

## THE ROLE OF PHYSICAL EDUCATION ACTIVITIES AT MOTOR AND PSYCHOLOGICAL LEVELS – TEACHERS’ PERCEPTION

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**Abstract.** Physical education (PE) teachers are responsible for informing preadolescents and adolescents about the positive effects of practising physical activities. Such positive effects are observed at different levels: body immunity, nervous system, musculoskeletal system, digestive system, adipose tissue, fat metabolism, pulmonary and cardiovascular systems, cognitive processing, personality and psychomotricity. The present research aims to discover a connection between teachers’ perception regarding the benefits offered by the systematic practice of PE and variables such as age, experience, gender, county and level of education. The research subjects were 144 physical education teachers (91 men and 53 women). An opinion questionnaire designed by us was used; it consists of 31 items measured on a 5-point Likert scale, with 1 representing “To a very small extent”, and 5, “To a very large extent”. The questionnaire has two parts investigating both motor and psychological development as a result of PE activities. Factorial MANOVA revealed a significant relationship between experience, gender and age (analysed separately), between age and level of education (taken together), between age, experience and county (taken together), and the combination of dependent variables (teachers’ perception of both motor and psychological development). Experience significantly influences only teachers’ perception regarding psychological development, while gender and level of education (taken together) influence only teachers’ perception regarding motor development. The Scheffe test highlights significant differences between teachers with more than 25 years of experience and the other categories, with respect to the psychological benefits of practising PE activities.

**Keywords:** physical education, students, teachers, psychophysical benefits.

### Introduction

After one’s family (the first environment where the child’s values and beliefs are built), school has the educational role of forming children and opening their eyes to the world and life, to social rules. Parents and teachers/specialists have the task to inform preadolescents and adolescents about the positive effects of physical activity. Various authors mention that knowing the benefits obtained through sports activity is one of the reasons underlying student involvement in sport (Gill et al., 1981).

Some beneficial effects of practising physical education and sports (adapted after Tüdös and Mitrache, 2011) are:

- better ability of the immune system to respond to a microbial aggression;
- promptness in observing and reacting to various environmental stimuli, development of kinetic and transformational representations, development of thinking, development of internal and external language, of creative and reproductive imagination, improvement of procedural (default) memory and working memory (essential for adaptation to the

environment), improvement of attention qualities (concentration, flexibility, distributivity, stability and volume);

- construction of self-image, development of ambition, perseverance and mental toughness, development of ideomotor skills (the ability to imagine movements), motor intelligence and body schema (seeing oneself mentally), improvement of creativity;
- improvement of motor coordination and balance;
- a decrease in total body fat and visceral fat;
- an increase in muscle ability to take up blood lipids and use them to generate energy;
- intestinal transit is improved, and constipation is removed;
- the lung becomes able to ventilate a larger amount of air per minute;
- an increase in strength, endurance and power, the muscles “melting” at a slower pace with age;
- tensions (from depression, anxiety) are released, people becoming more relaxed in daily activities;
- an increase in muscle ability to extract (take up) blood glucose;
- an increased amount of blood in the vessels and amount of blood that the heart can push out, the blood becoming thus more fluid and circulating more easily through arteries and veins.

By involving children in physical education and sports activities, they acquire/develop values such as responsibility, fair play and competitive spirit. Also, shy children who participated in sports activities over time reported a significant decrease in anxiety (Findlay & Coplan, 2008). But why is it so important to reduce anxiety? Various researchers address the effects of anxiety in psychophysical terms, stating that it can negatively influence children’s performance (adapted after Nedelcea, 2011):

- high levels of cognitive anxiety - stress, worry, uncertainty - are related to a low level of self-confidence, influencing the motivation and reasoning of preadolescents and adolescents and thus their school performance;

- somatic and mental anxiety symptoms such as: dry mouth, difficult breathing, chest tightness, frequent or loose stools, throbbing in the throat, palpitations, blurred vision, trembling hands, frequent urgent urination, restless sleep with repeated awakenings, bad dreams, irritability, difficult concentration, restlessness, worry or sensitivity to noise, all of these affect children’s school performance and relationships within the group of classmates; possible negative evaluation from colleagues or teachers can emotionally burden the child, and if the perceived intensity is too high, a rejection reaction to the potentially stressful stimulus (school) may occur in the form of school dropout as a defence mechanism of the preadolescent and adolescent psyche.

Therefore, by reducing anxiety, the particularly important role played by physical education and sports in preventing and reducing social exclusion and early school dropout is highlighted.

Children develop as a result of the interaction taking place between the motor, cognitive, social and emotional areas. Physical education and sports contribute to developing social skills in all children even since their preschool period (Hashemi et al., 2012). And increased

social skills leave their mark on the wellbeing of students in the school environment, with a direct impact on preventing and reducing social exclusion and early school dropout.

Other researchers also highlight that belonging to a team is very important for students, stimulating both their sports participation and social development (Wankel & Kreisler, 1985). The relationships established within the sports group and the existing positive atmosphere contribute to the emotional development of children. Some students want to improve their sports skills, thus outlining another reason that influences children's participation in physical activities and implicitly school activities. An investigation conducted on more than 2,000 children (average age: 11.9 years) participating in sports activities has revealed that almost half of them (both boys and girls) consider that the most important thing in a competition is personal performance – “To play as well as you can” (McElroy & Kirkendall, 1980). Therefore, teachers and parents who aim to induce a sense of “wellbeing” among students in the school environment will appreciate/value the student's success (better performance than before) rather than victory.

The following benefits of sports games are also noted (Pomohaci & Sopa, 2016): students support each other and the team spirit develops, conflicts are solved in a constructive way, and children learn what to do/not to do in order to prevent their emergence. All these gains are positively transferred into the social plane and are revealed in different contexts (where they get a general character), the individual becoming more adaptable. We should not forget that social exclusion and school dropout mainly occur because students fail to efficiently cope with their environment.

In a world with more and more varied concerns, PE teachers must have the skills to deal with diversity. The concept of inclusive education is based on the principle of equality, of equal education for all children regardless of their social or cultural background, religion or ethnicity. Some researchers are discussing about reviving inclusive education using arts (Allan, 2014). A challenge is represented by the socioeconomic level of individuals; thus, in the case of low-budget families, it has been found that the habit of practising exercise and sports activities depends more on the extended family (grandparents, other relatives), physical education teacher or schoolmates (Stuji, 2015).

Involving children in the physical education and sports lesson leads to positive results in terms of attitudinal and behavioural change. When young people stop participating in sports games, social protection networks are lost, as well as connections with people (adults, colleagues) who promote healthy development (Eime et al., 2013). Practising physical activities in school enhances executive functions and even academic achievements in children and adolescents (Kamijo et al., 2011; Hillman et al., 2008). Cognitive development and brain structure are connected to physical activities (Donnelly et al., 2016). Following the physiological changes in the body, physical activity facilitates the development of cognitive processes and learning (Zeng et al., 2017).

Specialists should create a partnership with parents in order to involve students in the physical education and sports lesson, considering the multiple motor and psychological benefits offered by these activities. However, all these benefits can be effective only if students are motivated to actively participate in physical education lessons. Therefore, student motivation is very important. How students relate to the physical education lesson depends on the emotional states they experience during physical activity. Hence, physical

education and sports teachers (and not only) must ensure that students get achievements by valuing success (better results than the last time) rather than performance. Experiencing failure takes children away from physical activity (Subramaniam & Silverman, 2002).

Students who experience pleasant emotional states and are motivated during physical education lessons seem to get more involved in other physical activities in their free time (Taylor et al., 2010; Ntoumanis, 2005). In order to increase the chances of motivating the preadolescents and developing their psychomotor skills, physical education teachers can schedule their activity using self-talk guidelines. It has been demonstrated that self-talk programmes are also applicable to physical education and not only to the field of sport (Zourbanos, 2013).

The present research aims to discover a connection between teachers' perception regarding the benefits offered by the systematic practice of PE and variables such as age, experience, gender, county and level of education.

## **Methodology**

### *Participants*

Our investigation is a cross-sectional study (can be seen also as an ex post facto research - a quasi-experimental design) including 144 physical education teachers (91 men and 53 women) from different regions of Romania: 60.4% from Prahova county, 24.3% from Timiș county and 15.3% from 11 other Romanian counties (Bucharest Municipality, Vrancea, Vaslui, Bistrița-Năsăud, Caraș-Severin, Covasna, Giurgiu, Gorj, Hunedoara, Mureș and Mehedinți). Participants are aged 23 to 66 years, and their seniority in education is between 1 and 43 years. 60.4% have a Bachelor's degree, 38.2% have a Master's degree, and 1.4% have also completed doctoral studies.

### *Instruments*

The PEA-MP (Role of PE Activities at Motor and Psychological Levels) opinion questionnaire created by us has two parts: 10 items assess teachers' perception regarding the benefits of PE activities for the motor and structural-functional development of preadolescents, and 21 items measure teachers' perception regarding the benefits of PE activities for the psychological development of children. PE teachers marked their responses on a 5-point Likert scale, with 1 representing "To a very small extent", 2 - "To a small extent", 3 - "To a moderate extent", 4 - "To a large extent" and 5 - "To a very large extent".

The 10 items investigating teachers' perception regarding the benefits of PE activities for structural-functional and motor development are: "Harmonious physical development", "Maintaining optimal muscle tone", "Increasing resistance to effort", "Increasing resistance to illness", "Combatting overweight and obesity", "Proper body posture", "Prevention and correction of postural and physical defects", "Development of motor skills (strength, speed, endurance, suppleness)", "Development of psychomotor skills (coordination, balance, agility, dexterity, etc.)", "Formation of a system of motor skills".

The 21 items investigating teachers' perception regarding the benefits of PE activities for psychological development are: "Development of communication skills", "Development of attention", "Development of the sense of observation", "Development of memory", "Development of intelligence", "Emotional development (emotional balance, emotional maturation)", "Development of motivation", "Development of will", "Development of imagination and creativity", "Preventing the occurrence of inappropriate behaviours", "Correction of inappropriate behaviours", "Development of teamwork skills and team spirit", "Development of the ability to collaborate in task solving", "Increasing the ability to cope with school tasks", "(Physical) Interaction with schoolmates", "Relaxation/ stress relieving/ wellbeing/ fun", "Learning a branch of sport that can be practised throughout life", "Essential contribution to a healthy lifestyle", "Harmonious development of self-image", "Development of aesthetic sense/ taste for beauty", "Development of fair play".

Our purpose was to discover a more accurate perspective on the benefits of PE activities for motor and psychological development directly from physical education teachers working in various regions of the country, with different experience and levels of education.

### *Procedure*

PE teachers completed the online PEA-MP opinion questionnaire in March 2020. We calculated two sums for each participant as follows: for the 10 items investigating teachers' perception regarding the benefits of PE activities for the structural-functional and motor development of children; for the 21 items investigating teachers' perception regarding the benefits of PE activities for the psychological development of children.

SPSS 20 was used to analyse teachers' responses, taking into account their experience, age, gender, county and level of education.

### **Results**

We will analyse below the items that have generated the most various responses from the PE teachers. Thus:

To item 4, "Increasing resistance to illness" (structural-functional benefits of PE activities), 59% of participants responded "To a very large extent", 29.9% - "To a large extent", 8.3% - "To a moderate extent", and 2.8% - "To a small and very small extent".

To item 5, "Combatting overweight and obesity" (structural-functional benefits of PE activities), 59% of PE teachers marked the option "To a very large extent", 26.4% - "To a large extent", and 14.6% - "To a moderate extent".

To item 7, "Prevention and correction of postural and physical defects" (structural-functional benefits of PE activities), 59% of participants selected "To a very large extent", 28.5% - "To a large extent", and 12.5% - "To a moderate extent".

Regarding the psychological benefits of practising physical education activities, we emphasise items 4 ("Development of memory"), 5 ("Development of intelligence") and 10 ("Preventing the occurrence of inappropriate behaviours"), which have generated the most various responses. Thus:

- 45.1% of PE teachers selected “To a very large extent”, 34.7% - “To a large extent”, and 19.4% “To a moderate extent” (item 4);

- 45.8% of participants marked the option “To a very large extent”, 35.4% - “To a large extent”, and 18.1% - “To a moderate extent” (question 5);

- 47.9% of PE teachers selected “To a very large extent”, 31.9% - “To a large extent”, 16.7% - “To a moderate extent”, and 3.5% - “To a small and very small extend” (question 10).

Table 1 shows the means and standard deviations related to the perceptions of PE teachers regarding the benefits of PE activities for the structural-functional and motor development, as well as the psychological development of preadolescents. The experience, age, gender, county and level of education of PE teachers were taken into account.

Table 1. *Descriptive statistics – Perceptions of physical education teachers*

Variables	Benefits of PE activities for structural-functional and motor development <i>M (SD)</i>	Benefits of PE activities for psychological development <i>M (SD)</i>
<b>EXPERIENCE</b>		
Under 10 years	46.57 (3.65)	96.36 (8.20)
Between 10 and 25 years	45.75 (4.96)	94.75 (8.94)
Over 25 years	45.30 (5.79)	88.40 (12.08)
<b>AGE</b>		
Under 40 years	45.74 (4.55)	95.28 (7.93)
Between 40 and 60 years	46.14 (4.92)	94.13 (10.63)
Over 60 years	45.80 (4.05)	91.40 (8.20)
<b>GENDER</b>		
Men	46.19 (4.22)	94.22 (9.51)
Women	45.57 (5.41)	94.69 (9.52)
<b>COUNTY</b>		
Prahova	45.99 (4.70)	94.31 (9.78)
Timiș	45.77 (4.55)	95.54 (8.03)
Others	46.16 (5.10)	92.91 (10.53)
<b>LEVEL OF EDUCATION</b>		
Graduates	45.67 (4.99)	94.11 (9.50)
Master's/ PhD degree	46.40 (4.20)	94.82 (9.52)

Using two dependent variables - benefits of PE activities for structural-functional and motor development and psychological development - allows us to better cover the studied aspect (benefits of PE activities). If we had done a separate analysis for each dependent variable, we would have ignored the existing relation between dependent variables, which would have led to a loss of information. In our study, the variables “benefits of PE activities for structural-functional and motor development” and “benefits of PE activities for psychological development” (taken together) provide a more comprehensive picture of the investigated reality (benefits of PE activities for the development of children).

Through factorial MANOVA, we aimed to identify significant relationships between teachers' experience, gender, age, county and level of education (analysed separately but also taken together), and the combination of dependent variables (teachers' perception regarding the benefits of PE activities for both the motor and psychological development of children).

Considering factorial MANOVA, we emphasise that Box M test is insignificant ( $p = 0.60$ ), which allows us to read the Wilks' Lambda test values. The Multivariate Test revealed a significant relationship between experience ( $p = 0.002$ ), gender ( $p = 0.023$ ) and age -  $p = 0.035$  (analysed separately), between age and level of education (taken together) -  $p = 0.014$ , between age, experience and county (taken together) -  $p = 0.017$ , and the combination of dependent variables (teachers' perception regarding the benefits of PE for both the motor and psychological development of children). Partial Eta Squared values (0.06-0.08) indicate moderate effect sizes, while the Observed Power is high (between 0.700 and 0.900). In these conditions, our confidence regarding the stability of the results is moderate to strong. (Table 2)

Table 2. *Between-subject effect (taking into account teachers' experience, age, gender, county and level of education)*

	Dependent variable	F	P
EXP	motor and structural-functional development	.989	.376
	psychological development	6.748	.002
GEN	motor and structural-functional development	1.363	.246
	psychological development	.562	.455
AGE	motor and structural-functional development	.474	.624
	psychological development	1.083	.343
CNT	motor and structural-functional development	.336	.715
	psychological development	.044	.957
LE	motor and structural-functional development	.016	.899
	psychological development	.073	.788
EXP * GEN	motor and structural-functional development	.349	.706
	psychological development	2.228	.113
EXP * AGE	motor and structural-functional development	2.294	.133
	psychological development	.004	.949
EXP * CNT	motor and structural-functional development	.343	.711
	psychological development	.809	.448
EXP * LE	motor and structural-functional development	1.566	.214
	psychological development	.994	.374
GEN * AGE	motor and structural-functional development	1.941	.149
	psychological development	1.165	.316
GEN * CNT	motor and structural-functional development	1.313	.274
	psychological development	1.180	.312
GEN * LE	motor and structural-functional development	4.790	.031
	psychological development	1.609	.208
AGE * CNT	motor and structural-functional development	.078	.925
	psychological development	.366	.695
AGE * LE	motor and structural-functional development	1.479	.233
	psychological development	2.356	.100
CNT * LE	motor and structural-functional development	.015	.986
	psychological development	.379	.685
EXP * GEN*	motor and structural-functional development	1.161	.284
AGE	psychological development	.404	.526
EXP * GEN *	motor and structural-functional development	1.544	.217
CNT	psychological development	.127	.723
EXP * GEN * LE	motor and structural-functional development	.871	.422
	psychological development	.097	.908
EXP* AGE *	motor and structural-functional development	.545	.462
CNT	psychological development	1.574	.213
EXP * AGE * LE	motor and structural-functional development	.459	.500
	psychological development	.027	.869

EXP * CNT * LE	motor and structural-functional development	2.583	.111
	psychological development	2.131	.148
GEN * AGE * LE	motor and structural-functional development	.967	.328
	psychological development	.001	.982
GEN * CNT* LE	motor and structural-functional development	.332	.718
	psychological development	.280	.756
AGE * CNT * LE	motor and structural-functional development	.003	.955
	psychological development	1.872	.174

Note: EXP: experience; GEN: gender; CNT: county; LE: level of education

Experience has a significant relationship only with teachers' perception regarding the psychological development ( $p = 0.002$ ), while gender and level of education (taken together) have a significant relationship only with teachers' perception regarding the motor development ( $p = 0.031$ ).

The Scheffe test (post-hoc analysis) highlighted significant differences between teachers with over 25 years of experience and the other categories (under 10 years and teachers with 10 to 25 years of experience), with respect to the psychological benefits of practising PE activities.

No significant differences were found between the groups of teachers for variables such as: age (under 40 years vs. between 40 and 60 years; under 40 years vs. over 60 years; between 40 and 60 years vs. over 60 years), county (Prahova vs. Timiș; Prahova vs. Others; Timiș vs. Others), gender (Male vs. Female) and level of education (graduates vs. teachers with a Master's/ PhD degree). The statistical analysis was made taking into account the structural-functional and motor development and the psychological development, separately.

## Conclusion

The purpose of this research was to highlight the existing relationships between the perception of physical education teachers regarding the benefits of PE activities and the following variables: experience, age, gender, county and level of education.

We found a significant relationship between experience, gender and age (analysed separately), between age and level of education (taken together), between age, experience and county (taken together), and the combination of dependent variables (teachers' perception regarding the benefits of PE for both the motor and psychological development of preadolescents). In other words:

- Experience - teachers with less than 10 years of experience and those with 10 to 25 years of experience obtained significantly higher results than teachers with more than 25 years of experience as regards the combination of dependent variables (motor and psychological benefits of PE activities, taken together);
- Gender - male PE teachers recorded higher results than female PE teachers as regards the combination of dependent variables;
- Age - teachers under 40 years and those between 40 and 60 years obtained higher values than PE teachers over 60 years as regards the combination of dependent variables;



- Age and Education - teachers under 40 years, those between 40 and 60 years and having a Master's/PhD degree recorded higher scores than teachers over 60 years with graduate studies as regards the combination of dependent variables;
- Age, Experience and County - teachers under 40 years with less than 10 years of experience, those between 40 and 60 years with 10 to 25 years of experience and those from Timiș county obtained higher results than teachers over 60 years with more than 25 years of experience from Prahova and other counties.

We also highlight that experience has a significant relationship only with teachers' perception regarding psychological development, while gender and level of education (taken together) influence only teachers' perception regarding motor development. Thus:

- Experience - teachers with less than 10 years of experience and those with 10 to 25 years of experience recorded significantly higher results than teachers with more than 25 years of experience as regards the psychological benefits of practising PE activities.

We can explain these results by the fact that, even if in Romania there were old concerns for psychology (Eduard Gruber in 1893, Constantin Rădulescu-Motru in 1897, Florian Ștefănescu-Goangă in 1919 - emblematic figures who have contributed to the development of psychology in our country), between 1977 and 1990, psychology was prohibited as a specialisation in Romanian universities. Consequently, different specialists paid less attention to psychology and the benefits it could offer (a normal situation, taking into account the context).

- Gender and education - male PE teachers having a Master's/PhD degree recorded higher values than female PE teachers with graduate studies as regards the motor and structural-functional benefits of practising PE activities.

We underline that our paper can be used as a support for parents, preadolescents, adolescents and PE teachers in order to raise awareness regarding the benefits of the systematic practice of physical education and sports activities. And awareness is the main tool for personal and professional growth.

The limitations of the research are the psychophysical state of physical education teachers when completing the PEA-MP opinion questionnaire and the cultural differences - other results could be obtained if physical education teachers from different countries were investigated. In the future, a more thorough interpretation of the results registered through our investigation can be realised. Using in-depth interviews with PE teachers (after the pandemic - COVID-19, face to face in the ideal case, not on-line) we can find out more clearly what lies behind their beliefs regarding the benefits offered by the systematic practice of physical education activities.

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## Authors' Contributions

All authors have equally contributed to this study and should be considered as main authors.

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