours of sport outside of School, that adding more physical activity to those students might be too much. He did however point out that time constraints would be the main barrier to being able to do more physical education in school. He explained:

“the school has a specific number of hours that they are required to fill for each subject, Icelandic requires this many hours, math needs this many and so its really a competition for time.” Both the principal and teacher from School D responded positively that they would like to see daily physical education in their school.

It was apparent that the majority of the 8 interviewed educators were aware that two thirds of Icelandic children are not meeting the 60 minutes of recommended of daily physical activity. Moreover, those educators whom had not heard the statistic before did not seem surprised that the number was so high. All of the educators considered their school staff to be conscious of this fact, and pointed to initiatives, such as “Göngum í skólann”, that the schools took part in to help encourage an increase of daily physical activity. However, no educator seemed completely satisfied with what the school was able to offer. The educators suggested a variety of different barriers as to why the school could not, or was not doing more, including: financial concerns, how physical education was regarded in comparison to other subjects, time restraints, the students’ enjoyment of physical education, as well as concern for students who are practicing sport on an intense level outside of school. All educators interviewed responded positively that they would like to see an increase in physical education or activity within their school programs.

5.3 Single Sex vs. Coed Physical Education

School Programs

The educators were asked to outline their schools’ specific program in physical education according to whether or not the classes were single sex groups or coed groups and if relevant, at what age certain divisions began. The educators were also asked to state who was in charge of making those decisions.

School A’s program arrangement was described as including one physical education class per week, which was always coed. At the school, beginning in the 8th grade the second physical education class per week was separated into single sex. The one swimming class per week was coed until the 6th grade and then became single sex. The principal at School A explained that he was in charge of making up the schedule for the physical education classes but did this in collaboration with the physical education teachers. The teacher at School A felt he had control over which groups were single sex and which were coed and often worked with the homeroom teachers of the

different grades to decide how they would run the program (single sex or coed) for that year or semester.

School B's program was described as including two times per week coed physical education in all grades (however in previous years 9th and 10th grade had been mostly single sex). Swimming was single sex in 1st grade as well as again in 8th through 10th grade. The school principal at this school was in charge of making the physical education schedule. The teacher at this school felt he had no control or say around the timing of what grades come in for lessons at what times. He felt that this made it difficult to plan. The physical education teachers at this school did however have the opportunity to teach single sex or coed groupings if they chose, as two classes came together during physical education and there was more than one teacher working with the group, which made this possible. When the teacher was interviewed he stated that the teachers were for the time being keeping the groups as coed.

School C's program was described as including coed physical education classes two times per week and swimming one time per week. However sometimes swimming in 8th through 10th grade was single sex). At School C the department head was in charge of making the physical education schedule and had the final say about the schedule but worked together with the physical education teachers in planning. Although the grades arrived at physical education in coed groupings, the physical education teachers had the opportunity to separate them into single sex groupings during class time and occasionally would do so.

School D's program was described as including slightly more physical education in the form of one extra lesson per week in 1st through 7th grade, while 8th to 10th grade received slightly less (however, the older students had additional "val tímar" (extra lessons) which were mostly extra physical activity). Swimming at School D was separated into single sex groupings in 8th through 10th grade. For physical education, all grades arrived together to lessons in coed groupings. However, because there was more than one teacher working with the class, they had the freedom to separate the students into single sex groupings if they chose to do so. The teacher from School D explained that this was done most often in the younger grades, 1st through 4th grade, and that older students often requested this as well. At School D the vice principal was in charge of creating the schedule but the physical education teachers met together to plan in detail how they would separate their classes during lesson time.

All four schools had a variety of arrangements concerning single sex and coed groupings. However swimming was always separated into single sex for 8th through 10th grade (with the exception of one school which had this

separation only sometimes). In all schools the principals, vice principals or department heads made up the schedules for physical education. All four teachers demonstrated however that they did have some control over whether they were teaching single sex or coed groupings. The teachers described the control over groupings as a result of communication with other staff or the availability of more than one teacher during physical education lessons.

Single Sex and Coed Teaching According to the Principals

The school principals were asked for their opinions regarding single sex and coed teaching environments in physical education and whether or not they had read any research on the topic.

The principal from School A felt that single sex teaching in the older grades (8th through 10th) could be appropriate because of problems such as shyness or different interests of the genders that could be evident at that stage. He thought that perhaps with a single sex teaching environment it might be possible to reach out to a greater majority of the group. The principal stated that he had not read any research on the topic of single sex and coed teaching and admitted that his opinions on the topic had been shaped by those of the physical education teachers he had worked with.

The principal from School B felt he would like to see a mix of both single sex and coed teaching. He stated, “we are two different genders, we have different needs . . . We are different and we need to sometimes meet the needs of both”. He felt boys have interest in “rougher” sports than girls and that there need to be activities that met the interest of girls as well. He explained that if the boys and girls knew that they had classes coming up which were suited to their needs (for example, “action time”, with just boys together, or girls doing dance), they might be more patient in taking part in other activities that they did not find as enjoyable. The principal from School B had not read any research regarding single sex and coed teaching in physical education but was interested in doing so in the future.

The principal from School C felt that single sex teaching could be appropriate with some groups and not in others, that there was not one teaching style superior to the other. He explained that it was the responsibility of the teacher to find out what suited their current group best. For example, he explained that:

If the girls in one group are holding back because the boys are more dominant, than that is good reason to try separating them. That does not need to be just in physical education, but also could be appropriate in other classes . . . First and foremost we want the groupings, (single

sex or however they are split up) to improve the educational needs on the students.

The principal from School C had not read any research regarding single sex or coed teaching in physical education but was familiar with some research of single sex and coed teaching in the classroom.

The principal from School D felt that the question of whether or not to teach coed or single sex was difficult to answer because there was perhaps no right answer. He personally would like to see the students in a coed environment if possible. His rationale for this was that the students needed to learn to handle each other and respect each other as different genders in school because they would continue to be together in society. However he also mentioned that girls may have more of a “chance to shine” if they are in a single sex environment. The principal from School D also mentioned that in the classroom environment it may sometimes be beneficial to separate the genders, for example when discussing subjects that may be sensitive to a group. He found that in general team teaching environments (more than one teacher over seeing a group) was a valuable teaching tool so that one could separate groups as necessary. When asked whether he was familiar with any research regarding coed and single sex teaching environments, the principal from School D explained that he was familiar with the “Hjallastefna” policies. Hjallastefna schools are Icelandic schools whose curriculum has specific policy regarding gender groupings in order to ensure gender equality and work towards breaking down traditional gender roles (Hjallastefna, 2014).

Out of the four principals interviewed, three found the idea of teaching using both single sex environments and coed environments according to the situation or needs of the students preferable. One principal suggested that single sex teaching would be most valuable in the adolescent stage (grades 8 through 10). None of the principals were familiar with research regarding single sex or coed teaching in physical education; however they were somewhat familiar with research regarding single sex or coed groupings in the classroom environment.

Single Sex and Coed Teaching According to the Teachers

The physical education teachers were asked for their opinions regarding single sex and coed teaching environments in physical education and whether or not they had read any research on the topic. Because of their daily experience of working hands on with students, the teachers were asked more in depth questions concerning these teaching environments than were the

principals, such as questions of student activation and classroom management.

The teacher from School A had not read any studies concerning single sex or coed teaching environments. However, based on his personal experiences, the teacher from School A felt that he was better able to activate girls, especially in the upper grades, in a single sex teaching environment. He found that less athletically inclined girls, were shy or held back more in the coed environment, whereas the boys were more dominating in activities. He noted for example in fitness activities that the girls could be shy about having to do push ups from their knees in front of the boys. He also found that attendance was better among girls in the single sex teaching environment, especially in the case of swimming. When asked whether he found the girls to be physically self-conscious in the coed teaching environment the teacher from School A responded:

It is much worse when the boys are there, then they [the girls] are really conscious about themselves . . . Last year in the upper grades it was coed in physical education. . . you could see it on some of the girls that they did not feel good being with the boys. They are gaining weight, they are growing, there are so many changes, they don't know how to perceive themselves, never mind understand how others perceive them. It is a difficult time.

The teacher furthermore remarked that this was a sensitive time also for the boys, and that was sometimes forgotten. He explained that the boys were also self conscious about being with the girls and that less athletically inclined male students would feel more embarrassed about showing any incompetency in front of the girls. The teacher from School A found that classroom management was more effective in a single sex teaching environment in the *upper grades* (grades 8 through 10). He explained that the boys and girls had a tendency to fool around more or "show off" when they were in a coed environment. He found that in general the students were more focused in a single sex teaching environment. He furthermore found that teaching activities such as ball sports or team sports was more effective in a single sex environment. The teacher explained that when they were together in these types of activities there would be more complaints. For example, he stated: "The boys complain about the girls not doing anything and the girls complain that the boys never pass to them".

The teacher from School B was familiar with research and had also engaged other teachers in discussion regarding single sex and coed teaching environments. Based on what he has learned and his personal experiences, he finds that it is easier to activate girls in a single sex environment, especially in the upper grades. He finds that girls who are less athletically inclined and

shyer are noticeably more comfortable in a single sex environment. The teacher explained:

In the oldest grades, 8th, 9th and 10th grade, where the difference of physical strength of the boys is so evident . . . and they have more self-confidence . . . girls, if they are all together [coed], no matter if it is volleyball, bandi, football, any game, they will be more passive and hold back. If they are with other girls [single sex], they are much more active, I am absolutely sure about this.

The teacher continued on to explain “there is more power in girls if they are grouped on their own”. He also felt that at this age many of the girls are very self-conscious about their bodies, especially when it came to swimming lessons, and that attendance was improved by separating the genders. The teacher from School B furthermore found that the coed teaching environment also affected boys in the upper grades. He explained that in team games or physical games, “the boys will purposely hold back also, because they do not want to run over the girls”. The teacher also explained that less athletically inclined boys may also be comfortable in a single sex environment because they would not want to demonstrate any incompetence in front of the girls. However he also mentioned that they may possibly struggle in an all boys environment as well.

The teacher from School C had not read any studies concerning singles sex or coed teaching environments. However, based on his personal experiences, he has found that girls have more of a tendency to pull themselves out of physical or ball sports when groupings are coed, but that they are more likely to participate in these activities when they are grouped as single sex. He found this especially influential during the upper grades at the time when boys are becoming physically stronger than the girls. He felt therefore that when taking part in any physical sports or activities it was a more appropriate time to have single sex groupings. Furthermore, he found that single sex groupings were perhaps a more comfortable environment for girls with lower confidence. Conversely, the teacher from School C found that boys, who were more “calm” in physical education, could perhaps benefit from being with girls who were also more “calm” and that being in single sex environment with all boys may be challenging for them. When asked whether he found the girls to be physically self-conscious in the coed teaching environment the teacher from School C responded, “maybe when they are older, when they are teenagers . . . yes probably a little bit more . . . but it is not so prominent”. In terms of classroom management he found that it was easier to have control in an all-girls class than in an all-boys class. However, whether it was easier to have control over all-boys or a coed environment he found difficult to answer; especially because when coed was together there were more students which affected teaching practices.

The teacher from School D had not read any studies concerning single sex or coed teaching environments. However, based on his personal experiences, he has found single sex groupings in physical education preferable in both the younger grades and the upper grades. He explained that for example when doing station work it was better to have groups of all-boys and all-girls. He stated that this was because: "Boys will be working at a faster pace, it is often that they will get in more repetitions and girls want to go slower, then it is better to separate them and we do that." Furthermore, when the teacher from School D used to have younger grades as coed the girls often felt disrupted by the behaviour of the boys. He also found that girls were more likely to hold back in coed groupings and were perhaps more comfortable in single sex groupings in the upper grades. He found that when given the choice of whether or not to separate genders that the students in the upper grades would often chose to be in single sex groupings. However, he explained that some students would also chose to be together and that some of the girls wanted to be challenged by the boys. The teacher from School D had not noticed girls being physically self-conscious in the coed teaching environment as being an issue or challenge. He found that boys who are less athletically inclined or overweight had a hard time in physical education regardless of whether the lesson was coed or single sex.

Three out of the four teachers were not familiar with any research regarding single sex or coed teaching environments. Based on their personal experiences the teachers were unanimous that they found it easier to activate girls in a single sex teaching environment, specifically, when taking part in activities with more physical contact in the upper grades. They were furthermore unanimous that this especially impacted girls who displayed more shyness or were less athletically inclined. Two of the teachers found that physical self consciousness affected the participation level of girls in the upper grades. The other two teachers believed that it was perhaps an issue but that they had not observed any prominent impact on participation levels. Concerning the participation of male students, two of the teachers found that less athletically inclined boys benefited from being in a single sex environment (because they would not feel as much embarrassment as they would in coed). At the same time, one of the teachers felt that less athletically inclined boys may feel more comfortable being with less athletically inclined girls; while another teacher felt that they would struggle regardless of whether the teaching environment was single sex or coed.

Teaching Environment Preferences

The teachers and principals were asked what their ideal school program arrangement would look like in terms of the use of single sex and coed teaching.

The principal from School A felt that the most appropriate program arrangement would include a mix of coed and single sex teaching environments. He liked the idea of working with the physical education teachers to decide when it was better to work with the different environments depending on the nature of the classroom activity. The teacher from School A felt that he would like to continue teaching single sex classes in grades 8 through 10, however he was open to the idea of having coed sometimes in the upper grades as well. As for the younger grades, the teacher from School A felt that it was appropriate to have a mix of coed and single sex teaching. According to this teacher an influencing factor in determining how to run the class time depended on the nature of that individual class. For example, he felt while some classes worked very well together, other classes could benefit from single sex teaching. The teaching environment of School A is very flexible because they practice team teaching; which means there is always more than one teacher available and classes can always be split into groups.

The principal from School B felt that the most appropriate program arrangement would include a mix of both coed and single sex physical education teaching environments. He felt that the single sex environment could be used to meet different needs of each gender and the coed environment to help break down social boundaries created by masculine and feminine ideals. The teacher from School B felt it was appropriate to begin practicing single sex teaching environments more often when the students reach the 6th grade. He however felt that it was appropriate to mix the groups sometimes in order to allow the genders to socialize together and to bond as a group. This teacher was currently practicing team teaching in the upper grades where it was possible to have a mix of coed and single sex groupings.

The principal from School C felt that single sex teaching should only be used when the teachers felt that it was beneficial to the learning of all students. He felt that it was important to keep the genders together because of the social benefits of learning to be with diverse groups of individuals. The teacher from School C felt that an emphasis on more single sex teaching should begin in the upper grades, perhaps in the 5th and 6th grade, but that it should begin gradually. He felt that they were fortunate at his school to have access to quality facilities where they have a lot of room to divide the students into groups and could split them into single sex groupings sometimes and into coed groups at other times.

The principal from School D felt that it was appropriate to have coed physical education unless there was a specific situation that required single sex teaching. He added:

But I do find it very convenient to have it [the program] as we have it where the teachers have the choice. Girls can be on one side playing

handball while the boys are on the other side playing handball. That is a possibility and I am not against that either. Because we have this system [team teaching] it is possible.

The teacher from School D felt it appropriate to have the students in a coed class environment with the opportunity to teach single sex when needed. He furthermore did not want an entirely single sex teaching environment because of the positive social benefits that was a result of the students being mixed together.

All four principals were interested in having a mix of both coed teaching and single sex teaching, depending on the activity at hand and how the their physical education teachers wanted to manage an activity. All four teachers furthermore felt that having a mix of both coed and single sex teaching was appropriate. Three out of the four teachers mentioned that single sex teaching should be emphasized more in the upper grades while one teacher felt that it could be appropriate in all grades. At some point during the interviews, 6 out of the 8 educators emphasized the importance of social factors in coed teaching. They felt that students benefited greatly from being with the other gender because, the students could learn from each other, it was fun to have them together, it gave the classes a chance to bond, and it helped break down masculine and feminine social barriers. All four of the teachers often took part in team teaching, which meant students were often grouped together from more than one class, and two or more teachers worked as a team. The teachers were therefore able to split the groups into the divisions they felt were appropriate and were able to use single sex or coed groupings where they saw it as necessary.

5.4 Gender Issues

Masculine and Feminine Influences

Principals and teachers were asked to describe what they saw as masculine and feminine influences in physical education and whether discussion of these influences was a part of the schools' curriculum.

The principal from School A was not aware of any situation where masculine and feminine stereotypes were influencing participation of students in physical education. He did however mention that the discussion of masculine and feminine influences in society was a part of the school's curriculum. The teacher from School A said he noticed masculine and feminine stereotypes having an effect on participation in physical education. For example, he explained:

I taught them yoga the other day, the boys looked at me [and said], yoga? I said that is not more feminine than something else . . . it is so good for them to go over the line, outside their boundaries. Everyone had to participate, and you could see at first some lying there, [and saying], no, I'm not going to do something like this.

He also added that once the students saw that everyone was at the same level, that no one was the best; they were more open to participating in the lesson. In response to the question whether physical education teachers involved students in discussions about the creation of masculine and feminine stereotypes, the teacher from School A felt that questions could come up from time to time but that most of these types of discussions took place in the classroom.

The principal from School B felt that masculine and feminine stereotypes were influencing participation of students in physical education. However he also felt that students could be born as more feminine or more masculine individuals and that the social environment was not the only influencing factor. He added:

The most important thing that we do [the school], is to raise the children in the way that they understand that one is not better than the other, if I am a boy and I enjoy dancing than it is my right to blossom in that, if I am a girl that enjoys more physical sports, than it is my right to blossom there. It should never stop me because I am a girl or I am a boy.

In addition, the principal found that it was very important that the genders were together in physical education so that they could see that different activities were for everyone, not just one type for boys and one type for girls. Furthermore, he commented that the school was conscious about discussing the issues of masculine and feminine stereotyping with its students. The teacher from School B felt that masculine and feminine stereotypes were influencing participation of students in physical education. He explained that this could come up when the students were doing station work; that there were some activities that they were embarrassed to take part in, where someone might laugh at them because they could not do the activity well. As an example the teacher spoke about a class where students were required to dance at one station. He explained that the boys were at first nervous about this but took part eventually and enjoyed it. He also used this as an opportunity to challenge their ideas of what is masculine and what is feminine and discuss this during the class time. The teacher was pleased that he was able to open the boys up to the idea that dance was not just for the girls. The teacher from School B also suggested that the influence of masculine and feminine stereotypes has changed greatly; pointing out that in

the football and handball clubs participation rates among girls and boys were becoming progressively equal (sports which have previously favoured the male gender).

The principal from School C was certain that in some ways masculine and feminine stereotypes could influence participation in certain activities. However, he also felt that this might be changing. He mentioned for example, home economics, as one subject which used to be looked at as very feminine. He explained that this was no longer the case, as it was a very popular course amongst all students. The principal furthermore noted that teachers were discussing issues of masculine and feminine stereotypes as part of the school curriculum. The teacher from School C did not feel that masculine and feminine stereotypes strongly influenced his students desire to participate. He believed that what influenced their desire to participate was more a question of whether they felt they were competent in the activity. He explained:

For example if I have the boys in gymnastics, they do not find it feminine, they just cannot do it, and start fooling around because of this . . . and the opposite if we think about girls and ball sports . . . it is not because it is too masculine that they do not want to participate, rather they are not good at it, and have low confidence [in that activity] . . . I have not heard that [in class], that something is 'girly' or 'boyish'.

The teacher felt that although these masculine and feminine stereotypes may influence slightly which sports the students took part in outside of school that this was changing. He mentioned that girls were participating more often in sports such as handball and football, while boys were more visible in gymnastics.

The principal from School D believed that in some ways masculine and feminine stereotypes could influence student's participation in certain activities especially when they reached the upper grades and became increasingly self-aware. However he believed that students participated in everything that was offered to them. He gave as an example a recent school activity day where students were mixed together in all ages and the older students had to take on the role of being the caregiver of their groups. He was pleasantly surprised to see the male students take on the role of caregiver for the younger children in the group with no real realization that they were taking on that (more feminine) role. He explained that influences of masculine and feminine stereotypes were discussed as part of the school's curriculum. The teacher from School D felt that overall masculine and feminine stereotypes were not strongly influencing student's participation in certain activities. However he mentioned that while the girls were ready to

try all activities, the boy's maybe had a harder time with activities such as dance or yoga where they were perhaps more shy about participating. He furthermore believed that masculine and feminine stereotypes were starting to change and that the students found more and more that yoga and dance were for both genders. The teacher also mentioned that the male teachers in the school would not be likely to teach yoga or dance and that the female teachers were more likely to take on this responsibility.

Three out of the four principals interviewed felt that masculine and feminine stereotypes were influencing the participation of students within certain activities in physical education. All four of the principals stated that gender issues were discussed as part of their school curriculum. The question of whether or not masculine and feminine stereotypes influenced the participation of students prompted lengthy responses from the teachers. For example, three out of the four teachers found that masculine and feminine stereotypes somewhat influenced their students levels of participation. Those three teachers described the resistance of their male students to take part in activities such as yoga or dance. Two of those teachers found these incidents to be a useful opportunity to talk to their students about stereotypes and to encourage the male students to try something new. Both of these teachers were pleased at the end of the activity with how their male students had changed their attitude and participated in the activity. Alternatively, one teacher felt that the students' feelings of competency in activity had the greater influence on their level of participation than feminine and masculine stereotypes.

Equality in Physical Education

Principals and teachers were asked whether they believed girls and boys had equal access to physical education at their school, as well as whether or not the program was more targeted to the interests of boys.

The principal from School A felt that boys and girls had equal access to be active in physical education and at school in general. When asked if he felt that the physical education program favoured boys more he responded:

I don't know, we are trying to have our physical education teachers reach out to both genders, we are trying to think about this, but . . . I could look at this . . . we have not looked at it like this [the program from this angle].

The teacher from School A felt that students had equal opportunity to be active in physical education within the single sex environment. He explained that this environment was better for girls who were holding back when the

boys dominated the environment. He also felt that ability groupings could help activate both students who were practicing sport and those who were not. The teacher from school A felt that the physical education program was in general more targeted towards the interests of boys, but that girls who exhibited more masculine traits benefited from this.

The principal from School B felt that perhaps the school could be more conscious about whether or not boys and girls had equal opportunity to be active in physical education. He found that the program rewarded more often the strong and active boys and sometimes a few girls. In response to the question whether the physical education program favoured the interests of the boys he explained: "We [the school] are not meeting the interests of the girls enough, I think we need to handle this". The teacher from School B on the other hand felt that boys and girls had equal opportunity to be active in physical education because everyone was offered the same program. He also felt that the program at his school was not targeted more towards the interests of boys because of the variety in activity that was offered and that all students regardless of gender completed the same requirements.

The principal from School C felt that students had equal opportunity to be physically active in physical education and in other areas within the school. He felt however that the physical education environment did favour the interests of boys more. He explained that:

there are more girls that come here to me [to the principal's office], because of physical education, trying to get out of physical education, than there are boys . . . girls use often the excuse that they are on their periods, sometimes every week [that they approach him with this] . . . If the physical education teacher can create a program that is interesting for the kids, than the class will be more enjoyable and more likely that the kids will want to stay in the class.

The teacher from School C felt that at his school boys and girls had equal opportunity to be active. He felt that the program was for everyone. He stated: "It is not like the boys are working hard and the girls sit down after 15 minutes". He explained that both boys and girls were more likely to avoid participating in an activity because they had low confidence in their abilities. He added that in games where girls have complained about not wanting to participate, such as football, that they will separate genders and then the girls are more likely to join in.

The principal from School D felt that boys and girls had equal opportunity to be active in physical education and at school. He felt that this was because of changes during the last 5-10 years in regards to the female role models in sports and coverage of those role models in the media. The principal noted

that there were now many athletic role models for girls especially in football and gymnastics, as those programs in Iceland have been successful and receive media coverage. The principal was not sure whether or not their physical education program favoured more the interests of boys. He felt that it depended on the teachers and whether or not they were bringing in material that appealed to both genders. He also felt that perhaps it was a judgment of society to assume that girls were not receiving equal opportunity. He stated, “We [society] have already decided that girls do not have as much opportunity as boys, but I do not know if that is the reality”. The principal furthermore explained that there were many girls that wanted to compete with the boys, especially the athletic ones, and that until the 8th grade they were not behind the boys physically in any way. The teacher from School D felt that at his school boys and girls had equal opportunity to be active in physical education. He furthermore did not feel that the physical education program offered at his school favoured more the interests of boys. He explained that they tried to create a program that appealed to both genders and that because the most recent curriculum was very open, it included different goals to achieve, and it encouraged the school to have variety in their program.

Six out of the eight educators felt that both boys and girls in their school had equal opportunity to be physically active within physical education and within their school program. One educator felt that the school could perhaps become more conscious about whether or not the programs available did indeed provide equal access. Another educator pointed out that the girls had equal access to physical education when they were provided with single sex teaching environments. The question as to whether their physical education program was more targeted towards the interests of boys left the educators more divided on the issue. Two educators felt unsure whether or not their programs were more appealing to boys. At the same time, three educators felt that the program was appealing to both genders mostly because of the variety that was offered. On the other hand, three educators felt that the physical education program was not equally appealing to girls as it was to boys.

Treatment of Male and Female Students

The teachers were asked to explain how they handled teaching boys and girls differently. The teacher from School A explained “I need to handle them totally differently, I think it is really fun to be with the boys [teaching single sex], because they are straight forward, girls more often have some drama”. The teacher from School B explained that he needed to treat his male and female students differently. He explained that he had to be really kind to the girls, especially older students because they were at such a sensitive age, where they do not feel good and have low confidence. Moreover, that he

went as far as he could to reach out to those students. The teacher from School C explained that boys and girls were treated differently because they *are* different. He explained: “Boys are more rowdy and you need to control them more, girls hold back more and you have to try to encourage them. Of course you have to treat them differently because they are different”. The teacher from School D explained that perhaps he treated boys and girls differently without realizing it. He stated; “One tries to speak with them [the two genders] the same and we speak mostly to the group as a whole. Where there are both boys and girls, but the girls listen better, they are quieter than the boys. Furthermore he added, “when I first started teaching here . . . then I taught boys only, that was wonderful . . . they [the boys] did not whine . . . they were so positive”. Two of the teachers seemed to enjoy more teaching all-boys single sex groupings because the boys were more “straight forwards” and “did not whine”, while the girls were described as having “more drama”. At the same time, two of the teachers explained having to show concern to their female students in order to encourage them to take part.

6 Discussion

6.1 Effective Programs and Teaching

There was a general consensus among teachers and principals regarding the goals of their physical education program and what makes an effective physical education teacher. The teachers and principals all described the goals in a similar fashion. They emphasized graduating with a positive experience of physical activity, as well as experiencing a wide variety of activities in order to increase the likelihood that students will find an activity that they enjoy and therefore continue to be physically active. These goals fall in line with international research, which examines what physical education programs should include in order to be effective. For example, Rink and Hall (2008) indicate that effective programs are those, which offer a wide variety of physical activities in order to for students to acquire a variety of motor skills and increase their opportunity to enjoy movement. The teachers and principals in this study were furthermore similarly minded as to what makes an effective teacher. Every interviewee, with the exception of one, described being positive, kind, or showing the students individual concern, as being important characteristics of a physical education teacher. Another common theme appeared to be the use of variety, as well as the altering of activities in order to meet more individual needs, in order to be an effective teacher and to ensure that all students were active during class time. Rink and Hall's (2008) research similarly emphasized the importance of reaching out to the individual student. They found the following to be central to teaching individuals: the importance of the teachers' ability to motivate and challenge students at level-appropriate tasks; to teach the students to use their own improvement as a measure of success, rather than comparing themselves to others; and to provide students with quality feedback and positive reinforcement. The importance of variety as a characteristic of effective teaching is also reflected in the research. For example, Kirby et al. (2011) suggested that offering girls in particular more variety of activity choices allowed them more freedom to choose an activity or sport in which they felt confident and would therefore increase their likelihood of participation and level of physical activity.

While the teachers and principals had similar ideas about the goals of their physical education program and instruction, they had different views concerning the effectiveness of the program. Three out of the four teachers

answered positively about their abilities to motivate students towards future physical activity, whereas, all four principals seemed unsure about whether or not their program was able to reach out to all individuals. While the teachers have a more hands on classroom experience of working with their students, the principals have a different perspective, a more general view of the students as a whole; the different perspective could affect their opinions as to whether or not they viewed the program as effective.

The teachers and principals all understood that Icelandic children are not reaching the 60 minutes of recommended daily physical activity. Furthermore, every educator interviewed agreed that an increase in the amount of physical activity provided in the school would be beneficial. Fairclough and Stratton (2005) argue that children would benefit from daily physical education because it increases the likelihood that they will reach their daily recommendations for physical activity. Moreover, Dale, Corbin and Dale (2000), support that argument with their findings:

That third and fourth graders were significantly more active on days when they attended physical education class compared to non-physical education days. Furthermore, this study demonstrated how children did not compensate after school or in the evenings when school-based activity, such as physical education, was restricted (p.240).

Kirby et al. (2011) similarly found in their study of physical activity levels in girls that the strongest predictor of physical activity was total amount of time spent in physical education. Therefore, the argument that children are more active on days when they receive physical education and that physical education is a precursor to physical activity makes a strong case for providing more physical education in school.

6.2 Single Sex vs. Coed Physical Education

The arrangement of the physical education programs examined in this study reflected that which Stefánsson (2010) found in his examination of Icelandic elementary schools; that is, no two schools were alike. Within this current study, with the exception of swimming, three schools offered coed physical education classes only. However, within their own classes the teachers would often divide students into single sex groupings. The age or situation in which the teachers separated their students by gender depended on the school and the teacher. For example, School D offered single sex physical education once a week starting at the 8th grade. The schools in Stefánsson's study also demonstrated a combination of different teaching environments. He found combinations of coed and single sex teaching, coed and occasional single sex

teaching and coed only teaching environments. Iceland's current physical education curriculum does not dictate what type of environment (coed or single sex) is optimal for teaching (Ministry of Education, 2007). Schools therefore have no guidelines to make decisions in this area. Within the schools examined in this study the principals as well as the department heads dictated the physical education schedule and classroom makeup. Although the principals had some familiarity with research regarding coed and single sex teaching environments, none of the principals were familiar with any research on this topic within physical education. There is therefore a gap in knowledge and education among principals regarding the effectiveness or how and when to use coed and single sex teaching environments in physical education. As they have no guidelines to work from, the principals used only their own experience or that of their physical education teachers to make decisions regarding the arrangement of their physical education programs.

Only one of the four teachers was familiar with research regarding single sex and coed teaching environments. The opinions observed in this study from the majority of teachers are therefore entirely experience based. Based on this experience, all four teachers found that it was easier to activate girls in a single sex teaching environment, specifically, when taking part in more activities more physical in nature and in the upper grades. They were unanimous that this was especially important for girls (rather than boys) who displayed more shyness or were less athletically inclined. The teachers indicated that the less athletically inclined girls were more likely to "hold back", display signs of physical self consciousness, or "be passive" when taking part in physical coed activities (such as team ball sports). Stefánsson (2010) found that the three elementary teachers interviewed in his study also indicated that girls tended to be less active during coed experiences of sport, which were physical in nature specifically, in the upper grades. Similarly, the teachers interviewed in the Derry (2002) study observed that female students (ages 12-15), specifically those that were less athletically inclined, were more likely to display signs of shyness and intimidation and were less likely to participate in coed groupings. Derry found that 80% of the elementary school teachers interviewed preferred a single sex teaching environment, specifically to allow less athletically inclined girls a greater chance to participate. The Pearson and Web (2010) study also concurred that elementary school teachers found single sex environments preferable for increasing the physical activity levels among girls, especially during contact sports such as soccer, hockey or basketball.

The teachers interviewed in this study had various opinions as to the benefits or drawbacks that the single sex environment had on boys. One teacher found that in the upper grades, boys could display signs of self consciousness and feel embarrassed showing any incompetency to the girls

in the coed environment and so a single sex environment would be preferable. Another teacher found the single sex environment also beneficial for boys because of a tendency to hold back, “not want to run over girls”. He also found that less athletically inclined boys would benefit from a single sex environment because they would not have to display any incompetency to the girls (in the upper grades). One teacher found that boys who were less athletically inclined or overweight, would struggle in either environment; but that more athletic boys would benefit from a single sex environment because “they would be working at a faster pace”. Another teacher found that boys who were “calm”, or less athletically inclined could benefit from being around girls with similar attributes and could struggle in a single sex environment. The study by Wilson (2010), found that both boys and girls performed better on physical tests in single sex groupings and the author theorized that feeling more comfortable in a single sex environment allowed the students to exert themselves more fully than in the coed environment. However, Wilson also found that the single sex environment affected the attitudes of the students. He found that boys who participated in a coed environment had significantly more positive attitudes towards girls’ participation in sports than did boys in the single sex environment. Pearson and Web (2010) found overall teachers favoured a single sex environment for boys because they would have more competition from other boys. The teachers in the Pearson and Web study indicated that within the single sex environment both girls and boys whom are less athletically inclined would feel intimidated by their more dominant peers; they also indicated however that the less athletically boys would feel incompetent compared to girls with higher athletic ability in a coed environment. Which environment is best for the male as compared to the female students, specifically those of lower athletic ability, seems to be more debatable in the eyes of educators.

It was unanimous among the educators interviewed in this study that it was useful to have a mix of both coed and single sex teaching environments. The majority of teachers felt that the single sex teaching should be emphasized in the upper grades. During the interviews six out of the eight educators mentioned the importance of social factors within the coed environment. They indicated that students benefited from being with the opposite gender because: they could learn from each other, it was “fun” to have them together, it gave the classes a chance to bond, and it helped break down masculine and feminine social barriers. As mentioned above, Wilson (2010) found that boys who participated in a coed environment had a more positive outlook of their female peers than the boys who participated in a single sex environment. Furthermore, Ronspies (2011) found that the majority of students that he interviewed wanted coed physical education in order to have social time to “show off” or make friends. All four of the teachers in this study often took part in team teaching which enabled them to

split the groups into the divisions they felt were appropriate and were able to use single sex or coed groupings where they saw it as necessary. The Greenwood and Stillwell (1999) study argued for the use of both single sex and coed environments based on the interests of children. Upon interviewing 750 middle school children, they found that girls and boys had dissimilar interests, for example, boys liked wrestling and girls liked tennis and it could be appropriate therefore to separate them. Conversely, Greenwood and Stillwell also found that girls and boys enjoyed similar activities, such as cycling, and it could therefore be appropriate to have them together for activities of similar interests.

6.3 Gender Issues

Three out of the four principals interviewed felt that masculine and feminine stereotypes were influencing the participation of students in certain activities in physical education. All four of the principals explained that gender issues were discussed with students as part of their school curriculum. For example, one principal emphasized the importance of boys and girls participating in different types of activities to learn that certain activities are not for boys or girls, but could be participated in by everyone. Three out of the four teachers found that masculine and feminine stereotypes somewhat influenced their students' levels of participation. Those three teachers described more resistance on the part of their male students to taking part in activities such as yoga or dance. The teachers furthermore found this to be a valuable opportunity to discuss stereotypes during class time. The NSW Education Department (1999-2011b) makes practical recommendations to help improve rates of physical activity amongst girls, improve equality, and reduce sexism within the teaching environment. Among other things, the NSW Education Department encourages schools to discuss with students the construction of masculinity and femininity in sport as a component of their physical education program. It appears that the opportunity to discuss socially constructed stereotypes during class time is critical to helping break down social barriers (which effect choices of boys and girls) in physical education.

Six out of the eight educators interviewed found that boys and girls within their schools were provided with equal access to physical education. One principal responded that they should look into whether or not their program was providing equal access and another teacher responded that he felt there was equal access when the students were provided with single sex environments. In Western society, single sex physical education was the norm in schools until the late 20th century (source). Laws about education and gender equality, for example Title IX in the United States (Title IX, 2013), and societal changes led to the physical education environment

becoming, for the most part, a coed one (Ronspies, 2011). Having boys and girls take part in physical education together and completing the same programs meant that all students had equal access to the same education. It is therefore no surprise that the majority of the educators interviewed in this study feel that the access to physical education is equal.

Alternatively, it has been argued that girls are disadvantaged in the coed environment not just because of physical strength or ability but because the physical education environment and program has been masculinized since its beginning. Keay (2007) argues that male educators led the way to many changes in physical education during the post world war II era, by for example, increasing the number of competitive sports within the program. According to Keay, female physical education teachers followed these changes in order to increase the equality in their program by matching the girls' program to that which the boys were being offered. Furthermore Keay argues that this masculinized physical education environment has changed very little over the years because educators feel pressured to keep the environment the same. Although the educators in this study mostly agreed that their students had equal access to physical education, they were not of like mind when asked whether or not the program masculinized. Two of the educators answered that they were unsure whether their program was targeted towards the interests of boys. Three educators found that their program was appealing to both genders because of the high degree of variety of activity offered. At the same time, three educators found that their physical education was more appealing to boys. For example, one principal explained that more girls than boys would come to his office with excuses, trying to get out of physical education, sometimes on a weekly basis. This gave him the idea that perhaps the physical education program was not as interesting for girls.

Within this part of the interview and at other times, a theme that arose from some of the educators concerned the more athletically inclined girls. The educators indicated that these more athletic girls in particular were rewarded for their skills in the physical education program, that the program was perhaps more suited to them, and that the girls themselves enjoyed the challenge of the coed environment. The Derry (2002) findings agree with the observations of the teachers in this study. For example, in the Derry study students were interviewed regarding which type of classroom environment they preferred, single sex or coed, the majority of girls who responded in favour of coed classes had rated themselves as highly capable athletes. Derry also found that the teachers she interviewed observed their highly skilled female students as more social and active in coed classes than their lesser skilled peers. In addition, Pearson and Webb (2010) argue that in order for girls to be seen as capable in sports or to claim respect from their male

classmates, they need to achieve the same level of performance as the boys. This can be seen as related to Keay's (2007) argument that last century's adaptation to the more masculine physical education program renders girls "powerless". Keay (2007) argues that, it is essential while achieving high levels of performance, that the girl must maintain her femininity or else be met with criticism from society.

Keay (2007) suggests that because girls have lowered levels of physical activity during adolescence and their attitudes towards physical education become more negative, they are often seen as the problem, instead of the way in which they are being taught. The teachers in this study were asked to describe how they treated boys and girls differently. Three out of four were aware that they treated their male and female students differently. Two of the four teachers indicated that they enjoyed teaching single sex boys classes or groupings; making comments such as the boys were more "straight forward" and "did not whine", and that the girls had "more drama" to deal with. Two of the teachers also explained that they found they needed to encourage the girls to take part or show them more individual concern. Similarly, other research has shown that teachers in physical education often treat male and female students differently. For example, Wright (1997) observed that in coed classes, girls developed more inter-personal relationships with their teachers, which often seemed to be facilitated or encouraged by the teacher. Conversely, Wright observed that boys in the coed classes received more simple instructions, which were task oriented, and they were also subject to quicker and more frequent discipline. As another example, Rich (2007) interviewed six female physical education teachers and found that the goals of those teachers were to encourage and motivate girls into more sports and physical education participation. The teachers in the Rich study believed that changing the girls' attitudes about sport and physical education was the key factor, not changing the physical education environment. It is of course a natural instinct on the part of the physical education teachers to want to encourage and motivate their less active female students to increase their levels of participation. Perhaps though, as Fairclough and Stratton (2005) argue, there would be value in understanding the perception of the girls in order to increase their enjoyment of physical activity during lessons and help them understand the relevance of physical education.

7 Conclusion

Physical education school programs internationally and in Iceland are designed to provide students with physical activity and give them the tools they need to engage in lifelong physical activity. If physical activity decreases in adolescence and girls are less active than boys overall, then the effectiveness of physical education as well as the experience of girls requires investigation. It was the research goal of this paper to explore current beliefs about the effectiveness and value of physical education, gender issues within the physical education system, as well as the value of coed and same sex physical education in Akureyri, Iceland.

It can be considered a positive reflection on the schools that the educators interviewed in this study all had similar, if not identical goals for their physical education programs as well as, what it meant to be an effective physical education teacher. There was a general emphasis that students should have a positive experience of physical activity, experience a variety of physical activities; and that an effective teacher pays attention to individuals and meets individual needs. The teachers in this study found they were better able to meet the individual needs of their students through the flexibility they had in their teaching environment; and were unanimous that the use of both single sex and coed environments was useful. For example, the teachers in this study found that by using single sex groupings, they were better able to activate less athletically inclined girls in the upper grades, specifically during activities that were more physical in nature. The teachers were not in complete consensus as to whether this separation was beneficial for boys; however most felt that the boys could benefit from the opportunity to be more active in the single sex environment.

Classroom experience is an undeniably valuable tool for helping teachers to plan what they feel is the most effective education program or teaching environment. However, it was surprising to learn that so few of the educators had read literature regarding single sex and coed environments; and it seemed that any research the educator had examined on the topic was because of their own personal interest and not through formal education. It can be argued that, as the use of single sex and coed teaching environments is a relevant part of physical education, all of the educators in this study or elsewhere would benefit from the opportunity to receive formal education regarding the use of the single sex and coed teaching environments, in order to learn about the most effective situations in which to implement them.

Although all educators had similar goals for their physical education programs, there was no consensus as to whether or not their physical education programs were meeting those goals. Furthermore, although the majority of educators believed that their physical education program allowed equal access to male and female students, many of the educators believed that masculine and feminine stereotypes influenced the levels or participation in students in certain activities, and some of the educators felt that their programs may be more targeted towards male students or were unsure whether their programs effectively met the needs of both genders. However, on a positive note, it was obvious that many of the educators felt that the influences of these masculine and feminine stereotypes were not as prominent as they once were. In addition, the educators seemed to feel that they were able to handle discussions of masculine and feminine stereotypes when they arose. It was also positive that the teachers found overall, that the variety of activity, the opportunity for individualized teaching, as well as the ability to group their students as they saw appropriate, encouraged more overall participation.

It seems that the participation of girls during physical sports can be increased during single sex groupings; which perhaps indicates that participation itself in more physical sports by girls is not as taboo as it once was. Conversely, as pointed out during the study by several educators, it was the boys who often resisted participation in more feminine activities. It would be interesting to look at whether an increase of activities such as dance, gymnastics or yoga during the early grades would have a positive effect on the outlook of male students as they continue through the school system.

Although this study was small in size, it offered many interesting insights as to how effective educators see their programs, the different ways in which teachers are motivating students and the many gender issues which have improved or which still impact current teaching methods. It is the main conclusion of this study that if the schools within this study or elsewhere want to meet the goals of their physical education programs, and help decrease the gender gap that is evident in physical activity during adolescence, perhaps then they need to look at whether their programs are truly meeting the needs of both genders. Further studies could include reaching out to the students themselves, in order to learn about their interests, how they feel about physical education programs, different ways to motivate them, and subsequently implementing change.

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Appendix 1 Teachers' Interview Template English and Icelandic

English Template

School Program:

- Which grades are you currently teaching
- How long have you been a teacher?
- What experience do you have teaching single sex and coed physical education?
- How many physical education classes do students receive per week at your school?
- How are those classes split? Are boys and girls separated? Which grades specifically does this effect?
- How is the physical education program set up/managed? Who makes the decisions concerning the schedule?
- Why is the physical education program set up the way it is? What is the thinking behind this?
- What would you say the goals of your physical education program are for students? For example, what do you want them to graduate with knowledge/experience of?
- Would you include daily physical education into your school program if you could? What kinds of barriers prevent that from happening?
- Do you feel that your physical education program motivates students to be active after graduating from your school and for life? How so?

Health:

- Are you aware that 2/3's of children in Iceland do not meet the recommended 60 minutes of physical activity daily?

- Is your school concerned about lack of physical activity and is the school taking any initiatives to help promote physical activity or improve this?
- Do you notice a decline in physical activities levels as students reach adolescents? In what way does that present itself? Is there anything the school is doing to promote physical activity in this age group specifically?

Effective Physical Education:

- What kinds of steps are taken to ensure that all students are active?
- What do you feel makes an effective physical education teacher?
- What kind of bullying/teasing happens in physical education classes? Are less skilled boys and girls often victims of teasing? Do you notice these effects their level of engagement in class?
- Have you noticed that girls in general are teased more?
- Do you see more skilled children enjoying physical education classes more?
- Do you feel that providing a greater variety of activities in physical education is necessary in getting all students active, specifically girls?

Gender issues:

- Do you see evidence in your classes that some children feel that it is not appropriate for them in certain activities because they are too “masculine” or “feminine”? What activities are they?
- Do you think ideas of masculinity and femininity in sports effects their decision to enroll in sports associations outside of school?
- Is there anything you do to teach children the level of masculinity or femininity in a sport is socially constructed?

- Do you feel you need to treat boys and girls differently in physical education? How so?
- Do you feel that boys and girls are given equal access to be physically active in physical education and other opportunities at school such as recess?
- Do you feel the physical education environment in general favors boys more? Or is more masculinized? How so?
- Do you feel that girls need to “play like boys” in order to be considered skillful in sports?

Single sex vs. coed:

- Do you find girls physically self conscious in coed?
- Do you find less athletically inclined girls more shy in coed; do they take less part in activities?
- Do you feel that girls are more comfortable in a single sex environment? How so?
- Do you feel that boys are more comfortable in a single sex environment? How so?
- Is there one type of environment that you feel requires more behavior management?
- Are there some situations that you feel would be more appropriate for single sex or coed teaching, what are they? Does age of the student affect this?
- Do you think lesser skilled boys and girls have a more difficult time in one type of environment or another?
- What do you think the social consequences are for single sex or coed environments?
- Have you read any studies concerning the different environments

- Do you feel that the program could be changed to benefit all students better, regardless of gender or level of ability?
- What would be your ideal set up of a physical education program?

Icelandic Template

School Program:

- Hvaða aldri/bekkjum kennir þú núna?
- Hvað ert þú búin/n að kenna lengi?
- Hefur þú reynslu af því að kenna bæði kynjaskiptum íþróttatímum og blönduðum?
- Hversu margar kennslustundir í íþróttum fær hver nemandi á viku?
- Hvernig er íþróttatímunum skipt? Eru stelpur og strákar saman í tímum eða í sitthvoru lagi?
- Hver sér um að setja upp íþróttakennsluna og hver stjórnar því hvernig henna er háttað? Hver er það sem tekur ákvarðanir í sambandi við stundatöfluna og skipulagið? Hvernig er þetta ferli?
- Hvers vegna er íþróttakennslan skipulögð á þennan tiltekna hátt? Hver er hugmyndafræðin á bak við það?
- Hver eru markmið skipulagsins ykkar í íþróttakennslunni fyrir nemendur? Hvaða þekkingu/reynslu eruð þið að vonast eftir að nemendur ykkar hafi að loknu námi?
- Mynduð þið hafa einhverskonar íþróttakennslu á hverjum degi ef það væri mögulegt? Hvaða hindranir eru til staðar sem koma í veg fyrir það?
- Finnst þér að íþróttakennslan ykkar stuðli/hvetji nemendur ykkar til að hreyfa sig þegar út lífið er komið? Ef svo er þá hvernig?

Health:

- Eru kennarar skólans þíns meðvitaðir um að 2/3 af íslenskum börnum ná ekki 60 mínútum af ráðlagði daglegri hreyfingu?
- Er _____ skóli með áhyggjur af þessu? Er skólinn að gera eitthvað (prógram eða frumkvæði) til að hvetja nemendur til að vera meira líkamlega virkir?
- Tekur þú eftir því að nemendur eru minna líkamlega virkir á unglingsaldri. Hvernig er það sýnilegt? Er eitthvað gert í þínum skóla sérstaklega fyrir þennan aldurshóp?

Effective PE:

- Hvaða skref eru tekin í íþróttatíma til að tryggja að allir nemendur hreyfi sig eitthvað?
- Hvað finnst þér að geri íþróttakennara að góðum íþróttakennara (aðalatriði)?
- Er einelti til staðar í íþróttatímum? Ef svo er hvernig birtist það? Eru þeir sem hafa minni hæfileika í íþróttum oftar fórnarlömb eineltis eða strítt oftari? Finnst þér það trufla þátttöku þeirra í íþróttatímum?
- Hefur þú tekið eftir því að stelpum sé strítt meira en stráku?
- Finnst þér að nemendur sem hafa meiri íþróttahæfileika njóti sín betur í íþróttatímum?
- Telur þú að aukin fjölbreytni í íþróttatímum sé nauðsynleg til að fá alla nemendur til að taka þátt og þá sérstaklega stelpur?

Gender issues:

- Tekur þú eftir því í íþróttatímum hjá þér að nemendur telji að tiltekna æfingar séu ekki við hæfi vegna þess að þær séu of "karlmannlegar" eða "kvenlegar"? Hvaða æfingar gætu það verið?
- Heldur þú að hugmyndir um karlmennsku og kvenleika í íþróttum hafa áhrif á ákvörðun nemenda að skrá sig í íþróttafélög utan skóla?

- Er eitthvað sem þú gerir til að kenna börnum hvernig hugmyndir um karlmennsku eða kvenleika íþróttum eru félagslega smíðaðar (til dæmis með umræðum)?
- Finnst þér að þú þurfir að koma öðruvísi fram við stráka og stelpur í íþróttatímum?
- Finnst þér að strákum og stelpum séu gefin jöfn tækifæri til að vera líkamlega virk í íþróttum og í öðrum tímum í skólanum, eins og í frímínútum?
- Heldur þú að íþróttkennsla höfði meira til stráka? Eða sé “karlmannlegri”? Ef svo er, þá hvernig?
- Finnst þér að stelpur þurfi að “spila eins og strákar” til að ná góðum árangri í íþróttum?

Single sex vs. coed:

- Finnst þér stelpur vera meðvitaðari um líkama sinn blönduðum íþróttatímum?
- Finnst þér að stelpur með minni íþróttahæfileika vera feimnari í blönduðum tímum? Er þáttaka þeirra minni?
- Finnst þér að stelpur séu öruggari í kynjaskiptum íþróttatímum? Ef svo er hvernig þá?
- Finnst þér að strákar séu öruggari í kynjaskiptum tímum? Ef svo er hvernig þá?
- Þarf meiri agastjórnun í kynjaskiptum tímum eða blönduðum tímum?
- Eru sumar æfingar eða tímar sem þér finnst að henti betur að hafa kynjaskipta eða blandaða kennslu? Getur aldur skipt máli hvort henti betur?
- Eiga strákar eða stelpur sem hafa minni íþróttahæfileika erfiðara með að vera í kynjaskiptum tímum eða blönduðum tímum?

- Hvaða félagsleg áhrif heldur þú að kynjaskiptir eða blandaðir tímar hafi?
- Hefur þú lesið einhverjar rannsóknir um mismunandi umhverfi í íþróttakennslunni (kynjaskipt/blandað)? Ef svo er hvað finnst þér?
- Telur þú hægt sé að breyta íþróttatímum/kennslunni til að gagnast öllum nemendum betur, óháð kyni eða hversu hæfir þeir eru?
- Hvernig myndi draumauppsetningin þín líta út?

Appendix 2 Principals' Interview Template English and Icelandic

English Template

School Program:

- How long have you been school principal? What is your previous teaching experience?
- How many physical education classes do students receive per week?
- How are those classes split? Are boys and girls separated? Which grades specifically does this effect?
- How is the physical education program set up/managed? Who makes the decisions concerning the schedule?
- Why is the physical education program set up the way it is? What is the thinking behind this?
- What would you say the goals of your physical education program are for students? What do you want them to graduate with knowledge/experience of?
- Would you include daily physical education into your school program if you could? What kinds of barriers prevent that from happening?
- Do you feel that your physical education program motivates students to be active after graduating from your school and for life? How so?
- Do you feel that physical education is critical part of the school program because it can have positive academic benefits? What would you say those benefits are?
- What do you feel makes an effective physical education teacher?

Health:

- Are you aware that 2/3's of children in Iceland do not meet the recommended 60 minutes of physical activity daily?

- Is your school concerned about lack of physical activity and is the school taking any initiatives to help promote physical activity or improve this?
- Do you notice a decline in physical activities levels as students reach adolescents? In what way does that present itself? Is there anything the school is doing to promote physical activity in this age group specifically?

Gender Issues:

- Are you aware of the potential benefits of single sex vs. coed teaching environments?
- Have you read any studies concerning the different environments
- Do you see evidence in your students that some children feel that it is not appropriate for them in certain activities because they are too “masculine” or “feminine”? What activities are they?
- Do you think ideas of masculinity and femininity in sports effects their decision to enroll in sports associations outside of school?
- Is there anything you do to teach children about construction of masculinities and femininities?
- Do you feel that boys and girls are given equal access to be physically active in physical education and other opportunities at school such as recess?
- Do you feel the physical education environment in general favors boys more? Or is more masculinized? How so?
- What do you feel would be the idealized set up your physical education program concerning single sex vs. coed teaching environments?

Icelandic Template

School Program:

- Hvað ert þú búin(n) að vera skólastjóri lengi? Hvaða fag kenndir þú áður?
- Hversu margar kennslustundir í íþróttum fær hver nemandi á viku?
- Hvernig er íþróttatímunum skipt? Eru stelpur og strákar saman í tímum eða í sitthvoru lagi?
- Hver sér um að setja upp íþróttakennsluna og hver stjórnar því? Hver er það sem tekur ákvarðanir í sambandi við stundatöfluna og skipulagið? Hvernig er þetta ferli?
- Hvers vegna er íþróttakennslan skipulögð á þennan tiltekna hátt? Hver er hugmyndafræðin á bak við það?
- Hver eru markmið skipulagsins ykkar í íþróttakennslunni fyrir nemendur? Hvaða þekkingu/reynslu eruð þið að vonast eftir að nemendur ykkar hafi að loknu námi?
- Mynduð þið hafa einhverskonar íþróttakennslu á hverjum degi ef það væri mögulegt? Hvaða hindranir eru til staðar sem koma í veg fyrir það?
- Finnst þér að íþróttakennslan ykkar stuðli/hvetji nemendur ykkar til að hreyfa sig þegar út lífið er komið? Ef svo er þá hvernig?
- Finnst þér íþróttakennsla vera nausynleg fyrir nemendur í skólanum? Telur þú að íþróttir geti haft jákvæð áhrif á menntun? Með hvaða hætti?
- Hvað finnst þér að geri íþróttakennara að góðum íþróttakennara (aðalatriði)?

Health:

- Eru kennarar skólans þíns meðvitaðir um að 2/3 af íslenskum börnum ná ekki 60 mínútum af ráðlagði daglegri hreyfingu?

- Er _____ skóli með áhyggjur af þessu? Er skólinn að gera eitthvað (prógram eða frumkvæði) til að hvetja nemendur til að vera meira líkamlega virkir?
- Tekur þú eftir því að nemendur eru minna líkamlega virkir á unglingsaldri. Hvernig er það sýnilegt? Er eitthvað gert í þínum skóla sérstaklega fyrir þetta aldurstig?

Gender Issues:

- Finnst þér vera hugsanlegur ávinningur af því að kenna íþróttir kynjaskipt? En bæði kyn saman?
- Hefur þú lesið einhverjar rannsóknir um mismunandi umhverfi í íþróttakennslunni (kynjaskipt/blandað)? Ef svo er hvað finnst þér?
- Tekur þú eftir því að nemendur telji að tiltekin verkefni í almennum kennslustundum séu ekki við hæfi vegna þess að þau séu of "karlmannleg" eða "kvenleg"?
- Finnst þér hugmyndir um karlmennsku og kvenleika í íþróttum hafa áhrif á ákvörðun nemenda að skrá sig í íþróttafélög utan skóla?
- Er eitthvað sem skólinn gerir til að kenna börnum hvernig hugmyndir um karlmennsku eða kvenleika íþróttum eru félagslega smíðaðar (til dæmis með umræðum)?
- Finnst þér að strákum og stelpum séu gefin jöfn tækifæri til að vera líkamlega virk í íþróttum og í öðrum tímum í skólanum eins og í frímínútum?
- Finnst þér að íþróttkennsla höfði meira til stráka? Eða séu "karlmannlegri"? Ef svo er þá hvernig?
- Hvernig myndi draumauppsetningin þín líta út?