

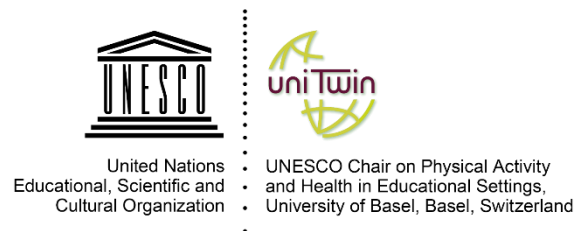
Lena Rösli, Basel, Switzerland

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Department of Sport, Exercise and Health

University of Basel, Switzerland



Systematic review on the correlation between progress in Physical Education and gender-based structures

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Abstract

Gender inequality persists worldwide in our society, often hidden behind unrecognized barriers and obstacles. Stereotypical gender roles and societal expectations reinforce inequality, affecting access to education and employment opportunities. Addressing the complex nature of this issue requires challenging the social norms and cultural expectations that perpetuate gender stereotypes and inequality. Various studies highlight the decline in physical activity among adolescents, with notable differences between boys and girls. Promoting physical activity and gender equality in Physical Education becomes crucial to ensure equal opportunities for all students. By fostering inclusive environments that encourage participation and success, Physical Education can break down gender biases and limitations, paving the way for a healthier and more equitable society. This bachelor thesis analyses qualitative and quantitative studies, along with literature reviews, to underscore the benefits of well-implemented sports programs in education. It aims to address key questions regarding the manifestation of gender-based structures within Physical Education and their influence on equitable access to physical activity opportunities.

The analysis further identifies challenges in implementing and maintaining successful sports programs, including student motivation, teacher education, and the consideration of alternative forms of Physical Education to ensure long-term sustainability. For an equal form of education provides opportunities for the development of essential life skills and abilities, free from the constraints of gender structures. By prioritizing gender equality and promoting physical activity in Physical Education, we can foster a culture of respect, inclusivity, and overall well-being. This research underscores the significance of addressing gender disparities in education, identifies the structures in which they are found and offers propositions for creating effective sports programs that empower young people to thrive beyond gender-based limitations.

Zusammenfassung

Die Ungleichheit zwischen den Geschlechtern besteht Weltweit in unserer Gesellschaft fort, oft versteckt hinter unsichtbaren Barrieren und Hindernissen. Stereotype Geschlechterrollen und gesellschaftliche Erwartungen verstärken die Ungleichheit und beeinträchtigen den Zugang zu Bildung und Beschäftigungschancen. Um die Komplexität dieses Themas anzugehen, müssen die sozialen Normen und kulturellen Erwartungen, die Geschlechterstereotypen und Ungleichheit aufrechterhalten, in Frage gestellt werden. Verschiedene Studien weisen auf den Rückgang der körperlichen Aktivität unter Jugendlichen hin, wobei es deutliche Unterschiede zwischen Jungen und Mädchen gibt. Die Förderung der körperlichen Aktivität und der Gleichstellung der Geschlechter im Sportunterricht ist von entscheidender Bedeutung, um die Chancengleichheit für alle Schüler zu gewährleisten. Durch die Förderung eines integrativen Umfelds, das zur Teilnahme und zum Erfolg ermutigt, kann der Sportunterricht geschlechtsspezifische Vorurteile und Einschränkungen abbauen und den Weg für eine 'gesündere' und 'gerechtere' Gesellschaft ebnen. In dieser Bachelorarbeit werden qualitative und quantitative Studien sowie Literaturstudien analysiert, um die Vorteile gut umgesetzter Sportprogramme im Bildungswesen zu unterstreichen. Diese Arbeit zielt darauf ab, Schlüsselfragen bezüglich der Manifestation von geschlechtsspezifischen Strukturen im Sportunterricht und deren Einfluss auf den gleichberechtigten Zugang zu Bewegungsangeboten zu klären.

Die Analyse zeigt die Herausforderungen bei der Umsetzung und Aufrechterhaltung erfolgreicher Sportprogramme auf, darunter die Motivation der Schüler, die Ausbildung der Lehrer und die Berücksichtigung alternativer Formen des Sportunterrichts, um eine langfristige, nachhaltige Auseinandersetzung mit körperlicher Aktivität zu gewährleisten. Eine gleichberechtigte Form der Bildung bietet letztendlich Chancen für die Entwicklung grundlegender Lebenskompetenzen und -fähigkeiten, frei von den Zwängen der Geschlechterstruktur. Indem wir der Gleichstellung der Geschlechter und der Förderung körperlicher Aktivität im Sportunterricht Vorrang einräumen, können wir eine Kultur des Respekts, der Inklusion und des allgemeinen Wohlbefindens fördern. Diese Bachelorarbeit unterstreicht die Bedeutung der Auseinandersetzung mit geschlechtsspezifischen Ungleichheiten im Bildungswesen, zeigt die Strukturen auf, in denen sie zu finden sind, und bietet Vorschläge für die Schaffung wirksamer Sportprogramme, die junge Menschen befähigen, sich über geschlechtsspezifische Beschränkungen hinweg zu entwickeln und langfristig für Sport zu begeistern.

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List of Abbreviations

LPA	light activity level
MPA	moderate physical activity
MVPA	moderate and vigorous activity
PA	physical activity
WHO	World Health Organisation
PE	Physical Education
SPA	sedentary physical activity
VPA	vigorous physical activity

1 Introduction

This bachelor thesis addresses the question of where and how gender-based structures occur in Physical Education, and how they influence the progress of participants. Through a systematic review, current studies on this topic are searched, analysed and synthesized. The findings are documented for further research to help promote a healthy and sustainable society for all – regardless of gender.

*"Gender equity in sports is not a women's issue, it's a human rights issue."
- Pat Griffin*

1.1 Gender

The biological and physiological characteristics that define males and females is referred to as sex. Sex includes differences in reproductive organs, chromosomes, hormones, and other physical and physiological traits. Gender, on the other hand, refers to the social and cultural roles, behaviours, and expectations associated with being male or female. While sex is typically assigned at birth, based on biological characteristics, gender is a social construct that can vary across different cultures and societies. Therefore, sex and gender are related but distinct concepts. "Gender involves the normative cultural performance of traditional notions of sex roles associated with masculinity and femininity as reflected to dress, hairstyle, speech patterns, hobbies, career choice, and so on." (Milner, 2016, p. 3) The fact that gender is a constructed concept, rather than a physical or physiological trait is made visible by the fact that the performance of traditional notions of sex are in spatial and temporal flux. (Milner, 2016)

1.2 Education

Education refers to the process of acquiring knowledge, skills, values, and attitudes through various forms of learning, such as schooling, training, and personal experience. (Schneider, 2013) It is important to note, that education is a fundamental human right and plays a crucial role in personal development, social mobility, and economic growth. Education has a significant impact on individual and societal development. It can improve employability, income, health outcomes, and social cohesion. Education can also promote critical thinking, creativity, and innovation, which are essential for addressing complex global challenges. Therefore, ensuring access to quality education for all is crucial for building a sustainable and equitable future of our society. (UNESCO-UNEVOC, 2023)

1.3 Progress

After the Cambridge dictionary, progress can be defined as the movement to an improved or more developed state - to a forward position. Like gender, progress is a complex term, that implies movement, change, and activity, and is therefore dynamic. (Cambridge Dictionary, 2023)

Considering this definition and the aims of the different Physical Education Physical Education curricula to be mentioned in *Chapter 2.1*, the definition of progress in Physical Education can be as follows:

1. What aims at lasting engagement and is therefore sustainable.
2. Ensuring equity in terms of participation and success. (Milner, 2016)

2 State of Research

Many agree that sports and its societal benefits are vast. In many countries sports promotion via Physical Education is politically recognized and legally anchored. This political and legal reinforcement does not derive from nowhere. The consequences of physical inactivity are serious. Physical inactivity is a significant contributor to global mortality rates. According to the World Health Organization (WHO), it is estimated that physical inactivity is responsible for around 3.2 million deaths each year worldwide. This makes physical inactivity one of the leading risk factors for non-communicable diseases such as heart disease, stroke, diabetes, and certain types of cancer. (World Health Organization, 2012.) It has further been found, that skills including self-reflection, independence, cooperation, conflict resolution, and dealing with diversity can be developed and ameliorated through physical activity in Physical Education. (Pan et al., 2019) These findings contrast with the fact that the amount of physical activity among adolescents decreases with increasing age. (Moser et al., 2015) Providing all young people with access to improving these competencies and to encourage them to engage with themselves sustainably through sports and physical activities is instrumental in granting lifelong access to a healthy lifestyle. (Niederkofler et al., 2015)

The state of research on the correlation between progress in Physical Education and gender-based structures is complex and evolving. Despite the abundance of articles, essays, and political statements regarding the fundamental need for progress towards gender equality, there are very few studies on this topic. While objectively measured accelerometry data from multiple continents show that among 5–17-year-olds, only 9% of boys and 1.9% of girls achieved the recommended 60 min of moderate-to-vigorous activity (MVPA) (Cooper et al., 2015), the existing studies in this field are still limited. There has been a noticeable increase in the interest in this topic since 2014, according to the statistics of PubMed. Interventions aimed at promoting gender equity can help to close gender gaps and improve outcomes for all students. Recent suggestions for "Innovative methods to analyse the impact of gender norms on adolescent health using global health survey data" are exploring the impact of gender norms on adolescent health using global health survey data (Cislaghi et al., 2022). Besides the lack of studies in the educational field, there are attempts and initial efforts to conduct more studies in the future. Comprehensive feasibility studies, such as GPECT advocate to enable the launch of future projects. Through peer-led interventions future students will be motivated to participate in sports. (Owen et al., 2018) Overall, there is major agreement, that gender equality in Physical Education is important for promoting individual health and well-being, as well as creating a more inclusive and equitable society. However, this trend also shows that there is still a lot of potential and follow up research rather than just interest. Meier further suggests, that gender politics are a mirror of society. Often one can find that if girls and women can participate in sports, they are also more active in society. (Meier, o. J.)

2.1 Gender in educational concepts

Many countries including Switzerland, Finland and Canada have noticed the major potential in Physical Education regarding the enforcement of a healthy population. Overall, their Physical Education curricula focus on promoting a healthy and active lifestyle and are designed to help students develop physical fitness and social skills. However, there are only few countries who included gender equality as specific learning object. The Swedish National Agency for Education has developed a Physical Education curriculum that includes specific learning objectives related to gender equality. These objectives aim to promote equal opportunities and respect for diversity in Physical Education classes, and include goals such as challenging gender stereotypes, ensuring equal participation opportunities for all students, and promoting an inclusive and respectful learning environment. The curriculum also encourages teachers to

reflect on their own attitudes and beliefs about gender and physical activity and to consider how these might impact their teaching and interactions with students. Besides the inclusion of gender equality as a learning object, Sweden has been found to be one of the leading countries when it comes to studies in this field. It is therefore not astonishing that among 191 countries, Sweden has the fourth lowest GII (Gender Inequality Index). (United Nations Development Programme, 2023)

The United States are one of few countries to have implemented a federal law as part of the Education Amendments, known as Title IX. (20 U.S.C. § 1681) This law prohibits sex discrimination in any educational program or activity that receives federal funding and is applicable to all educational institutions, from kindergarten through college. Under Title IX, schools and colleges are mandated to provide equal opportunities for both males and females in all areas, including athletics. As a result, schools cannot discriminate against students or employees based on their sex, including sexual harassment or assault. The impact of this federal law on gender equality in education has been significant, particularly in the area of athletics, leading to the growth of women's sports programs at all levels of education. Prior to its enactment, girls and women were often excluded from participating in sports or were provided with fewer opportunities compared to boys and men. Since the enactment, the number of girls participating in high school sports has increased from 294,000 in 1971 to over 3.4 million in 2019-2020, according to the National Federation of State High School Associations. Similarly, in college, the number of female athletes has increased by over 600% since 1972. Despite these achievements, there are ongoing challenges related to the enforcement of Title IX and further work is necessary to fully realize its goals, along with the efforts of other countries to promote gender equality in education. (Milner, 2016)

2.2 Research Question

The aim of this thesis is to show where and how gender stereotypical structures can occur in Physical Education and how an environment can be created that maximises learning success for all participants.

1. Where and how do gender-based structures appear in Physical Education?
2. How do these structures impact the equal access to progress in physical activity?
3. What actions can and must be taken to provide equal access to physical activity and lifelong health?

3 Methods and Materials

3.1 Systematic Review

“A literature review article provides a comprehensive overview of literature related to a theme and synthesizes prior studies to strengthen the foundation of knowledge.” (Paul & Criado, 2020, p.1) It draws a robust and broad conclusion by producing an unbiased summary of the evidence available on the topic. The collection of data and information can then be used to inform practice, policy, and future research. (Baumeister, 2013)

The methodology used for this review followed a systematic step-by-step approach to ensure a rigorous and thorough analysis of the available literature. Initially, a clear research question was formulated that guided the review. The state of research on the topic of interest was established to identify existing knowledge. A protocol was developed outlining the search strategy and inclusion/exclusion criteria to ensure a systematic and comprehensive search of relevant databases and sources. Studies were screened based on relevance and quality, and only the most appropriate were selected for the review. A standardized template was used to extract relevant

information from the selected studies, including study design, sample size, intervention or exposure, outcome measures, and key findings. This information was then synthesized and analysed to address the research question. The results of the analysis were carefully interpreted, drawing conclusions based on the evidence presented in the selected studies. Finally, the findings were scanned to identify any remaining gaps in knowledge and potential avenues for future research. This ensured that the review had practical implications and contributed to the advancement of the field. (Siddaway et al., 2019)

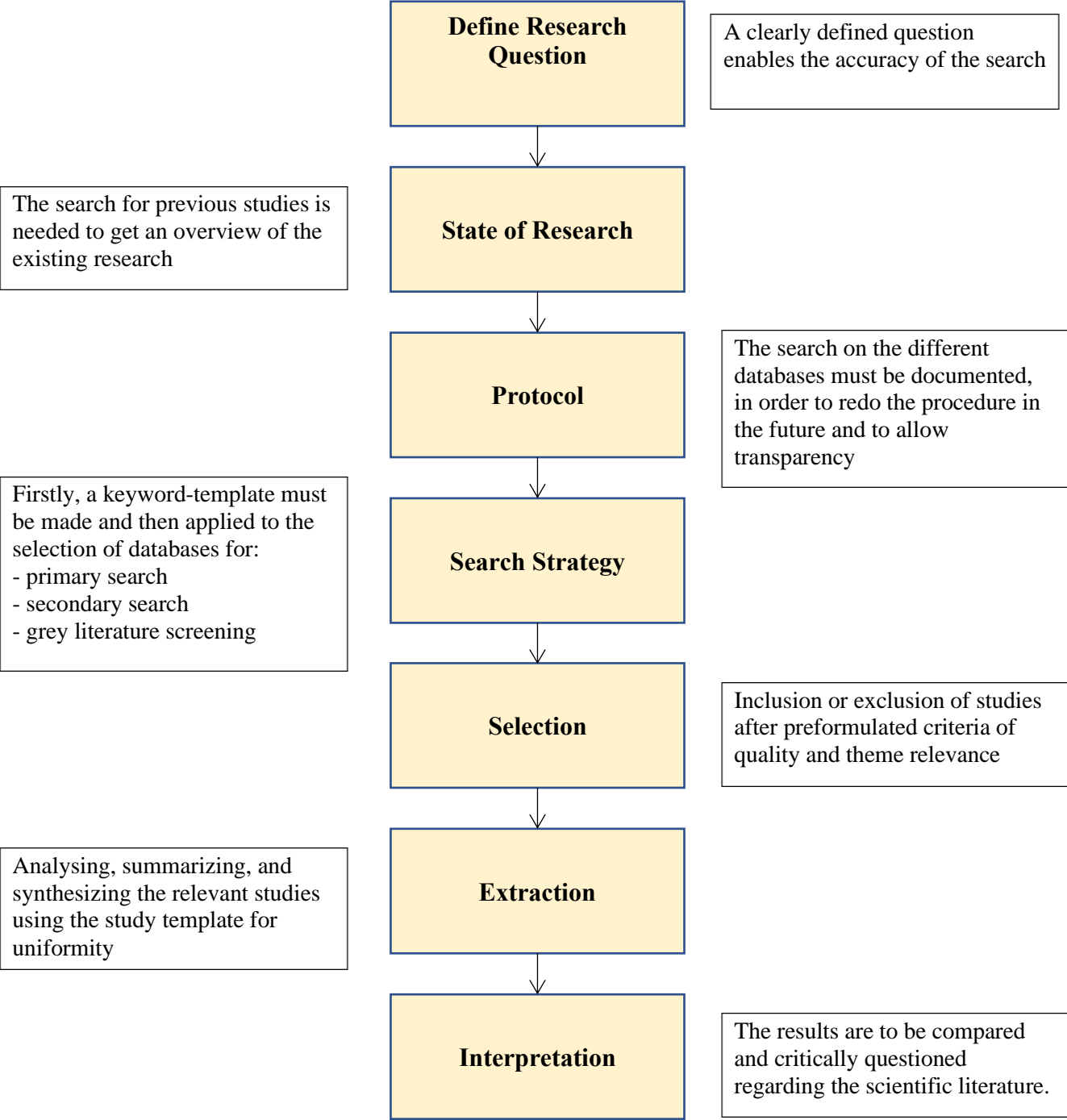


Figure 1 Literature Review Flowchart (Röösli et al. 2023)

3.2 Template

The following template was generated and used for uniformity, facilitating the comparison of the different studies.

Section Description	Content
Author / Organisations	
Keywords	
Year (est.)	
Language	
Type	
Target group	
Description	
Findings	
Perspective	
Actions to be taken	
DOI	

Table 1 Research Template (Röösli et al., 2023)

3.3 Search Strategy

In order to perform the systematic review, use was made of four major databases: PubMed, Google Scholar, Research Gate and Swisscovery.

To conduct the search across the databases, the search terms listed in the *Table 2* were combined in different sequential arrangements. The most effective search strategy identified was as follows:

(gender* OR sex)

AND

(Physical Education OR sport*)

AND

(progress OR benefit OR success)

The same search log was performed in German language. Subsequently, the obtained results were scrutinized and sorted out. This was a meticulous and time-consuming process that necessitate concentration. While numerous articles were retrieved, many did not meet all the inclusion criteria. To be included in this systematic review, the articles had to pertain to Physical Education or sport in the school setting, and thus, studies conducted outside this domain were excluded. The formal inclusion criteria were:

- Type of document: Academic articles and reviews, qualitative and quantitative studies
- Time limit: 2004 – April of 2023
- Language of publication: English or German

Ultimately, after applying the specific search log, a total of 31 studies were found. These 31 studies were filtered based on the mentioned criteria, and six studies remained. Several studies were excluded as they did not take place within an educational context. Moreover, this thesis specifically focused on examining existing gender-related frameworks in "conventional" Physical Education classes in Western societies, rather than teacher interventions. As a result, a restricted number of studies were deemed suitable for investigating the gender-based structures in Physical Education, aligning with the intended scope of this research.

Core terms	Structure	Gender	Physical Education	Progress
Synonym	Structural Condition Frame(work) Environment Contextual constructs	Socially constructed sex	Sport Gymnastics instruction	Benefit Success outcome
Related term	Organization Framework Arrangement Composition Design Form System	Sex	Sport science Health education Physical activity Athletic training Sport pedagogy Discipline	Improvement Advancement Development Growth Evolution Innovation Gain
Sub category	Organizational structure...	Gender identity Gender norms Gender expression Gender equality	Exercise science Movement science	Social progress Economic progress Political progress Personal progress
German Synonyms	Aufbau Gliederung System Voraussetzung Ausgangslage Grundlage	Gesellschaftliches Geschlecht Soziales Geschlecht	Sport und Spiel Belehrung Lektion	Fortschritt Effekt Lernerfolg Gelingen

Table 2 Keywords (Röösli et al., 2023)

4 Findings

Chapter four presents the six studies that met all the criteria and were therefore documented in templates. The studies were retrieved from Research Gate (4.1, 4.5), Google Scholar (4.2), Swisscovery (4.3), PubMed (4.6), and from grey literature search (4.4.) Despite the limited number of studies, the research question could be partially answered. In the discussion section, connections are made to the larger body of literature on sports and gender, and the results are critically reflected upon.

4.1 Impact of Lesson Context and Class Gender Composition

Full title: “Physical Activity in High School Physical Education: Impact of Lesson Context and Class Gender Composition”

Author / Organisations	Nicole J. Smith ¹ , Monica A.F. Lounsbery ² , and Tom Mckenzie ¹ <ul style="list-style-type: none">- 1. Exercise and Nutritional Sciences, San Diego State University- 2. Dept of Sports Education Leadership, University of Nevada Las Vegas.
Keywords	Physical Education (PE), physical activity, gender
Year (est.)	2013
Language	English
Type	Direct observation method using SOFIT (McKenzie et al., 1992)
Target group	Title I high school students from Pennsylvania
Description	<p>This study examined the influence of lesson context and class gender composition on physical activity levels in high school PE classes. It investigated how different factors within the PE environment affect students' engagement in physical activity during class. The study employed a quantitative research design, collecting data from multiple high schools and PE classes. The researchers analysed the impact of two main factors: lesson context and class gender composition. The aim of this study was to utilize direct observation methods to compare the results based on the gender composition of the classes. The observations were made during 164 PE lessons in 7 Title I high schools with a mean enrolment of 650 students.</p> <p>SOFIT (system for observing fitness instruction time overview and training manual) was used to guide the observations and grant uniformity. The observers record data during the designated observation period. They noted down the duration of different activities and behaviours using predefined codes to categorize different activities such as: instructional time, management time, student activity, and other relevant codes specific to the observation focus.</p>
Findings	The analysis of the 164 observed lessons revealed significant differences between the class gender compositions in terms of class size, physical activity levels, lesson contexts, and actual lesson length.

Concerning the gender composition of the class, girls, regardless of whether they participated in girls-only or co-education classes, were less active than boys, suggesting that co-education classes were more beneficial for boys than girls. Moreover, the findings indicated that fitness activities were more prevalent in classes exclusively for girls. However, girls in these classes exhibited lower levels of physical activity in comparison to boys attending classes exclusively for boys or mixed-gender classes. Instructor behaviour like loss of time due to motivating girls to engage in MVPA also contributed to the gender disparity in physical activity during PE.

Class size varied across the different compositions, with an average of 24 students participating in lessons. Co-education classes had a significantly higher number of students compared to boys-only and girls-only classes, with an approximate difference of 7 students. While the scheduled length of the class periods was 43 minutes on average, the actual instructional time was shorter, averaging at 27.7 minutes. This indicates that approximately 35% of the scheduled time was spent on transitioning between activities, such as changing clothes and going to/from the locker room, rather than actively engaging in PE content. The duration of lessons also differed based on class gender composition. Co-education lessons were found to be 5 minutes longer on average compared to girls-only lessons. These findings shed light on the disparities in class size, actual lesson length, and the impact of transition time within PE lessons among different class gender compositions. In total, students achieved 14.8 minutes of MVPA, comprising 11.1 minutes of walking and 3.7 minutes of vigorous physical activity (VPA). Although they were physically active for approximately 54% of the actual lesson time, a significant portion (40%) was allocated to walking, while only 14% was dedicated to VPA. Furthermore, they spent approximately 33% of the lesson time in a standing position.

Perspective

Further research is needed to explore gender differences and assess the effectiveness of single-gender versus co-education delivery formats. Special attention should be given to ensuring that high school girls have equal opportunities to participate and learn during PE. Studies focusing on curriculum, delivery methods, and the overall school environment are necessary for high schools. Positive findings from such studies can then be widely applied and shared. The study also emphasizes the value of systematic observation in analysing student physical activity levels and the context of PE. Direct observation provides detailed and contextually rich information about the PE environment that cannot be easily obtained through electronic or mechanical means alone. Therefore, future investigations should incorporate direct observation to provide comprehensive assessments of PE lessons.

Actions to be taken

- More direct observation studies
- Improve school environment

DOI

<https://doi.org/10.1123/jpah.2011-0334>

4.2 Gender-related Self-perception

The impact of single-sex and mixed-sex classes in Physical Education on gender-related self-perception

Author / Organisations	Maike Tietjens ¹ , Norbert Hagemann ² und Sascha Stracke ¹ <ul style="list-style-type: none">- 1Universität Münster, Institut für Sportwissenschaft- 2Universität Kassel, Institut für Sport und Sportwissenschaft
Keywords	Physical Education, self-perception, single-sex and mixed-sex class education, gender
Year (est.)	2010
Language	German
Type	Quasi-experimental study
Target group	135 girls and 129 boys from grades 7 to 9 of Münster secondary schools. The age range of the participants was 12 to 17 years.
Description	<p>The study investigated the impact of gender-typed sports and gender-related teaching methods on the gender-specific self-knowledge of male and female students.</p> <p>In the initial assessment, it was observed that adolescent secondary school students attributed different sports to being typically masculine or feminine. It could be assumed that engaging in “typically masculine” sports such as football or boxing leads to the activation of self-knowledge related to assertiveness, willingness to take risks, physical exertion, and so on. On the other hand, “typically feminine” sports such as rhythmic gymnastics or dancing led to the activation of expressive self-knowledge, such as being romantic and empathetic. This categorization based on gender schemas served as the foundation for exploring the dynamic processes in which sports activities activate gender-specific self-knowledge. To address the research questions, a factorial analysis of variance was conducted, considering gender, sport, teaching format, and personal characteristics as factors. A particular sport was introduced in each classroom. The selection of sports was based on their gender typification, encompassing one sport with a typical masculine association, one with a typical feminine association, and one considered neutral (as determined by a pre-test). The chosen sports were football, dancing, and kickball. Each sport was taught in both single-gender and coeducational settings, ensuring equal representation for each scenario. After the PE lesson, participants performed a reaction time experiment consecutively on laptops, where they had to decide whether certain personal traits applied to them or not.</p>
Findings	The analysis of the main effects indicated that when it comes to football, both male and female students tend to describe themselves using more in-

strumental characteristics rather than expressive ones. There were no significant differences in mean values for dancing and kickball. This effect tends to be influenced by gender. Among female students, dancing led to a descriptive increase in expressing self-attribution, whereas male students had significantly higher instrumental attributions in the context of football. In terms of instructional format, coeducationally instructed students, regardless of gender, endorsed a similar number of instrumental and expressive adjectives, while students in mono-educational settings agreed less with expressive adjectives.

Furthermore, a tentative but weak interaction effect between instructional format and gender was observed. Boys and girls described themselves more similarly in the coeducational condition compared to the mono-educational condition. This effect was primarily driven by boys, as they tended to utilize fewer personal characteristics for self-description in the mono-educational condition.

This study highlights the complexity of the subject area and the need for a combination of qualitative and quantitative approaches to gain a deeper understanding of the underlying factors. The factorial validity of the utilized instrument was examined through confirmatory factor analysis, revealing a satisfactory fit for the two-factor model encompassing "Instrumental" and "Expressive" factors. Consistent with theoretical expectations, female students identified more with expressive adjectives, while male students related more to instrumental adjectives. Notably, girls exhibited higher agreement rates with adjectives and shorter reaction times, confirming the external validity of the instrument.

Perspective

It is recommended to select sports based on their gender typology for PE classes, not to reinforce existing gender schemas, but to provide students with access to gender-incongruent self-knowledge. The goal is to create a classroom environment where gender-specific self-knowledge does not have a limiting effect. The study emphasizes the importance of examining the correspondence with behavioural variables (e.g., participation in PE) and motivational variables (achievement motivation, interest, sport-related self-concept) for further research in order to gain a more comprehensive understanding of the effects of gender-typed sports and gender-related teaching methods on the gender-specific self-knowledge of female and male students.

Actions to be taken

- Research on motivation
- establish a classroom atmosphere in which gender-specific self-awareness does not impose any constraints or limitations.

DOI

<https://doi.org/10.1026/0049-8637/a000013>

4.3 Co-Educational Models in School Handball

Full title: “A Systematic Review of Co-Educational Models in School Handball”

Author / Organisations	Ana R. Arias, Diego Soto, Camino Ferreira <ul style="list-style-type: none">- Research Group: (ÉVORI) Assessment, Guidance and Educational Policies, Department of General and Specific Didactics and Educational Theory, University of León, 24007 León, Spain;- Department Physical and Sport Education, University of León, 24007 León, Spain
Keywords	Handball, sport, gender, Physical Education, inclusion
Year (est.)	2021
Language	English
Type	Systematic review
Target group	Students of Physical Education classes especially girls (26 reviewed studies)
Description	<p>The research question of this systematic review was to find what the co-educational models are that have been put into practice in school handball. The purpose of the review was to evaluate the current status of co-education by examining the impact of PE curricula on the subject. Pointing out that handball is the third most common physical activity among sports practiced at school, especially by girls, the investigation analysed the methodologies for teaching and learning handball, including the role of facilitators and pupils. Based on the results, specific action plans could be developed to enhance education quality with regards to both gender and sport. This would involve implementing teaching strategies that consider the use of materials, variations in physical contact, groupings, and playing areas. To achieve this, methodological guidelines should be established to assist teacher-coaches in creating an appealing sports experience that caters to the unique needs of girls.</p>
Findings	<p>The analysis of the results from 26 reviewed studies identified three main themes: technical and sporting aspects of handball, co-education, and differences between gender. The differences between gender were noted in three areas: actions, physical and physiological aspects, and psychological and behavioural aspects. Co-education was found to improve skills, perceived effort, enjoyment, and participation, which led to improvements in social climate and group cohesion. Strategies such as using mini-handball and combining handball with other sports were proposed to increase participation, particularly among girls who tend to drop out of traditional invasion sports. The importance of co-educational strategies in promoting equality and reducing gender stereotypes in handball was emphasized. Overall, the review concludes that schools can play a crucial role in promoting equality and inclusivity in sports education.</p> <p>The results showed that the girls emphasized the technical and sporting aspects of handball and highlighted the benefits of practicing this sport in schools</p>

compared to other options. They also stressed the importance of co-education and equality in PE, which can lead to improvements in skills, enjoyment, and participation, as well as social climate and group cohesion. However, there were noted differences between gender in terms of actions, technical and sporting roles, physical and physiological nature, and psychological and behavioural aspects.

The practice of sports, particularly handball within co-educational school settings, can foster social climate improvements and promote group cohesion. This can be attributed to the development of social and civic skills such as respect for game rules, teamwork, fair play, commitment, and responsibility. As such, co-education in handball should be approached with a view to its potential for the cultivation of these skills. This paper provides a comprehensive overview of the research carried out in the area of co-education, with a specific focus on how it is implemented in the context of a confrontational team sport like handball.

Perspective

The research paper's conclusion emphasizes the significance of co-education and sports education within school settings. The study specifically focuses on handball as a competitive team sport that fosters the development of social and civic skills, including respect for rules, teamwork, and fair play. The research suggests the need for further investigation into factors such as the teacher's gender, the provision of suitable materials and equipment to promote girls' participation, and the utilization of specific teaching methodologies for handball that aim to enhance integration and satisfaction among girls in the sport. Additionally, the study underscores the notion that significant progress is still required, and longitudinal studies are necessary to observe the long-term effects of implementing co-education and assess the efficacy of these strategies in closing the gender gap in sports involvement.

Actions to be taken

- Include Handball in Curricula
- Promote co-education
- Teacher sensibilisation

DOI

<https://doi.org/10.3390/ijerph182111438>

4.4 Gender constructions and negotiations in Physical Education

Full title: “Gender constructions and negotiations in Physical Education: case studies”

Author / Organisations	Ninna With-Nielsen, Gertrud Pfister - University of Copenhagen, Denmark
Keywords	Physical Education, Gender, Ball games, Post-structuralism, Sport discourses, Drop out, Sport participation, Femininity, Intersectionality
Year (est.)	2011
Language	English
Type	Qualitative study/case study
Target group	A class of forty-two 16- and 17-year-old students in the first of their three years of education at a Danish high school
Description and Method	The qualitative analysis explores gender constructions and negotiations in PE through case studies. The authors argue that PE is a site where gender is performed, negotiated, and challenged. Through observations of PE classes and qualitative interviews with students and teachers, they have examined how gendered expectations and norms are produced and reproduced in PE classes. They did this by presenting three girls as “types” of girls in PE and their different positionings as representatives of their corresponding class.
Findings	<p>The three types of girls described, Nanna, Iram, and Ida, represent different perspectives on gender and participation in Physical Education</p> <p>1. Nanna (“The wild girl”) who enjoys basketball and fitness, wants to be seen as a good athlete while also remaining “one of the girls”. She is aware of the expectations placed on girls in Physical Education and wants to balance being a skilled athlete with being a part of the social network of girls who may not take sports as seriously as boys. Nanna actively participates in both discourses of being a serious athlete and a social girl.</p> <p>2. Iram (Muslim girl) adheres to Islamic dress codes during PE class, wearing “feminine” clothes that cover her entire body and a headscarf, which signals her identification with Muslim culture, tradition, and religion. Her choice of clothing reflects her understanding of gender influenced by the gender constructions of her culture and religion. Despite being an active athlete who practices Thai boxing and swimming in a gender-separated environment with both immigrant and Danish girls in her leisure time, Iram faces challenges in being recognized as a competent sports participant due to her ethnic background and headscarf. While she believes that clothes are not important for competence in sports, Iram emphasizes a different interpretation and construction of femininity than Nanna.</p> <p>3. Ida (“normal-Danish-girl”) whose approach to gender in PE is distinct from Nanna and Iram's. She prefers not to participate due to the unsuitability of PE</p>

to her abilities and frustration with the predominance of boys' sports. Ida has two strategies to get something out of PE, either chatting with friends or creating her own exercises. Her behaviour is not uncommon, and studies have shown many girls resist or avoid PE. Ida's reluctance to participate is associated with her desire to maintain her feminine image and good looks, leading her to refuse to wear sports clothing. Instead, she prefers to do sport in normal clothes, which conflicts with the notion of sport based on performance improvement and comparison. Girls' reluctance to participate in PE due to the negative impact of sports on their appearance is a recurring issue.

The study's findings have important implications for organizing and teaching PE. In conclusion the study found that girls are often excluded from participating in certain activities, such as team sports, due to gendered expectations and norms. Teachers also reinforce these gendered expectations by treating girls and boys differently in class, such as praising boys for their physical abilities while criticizing girls for their appearance. The current organization of PE classes is biased towards boys' interests and expectations, making it difficult for girls to participate without facing contradictory demands. This bias has a negative impact on both girls' and boys' participation in sports. Teachers often see girls as a problem in organizing PE classes. This is particularly problematic for Muslim and 'normal' girls, who may lack interest and enthusiasm for the current approach to PE. A reform of PE is needed to accommodate various skills, backgrounds, interests, and gender orientations. The focus on ball games also means that lessons often follow what the boys expect from PE. The authors have found, that PE reinforces gender stereotypes and expectations, such as boys being more interested in competitive sports and girls being more interested in dance and gymnastics.

Perspective

The study highlights the importance of recognizing the role of PE in shaping gendered expectations and the need for teachers to support students in challenging and negotiating these expectations. It is necessary to reform PE with the goal of inclusivity, reaching students of all genders, with diverse backgrounds, skills, interests, and gender orientations.

**Actions
To be taken**

- Need for teachers to create a more inclusive and supportive environment that allows for the
- Negotiation and challenging of gender norms.
- Adapting focus of PE

DOI

<https://doi.org/10.1080/13573322.2011.601145>

4.5 Absentee Rates in Physical Education

Full title: “Absentee rates in Physical Education in high schools: The importance of gender and study programmes”

Author / Organisations	Hege Myhre and Pål Lagestad - Nord University, Norway
Keywords	Absenteeism, high school, study programme, gender
Year (est.)	2017
Language	English
Type	Quantitative data analysis
Target group	Norwegian high school students aged between 16 to 19
Description	The primary objective of this study was to explore the gender-based differences in absentee rates among high school students in different school programs. A register database storing information about high school students was scanned to analyse the absentee rates of all high school students across 17 high schools in Nordland County, Norway. For the academic year of 2010 to 2011, 1,325 boys and 1,763 girls enrolled in the general study program could be considered for the data analysis. Due to the failure to meet the assumptions of general linear modelling, the researchers opted for non-parametric tests to examine disparities in absentee rates across different study categories: vocational and general studies. Dunn's test was employed for pairwise comparisons, while the Mann-Whitney U test was utilized to assess overall differences in absentee rates between genders and differences within gender categories in school programs. The findings were visually presented through box and whisker plots, which depict the data range.
Findings	The study suggests that absenteeism in Physical Education classes is a complex issue that is influenced by a range of factors, including gender, study program, and physical activity levels outside of school. The study found that the overall absentee rate in PE was 11.6% on average, with no significant differences between boys and girls in general studies. However, there were notable disparities in absenteeism across different vocational subjects, with higher rates observed among girls in programs dominated by girls. Specifically, the absentee rate was lower for students in general studies compared to those in vocational subjects or vocational subjects dominated by girls. Meanwhile, there was no significant difference between general studies and vocational subjects dominated by boys. Girls had higher absentee rates than boys across all categories of study. The analysis of the data showed that the distribution of values was not following a normal pattern. Instead, it had a long tail of high values, indicating that there were instances of extreme values in the data. These extreme values had a significant impact on the results of the analysis. However, the analysis revealed that high rates of absenteeism were present

across all categories and programs in the high schools. This implies that regardless of the specific category or program, absenteeism was a common issue.

Perspective

Given these findings, the study suggests that it is important for PE to adopt a student-centred approach. This means that PE should focus on empowering students and giving them the ability to define what physical activity means to them personally. By allowing students to have a say in their own physical activity choices, PE can promote a sense of ownership and engagement. To address this issue, PE teachers should focus on motivating their students, particularly in girl-dominated vocational subjects, where physical capital may be less valued. These findings highlight the importance of reorganizing PE in vocational classes and conducting further research on how to lower absenteeism. Overall, the study highlights the importance of promoting PE as an important part of high school education, and suggests that efforts should be made to reduce absenteeism among all students, regardless of gender or study program. By promoting physical activity and healthy lifestyles, PE classes can help to promote lifelong health and well-being among high school students.

Actions to be taken

- Training for PE teachers to recognize and address absenteeism in their classes
- Promote physical activity and healthy lifestyles among high school students.

URL

<https://doi.org/10.5897/IJEAPS2017.0530>

4.6 Effects of gender experienced during Physical Education

Full title: “Effects of gender, activity type, class location and class composition on physical activity levels experienced during Physical Education classes in British secondary schools: a pilot cross-sectional study”

Author / Organisations	Anne Deletrat ¹ , Patrick Esser ¹ , Nick Beale ¹ , Floris Bozon ¹ , Emma Eldridge ¹ , Hooshang Izadi ¹ , Heidi Johansen-Berg ² , Catherine Wheatley ² and Helen Dawes ¹ <ul style="list-style-type: none">- 1. Centre for Movement, Occupational and Rehabilitation Sciences, Oxford Brookes University, Headington Campus, Oxford- 2. Centre for Integrative Neuroscience, FMRIB Centre, Nuffield Department of Clinical Neurosciences, University of Oxford, Oxford
Keywords	Multilevel statistical model, gender, VPA, MVPA, Accelerometers
Year (est.)	2020
Language	English
Type	Quantitative cross-sectional study/multi-level statistical approach
Target group	Convenience sample of 307 year-eight pupils, 12–13 years old, 201 boys and 106 girls, from six schools and 13 classes.
Description	<p>The aim of this study was to investigate the impact of various factors, such as gender, activity type, class location, and class composition, on physical activity levels during PE classes in secondary schools. To achieve this, a multi-level statistical approach was employed.</p> <p>During a PE session, the students wore accelerometers on their non-dominant wrist to capture 3-axis accelerometer data. Following the class, the raw accelerometer data were retrieved and processed. The data were specifically chosen based on active PE class time, excluding time spent in changing rooms or awaiting instructions prior to the start. Sedentary (SPA), light (LPA), moderate (MPA), and vigorous (VPA) activity levels were determined in minutes per hour, and MVPA was calculated as the cumulative time spent in moderate and vigorous activity.</p> <p>Statistical analysis was conducted on the collected data using specialized software. A multilevel mixed-effects model was initially employed to account for clustering at the school and class levels. However, due to difficulties with the model for schools, a two-level structure was adopted, treating schools as a fixed effect and classes as a random effect. The study then examined the effects of gender, class composition, location, and activity type on the duration of different physical activity levels during PE sessions.</p>
Findings	The results indicate that on average, during active PE class time, students spent 25.8% of the time in SPA, 19.2% in LPA, 11.5% in VPA, and 30.7% in MVPA. The findings of this study reveal insights about physical activity levels in PE classes. Firstly, there are differences in the amount of physical activity

that students engage in across different schools. Some schools showed significantly higher levels of MVPA compared to others. These differences ranged from small to large, indicating varying levels of activity intensity. There was no significant relationship between gender and physical activity intensity during PE sessions. This means that boys and girls participated in PE classes with similar levels of physical activity. So, it seems that gender does not play a significant role in determining activity levels during PE. Further, the composition of the class (boys-only, girls-only, or mixed-gender) did not significantly affect physical activity levels. Despite expectations that class composition might influence activity levels, the study did not find any significant differences between these class types. So, whether students were in single-gender or mixed-gender classes, it did not significantly impact their physical activity levels during PE sessions. However, the type of activity did show some associations with physical activity levels. Specifically, there was a significant difference in VPA between Artistic and Fitness classes. Students spent more time in VPA during Fitness classes compared to Artistic classes. Additionally, the location of the class also played a role in physical activity levels. Outdoor classes showed significantly less time spent in SPA and more time spent in VPA and MVPA compared to indoor classes. This suggests that students were more active during PE sessions held outdoors than those held indoors. Overall, these findings provide valuable insights into the factors influencing physical activity levels in PE classes. They highlight the importance of considering school differences, activity types, and class locations when designing PE programs to promote physical activity among students.

Perspective

In summary, the findings suggest that the location of classes and the choice of activity can impact the level of physical activity in PE, with outdoor classes and fitness-based activities leading to greater MVPA and VPA compared to indoor and artistic classes. These factors should be taken into consideration when designing PE sessions. As physical activity plays a crucial role in the health and well-being of young people, future studies with larger samples and a nested structure analysis are necessary to address concerns regarding the physical activity levels of adolescents. The improvement of understanding the complex relationships between school PE, physical activity, and aerobic fitness, and whether school PE can effectively increase physical activity and fitness levels in adolescents is to be aimed at.

Actions to be taken

- Develop guidelines to inform teaching and health promotion practices.
- Consider location of PE lessons
- Consider type of activity

DOI

<https://doi.org/10.1186/s12889-020-09698-y>

5 Discussion

As seen in the introduction gender-based structures face enormous complexity. The six studies analysed in this research utilized diverse study designs, including qualitative research, systematic reviews, and quantitative data analysis. Despite their different approaches, they shared a common goal. Each type of article provided valuable insights, emphasizing the importance of employing multiple methods. This comprehensive approach is necessary to thoroughly investigate the issue, which encompasses significant social, societal, and formal components. Several factors play a role in identifying and gradually dismantling gender-based structures in Physical Education. The ultimate target remains: Promote student engagement, autonomy, and enjoyment, fostering a lifelong interest in physical activity and a positive attitude towards Physical Education. (Niederkofler et al., 2015)

Using quantitative methods to conduct data collection in this field is legitimate. However, it is important to note that the results should also be statistically significant. The size of the cohort plays a crucial role in this regard. Wolf et al. have demonstrated that sample size has a significant impact on statistical power, with larger samples generally leading to greater power to detect significant relationships. This finding aligns with the well-established principle that larger sample sizes enhance the precision and reliability of statistical analyses and enable to detect true relationships and effects in the data. (Wolf et al., 2013) Smaller cohorts offer the advantage of focusing on specific populations or subgroups that are directly relevant to the research question at hand. With-Nielsen & Pfister, 2011 could explore unique characteristics, experiences, and responses to interventions within a specific (smaller) population. While larger sample sizes are typically associated with greater statistical power and generalizability, smaller cohort qualitative studies hold value. They provide focused, context-specific data. Although their findings may not be as widely applicable, they offer valuable insights into the intricacies of the specific population under investigation.

On the other hand, the small number of pupils in the quantitative study 4.6 and the unequal distribution of boys and girls must be critically monitored. However, the small cohort of the study found interesting facts and showed that there is a significant correlation between physical activity, class location and activity type: Engaging in outdoor physical activities and experiences within an educational setting can positively impact individuals' attitude towards physical activity. Bonavolontà et al. further found, that engaging in outdoor physical activities can positively impact individuals' body image perception. The natural and challenging environments, coupled with the physical accomplishments achieved during the program, may have contributed to participants developing a more positive and accepting view of their bodies. This study contributes to the growing body of research highlighting the potential benefits of outdoor Physical Education programs beyond physical fitness and skill development. By promoting positive body image perception, these programs have the potential to enhance participants' overall well-being and contribute to the development of a healthy body image. (Bonavolontà et al., 2021) The topic of body image was also addressed in 4.4, showing, that bodily issues were one major factor for Danish girls, not wanting to participate more actively in Physical Education. Future researches could therefore keep investigating this topic.

While absenteeism has been found to be higher for girls, it is still a general and significant problem. It is therefore crucial to Langestad et al. to motivate students of all gender, but particularly girls. Kalajas-Tilga et al. also emphasize this in their recent study, highlighting the significance of intrinsic motivation and the fulfilment of psychological needs among students in the context of PE. (Kalajas-Tilga et al., 2020) Using a purely mathematical data analysis for a study with a socio-cultural background, should be critically questioned. However, in the context of this work, the results can still be incorporated, especially since they reveal a structural

difference between boys and girls regarding absenteeism. In a subsequent study, it would be interesting to investigate the underlying problems that lead to this phenomenon of absence.

Co-educational approaches were discussed in most of the studies. Adrienne N. Milner argues, that while women's sports have come a long way since 19th century - when women's sports were largely dismissed - sex segregation remains a pervasive issue that perpetuates gender stereotypes and limits opportunities for female athletes. She explores the issues of sex segregation in sports and points out that while sex segregation in sports has historically been used as a means of promoting equality and fairness, it is ultimately counterproductive and discriminatory. In her book "Sex segregation in sports: why separate is not equal" she further explores the physiological and anatomical differences between men and women, arguing that these differences are often overemphasized in discussions of sex segregation in sports. Milner contends that while men and women may have different physical attributes, these differences are not so significant as to justify separate sporting competitions. She emphasizes the need to rethink traditional gender norms and creating more inclusive sporting environments. By breaking down barriers to women's participation in sports and promoting greater gender equality, we can create a more just and equitable society. (Milner, 2016)

Her opinion greatly aligns with the findings from the studies, who outline, that all students benefit in co-educated Physical Education classes. There are some voices who still criticise this approach arguing that it has had a negative impact on boys' sports programs. However, there are empirical proves that boys in both single-sex and co-educational classes had positive experiences in Physical Education, but that their experiences differed in some ways. (Gerdin, 2008)

These arguments are usually fuelled by experiences and philosophy, rather than objective empirical evidence related to student participation in physical activity. (Smith et al., 2014)

Researchers have shown that through increased choice of activities, inclusion and small group interaction, girls' enjoyment of Physical Education was higher, and their daily levels of physical activity were greater. (Dishman et al., 2005) Given that most studies underscore the significant influence teachers can have on the sports experience, it is highly advantageous to conduct future reviews and studies examining this relationship. It is essential to sensitize and provide ongoing professional development opportunities for teachers to effectively promote and sustain physical activity. The implementation of targeted programs designed to enhance teachers' knowledge, skills, and attitudes in this regard is crucial for achieving the desired outcomes in Physical Education settings.

In relation to this matter, additional questions have emerged concerning the crucial role of teachers and the value of female sporting role models in sports. Meier has extensively examined this topic, emphasizing its significance in promoting participation and empowerment in sports. Moreover, Meier identifies areas for future research and interventions aimed at harnessing the potential of female sporting role models. Her findings indicate that these role models have an influence on participation rates, skill development, motivation, and empowerment among girls and women. Conducting a review of relevant studies could provide a concise analysis of the impact they have. It is important to recognize that role models inspire individuals, foster gender equality, challenge stereotypes, and encourage diverse participation. (Meier, 2015)

More recent research has explored the intersectionality of gender with other factors such as race, ethnicity, and sexual orientation, and how these factors can affect experiences in Physical Education. For example, studies have shown that LGBTQ+ students often face unique challenges in Physical Education due to homophobia and transphobia and may feel excluded or uncomfortable participating in traditional gender-segregated activities. Unfortunately, this bachelor's thesis was limited to examining the binary difference between boys and girls. This is one limiting factor of this study. The findings of this bachelor thesis are further limited by

various other factors. Firstly, there is a limited number of studies on the topic of sports and gender in the school setting. Secondly, the search was also limited to "conventionally Western" teaching approaches. The complexity of this topic, especially regarding demographic factors was discussed in a 2019 International Conference showing that cultural and environmental factors were suggested to influence these associations greatly. The conference emphasizes the need to understand the complex relationships between demographic factors and physical activity levels and promote culturally and environmentally appropriate physical activity interventions. (Reis et al., 2015)

In contempt of many insights and interesting findings, there were also minor setbacks in the course of this work. Despite numerous essays, political statements, and even articles of law emphasizing the importance of this topic, very few studies could be found. This proved to be somewhat frustrating. Additionally, the Department of Gender Studies, was specifically contacted, inquiring about projects or studies that could have been relevant to this thesis. Despite the expertise and efforts of this team, unfortunately, no assistance could be provided for this thesis. Lastly, the attempts to contact researchers through ResearchGate to gain access to their work proved unsuccessful, which was equally disappointing.

6 Conclusion

Langestad et al have shown that there is a difference concerning absenteeism in Physical Education between boys and girls and fight for adopting a student-centred approach: Physical Education should empower students by allowing them to define their own physical activity choices, promoting ownership and engagement. This is particularly important in girl-dominated vocational subjects to ensure that equal value is placed on physical activity. While their study primarily focused on absenteeism and its associations with gender and study program, future research could investigate the potential long-term consequences of absenteeism on physical fitness, and academic performance and the reasons for this absenteeism.

The importance of co-education and sports education could be shown by Arias et al. Their systematic review highlights the positive influence of co-education and sports like handball in developing social and civic skills. They also highlight that further research is needed to explore the role of teacher's gender, appropriate materials, and teaching methodologies to better integrate girls in sports. Continued research on gender differences and further exploration of gender differences and effectiveness of single-gender versus co-education delivery formats is needed. Equal opportunities for participation and learning should be ensured for high school girls. Studies focusing on curriculum, delivery methods, and the overall school environment are necessary. Smith et al. too analysed co-educational and mono-educational classes and found discrepancies concerning class size, actual lesson duration, and the impact of transition time within physical education lessons among different class gender compositions. They concluded co-education to be beneficial for all participants.

With-Nielsen and Pfister dealt with challenging gendered expectations. Their study reveals that gendered expectations and norms often exclude girls from participating in certain activities, such as team sports. Teachers contribute to these expectations by treating girls and boys differently, reinforcing biases. The current structure of Physical Education classes favours boys' interests and expectations, creating challenges for girls' participation. This bias negatively impacts both girls and boys in sports. It is particularly problematic for Muslim and 'normal' girls, who may lack enthusiasm for the current approach. A reform of Physical Education is necessary to accommodate diverse skills, backgrounds, interests, and gender orientations. The focus on ball games also perpetuates gender stereotypes, with boys prioritizing competitive sports and girls being associated with dance and gymnastics. Physical Education should support students

in challenging and negotiating gendered expectations. Reforming Physical Education with inclusivity in mind can create an environment that reaches students of all genders, backgrounds, skills, interests, and gender orientations (With-Nielsen & Pfister, 2011)

The systematic observation of Delextrat et al. provided detailed and contextually rich information about the Physical Education environment that electronic or mechanical means alone cannot capture. The study suggests that the location and activity choice in PE classes can influence the level of physical activity. Outdoor classes and fitness-based activities result in higher physical activity compared to indoor and artistic classes. These factors should be considered when planning Physical Education sessions.

Lastly the selection of sports based on gender typology should aim to provide access to gender-incongruent self-knowledge, breaking gender stereotypes. Tietjens et al examined the effects of gender-typed sports and teaching methods on students' self-knowledge, behavioural variables, and motivational variables. (Tietjens et al., 2010)

Overall, these findings show, that there are differences in how girls or boys experience Physical Education. The research question on where and how gender-based structures appear in Physical Education and how these structures impact the equal access to progress in physical activity could therefore be answered. Even if (Delextrat et al., 2020) did not find a significant effect of co-education and progress, all the other studies found a major gender-based structure limiting or enhancing progress in Physical Education. The selection of the six studies could further make out actions that can and must be taken to provide equal access to physical activity and grant lifelong access to a healthy lifestyle. All studies emphasize the importance of promoting Physical Education as a crucial part of high school education. By implementing student-centred approaches, considering location, activity choices, class size, promoting inclusivity, and promoting gender incongruent concepts, Physical Education can play a significant role in reducing absenteeism and promoting lifelong health and well-being among high school students.

Given the importance of physical activity for the health and well-being of young people, further research with larger samples and determined structure analysis is needed to address concerns about adolescents' physical activity levels. The aim should be to enhance our understanding of the complex relationships between school Physical Education, physical activity, and aerobic fitness and to determine whether Physical Education effectively increases physical activity and fitness levels in adolescents.

By challenging and dismantling gender biases in physical activity, we foster an environment that promotes equal opportunities, self-confidence, and empowerment for individuals of all genders. This not only benefits the physical and mental well-being of individuals but also cultivates a society that values diversity, inclusivity, and equality. Investing in gender-inclusive physical activity promotion from an early age sends a powerful message to future generations, shaping their attitudes and behaviours towards physical activity. It creates a ripple effect that extends beyond childhood and adolescence, influencing individuals throughout their lives and ultimately leading to a healthier, happier, and more productive society for all.

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A handwritten signature in black ink, appearing to read 'Lena Rösli', with a stylized flourish above the name.

Lena Rösli