Journal of Physical Education and Sport ® (JPES), Vol. 24 (issue 8), Art 215, pp. 1933 - 1942, August 2024
online ISSN: 2247 - 806X; p-ISSN: 2247 – 8051; ISSN - L = 2247 - 8051 © JPES

Original Article

Swiss high school students' perceptions of physical education: The influence of gender and environmental factors

ZYGMUNT SAWICKI
Elite School of Sport of German Olympic Sports Confederation in Oberstdorf, GERMANY
Department of Health and Physical Culture Sciences, Witelon State University of Applied Sciences in Legnica, POLAND

Published online: August 31, 2024
Accepted for publication : August 15, 2024
DOI:10.7752/jpes.2024.08215

Abstract
Problem Statement. In Switzerland, physical education (P.E.) is a mandatory part of the educational curriculum, playing a crucial role in the holistic development of students at both primary and secondary levels. Its primary goals are to promote psychophysical growth and encourage lifelong physical activity. This study aims to examine Swiss high school students' attitudes towards physical education, including their perceptions of its importance, their self-reported grades, opinions on the current amount of P.E. hours, and their intentions to participate in recreational sports after graduation. **Material and methods**. In this study, the relationship is explored between gender, the sizes of students' residential areas, and their attitudes towards physical education. A total of 412 high school students from a large city and a small town in Switzerland participated in the research. The study is divided into two parts: first, the relative importance of physical education compared to other subjects is assessed using a "scale of values". Then, students' attitudes towards physical education are analysed through the "Attitudes and Behaviours Questionnaire Towards Sports Activity and Physical Education". **Results.** The research results demonstrate positive attitudes among Swiss students towards physical education. There is notable interest in the subject, particularly among boys, and a widespread desire for more P.E. hours at school. Students, regardless of gender or the population of their place of residence, report achieving good grades in P.E. and express intentions to continue participating in sports after graduation**. Conclusions**. The findings reveal that students generally have a positive view towards school physical education. These attitudes suggest that educators should consider these preferences when planning and conducting P.E. lessons. By aligning lessons with students' interests and attitudes, teachers can create more engaging and effective P.E. programmes.
Keywords: physical education, pupils, attitudes, Switzerland.

Introduction

Physical education at school is a fundamental element of the educational programme in Switzerland, which not only promotes a healthy lifestyle, but also has an educational and upbringing-related function (Bailey, 2006; Rink and Hall, 2008; McLachlan and Hagger, 2011 and Lamprecht et al., 2021). In the era of increasing digitalisation and sedentary lifestyle, physical education classes are becoming increasingly crucial for providing children and adolescents with an adequate dose of movement (Burrmann, 2015; Galan et al., 2019 and Romar et al., 2023). According to Grössing, (2007), Aschebrock and Stibbe (2013), Sawicki and Suchý (2017) and Görner and Reineke (2020), physical education at school, apart from being an important element of the comprehensive development of youth, is also a key component of health education. Through regular sports activities, school students learn the significance of physical activity in everyday life, which helps prevent many lifestyle diseases, such as obesity, diabetes and heart disease. Physical education classes also aid the development of motor skills, improve coordination and increase students' self-esteem as well as self-confidence (Zengin et al., 2016; Maksimović and Osmanović, 2019; Burtscher and Burtscher, 2020; Burrmann, 2020, Albers and Lewis, 2020 and Mischenko et al., 2021).

Thanks to the variety of activities offered as part of physical education, students have the opportunity to learn about different forms of movement and sports, which can become an inspiration for them to develop passions and sports interests outside of school (Grössing, 2007; Sawicki, 2015 and Lamprecht et al., 2021). In addition, Siedentop (2009), Quennerstedt and Larsson (2015), Gubacs-Collins and Cothran (2020) as well as Bailey and Dismore (2021) believe that physical education plays an important role in shaping students' character and requires discipline, regularity and perseverance, which translates into other aspects of life, such as learning or work. Through sport, students also learn to cope with stress and pressure, which is important both in the context of sports competitions and everyday challenges (Bailey, 2006; Coakley, 2011; Eime et al., 2013; Sawicki and Görner, 2018 and Meyer, 2020). Physical education is also a significant part of building a school community. Joint exercises and sports competition promote integration, developing interpersonal relationships and understanding the importance of teamwork. Students learn cooperation, fair play and respect for others,

Corresponding Author: ZYGMUNT SAWICKI, E-mail: zygmuntsawicki5@gmail.com

which is extremely vital within the context of contemporary social challenges (Bailey et al., 2009; Siedentop et al., 2011; Dyson and Casey, 2012; Chu and Zhang, 2018; Ding and Sugiyama, 2018 and Casey and MacPhail, 2020).

According to Ari and Felder (2022) and Ari (2023), the education system in Switzerland is decentralised, which means that each region (canton) has the right to decide on the organisation of education. The Swiss constitution lays down the basics, namely that primary education is compulsory for every child and free in public schools. The minimum age for primary school is six years. The compulsory school system usually covers primary and secondary education. Before that, children generally attend kindergarten (preschool education is part of the school education system), lasting one or two years in most Swiss cantons. Primary school lasts until fourth, fifth or sixth grade, depending on the school/canton. At the end of primary school (or the beginning of secondary school), students are divided into several (often three) sections according to their abilities and career intentions. Students who aspire to an academic career enter junior high school (also called Gymnasium or *Kantonsschule*) to prepare for the high-school leaving examination and further studies (usually obtained after 12 or 13 years of schooling, at the age of 18 or 19). Higher education depends on the type of secondary school education. For students graduating high-school who have passed the *Matura* exam, the most common institution is university. While so-called academic preparation leads to the *Matura* exam and free admission to university studies, successfully completing vocational education in secondary schools gives access to the third level of practical education in higher vocational schools (Schoolsswitzerland, 2021). In Switzerland, physical education, also known as "Movement and Sport," has been a mandatory subject in schools across every canton since 1874 (Brugger and Marti 1996). Due to the fact that pre-school education is part of the school educational system in many Swiss cantons, children attending kindergarten (just like school children and college students) are subjected to obligatory participation in physical education classes. In this phase of education, preschool children learn elementary motor basics, which are a condition for learning and improving various forms of sports and movement activity at further stages of school education. In primary school. during physical education classes, main emphasis is placed on stimulating and shaping sports- as well as movement-related interests, and also, developing a pupil's motivational system towards undertaking sports activities. In addition, it is also important to shape social skills and competences as a basis for cooperation regarding participation in team sports. The aim of educational activities in secondary school is primarily the stabilisation and further improvement of sports and motor skills, as well as education concerning the characteristics in the moral-aesthetic sphere and the perception of the role of one's own body in the context of sports activities and its benefits. In the Swiss school physical education system, the number of compulsory hours of physical education is, on average, three hours per week. In addition, there are one-two hours of extra-curricular classes a week, which are very popular among students (Lehrplan, 2014). The most important parts of the physical education curriculum in Swiss schools include athletics, gymnastics, team sports, games, coordination and fitness exercises. martial arts, dance as well as winter sports, mainly downhill skiing and snowboarding. It should be emphasized that indoor hockey (floor ball) is very popular among Swiss students, as well as shooting sports, which are willingly practiced by the Swiss population during their free time (Lamprecht et al., 2021).

Eisenhut (1986) and Bolliger (1990) claim that the history of physical education in Switzerland is closely linked to general educational and social trends in Europe. In Switzerland, it began to gain importance in the 19th century, when awareness of the value of physical activity for health and preparation for military service was growing throughout Europe. At that time, in Switzerland, as in many European countries, gymnastics was a fundamental element of physical education classes in schools. Regarding the current Swiss physical education system, Criblez (2007) and Lamprecht and Stamm (2012) present the following main assumptions:

1. promoting students' physical development and increasing awareness of the health benefits of physical activity;
2. shaping the characteristics of motor skills that constitute the basis for practicing various sports disciplines;
3. shaping cooperation, integration, communication and fair play skills through team games and joint exercises, which helps build relationships and understand the principles of teamwork;
4. development of personality and social competencies such as discipline, perseverance, responsibility, positive attitudes towards oneself and others, including respect and empathy;
5. differentiation and individualisation consisting in considering the diverse needs and skills of school students, offering diverse forms of physical activity;
6. preparing students for an active life after completing education, by teaching sports and activities that can be continued in adult life.

In contemporary Swiss school curricula, such as the current curriculum (German: '*Lehrplan* 21'), the development of motor skills, health, sports, as well as social and ethical values related to physical activity are emphasized. The importance of cooperation between the educational sector and sports organisations has increased, which is visible in the broad access of students to sports activities outside of school (Bailey and Lamprecht, 2013; Lamprecht et al., 2021 and Lenze et al., 2024).

To sum up, physical education in the Swiss educational system plays a key role not only in the immediate exercise of the body during school classes, but also contributes to the formation of healthy habits and the

promotion of an active lifestyle among students. Many authors believe that the key condition for the optimal course of the physical education process at school is a high level of cooperation between the teacher and students, as well as positive opinions, attitudes and motivation of students towards this subject (Lamprecht and Stamm, 2012; Balga et al., 2019; Sawicki et al., 2019 and Gubacs-Collins and Cothran, 2020). In the German-language literature on physical education, there is a large number of research works in this field, which mainly concern Germany, while Switzerland has a relatively small amount of such papers. For this reason, it was decided to conduct research on the perception of physical education in Swiss schools. This study is aimed at examining Swiss high school students' attitudes towards physical education, including their perceptions of its importance, their self-reported grades, opinions on the current amount of P.E. hours, and their intentions to participate in recreational sports after graduation. The factors that could influence the quality of students' perception of physical education included the gender of the respondents and their environmental conditions.

The study was focused on the following research questions:

1. How do Swiss school students perceive the importance of physical education in relation to other academic subjects?
2. How do respondents perceive the number of mandatory hours devoted to physical education classes?
3. What grades do students declare in physical education?
4. What are the declarations of the surveyed students regarding future plans for involvement in sports after completing formal education?
5. How do independent variables such as gender and place of residence impact the students' perception of physical education?

Material and methods

Participants

A total of 412 high school students from Switzerland, averaging 18 years of age (M=18.60±0.24), took part in the study. The sample comprised 112 boys and 100 girls from a large city (with a population exceeding 100,000) and 104 boys and 96 girls from a small town (around 15,000 residents). The selection of participants followed the principles of random sampling within the team sampling method. This process, described by Rea and Parker (2014), involves randomly selecting team units such as school classes, instead of individual units. In the first stage of the study, classes from different schools in the regions where the research was conducted were selected as the sampling units. Subsequently, within each of the randomly chosen teams (school classes), all students were involved in the study.

Research methods

In the present study, the method of diagnostic survey was implemented, utilising a questionnaire technique to gather written responses from participants. Two research tools were utilised in the study to examine students' attitudes towards physical education. The first tool, referred to as the "Questionnaire of Attitudes and Behaviors Towards Sports Activity and Physical Education", was developed using the frameworks established by Digel (1996) and Wydra (2001). This tool is divided into three parts:

1. Students' opinions on the planned hours of physical education: participants evaluated whether these hours were adequate, insufficient or excessive.
2. Grades received in physical education: Students reported their grades as either 'very good', 'good' or 'satisfactory'.
3. Intentions to engage in sports after graduation: Respondents indicated whether they planned to continue participating in sports, did not plan to or were undecided.

The second instrument, *scale of values*, was designed to determine the perceived importance and ranking of school physical education relative to other subjects (Rost, 2004).

Statistical analysis

The collected data were statistically analysed using the Receiver Operating Characteristic (ROC) method. The aim of this approach was to identify significant differences between variables such as gender and the environmental conditions of the youth under study. Additionally, it was employed to assess the relative likelihood of participants engaging in specific activities or exhibiting particular behaviours. To quantify these relationships, Odds Ratio (OR) was used, as described by Bradley (1997). The threshold for statistical significance was set at $p<0.05$.

Results

Swiss students' perception of physical education in comparison to other school subjects

As shown in Figure 1, physical education is the most favoured school subject among the surveyed Swiss high school students (54.5%). One-third of the respondents chose geography and one-fifth mathematics.

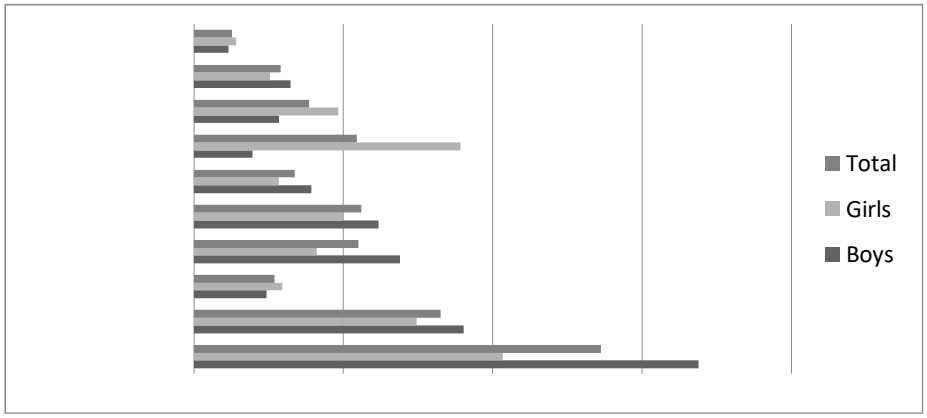

Fig. 1. The importance of school subjects according to the opinion of Swiss school students (in percentages)

Based on the results of ROC statistical analysis shown in Table 1, it can be concluded that the surveyed school youth living in Switzerland perceive school subjects differently. The studied boys prefer physical education much more than girls (p<0.0001), because they declared this subject as their favourite 1.64 times more often. Also, physics seems to be more interesting for boys than girls (p=00468; OR=1.70). Art education is of much greater significance to the studied girls compared to boys (OR=1.43, p<0.00001). In the case of other school subjects, it can be concluded that they are perceived similarly by both sexes (p<0.05).

Table 1. The importance of school subjects according to the opinion of Swiss school students (boys: n=216; girls: n=196)

Subject	AUC	SE	95% CI	*p*	OR
Physical Education	0.6313	0.02754	0.5773 to 0.6853	0.00000*	1.64
Geography	0.5379	0.02839	0.4823 to 0.5936	0.18340	1.27
English	0.5101	0.02853	0.4541 to 0.5660	0.72420	1.02
Physics	0.5573	0.02824	0.5019 to 0.6126	0.04468*	1.70
Mathematics	0.5232	0.02845	0.4674 to 0.5790	0.4160	1.23
German	0.5226	0.02844	0.4668 to 0.5783	0.42840	1.40
Art Education	0.6392	0.02761	0.5851 to 0.6933	0.00000*	1.43
History	0.5391	0.02850	0.4832 to 0.5949	0.17070	1.10
Biology	0.5138	0.02847	0.4580 to 0.5696	0.62850	1.27
Latin	0.5049	0.02852	0.4490 to 0.5608	0.86320	1.01

*Level of statistical significance: p<0.05.

Based on the ROC statistical analysis, it can be stated that for the surveyed boys from both environments perceive physical education in a similar way. Also noteworthy is the significantly higher geography preference of boys from a small town (p=0.01017; OR=1.38). The results of statistical analysis also confirm that the remaining school subjects are of similar importance for the boys from both environments. Similarly as in the case of boys, for the studied girls, regardless of environmental conditions, the most preferred school subject is physical education, which overtook art education and geography in the ranking. These subjects are of significantly more interest to girls from small towns (p=0.02534; OR=1.30). The same applies to biology, which is more preferred by girls from the large city (OR=1.78), although no statistically significant differences were found regarding these school subjects.

Swiss students' opinions on the curriculum hours for physical education at school

As shown in Figure 2, according to the opinion of almost half of the surveyed students, more hours of physical education should be introduced in schools compared to the current amount (three hours per week).

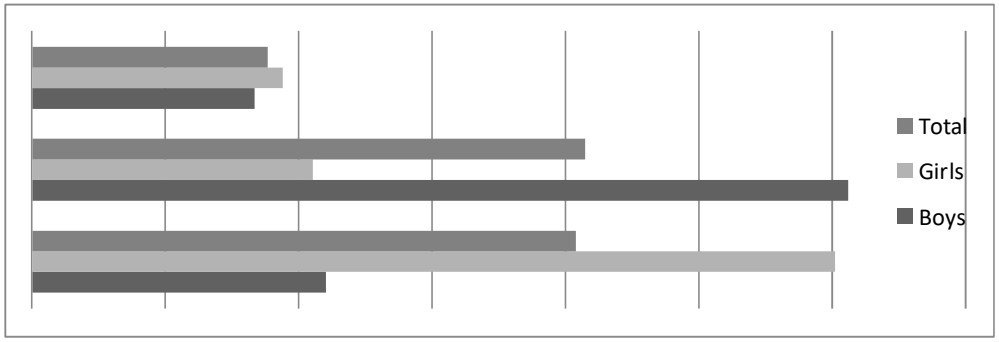

Fig. 2. Swiss students' opinions on the curriculum hours for physical education at school (in percentages)

When examining the differences in opinions regarding the number of hours devoted to physical education, it can be stated that, in general, boys would like significantly more hours of this subject than girls (p<0.0001). This is confirmed by the data in Table 2.

Table 2. Swiss students' opinions on the curriculum hours for physical education at school (boys: n=216; girls: n=196)

Cut-off	AUC	SE	95% CI	*p*	OR
Overall	0.6497	0.02822	0.5943 to 0.7050	0.00000*	
>0.500					2.85
>1.500					2.95
>2.500					0.88

Answer categories: 1. Enough, 2. Too small, 3. Too large.
*Level of statistical significance: p<0.05.

Based on the results of statistical analysis (no statistically significant differences and similar OR values), it can be stated that both boys and girls had similar preferences concerning the number of hours, regardless of their environmental conditions (Tables 3 and 4).

Table 3. Swiss male students' opinions on the curriculum hours for physical education at school (large city: n=112; small town: n=104)

Cut-off	AUC	SE	95% CI	*p*	OR
Overall	0.5366	0.03924	0.4497 to 0.6135	0.35330	
>0.500					1.42
>1.500					1.01
>2.500					1.01

Answer categories: 1. Enough, 2. Too small, 3. Too large.

Table 4. Swiss female students' opinions on the curriculum hours for physical education at school (large city: n=100; small town: n=96)

Cut-off	AUC	SE	95% CI	*p*	OR
Overall	0.5020	0.04136	0.4210 to 0.5831	0.96080	
>0.500					1.02
>1.500					0.96
>2.500					1.16

Answer categories: 1. Enough, 2. Too small, 3. Too large.

Grades obtained in physical education declared by Swiss school students

According to the results in Figure 3, the most common grades in physical education are "good" (49.4%) and “very good” (25.7%). Such high grades may indicate positive attitudes towards physical education.

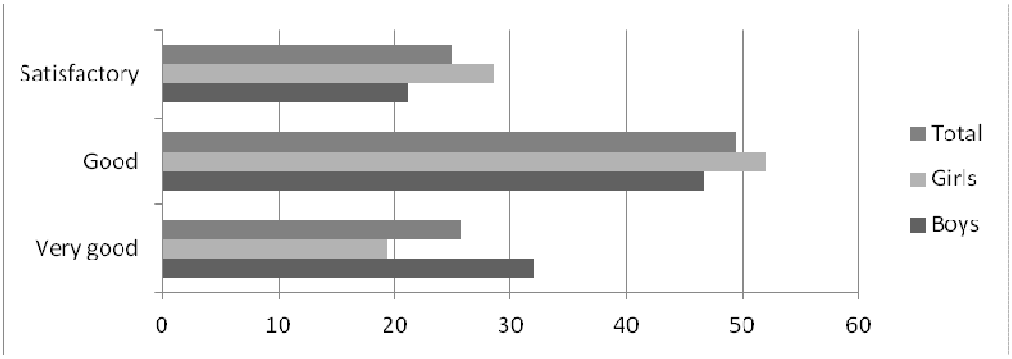

Fig. 3. Grades obtained in physical education declared by Swiss school students (in percentages)

Comparing the declarations of boys and girls regarding the grades obtained in physical education, statistically significant differences were revealed regarding the “very good” grade, to the advantage of boys (p=0.00931; OR=1.65). These data are presented in Table 5. In addition, it should be emphasized that no significant statistical differences were noted in terms residence size of the surveyed boys and girls, therefore, it can be stated that environmental conditions do not affect the type of grade received in physical education.

Table 5. Grades obtained in physical education declared by Swiss school students (boys: n=216; girls: n=196)

Cut-off	AUC	SE	95% CI	*p*	OR
Overall	0.5742	0.02809	0.5191 to 0.6292	0.00931*	
>0.500					1.65
>1.500					1.10
>2.500					1.24

Answer categories: 1. Very good, 2. Good, 3. Satisfactory.

*Level of statistical significance: $p<0.05$.

Statements from Swiss school students regarding their intentions to participate in sports after graduating

The data presented in the Figure 4 show that 83% of the surveyed Swiss secondary school students intend to be active in sports after finishing their school education. This is a good prognosis for the active way in which respondents spend their free time.

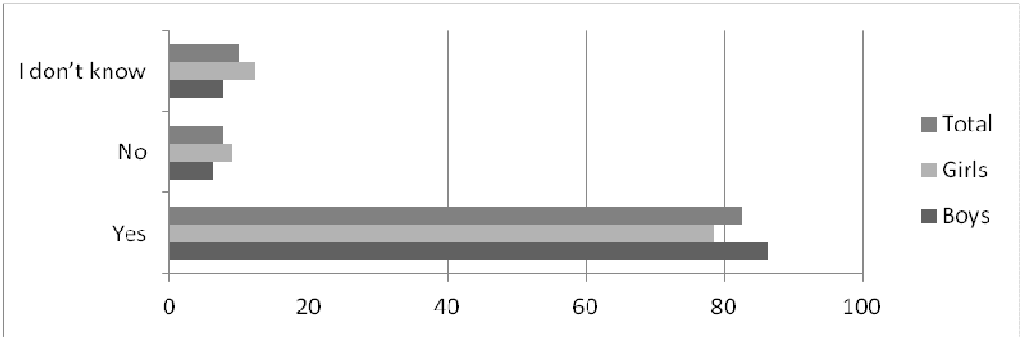

Fig. 4. Statements from Swiss school students regarding their intentions to participate in sports after graduating (in percentages)

As it results from ROC statistical analysis (Table 6), there were no significant differences related to the gender of the examined youth regarding their intentions to practice sports after finishing school. Additionally, it should be stated that environmental conditions do not affect the quality of these declarations either.

Table 6. Statements from Swiss school students regarding their intentions to participate in sports after graduating (boys: n=216; girls: n=196)

Cut-off	AUC	SE	95% CI	*p*	OR
Overall	0.5378	0.02850	0.4819 to 0.5936	0.18530	
>0.500					1.10
>1.500					1.05
>2.500					1.50

Answer categories: 1. Yes, 2. No, 3. I don´t know.

Discussion

The Swiss literature in the field of physical education and sport allows to highlight not only the key role of physical education in the curriculum, but also its significant impact on students' recreational sports activity in their free time (Grössing, 2007; Prohl, 2012; Balz and Neumann, 2013; Aschebrock and Stibbe, 2013 and Lamprecht et al., 2021). Given the strong connection between physical education at school and sports activity in free time, it was decided to conduct a study on the perception of physical education regarding selected aspects. These facets include Swiss school students' declarations on the importance of physical education on the spectrum of other school subjects, their opinions on the planned hours of physical education at school, grades obtained in physical education as well as statements regarding their intentions to participate in sports after graduation. The findings of the study indicate that the favourite school subject for the surveyed boys and girls is, regardless of the population of their place of residence, physical education, and taking into account the statistical analysis, the surveyed boys prefer it much more. For the surveyed girls, art education turned out to be much more important than for boys. Other authors, such as Barney and Christenson (2012), Bailey and Lamprecht (2013), Lazarević et al. (2015), Marttinen et al. (2018), Vashliaeva et al. (2019) and Burrmann (2020) also emphasize the great significance of physical education for the school students. Gråstén and Watt (2017) and Preece and Bullingham (2022) are of the opinion that male students feel more competence and pleasure from physical activity than female students. Therefore, students perceive physical education differently; boys are more motivated to perform physical efforts and activity in the categories of moderate to heavy, while girls are more motivated to acquire

knowledge and other competences through moderate physical activity. This is somewhat confirmed by Wydra's research (2001), who noticed a decrease in interest in physical education among 17-18-year-old girls in favour of foreign languages or other school subjects. In the Swiss literature on physical education, gender differences are highlighted, which refer to the different approaches and experiences of boys and girls in P.E. classes. These differences can be shaped by biological, psychological, social and cultural factors. Considering these differences is therefore vital for creating an inclusive and effective physical education programme that takes the needs and interests of all students into account, regardless of gender (Lamprecht et al., 2021; Heckemeyer et al., 2024; Gramespacher, 2024 and Hayoz, 2024).

Another key aspect of physical education examined in this study is the participants' opinions regarding the amount of time allocated to this subject in the school curriculum. According to the opinion of almost half of the surveyed students, schools should introduce more hours of physical education than are currently available. These opinions are mostly represented by boys, who believe that the current number of three hours devoted to physical education is definitely too small. As for the surveyed girls, it turned out that 60% of them consider the current number of hours at school to be sufficient. Additionally, the research indicated that boys and girls from both of the surveyed environments have similar opinions on this issue. Studies by other authors highlight the wishes of school youth, especially males, who would like to see more compulsory hours introduced to the physical education curriculum (Zeng et al., 2011; Lamprecht and Stamm, 2012; Schmölz, 2012; Müller and Scheuer, 2017 and Sawicki, 2023).

Another aspect that was examined in this work were the Swiss students' declarations regarding their grades in physical education, which show the dominance of ‘good’ grades (49.4%). Approximately one-fourth of the respondents received ‘very good’ and ‘satisfactory’ grades. Statistically significant differences in terms of gender of the respondents concern the ‘very good’ grades, which are obtained at a minimum of 1.5 times more often by boys than by girls (OR=1.65), while no significant differences were noted in terms of the population of the respondents' place of residence. Klenk (2004), and Lamprecht and Fischer (2018) reported similar findings, noting that the most common grades in physical education (especially among boys) are ‘good’ (40-45%, on average) and ‘very good’ (30%). Aust (2010), Stibbe (2010), Burrmann and Zander (2017), Meyer (2020) and Lamprecht et al. (2021) also present similar results on this issue in their studies.

Lastly, respondents' intentions to continue engaging in sports after graduating from school were explored in the study. According to the author's findings, 83% of the participants expressed a desire to remain active in sports post-graduation. Statistical analysis revealed no significant differences in these intentions based on gender or environmental background. It can generally be inferred that these declarations may play a crucial role in determining the actual physical activity levels of young people once they finish school.

Conclusions

Based on the author's research findings, the following conclusions can be drawn:

1. For the majority of surveyed Swiss school students from both urban and rural areas (especially for boys), physical education is the most favoured school subject.
2. The surveyed Swiss youth, especially boys, believe that schools should introduce more than three compulsory physical education classes per week.
3. Half of the surveyed students declared receiving a ‘good’ grade and one-quarter, a ‘very good’ grade in physical education, with no differences in terms of gender or environmental conditions being found.
4. A great majority of school students plan to continue participating in sports after graduation.
5. Environmental factors among the surveyed youth generally do not have a significant impact on their perception of physical education.
6. Swiss school students generally have positive attitudes towards school physical education.

The research has allowed to indicate that the surveyed youth from Swiss high schools have a positive perception of physical education classes. This can be concluded based on the results of research on the perception of selected, important elements of physical education. It is worth emphasizing that in several aspects of this reception, differences in terms of gender appeared. This concerns primarily the stronger preferences for physical education by boys and their much greater desire to increase the number of hours of physical education as compulsory school classes.

These research results could constitute a certain signal for institutions and people responsible for creating physical education plans as well as for teachers of this subject, especially in the aspect of more effective encouragement of girls to actively participate in classes. In addition, it should be noted that the intention of the surveyed youth to practice sports after graduating from school, regardless of gender and environmental conditions, should be treated as a positive prognostic factor, which, as mentioned earlier, is one of the main goals of physical education. Finally, it should be added that this type of research should be continued in the future, taking other aspects of research into account, e.g. other age groups of school children and youth, other regions or countries of residence, etc., further broadening the scope of conducted research.

References

Albers, J. A., & Lewis, B. A. (2020). Afterschool jump rope program: Time and intensity of physical activity. *Journal of Physical Education and Sport, 20*(2), 877-882.

Ari, A. (2023). Getting a good start to school life, Basel primary schools in Switzerland. *International Journal of Instruction, 16*(2), i-v. https://doi.org/10.29333/iji.2023.1620a.

Ari, A. & Felder, F. (2022). Federal education and Switzerland. *International Journal of Instruction, 15*(1), i-iv https://doi.org/10.29333/iji.2022.1510a.

Aschebrock, H. & Stibbe, G. (2013). Einführung [Introduction]. In H. Aschebrock & G. Stibbe (Eds.). *Didaktische Konzepte für den Schulsport* [Didactic concepts for school sports*]* (pp. 10–16). Meyer & Meyer Verlag. [in German].

Aust T. (2010). *Sportunterricht aus Schülersicht* [Physical education from a student's point of view]. Grin Publishing. [in German].

Bailey, R. (2006). Physical education and sport in schools: A review of benefits and outcomes. *Journal of School Health, 76*(8), 397-401.

Bailey, R., & Dismore, H. (2021). Sport, education and social policy: The importance of physical education and school sport in educational outcomes and public health. *International Journal of Sport Policy and Politics, 13*(1), 1-17.

Bailey, R., Armour, K., Kirk, D., Jess, M., Pickup, I., Sandford, R., & Bera, W. (2009). The educational benefits claimed for physical education and school sport: An academic review. *Research Papers in Education, 24*(1), 1-27.

Bailey, R., & Lamprecht, M. (2013). Physical education and sport in schools: A review of the benefits and outcomes. *British Journal of Sports Medicine, 47*(1), 20-23.

Balga, T., Antala, B. & Argajová, J. (2019). Attitudes of elementary school pupils towards physical education and their differentiation from the point of view of age, sporting level and gender. *Journal of Physical Education and Sport*, *19*(1), 552 - 559, DOI:10.7752/jpes.2019.01081.

Balz E., Neumann P. (2013). Mehrperspektivischer Sportunterricht [Multi-perspective physical education]. In H. Aschebrock & G. Stibbe (Eds.). *Didaktische Konzepte für den Schulsport* [Didactic concepts for school sports] (pp. 148–177). Meyer & Mayer Verlag. [in German].

Barney, D., & Christenson, R. (2012). General attitudes of middle school students towards physical education. *Asian Journal of Physical Education & Recreation*. *18*(2), 24-32.

Bolliger, B. (1990). *Körpererziehung in der Schweiz: Geschichte und Perspektiven* [Physical education in Switzerland: History and perspectives]. Bern: Haupt. [in German].

Bradley A P. (1997). The use of the area under the ROC curve in the evaluation of machine learning algorithms. *Pattern Recognition*. *30*(7), 1145-1159. https://doi.org/10.1016/S0031-3203(96)00142-2.

Brugger, B., & Marti, E. (Eds.). (1996). *Schweizerische Schulsportgeschichte: Bewegung und Sport im Bildungswesen* [Swiss School Sports History: Movement and Sports in Education]. Zürich: vdf Hochschulverlag AG. [in German].

Burtscher, J., & Burtscher, M. (2020). Run for your life: tweaking the weekly physical activity volume for longevity. *British Journal of Sports Medicine, 54*(13), 759–760.

Burrmann, U. (2015). Schülertypen im Sportunterricht der Sekundarstufe I: Perzeptionen des Sportunterrichts und deren Bezug zum außerschulischen Sport. [Student types in physical education classes of secondary schools: perceptions of physical education and their relation to extracurricular sport]. *Zeitschrift für sportpädagogische Forschung* [Journal of sports educational research]*, 3*(2), 61-82. [in German].

Burrmann U. (2020). Erfahrungsraum Sportunterricht – Eine quantitative Perspektive [Physical education experience space - a quantitative perspective]. In B. Zander & J. Thiele (Eds.). *Jugendliche im Spannungsfeld von Schule und Lebenswelt*. [Young people in the area of tension between school and everyday life]. Springer VS. https://doi.org/10.1007/978-3-658-31348-7_6. [in German].

Burrmann, U. & Zander, B. (2017). Unterschiede im Sportunterricht zwischen Gymnasien und Hauptschulen [Differences in physical education between grammar and secondary schools]. *Sportunterricht* [Physical Education]*, 66*(12), 361-365. [in German].

Casey, A., & MacPhail, A. (2020). Adopting a models-based approach to teaching physical education. *European Physical Education Review, 26(*1), 175-194.

Chu, T. L., & Zhang, T. (2018). Motivational processes in Sport Education programs among high school students: A systematic review. *European Physical Education Review, 24*(3), 372-394.

Coakley, J. (2011). Youth Sports: What Counts as "Positive Development?". *Journal of Sport and Social Issues, 35*(3), 306-324.

Criblez, L. (2007). Switzerland. In W. Hörner, H. Döbert, B. von Kopp, & W. Mitter (Eds.), *The education system of Europe* (pp. 758–781). Dordrecht, Netherlands: Springer.

Digel H. (1996). Schulsport - wie ihn Schüler sehen [School sport - as perceived by students]. *Sportunterricht* [Physical Education], *45*(8), 324-339. [in German].

Ding, J. & Sugiyama, Y. (2018). Examining Relationships between the Cognitive Aspect of College Students'

Attitudes toward Physical Education and Their Social Skills in Physical Education Classes. *Advances in Physical Education*, *8*(1), 20-30. doi:10.4236/ape.2018.81003.

Dyson, B. P., & Casey, A. (2012*). Cooperative Learning in Physical Education and Physical Activity: A Practical Introduction.* Routledge.

Eime, R. M., Young, J. A., Harvey, J. T., Charity, M. J., & Payne, W. R. (2013). A systematic review of the psychological and social benefits of participation in sport for children and adolescents: Informing development of a conceptual model of health through sport. *International Journal of Behavioral Nutrition and Physical Activity*, *10*(98).

Eisenhut, H. (1986). *Erziehung durch Sport in der Schweiz* [Education through sport in Switzerland] Zurich: SVSS [in German].

Galan, Y., Andrieieva, O., Yarmak, O., & Shestobuz, O. (2019). Programming of physical education and healthimproving classes for the girls aged 12-13 years. *Journal of Human Sport and Exercise, 15*(3). DOI: https://doi.org/10.14198/jhse.2020.153.05.

Gramespacher, E. (2024). Promoting girls in sport – (Still) in keeping with the times? *Current Issues in Sport Science (CISS), 9*(2), 008. https://doi.org/10.36950/2024.2ciss008.

Görner, K. & Reineke A. (2020). The influence of endurance and strength training on body composition and physical fitness in female students. *Journal of Physical Education and Sport, (20*) (Supplement issue).

Gråstén, A., & Watt, A. (2017). A Motivational Model of Physical Education and Links to Enjoyment, Knowledge, Performance, Total Physical Activity and Body Mass Index. *Journal of Sports Science & Medicine*, *16*(3), 318-327.

Grössing, S. (2007). *Einführung in die Sportdidaktik. Lehren und Lernen im Sportunterricht* [Introduction to Sports didactics. Teaching and learning in physical education]. Limpert. [in German].

Gubacs-Collins, K., & Cothran, D. J. (2020). Physical education teachers' and students' experiences of inclusive practices: A review of the literature. *Physical Education and Sport Pedagogy*, *25*(2), 145-160.

Hayoz, C. (2024). Coeducation in physical education in Switzerland – A national inventory of the legal basis and its implementation. *Current Issues in Sport Science (CISS), 9*(2), 007. https://doi.org/10.36950/2024.2ciss007.

Heckemeyer, K., Meier, M., & Grabherr, M. (2024). Gender and diversity competence in sport studies programs in higher education. *Current Issues in Sport Science (CISS)*, *9*(2), 009 https://doi.org/10.36950/2024.2ciss009.

Klenk, C. (2004). Schulsport in Baden-Württemberg [Physical education in Baden-Wuerttemberg] *Sportunterricht* [Physical education], *53*(8), 233-239. [in German].

Lamprecht, M., & Stamm, H. (2012). *The significance of physical education and sport for schools: An analysis Of the state of physical education in the Swiss school system.* Swiss Federal Office of Sport (BASPO).

Lamprecht, M., & Fischer, A. (2018). *Physical activity in Switzerland: Development, influencing factors, and trends.* Swiss Federal Office of Sport (BASPO).

Lamprecht, M., Bürgi, R., Gebert, A., & Stamm, H. P. (2021). *Sport Schweiz 2020: Kinder- und Jugendbericht* [Sport Switzerland 2020: Report on children and young people]. Bundesamt für Sport [in German].

Lazarević, D., Orlić, A., Lazarević, B., & Janić, S.R. (2015). Attitudes of early adolescent age students towards physical education. *Physical Culture, 69*(2), 88-98.

Lenze, L., Klostermann, C., Schmid, J., Lamprecht, M., & Nagel, S. (2024). The role of leisure-time physical activity in youth for lifelong activity-a latent profile analysis with retrospective life course data. *German Journal of Exercise and Sport Research*, *54*(2), 192–200. https://doi.org/10.1007/s12662 023-00884-9.

Lehrplan 21. (2014). *Grundlagen des Lehrplans 21: Fachbereich Bewegung und Sport* [Fundamentals of Curriculum 21: Subject Area of Movement and Sport]. *Lehrplan 21.* Retrieved from: https://www.lehrplan21.ch/. Viewed on 28.07.2024. [in German].

Maksimović, J., & Osmanović, J. (2019). Empirical review of physical education accomplishments in secondary schools. Facta Universitatis, Series: *Physical Education and Sport, 17*(2), 409-418. https://doi.org/10.22190/FUPES190429036M.

McLachlan, S., & Hagger, M. S. (2011). Do people differentiate between intrinsic and extrinsic goals for physical activity? *Journal of Sport and Exercise Psychology, 33*(2), 273-288.

Marttinen, R., Fredrick, N. R., Silverman, S. (2018). Changes in student attitude toward physical education Across a unit of instruction*. Journal of Physical Education and Sport*, *18*(1), 62 – 70.

Meyer J. (2020). *Sport in der gymnasialen Oberstufe* [Sport in upper secondary school]. Meyer & Meyer Verlag. [in German].

Müller, A., & Scheuer, C. (2017). Physical Education in Switzerland: A General Overview. *International Journal of Physical Education, 54*(3), 21-29.

Mischenko, N., Kolokoltsev, M., Romanova, E., Vorozheikin, A., Ivanova, E., & Suslina, I. (2021).

Schoolchildren's motivation to increase motor activity using the foot bag freestyle game. *Journal of Physical Education and Sport 21*(5), 2657 – 2663. DOI:10.7752/jpes.2021.05354.

Prohl, R. (2012). Sportdidaktische Orientierungen [Sports didactic orientations]. In V. Scheid & R. Prohl (eds.) *Sportdidaktik. Grundlagen, Vermittlungsformen, Bewegungsfelder* [Sports didactics. Basics, forms of communication, areas of movement] (pp. 54-69). Limpert. [in German].

Quennerstedt, M., & Larsson, H. (2015). Learning movement cultures in physical education. *Sport, Education And Society, 20*(5), 565-572.

Preece, S., & Bullingham, R. (2022). Gender stereotypes: the impact upon perceived roles and practice of inservice teachers in physical education. *Sport, Education and Society, 27*(3), 259–271. DOI.org/10.1080/13573322.2020.1848813.

Rea, L. & Parker, A. (2014). *Designing and Conducting Survey Research: A Comprehensive Guide.* (4th ed.). John Wiley & Sons, Inc.

Rink, J. E., & Hall, T. J. (2008). Research on effective teaching in elementary school physical education. *The Elementary School Journal, 108*(3), 207-218.

Romar, J.E., Enlund, M., Lind, S. & Björkgren, M. (2023). Movement integration in academic classrooms; a focus on secondary students' experiences. *Journal of Physical Education and Sport, 23*(4), 918 – 928.

Rost, J. (2004). *Lehrbuch Testtheorie – Testkonstruktion* [Textbook test theory - test construction]. Huber [in German].

Sawicki, Z. (2015*).* The importance of sports games in school physical education and leisure sports activity of Bavarian pupils. *Czech Kinanthropology, 19*(*4),* 49-55.

Sawicki, Z. (2023). Attitudes of Austrian high-school students towards selected aspects of school physical education in light of gender and environmental conditions. *Journal of Physical Education and Sport, 23*(7), 1660-1669.

Sawicki, Z., & Suchý, J. (2017). *Selected aspects of recreational sports activity of German and Polish school youth. Czech Kinanthropology, 21*(1-2), 50-59.

Sawicki, Z., & Görner, K. (2018). Emotional states of German high school students during physical education classes – gender and age comparison. *Journal of Physical Education and Sport, 18(*4), 2338-2349.

Sawicki, Z., Görner, K., & Bartik, P. (2019*).* Motives for performing recreational sports activities of pupils in the alpine regions of Germany, Austria and Switzerland. *Journal of Physical Education and Sport, 19(Supplement issue 1),* 255 – 261. DOI:10.7752/jpes.2019.s1038.

Schoolsswitzerland (2021). https://schoolsswitzerland.com/education-structure-in-switzerland-primary-seconda/ viewed on 30.07.2024.

Schmölz, K. (2012). Physical education in Switzerland: A historical overview. *Physical Education and Sport Pedagogy, 17*(1), 41-54.

Siedentop, D. (2009). *Introduction to Physical Education, Fitness, and Sport.* McGraw-Hill Education.

Siedentop, D., Hastie, P., & van der Mars, H. (2011). *Complete Guide to Sport Education*. Human Kinetics.

Stibbe, G. (2010). Sportunterricht in verschieden Schulstufen und Schulformen- Eine Einführung [Physical education at different school levels and school types - an introduction]. In N. Fessler, A. Hummel & G. Stibbe (Eds.*), Handbuch Schulsport* [Textbook of physical education] (pp. 259-262). Hofmann.
[in German].

Vashliaeva, I., Volovik, T. & Shuraleva, N. (2019). Psychological attitudes during the training of specialists in physical culture and sports. *Journal of Physical Education and Sport*, *19*(2), 1247 – 1253. DOI:10.7752/jpes.2019.02181.

Wydra G. (2001). Beliebtheit und Akzeptanz des Sportunterrichts [Popularity and acceptance of physical education]. *Sportunterricht* [physical education], *50*, 67 – 72. [in German].

Zeng, H. Z., Hipscher, M., & Leung, R.W. (2011). Attitudes of High School Students Toward Physical Education and Their Sport Activity Preferences. *Journal of Social Sciences*. *7*(4), 529-537. doi:10.3844/jssp.2011.529.537.

Zengin, S., Hekim, M., & Hekim, H. (2016). An investigation of the attitudes of the secondary and high school students towards physical education lesson based on gender and education level variables. *Journal of Human Sciences*. *13*(2), 3242-3251. doi:10.14687/jhs.v13i2.3944.