

The role of physical education in shaping soft skills and self-regulation in senior students: an economic perspective

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ABSTRACT

This study aimed to analyse the impact of physical training on the formation of soft skills and self-regulation in high school students. It examined key competencies such as leadership, communication, emotional intelligence, and self-regulation, using literature analysis, theoretical synthesis, and a review of physical education practices to identify effective methods for skill formation. The study results confirm that various types of physical activity, such as sports, yoga and cycling, contribute to developing leadership, communication and cooperation skills. It highlights how integrating physical exercises and sports into the curriculum fosters independence, stress resilience, and academic success. Analysis of international Eurobarometer data demonstrated a close connection between students' physical activity and their psychological state, improved academic achievement and ability to manage stress. Integrating balanced programmes into the school system can effectively improve the quality of education and develop well-rounded students ready to meet the challenges of modern society. The findings emphasize the need for investments in education that support holistic student development, blending physical, emotional, and social growth. In conclusion, systematic physical

education significantly enhances both personal qualities and academic outcomes, with future research needed to design and test innovative programmes focused on students' comprehensive well-being and success.

KEYWORDS

Physical Education; Soft Skills; Personal Development; Teaching Methods; Educational Strategies

1. INTRODUCTION

Physical education is one of the critical components of the educational process, not limited to the development of student's physical abilities; it is a powerful tool for forming personal qualities for the successful socialisation of young people. Modern approaches to physical education in high school focus on the comprehensive development of students - combining traditional methods with innovative techniques aimed at strengthening the physical, emotional and cognitive components. These methods include various types of physical activity: team sports, individual training, yoga and fitness programmes. They help high school students improve their physical fitness and develop resilience, perseverance and self-esteem. Education through physical activity is becoming an integrated process aimed at raising a harmoniously developed personality.

Soft skills are becoming increasingly important in the labour market, where professional success is increasingly dependent on a person's ability to interact, manage their emotions and make constructive decisions in stressful situations. Individual activities such as athletics or swimming develop the ability to work independently, self-discipline, and determination. Programmes with physical activity credits help students in high school adapt their actions to their environment and develop flexibility in thinking and focus. These traits are the basis for critical thinking and problem-solving in future professional life.

Self-regulation is closely related to physical education and is an essential aspect of personal development in high school students. While forming their personalities, they face stressful situations in the educational process and everyday life. Physical activity helps to strengthen self-regulatory mechanisms through stress management and the development of self-control. For example, yoga classes help students learn breathing, relaxation techniques, and practical tools for combating stress and anxiety. Team sports games teach students how to manage their emotions in a competitive environment, which in turn helps to improve emotional stability and concentration.

Numerous studies have shown that physical activity positively correlates with improved academic performance, as students show a higher capacity for self-discipline. Arufe-Giráldez et al. (2023) explored new pedagogical models in physical education that aim to improve the effectiveness of the learning process and develop soft skills in young people. Lim's study (2024) demonstrates how interactive educational approaches, such as quest rooms, contributed to developing students' physical skills and cognitive abilities. In their work, Nopiyanto et al. (2023) studied the impact of traditional sports courses on developing soft skills in pedagogical students, focusing on integrating physical activity into educational programmes to form personal qualities. The analysis of D'Isanto et al. (2022) describes heuristic learning that helps improve student teamwork skills. This study indicates the prospects of using this methodology in physical education to develop soft skills.

Andres (2021) also focuses on developing physical education programmes for IT professionals to help them develop the soft skills necessary for the profession. In their study, Piñeiro-Cossio et al. (2021) emphasise the importance of physical activity for students' mental well-being, showing that participation in physical education contributes to increased emotional resilience and psychological comfort. The work of Muschalla & Kutzner (2021) shows a trend where young professionals with mental health problems demonstrate lower levels of soft skills.

Romanovskiy et al. (2024) investigated organisational skills as part of soft skills in future physical education teachers, showing how physical education contributes to developing professional competences. Muarifin (2022) focuses on developing teaching tools for creating soft skills in schoolchildren through integrating physical education, demonstrating the effectiveness of the latest educational methods. Reyes & Redoña (2021) analysed educational leaders' attributes and behavioural responses.

Montiel-Ruiz et al. (2023) emphasise using social media and gamification to increase students' interest in physical activity classes. Spittle et al. (2023) discuss the impact of professional development on the preparation of students majoring in physical education. Niu (2023) focused on integrating health knowledge into physical education. Sağın et al. (2022) emphasise the problem of bullying in the context of physical education. Guo and Chen (2023) examine family education in Chinese schools. Omelchuk & Domina (2023) emphasise the importance of professional training for future physical education teachers. Viscione et al. (2019) examined the effects of physical education in middle school. Therefore, education is an effective tool for developing critical “soft skills”.

The article aims to thoroughly analyse the impact of physical training on the formation of “soft skills” and self-regulation in high school students. The research focuses on identifying the primary mechanisms by which physical activity contributes to developing personal and social competences among young people.

The main task is identifying critical elements, such as leadership qualities, communication skills, and self-control, necessary for successful integration into society and further professional activity. The work examines modern approaches and methods of physical education that contribute to optimising the development of “soft skills”. It discusses the economic aspects of implementing similar programmes in school education - from planning to implementation.

2. METHODS

The research methodology included four key stages, each aimed at a comprehensive analysis of the role of physical education in developing soft skills and self-regulation of high school students. At the preparatory stage, the components of physical education that contribute to developing soft skills were revealed: leadership, communication and teamwork. The main stage involved analysing the popularity of physical education among students in European countries, which resulted in the identification of effective methods and approaches for integration into the Ukrainian education system. The pre-final stage outlined the main areas of physical education used to develop soft skills and self-regulation and analysed their impact on student's personal development. At the final stage, recommendations were made to improve physical education programmes in schools based on the results of the previous stages of the study and considering current trends in the development of the educational sector.

The study used synthesis and generalisation methods to integrate existing theoretical knowledge and data on physical education and soft skills. It used deduction to draw conclusions based on statistical data analysis and to identify the links between physical education and its impact on students' development.

Comparative analysis was used to evaluate the effectiveness of different approaches to physical education in European countries and their potential adaptation in the Ukrainian context. These methods allowed us to build a structured picture of the impact of physical activity on students' development and identify the most effective approaches for implementation in educational programmes. Prospects for further research include analysing the impact of the latest physical

education methods on developing soft skills in students in different socio-economic conditions and regions.

Limitations of the research methodology include insufficient consideration of cultural and social factors that may influence students' perceptions of physical activity, as well as possible limitations of statistical data due to different approaches to accounting for indicators in different countries.

3. RESULTS

Physical education of high school students is a means of maintaining health and fitness and an essential tool for developing critical soft skills and self-regulation skills that are highly relevant in the modern education system. In the context of constant change, the growing amount of information and the need to adapt to new challenges, educational institutions must provide young people with academic knowledge and skills for successful functioning in society (Catal et al., 2023; van Dalen & Henkens, 2020). Due to its structure and integration of practical and social elements, physical education develops valuable skills in high school students: effective time management, overcoming stress and tuning in to achieve goals. Soft skills development through physical education is gaining relevance, especially given the economic feasibility: students who have acquired such skills can integrate more effectively into the labour market and society (Ma & Mazlan, 2024).

Several vital components can be identified when analysing the components of physical education that contribute to developing soft skills. Leadership skills are developed in sports competitions, where students must take responsibility for the team, make decisions and lead others. For example, high school students learn to coordinate actions, distribute roles, and maintain team spirit in games such as basketball or football. Communication skills are developed through interaction during training or sports games, where students learn to express themselves clearly, discuss strategies and resolve conflicts. Teamwork, in turn, involves cooperation skills and the ability to integrate individual efforts into a typical result, which is extremely important in a modern society where synergy is the key to success.

See Table 1 for a more detailed understanding of the structural approach to physical education for high school students that promotes soft skills development. It presents the main components: team sports, individual activities, developmental exercises, yoga, and meditation, which ensure the development of leadership, self-regulation, and communication skills.

Table 1. Components of Physical Education for Developing Soft Skills in High School Students in the XXI Century

A component of physical education	Soft Skills	Explanation
Team sports	Teamwork and leadership	Playing sports in a team helps to develop the ability to work in a group, communicate effectively, make joint decisions and demonstrate leadership skills.
Individual training sessions	Self-discipline, time management	Organising training time, setting goals, and working towards achieving them helps develop self-organisation and time management skills.
Yoga and relaxation exercises	Stress management, emotional intelligence	Yoga and relaxation practices teach us to control emotions, reduce stress, and help develop inner balance and mindfulness.
Sports competitions	Sustainability, adaptability	Participation in competitions teaches us to cope with setbacks, adapt to new conditions, develop the ability to respond quickly to changes and overcome obstacles.
Physical activities in the open-air	Creativity, communication	Outdoor activities stimulate creativity and improve communication skills through interaction with the natural environment and other participants.
Planning training and sporting events	Organisational skills, planning	Developing a training programme and organising events develops planning, coordination and resource management skills.
Aerobic and cardio training	Stress resistance, the concentration of attention	The intense physical activity teaches one to focus on a task and helps one overcome physical difficulties, which helps build stress, resistance, and endurance.
Interval training	Distribution of efforts, ability to react quickly	Interval training develops the ability to alternate between periods of stress and rest, helping find the best solutions in changing conditions.

Source: compiled by the author

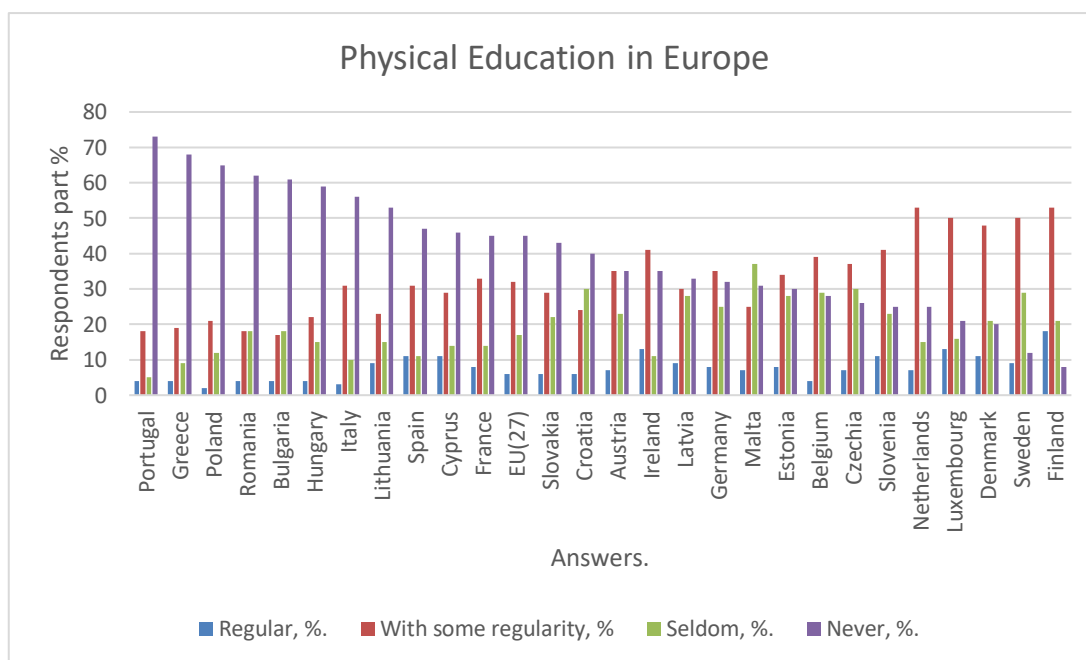
A healthier generation is less vulnerable to chronic diseases, which allows for reduced public spending on health care and social support. Statistics collected by the Eurobarometer show that countries that actively invest in school physical education programmes have a lower percentage of young people with problems with diabetes or hypertension.

In the twenty-first century, physical education contributes to developing communication skills through three key areas: team sports develop the ability to work in a team; individual classes develop personal responsibility and self-control; and development programmes improve stress management skills and emotional stability, promoting performance under high-stress conditions.

Regular exercise helps improve concentration, problem-solving and overall cognitive development, which correlates with improved academic performance. High school students who are

actively involved in sporting activities perform 15-20% better than those who are not, and their behaviour is more organised and disciplined.

To demonstrate the level of students' participation in physical activity and its connection to soft skills development, let's look at the results of the Eurobarometer 2022 in Figure 1. It shows data on the frequency of physical activity among high school students in the European Union. In countries where a significant percentage of students regularly participate in sports (such as Finland and Denmark), there is a higher level of soft skills development, such as communication and leadership, due to the widespread involvement of students in team sports and active physical education programmes in schools (Jeong & So, 2020). In countries with low levels of participation in physical activity, however, there are some difficulties in developing teamwork and practical communication skills.



Source: Eurobarometer (2022), Euronews (2023)

Figure 1. How often do you exercise or play sports?

Introducing physical education systems in schools focused on developing soft skills is economically feasible. This directly affects the country's economy through the development of human resources. Investing in physical education programmes also significantly impacts societal development by improving young people's health and reducing future social costs.

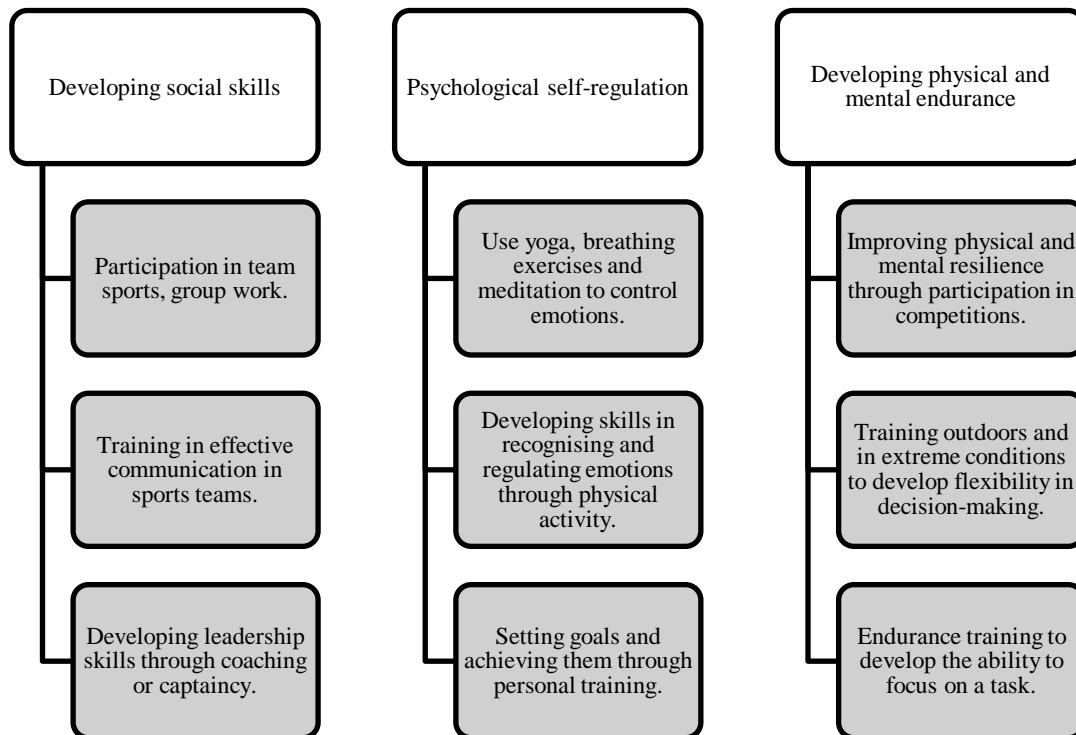


Figure 2. Critical areas of physical education for developing soft skills and self-regulation

Modern challenges in implementing physical education programs focused on developing “soft skills” significantly limit the effectiveness of such initiatives. One such challenge is the lack of necessary infrastructure, such as sports halls, training areas, or specialised areas for various activities.

In addition, the shortage of professional personnel capable of effectively implementing these programmes further complicates the situation. Many physical education teachers lack the training to develop children's “soft skills”, so retraining and professional development are urgently needed to meet modern educational standards.

Ways to improve physical education in schools should include modernising educational programmes and integrating innovative methods and approaches that will contribute to developing communication skills and self-regulation in schoolchildren. Incorporating interactive practices – such as team sports, teamwork, or yoga – can effectively provide students with applied skills that they can use in their daily lives and future careers.

Establishing cooperation with international educational institutions is a critical stage that will allow studying the experience of countries that have successfully implemented similar programmes. Partnerships with international sports organisations or participation in exchange programmes for

physical education teachers can improve the quality of physical education by providing access to best practices and methods.

Physical education plays a vital role in forming communication skills and self-regulation among high school students. Investments in the development of physical culture contribute to the formation of qualified specialists in the future and have a significant economic effect, mainly by reducing the costs of health care and social programmes. Thanks to effective physical training programmes, it is possible to ensure the education of generations who will be competent, socially adapted and responsible citizens.

4. DISCUSSION

The obtained data emphasise the importance of physical education for developing “soft skills” in high school students, consistent with Østerlie and Kristensen's research results (2023). They studied the perceptions of physical education students in Norway and their understanding of the importance of physical education for developing social and communication skills. The authors found how physical activity promotes physical development and self-regulation at the physiological level, which is related to our findings. However, despite the positive impact, the research by Merma-Molina et al. (2023) highlights the need to include sustainability aspects in the curricula for future physical education teachers. This approach has not yet been sufficiently implemented in the Ukrainian education system. Further research could focus on integrating sustainable development concepts into physical education courses for high school students.

An important aspect is the influence of social and inclusive factors on the effectiveness of physical education. In their study, Xue et al. (2023) point out that inclusive education significantly increases the competencies of physical education teachers but also requires high professional agency. This highlights the importance of training qualified personnel in physical education, which is also in line with the results of our study, which states that investing in educational programmes and teacher qualifications is necessary to achieve positive change. The findings of Jess et al. (2021) show the following trend: physical education teachers often feel conflicted between the desire to ensure academic achievement and the need to promote physical activity in students, which creates additional challenges in implementing effective programmes.

It is also interesting to consider the use of technology in physical education. Wallace et al. (2023) emphasise the need to increase digital competences among teachers and students, allowing for more effective integration of technology in physical education. Our findings support the thesis that

integrating digital technologies into the learning process can help increase student motivation but requires additional resources and investment. Wang et al. (2023), in their systematic review, confirm the importance of blended learning for improving the effectiveness of physical education programmes but point out the need to adapt methods to local contexts.

Based on the results obtained and the analysis of the work of other scholars, it is promising to study the integration of physical education programmes with digital tools to improve their effectiveness. In this context, the area of glocalisation is attractive, as noted by Tolgfors & Barker (2023), as it allows for the adaptation of international experience to local conditions. A promising area is the study of the interaction between socio-economic conditions and inclusive education, considering the experience described by Nugraha et al. (2022). The researchers studied the perceptions of physical education students and teachers about physical education in their country. The problem of improving the legislative framework aimed at supporting physical education programmes in Ukrainian schools, given the study by Kondur et al. (2022), is relevant to developing soft skills among physical education students. The issue of the impact of physical education on the formation of soft skills is economically feasible for the development of human capital for the future labour market.

5. CONCLUSIONS

Thus, physical education is vital for developing soft skills and self-regulation in high school students. In turn, this significantly impacts students' academic performance and social adaptation. The study results confirm that various types of physical activity, such as sports, yoga and cycling, contribute to developing leadership, communication and cooperation skills. Analysis of international Eurobarometer data demonstrates a close connection between students' physical activity and their psychological state, improved academic achievement and ability to manage stress. Integrating balanced programmes into the school system can effectively improve the quality of education and develop well-rounded students ready to meet the challenges of modern society.

Investing in physical education programmes is economically viable, as it contributes to forming future personnel with developed soft skills required in the labour market. The introduction of an innovative combined methodology, adaptation of international experience and strengthening cooperation with educational institutions in other countries allows us to create a holistic physical education programme that meets the requirements of the modern world and integrates digital technologies. This increases student motivation and ensures the flexibility and relevance of

educational processes. It is worth focusing on the practical development of self-regulation skills in the future.

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