

OPTIMIZING PEDAGOGICAL STRATEGIES: A FRAMEWORK FOR OPERATIONALIZING SPECIFIC COMPETENCIES IN PHYSICAL EDUCATION

Ion MIHĂILĂ¹, Florin-Valentin BIDIREANU², Camelia ARAMĂ (PANFILOIU)²

1National University of Science and Technology Politehnica Bucharest, Faculty of Physical Education and Sport, Pitești University Center, Romania

2National University of Science and Technology Politehnica Bucharest, Doctoral School of Physical Education and Sport, Pitești University Center, Romania

**Corresponding author: florin_bidireanu@yahoo.com*

<https://doi.org/10.52846/46.2025.1.11>

Abstract: This research contributes to a deeper understanding of the impact of operationalizing specific competencies in physical education and sports and highlights the need to adapt teaching strategies to meet students' needs in the contemporary context. The study focused on the survey methodology, conducted through an online questionnaire administered to 150 high school physical education and sports teachers from Prahova County. The questionnaire was designed to assess the pedagogical approaches used to operationalize specific competencies, the evaluation of students' specific competencies, and the impact of technology on the educational process. The analysis and interpretation of the data were carried out using statistical functions, charts, and pivot tables for organization and visualization in the Microsoft Excel Data Analysis program. The results indicate that 75% of respondents integrate various teaching methods, such as holistic education and discovery learning, suggesting that diverse pedagogical strategies are perceived as essential for the operationalization and development of students' competencies. Furthermore, 80% of teachers use formative assessments, such as systematic observations and self-assessments, emphasizing the importance of continuous feedback in students' progress. The recommendations refer to improving physical education programs, including promoting technological innovation and more effective assessment methods. These findings provide a solid foundation for future studies on the effectiveness of operationalizing specific competencies in physical education and sports, as well as on how pedagogical methods can be optimized to support student performance.

Keywords: *operationalization, specific competencies, pedagogical strategies*

Introduction

In the context of the profound transformations that define contemporary education, the development of specific competencies in physical education and sports is gaining increasing importance in the holistic formation of students. The learning process is no longer focused solely on motor performance but integrates cognitive, affective, and social dimensions, reflecting a comprehensive approach to education (Kirk, 2020). In this regard, the operationalization of specific competencies becomes a complex endeavor, requiring teachers to engage in continuous professional development and to adapt their teaching strategies and assessment methods to the real needs of students (MacPhail, 2022).

Today's society, characterized by diversity, digitalization, and interconnection, requires physical education teachers to redefine their role shifting from mere transmitters of content to facilitators of experiential learning. Within this framework, the use of technology, participatory methods, and formative assessment becomes essential for fostering active engagement and developing students' transversal competencies.

School competence is an integrated system of knowledge, abilities, motor skills, and attitudes acquired by students through learning and mobilized in specific contexts, adapted to the student's age and cognitive level, with the purpose of solving problems they may encounter in real-life situations (Gremalschi, 2021).

Competence constitutes a set of functional knowledge and behavioral experiences developed in students through the educational process, aimed at solving problem situations of a personal, educational, or social nature that they may encounter (Sava, 2010).

The conceptual (general) knowledge acquired by students through the teaching of specific theoretical topics by the teacher contributes to the formation of their perspectives, ideas, beliefs, and motivation to engage actively and consistently in physical exercises for various purposes, including health maintenance, skill development, or personal growth (Baumgartner, 2022).

Competence represents a complex reality, shaped by multiple factors and dimensions, which

involves the mobilization, combination, and adaptation of various resources according to the requirements of the task, the problem to be solved, and the context in which the action takes place (Asún, 2020).

General competencies facilitate the transfer and application of knowledge, whereas specific competencies aim at its effective acquisition (Frumos, 2008).

There are bidirectional relationships between competencies, learning content/units, and elements of the teaching strategy (Mihăilescu, 2017).

Structuring physical education programs into learning units that address each specific competency helps develop a clear pedagogical plan. These units may include running activities, team games, or gymnastics exercises, each with specific objectives aligned with the targeted competencies (Petrušič, 2024). The correlation between specific competencies and the content of the physical education curriculum is essential for ensuring a coherent and effective educational experience (Eren et al., 2024). This correlation between competencies and content allows for relevant and contextualized learning, facilitating the transfer of skills to everyday life (Boian, 2008).

Methods. Participants. Procedures

The present research was based on a descriptive and analytical approach, relying on the opinion survey method. The primary aim of the investigation was to identify and analyze the perceptions of high school physical education and sports teachers regarding the operationalization of specific competencies, the teaching strategies employed, the methods of formative assessment, and the impact of technology on the educational process. The sample consisted of 150 physical education and sports teachers working in high schools in Prahova County, selected based on the principles of voluntariness and willingness to participate in the online study. The distribution of respondents reflected the diversity of educational

settings (urban and rural), types of high schools (theoretical, technological, and vocational), and levels of professional experience. The main instrument used was an online questionnaire, which included 23 items organized into six thematic sections: general information, operationalization of specific competencies, teaching strategies and innovation, assessment of specific competencies, technology in physical education and sports, and perspectives and recommendations. The questionnaire was distributed through online educational platforms and professional networks between May and June 2025. Participation was anonymous, and responses were collected in digital format, ensuring data confidentiality and adherence to the ethical principles of educational research. The collected data were processed and analyzed using Microsoft Excel – Data Analysis, employing descriptive statistical functions, comparative charts, and pivot tables for organizing and visualizing the information. The analysis aimed to identify dominant trends regarding the use of student-centered teaching methods, the application of formative assessment, the level of digital technology integration, and teachers’ perceptions of the impact of these practices on student performance. The interpretation of the results was carried out in correlation with the specialized literature and national curricular documents, aiming to formulate practical recommendations for optimizing the teaching-learning-assessment process in physical education and sports.

Results and Discussion

The analysis of the data obtained from the online questionnaire highlights several relevant trends regarding how physical education and sports teachers approach the process of developing and assessing specific competencies in high school education. The results confirm that the majority of respondents demonstrate a significant openness toward modernizing pedagogical practices and adopting student-centered strategies.

Table 1. Analysis of the frequency of responses for the operationalization of specific competencies

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
a. The school curriculum provides clarity in formulating the specific skills to be developed in students.	Frequencies			29	64	57	150
	Percentage	0.00%	0.00%	19.33%	42.67%	38.00%	100%
b. Specific skills can be easily correlated with the practical activities carried out during physical education classes.	Frequencies	15	19	36	44	36	150
	Percentage	10.00%	12.67%	24.00%	29.33%	24.00%	100%

c. The formation of specific skills implies a balance between the motor, cognitive, and affective dimensions.	Frequencies		18	28	68	36	150
	Percentage	0.00%	12.00%	18.67%	45.33%	24.00%	100%
d. The available resources (spaces, materials, equipment) allow for the practical application of the skills provided in the curriculum.	Frequencies		33	18	48	51	150
	Percentage	0.00%	22.00%	12.00%	32.00%	34.00%	100%
e. The initial level of student preparedness significantly influences how skills are operationalized.	Frequencies	17	19	18	75	21	150
	Percentage	11.33%	12.67%	12.00%	50.00%	14.00%	100%
f. The time allocated to physical education classes is sufficient for the development of specific skills.	Frequencies		32	9	75	34	150
	Percentage	0.00%	21.33%	6.00%	50.00%	22.67%	100%
g. I believe that the process of operationalizing skills contributes to the formation of a positive attitude towards movement and an active lifestyle.	Frequencies			36	66	48	150
	Percentage	0.00%	0.00%	24.00%	44.00%	32.00%	100.00%

In the table above, 80.7% of teachers agree or strongly agree that the school curriculum provides clarity, while only about 19% are neutral. This indicates a positive perception of the clarity of competencies in the curriculum. Approximately 53.3% of teachers believe that these competencies can be correlated with practical activities, whereas 22.7% disagree. One-quarter of respondents are neutral. There is a general consensus moderat,

but not unanimous. 69.3% agree or strongly agree that the development of competencies involves a balance between dimensions (motor, cognitive, affective), indicating recognition of the complexity of competency formation. 66% of teachers believe that the available resources allow for practical application, while 22% only partially agree or disagree.

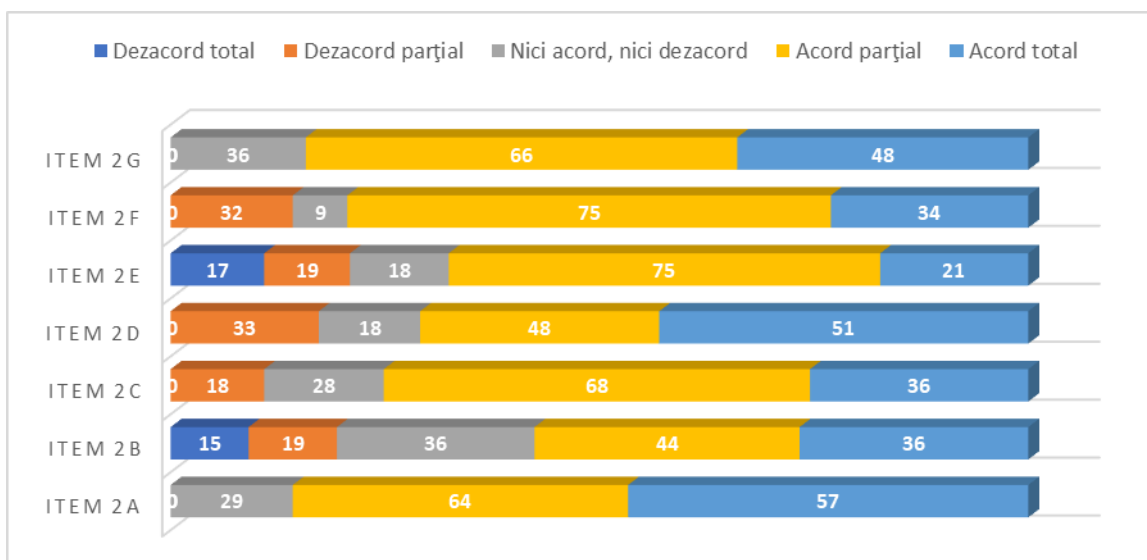


Figure 1. Graphical Representation of Responses for the Operationalization of Specific Competencies

Resources are perceived as sufficiently adequate, though some limitations exist. 64% believe that students' initial skill levels influence the operationalization process, indicating that adapting to students' abilities is an important

factor. 72.7% think that the time allocated is sufficient for competency development, suggesting a positive perception regarding temporal allocation in the curriculum. 76% consider that the process contributes to forming a

positive attitude toward physical activity, highlighting the impact of physical education on students' attitudes. (figure 1)

A notable initial finding in the third section of the questionnaire, titled Teaching Strategies and Innovation, shows that 75% of respondents report using a variety of teaching methods, integrated within modern approaches such as holistic education, discovery learning, and cooperative learning. A combined 56.67% of respondents indicate that they always or often adapt their teaching strategies, suggesting that a significant proportion of educators actively attempt to adjust

their instruction. Approximately 26.00% of respondents adapt their strategies sometimes, indicating an awareness of the need for adaptation, but possibly inconsistent implementation due to various constraints (time, resources, class size, etc.). A combined 17.33% of respondents rarely or never adapt their teaching strategies, which may be due to several reasons, including the belief that a standardized approach is more effective, lack of training or resources to differentiate instruction, or difficulties in accurately assessing students' needs.

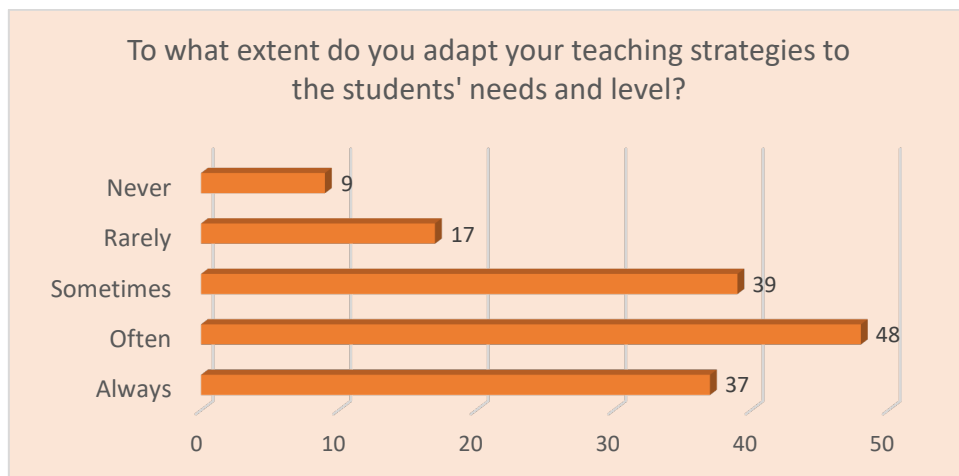


Figure 2. Graphical Representation of Responses for the Adaptation of Teaching Strategies

While the majority of respondents report that they adapt their teaching strategies to students' needs at least occasionally, there remains a notable proportion who rarely or never do so. This highlights the potential for professional development and support to encourage more consistent and effective differentiation in instruction. These data indicate a clear trend of transition from the traditional, teacher-centered model toward a constructivist, student-centered

approach, the holistic development of the student. The interviewed teachers believe that the use of varied methods contributes to increased motivation, the development of self-regulation competencies, and the enhancement of social skills, while also strengthening the cognitive dimension of physical education. This methodological openness reflects the alignment of school practices with the principles of active learning and experiential education. (figure 2)

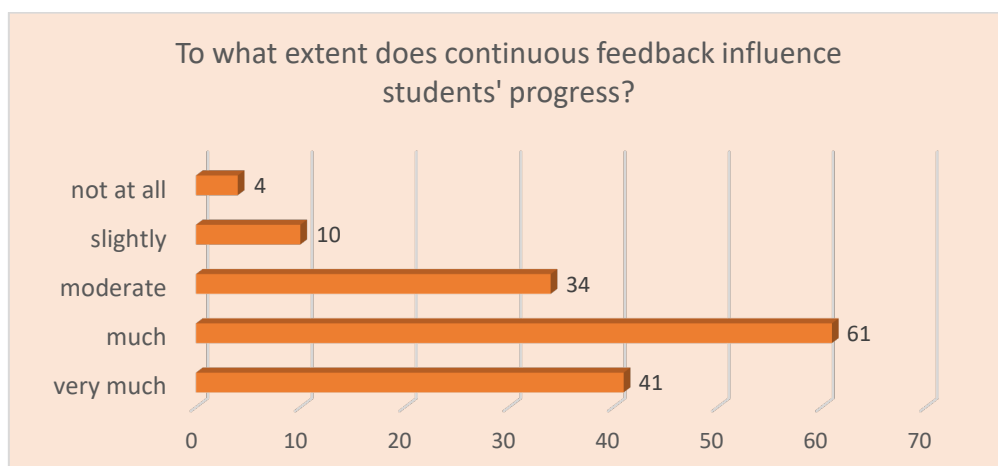


Figure 3. Graphical Representation of Responses Regarding the Influence on Student Progress

Another key aspect of the study, highlighted in the fourth section of the questionnaire, as shown in figure above, concerns the assessment methods used. 80% of participants reported applying formative assessment methods based on systematic observation, self-assessment, and constructive feedback. The analysis of responses to the item “To what extent does continuous feedback influence student progress?” reveals a predominantly positive perception of the impact of this educational practice. Specifically, 27.33% of respondents indicated that continuous feedback has a very strong influence on student progress, while 40.67% believe the influence is strong. In total, 68% of participants attribute a significant role to this form of assessment in student development. Meanwhile, 22.67% rated the influence as moderate, suggesting the presence of contextual factors (such as the frequency, quality, or relevance of feedback) that may affect its effectiveness. The small proportions of

respondents who rated the influence as low (6.67%) or nonexistent (2.67%) confirm the overall trend of valuing continuous feedback as a tool to support academic progress. The data indicate that continuous feedback is perceived as a central element in the learning process, significantly contributing to student motivation, self-regulation, and performance improvement. This result confirms a significant shift in the assessment culture, from an exclusive focus on performance to supporting individual progress. Teachers consider continuous feedback to be a valuable tool for guiding students in the self-learning process, contributing to the development of metacognitive competencies and fostering their responsibility for their own performance. At the same time, formative assessment is perceived as an effective means of individualizing instruction, especially in the context of the diverse motor skill levels of students.

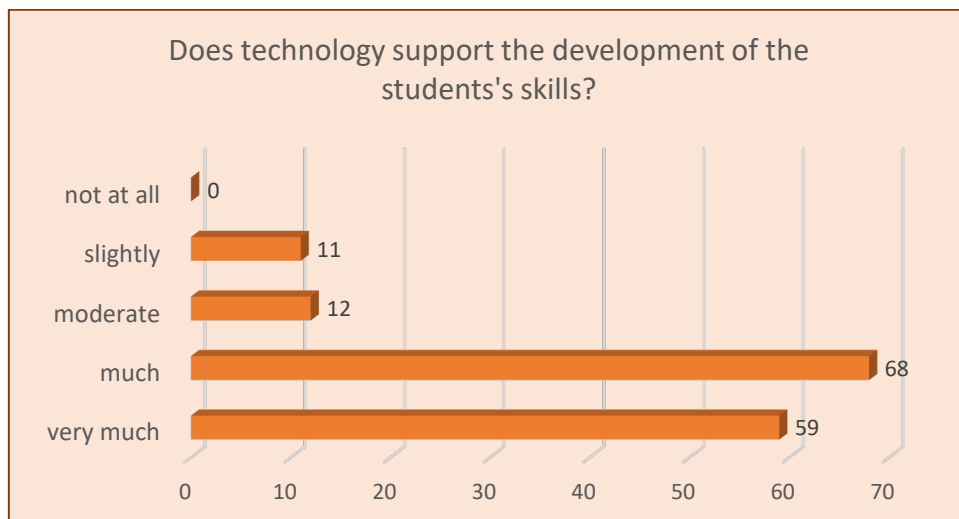


Figure 4. Graphical Representation of Responses Regarding Competency Development

The results also show, based on responses to questions in the final section of the questionnaire, a noticeable increase in interest in using technology in physical education and sports activities (figure 4). The overwhelming majority of respondents, approximately 84.7%, believe that technology greatly or very greatly supports the development of students' competencies. This indicates a generally positive and strongly favorable perception of the role of technology in the educational process. 8% consider the impact to be moderate, suggesting the presence of a small, more reserved group, but not a negative one. Only 7.33% believe that technology provides “little” support, and no one selected “not at all,” indicating no opposition to the integration of

technology. Most respondents report using digital applications, video materials, and online educational platforms, particularly for monitoring student progress, assessment, and educational communication. This trend highlights not only teachers' adaptation to current technological realities but also an openness to digital pedagogy, which can significantly enhance student motivation and engagement. However, some participants noted challenges related to insufficient digital infrastructure or a lack of training in technology use, issues that require institutional solutions and ongoing professional development.

The analysis of open-ended responses reveals teachers' desire to participate in continuing

professional development programs focused on modern teaching methods, formative assessment, and the integration of digital tools. Additionally, respondents suggest revising school curricula to include more flexible objectives and activities, allowing adaptation to students' individual characteristics and the current technological context. These observations emphasize the belief that the effectiveness of operationalizing specific competencies depends not only on the teacher's individual efforts but also on institutional support, the quality of professional training, and the modernization of the curricular framework. The obtained results are consistent with directions highlighted in the international literature, which supports that the operationalization of specific competencies requires an integrated approach based on interaction, reflection, and self-assessment. Recent studies (e.g., MacPhail & Halbert, 2022; Kirk, 2020) confirm that student-centered methods and formative assessment contribute to increased motivation and long-term performance, especially when supported by appropriate digital resources.

Directions for Optimizing Pedagogical Strategies

The model for optimizing pedagogical strategies for the effective operationalization of specific competencies takes into account several key aspects, including: clarifying and breaking down specific competencies, focusing on active and experiential learning, diversifying teaching methods and organizational forms, integrating digital technology, implementing formative assessment and self-regulated learning, promoting the socio-emotional dimensions of education, and providing continuous professional development for teachers (figure 5). Regarding the clarification and breakdown of specific competencies, teachers need to translate the specific competencies from the curriculum into observable behaviors and measurable learning objectives. For example, "developing the capacity for teamwork" can be operationalized through indicators such as assuming roles, effective communication, and mutual support. The use of competency grids that include clear performance criteria is recommended.

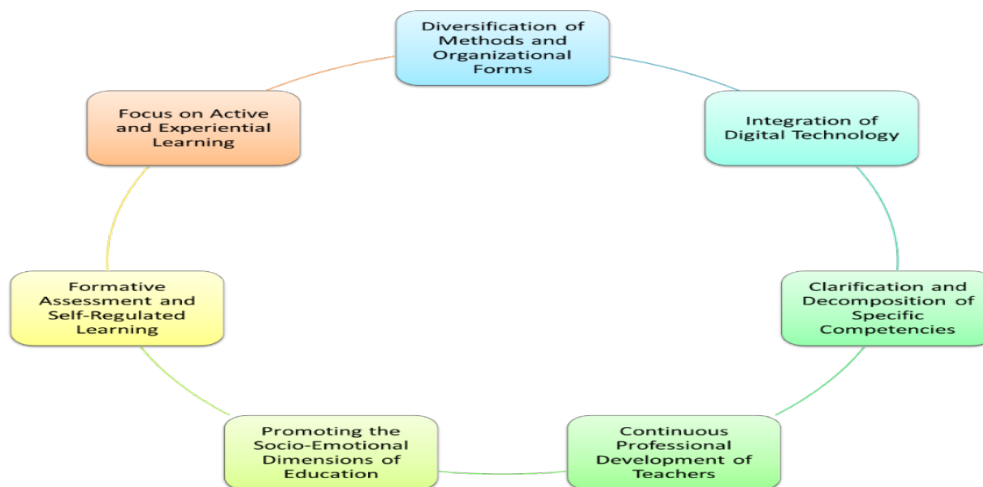


Figure 5. Directions for Optimizing Pedagogical Strategies

Focusing on active and experiential learning involves promoting learning by doing, learning through games, and motor problem-solving situations, as well as integrating activities that require decision-making, reflection, and self-assessment, not just physical execution. For example, sports mini-projects where students set personal goals and analyze their own progress. Diversifying methods and organizational forms involves alternating individual, paired, and team activities to develop motor, cognitive, and social competencies; using interactive methods such as jigsaw, peer teaching, reflective circuit training,

and debates on fair play or active health; as well as creating interdisciplinary learning contexts (e.g., connections with biology, psychology, and health education).

The integration of digital technology refers to the use of applications for monitoring physical activity, collaborative learning platforms, and video tools for personalized feedback, as well as the implementation of digital portfolios to track students' competency progress. Technology can support formative assessment and individual reflection.

Formative assessment and self-regulated learning involve shifting from exclusively summative evaluation to continuous, progress-centered assessment, using tools such as self-assessment sheets, reflection journals, and peer feedback. In this context, the teacher becomes a facilitator of self-regulation, helping students become aware of what and how they learn.

Promoting the socio-emotional dimensions of education involves developing affective and social competencies through activities that foster cooperation, respect, and empathy, reflecting on the values of sport—fairness, perseverance, responsibility—and creating a positive learning climate based on trust and mutual support.

Regarding continuous professional development for teachers, this direction entails participation in courses on innovative pedagogy, digital education, and competency-based assessment, the creation of professional learning communities (peer learning) among physical education teachers, and systematic reflection on one's own practices (through lesson study, action research, etc.).

Conclusions

Overall, the data analysis suggests that physical education and sports teachers demonstrate a positive and adaptable attitude toward contemporary curricular and pedagogical changes. However, the full implementation of these innovative practices requires strengthened digital infrastructure, continuous professional development, and a more flexible educational framework that supports the holistic and sustainable development of students' competencies.

Optimizing pedagogical strategies in physical education involves the coherent integration of varied teaching methods, formative assessment, and digital technology to support the development of students' specific competencies. Teachers who apply these practices exhibit increased adaptability and contribute to creating an active, motivating, and student-centered learning environment. Continuous professional development and the exchange of best practices prove essential for sustaining the effectiveness of the educational process. Overall, an integrated pedagogical framework provides a solid foundation for promoting performance, engagement, and the harmonious development of students in physical education and sports.

References

- Asún, S., Chivite, M. T., & Romero, M. R. (2020). Perceptions of Professional Competences in Physical Education Teacher Education (PETE). *Sustainability*, 12(9), 3812. <https://doi.org/10.3390/su12093812>
- Baumgartner, M. (2022). Professional competence(s) of physical education teachers: terms, traditions, modelling and perspectives. *Ger J Exerc Sport Res* 52, 550–557, <https://doi.org/10.1007/s12662-022-00840-z>
- Boian, I. (2008). Aspecte praxiologice de formare la elevi a competențelor în cadrul lecțiilor de educație fizică. *Calitatea educației: teorie, principii și realizări*. Chișinău
- Eren, G., Solmaz, D. Y., & Yapıcıoğlu, D. K. (2024). The alignment between the official physical education curriculum and the taught curriculum. *Journal of Theoretical Educational Sciences*, 17(2), 404–422. <https://doi.org/10.30831/akukeg.1322208>
- Frumos F., (2008). *Didactics – Cognitive bases and developments*, Polirom, Bucharest
- Kirk, D. (2020). Models-based practice: A critical review of the literature. *Physical Education and Sport Pedagogy*, 25(4), 379–392
- Gremalschi, A. (2021). *Formarea competențelor-cheie în învățământul general: provocări și constrângeri*. Chișinău: EDICT
- MacPhail, A., & Halbert, J. (2022). Supporting the continuum of teacher education through policy and practice: The inter-relationships between initial, induction, and continuing professional development. In G. Czerniawski, A. MacPhail, E. Vanassche, M. Ulvik, A. Guberman, H. Oolbekkink-Marchand, & Y. Bain (Eds.), *Teacher educators and their professional development: Learning from the past, looking to the future* (pp. 135–154). Springer Nature. DOI: 10.1007/978-981-19-2904-5_7
- Mihăilescu, L., Mihăilescu, L. (2017). Contributions regarding the establishment of the relation between competences –content areas – fundamental acquisitions cycle. *Journal of Physical Education and Sport*, 17, 2266 – 2279. DOI:10.7752/jpes.2017.s5241
- Petrušič, T. (2024). Increasing the level of physical activity intensity with child-designed games and creativity of 6-8-year-olds during gymnastics lessons in physical education. *Revista Românească pentru Educație Multidimensională*, 16(1), 315–325. <https://doi.org/10.18662/rrem/16.1/824>
- Sava, P. (2010). *Educație fizică. Ghid de implementare a curriculumului modernizat pentru treapta liceală*. Chișinău: Cartier