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Original Article

Association between the hierarchy of physical education goals and preferred profiles of physical education classes among students attending middle and high schools

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Abstract
The purpose of this study was to examine the association between the hierarchy of physical education (PE) goals and preferred profiles of PE classes among adolescent students from public middle and high schools. *Participants.* A total of 1340 students (50% of each school type), including 50% of girls, participated in the survey study. *Materials and methods*. Students assessed the validity of PE goals by giving each goal a rank form 1 to 13, and the students also chose the preferred profile of PE classes. *Results*. The most important PE goal in the opinion of students was to encourage the adoption of active and healthy lifestyles. Students' hierarchy of PE goals differed according to gender and school level. The majority (n = 845, 63%) of students participated in PE for 'fun – pleasure – entertainment', whereas only one third of students (n = 419, 31%) preferred the 'exercise – sweat – fitness' profile. The likelihood of 'exercise – sweat – fitness' preference increased to approximately 56% for boys and 31% for high school students. *Conclusions*. The theory of PE goals should comply with student's current preference for participation in physical activity with regard to age and gender. To fully realize the most important PE goals, teachers should organize PE classes in a more fun-related forms for girls and in more exercise-related forms for boys. Moreover, the proportion of this two preferred profiles of PE classes should change by age by increasing exercise-related and decreasing fun-related forms.
Key Words*:* physical education; physical activity; gender; school level

Introduction

PE underwent a deep transformation with a transition from a traditional sports skill orientation to a broader emphasis on health-related fitness and lifelong physical activity (PA) (Edginton, Chin, & Bronikowski, 2011). Given the growing concerns over the PA levels of many young people and the possible health consequences, it is not surprising that the PE concept is not limited to 'curriculum orientations' and teachers' educational goals; rather, it includes the views of students and a broader sociocultural context (Crum, 1992; Naul, 2003). Previous studies have suggested that issues connected with the objectives of PE were well established in theory (Bronikowski, 2005; Frołowicz, 2002, Kuśnierz, 2015; Kuśnierz & Wręczycki, 2016). However, in rapidly transforming modern societies, educational system is also undergoing significant changes. Thus, there is a strong need to replicate previous research and monitor developments in this area. Therefore, this study is an attempt to focus on the issue of PE, particularly the views of adolescents, by considering the hierarchy of PE goals and preferred profiles of PE classes and the interrelationship between them.

The importance of PA and its benefits to a variety of physical, psychological, and social aspects of life have been well-documented (e.g., Lloyd-Jones, Yuling, Labarthe, Mozaffarian, Appel, & Van Horn, 2010; Zach, Bar-Eli, Morris, & Moore, 2012). The health benefits of PA include improved body composition, prevention of overweightness and obesity, and improved skeletal, metabolic, and cardiovascular health (Hillsa, Dengelb, & Lubans, 2015). It has been shown that the practice of physical sports is meant to improve youths' socialization and mental processes by producing psychosocial improvements in cognitive vitality and mood, lowering levels of anxiety, and preventing and reducing clinical depression (Amado-Alonso, Mendo-Lázaro, León-del-Barco, Mirabel-Alviz, & Iglesias-Gallego, 2018). In addition, PA contributes to confidence and self-esteem among young people, enhances social development by preparing children and adolescents to cope with competition, winning, and losing, and develops cooperation and collaboration (Scheuer & Thill, 2015).

Factors, such as social change and increasing urbanization processes in the early years of the 21st century, have caused a reduction in the amount of time that youth devote to leisure activities; sedentary behaviors are on the rise. World Health Organization (WHO, 2010) recommends that children and young people between 15 and 18 years of age should engage in at least 60 min of moderate-to-vigorous physical activity (MVPA) every day. Global self-reported data from 105 countries (among 13-15-year-olds) estimate that only 20% of adolescents

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participate in ⩾60 min of MVPA each day (Hallal, Andersen, Bull, Guthold, Haskell, & Ekelund, 2012). Longitudinal studies throughout adolescence (10-19 year olds) have also shown a decline in PA, ~7% of MVPA per year (Dumith, Gigante, Domingues, & Kohl, 2011). In Poland, only 22% of the youth met the recommended daily amount and intensity of PA for this age category. Poland is still in the middle for European youth in such rankings (Bronikowski, 2014).

School environment is a recommended setting for the promotion of PA among children and adolescents (Hollis, Sutherland, Campbell, Morgan, Lubans, & Wiggers, 2016). In fact, PE in school is the most effective and inclusive way of providing them with the skills, attitudes, values, knowledge, and understanding for lifelong participation in PA and sport. According to the Polish curriculum, there are four PE classes (45 min each) included in the weekly timetable. This applies to primary (7–13 years of age) and middle schools (13–16 years of age). In Polish high schools (16–19 years of age), there are three PE classes per week. To sum up, the total number of hours of classes conducted for students is relatively high - 1060 hours provided at all education levels. This makes Poland as the one of the leading countries in Europe in terms of time allocated to PE in schools (Hardman, Murphy, Routen, & Tones, 2014; Woynarowska, Mazur, & Oblacińska, 2015).

PE is usually understood as a teaching-learning process, which is a mixture of the concepts of "physical training", "education through physical training", and "education on caring for the body". According to the Polish concept of education, PE is a necessary condition of health maintenance and physical fitness during the whole live. Demel (1973) perceives physical training in terms of education, conscious intention to form a personality capable and ready to continuously care for self-health and physical fitness, when the educational process is finished.

Over the past 20 years, PE research has been conducted around the world (Hardman, 2008). Owing to the initiative of European Parliament Resolution related to Sport Education (November 2007), an expert group from EU countries conducted a wide survey study, which is generally related to the quality of PE classes in the public schools in EU countries (Fisher, Repond, & Diniz, 2011; Repond, 2010). Among many relevant issues, 13 goals of physical education were defined: (1) to encourage the adoption of active and healthy lifestyles; (2) to develop a feeling of personal wellbeing/wellness; (3) to instill a sense of important values in sport (e.g., fair play and solidarity); (4) to ensure safe practices in PE; (5) to develop a broad repertoire of movement competences; (6) to develop an appreciation of cross-curricular links in relation to physical education; (7) to promote an appreciation of the social and cultural significance of sports and PA; (8) to develop the ability to evaluate own performance and that of others; (9) to develop a sense of leadership and the ability to organize others; (10) appreciate what it means to be fit and/or healthy; (11) to develop the capacity to apply and develop skills in specific forms of PA contents (e.g., sport and dance); (12) to contribute to the development of a sense of citizenship; (13) the PE curriculum (e.g., goals, themes, content evaluation, and monitoring) was determined to be one of the most important topics of the debate on the current status and future direction of development of PE.

Current education focuses on the active participation of students in their own development by defining learning goals and making independent choices, gaining personal experience, and taking responsibility for themselves (Dąbrowska & Wojciechowska-Charlak, 1997). In the perspective of personal pedagogy, the possibility of choosing values is considered as an essence of human freedom. The Polish education system is based on the abovementioned assumptions because teachers are encouraged to create individual programs for PE classes, and the student can choose the course and content of education (Bielski, 2005).

Materials and methods

Although the concept and curriculum of PE should include an individual context from the students' perspective, few studies have focused on the opinion of students on PE goals and objectives and on the preferences of the profiles of PE classes. This study examines the association between the hierarchy of PE goals and preferred profiles of PE classes in the large sample of students attending middle and high schools. The following research questions were formulated. (1) What is the hierarchy of PE goals in the opinion of students? (2) Do students differ in the hierarchy of PE goals with regard to gender and school level? (3) Is there an association between the preference of the profile of PE classes and most important PE goals in the opinion of students?

Participants

The study included 1340 adolescent students (13–19 years old), who were attending schools in the Silesian region in the south of Poland. The sample included 667 students from middle schools and 673 students from high schools (50% of the total sample). Participants consisted of 675 girls and 665 boys (50% of each group).

Measures

A survey to assess the importance of PE goals in public schools in Europe was developed in 2010 by members of the European Physical Education Association (EUPEA; Fisher et al., 2011; Repond, 2010). The survey included 13 goals of PE, formulated by PE EU experts (Fisher et al., 2011; Repond, 2010) to provide opportunities for pupils to learn and achieve, regardless of ability, gender, or social and cultural background. In

addition, the survey consisted of the following four profiles of PE classes, which were developed by Crum (2017): (1) fun – pleasure – entertainment; (2) exercise – sweat – fitness; (3) control – order – discipline; (4) relevant learning concerning movement and sport. The PE profiles were originally intended to diagnose the quality of PE teacher education (PETE). In the current study, PE profiles were used to examine students' preferences.

Procedure

The participants selected the goals of PE in the order from 1 to 13, which gave them a rank in such a way that the most important goal was chosen as number 1 and the least significant goal was chosen as number 13. In addition, students selected one of four profiles of PE classes, according to their preferences.

For statistical purposes, owing to the increased interpretation of the data, the numerical value of the selection of 13 goals of PE has been reversed so that the most important goal had the rank of 13, and the least valuable goal had the rank of 1. The selection of the preferred profile of PE classes was coded 0 = *no choice*, and 1 = *choice*.

All students participated in the study anonymously; thus, no specific form of consent was required. The study was compliant with the requirements of the Bioethical Commission in Opole (No. 151). All statistical analyses (including descriptive statistics, Mann-Whitney *U* test, Spearman's rho, Pearson's χ^2, and logistic regression) were conducted using the STATISTICA 13.1 software.

Results

Figure 1 shows the results of the hierarchy of 13 goals of PE in the opinion of students. The highest place in the hierarchy of PE goals was *To encourage the adoption of active and healthy lifestyle*.

The students from middle and high public schools made the following choice of the PE goals, in the order from the most important to the less significant: 1st, 2nd, 4th, 5th, 3rd, 10th, 7th, 8th, 9th, 11th, 6th, 13th, and 12th. Descriptive statistics for the hierarchy of 13 goals of PE in the opinion of students from middle and high schools is shown in Table 1.

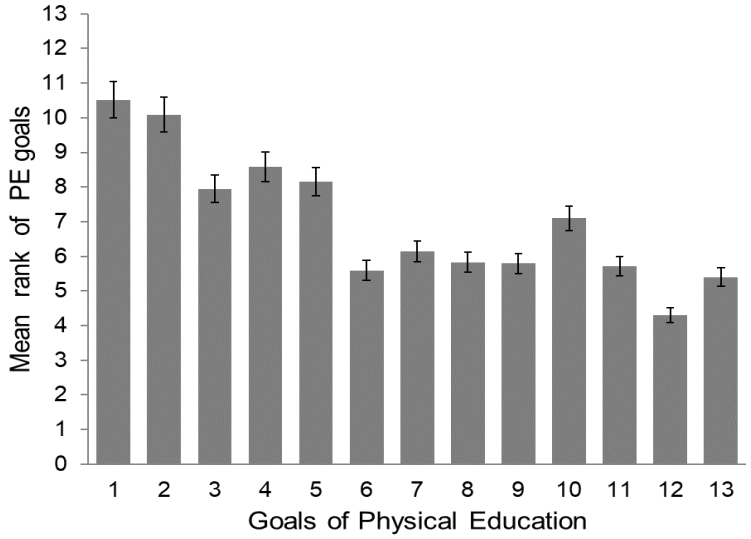

Figure 1. Mean ranks of the following PE goals

Differences between female and male students as well as between students from middle and high schools, in the hierarchy of 13 goals of PE, are shown in Table 2. Girls significantly differ from boys in terms of the lower mean rank of PE goals 3rd and 6th, and the higher mean rank of 10th.

The following goals were rated to be significantly higher by middle school students than by students from high schools: 6th, 4th, 3rd, 2nd, and 1th. Students from high schools, when compared to students from middle schools, rated significantly higher the following PE goals: 5th, 10th, 7th, and 11th.

In addition, Table 1 shows the results of Spearman's rho correlation analysis between the 13 goals of PE and the preferences of one of four profiles of PE classes. The first profile of PE classes positively correlated with the 2nd PE goal, and negatively correlated with the 5th and 11th PE goals. Conversely, the 2nd profile of PE classes was negatively related to 2nd and positively to both PE goals 5 and 11.

Positive correlation was observed between the preference for the 3rd profile of PE classes and the 12th goal of PE. Weak and negative relationship was also observed between the preference for the 4th profile of PE classes and the 2nd goal of PE.

Table 1. *Descriptive statistics for the hierarchy of 13 goals of physical education in the opinion of students*

PE Goals	*Mdm*	*Mo*	*M*	*95% CI* LL	*95% CI* UL	*SD*	Correlation with the profiles of PE classes 1.	2.	3.	4.
1.	12	13	1.51	1.34	1.69	3.23	.01	−.03	−.01	.04
2.	11	13	1.08	9.92	1.25	3.11	.11***	−.08**	−.03	−.06*
3.	9	10	7.94	7.74	8.14	3.74	.00	−.01	.02	.00
4.	10	11	8.59	8.40	8.77	3.48	.04	−.03	−.05	.04
5.	9	9	8.15	7.97	8.33	3.38	−.19***	.20***	−.03	.02
6.	6	1	5.60	5.41	5.78	3.46	.05	−.04	−.01	−.03
7.	6	5	6.14	5.98	6.30	2.91	−.05	.05	.02	−.02
8.	6	6	5.83	5.67	5.98	2.93	.04	−.03	.01	−.04
9.	6	6	5.80	5.65	5.95	2.81	.02	−.03	.00	.02
10.	7	7	7.10	6.92	7.27	3.20	.01	−.02	.01	.02
11.	5	6	5.71	5.54	5.88	3.17	−.10***	.12***	−.04	.00
12.	3	1	4.30	4.14	4.47	3.11	.03	−.06*	.06*	.02
13.	5	1	5.40	5.20	5.60	3.73	.01	−.01	.00	.01

*$p < .05$, **$p < .01$, ***$p < .001$.

Table 2. *Gender and school level differences in the hierarchy of 13 goals of physical education*

PE Goal	Gender mean rank Female $n = 675$	Gender mean rank Male $n = 665$	*U*	*Z*	School level mean rank Middle $n = 667$	School level mean rank High $n = 673$	*U*	*Z*
1	685.29	655.49	214454.5	1.41	694.26	646.95	208598.0	2.24*
2	659.75	681.41	217180.5	−1.02	695.54	645.68	207740.5	2.36*
3	639.37	702.10	203422.5	−2.97**	704.12	637.18	202018.5	3.17**
4	656.60	684.61	215054.0	−1.32	708.52	632.81	199083.0	3.58***
5	686.36	654.40	213729.5	1.51	631.12	709.53	198178.0	−3.71***
6	644.02	697.38	206562.5	−2.52**	712.44	628.94	196473.5	3.95***
7	666.11	674.96	221473.5	−0.42	646.48	694.31	208421.0	−2.26***
8	663.21	677.90	219518.5	−0.69	670.81	670.19	224238.0	0.03
9	667.16	673.89	222181.0	−0.32	651.74	689.10	211930.0	−1.77
10	704.98	635.50	201162.5	3.29***	634.25	706.42	200268.5	−3.41***
11	671.09	669.90	224037.0	0.06	647.09	693.70	208829.5	−2.20*
12	650.55	690.75	210968.0	−1.90	684.77	656.36	214926.5	1.34
13	686.96	653.80	213329.0	1.57	652.81	688.03	212648.0	−1.67

*$p < .05$, **$p < .01$, ***$p < .001$.

Discussion

In this study, the first goal *To encourage the adoption of active and healthy lifestyle* is at the top of the hierarchy of goals reported by students. It is notable that there is no big disparity between choices made by the youth and originally defined hierarchy, particularly with regard to the first five objectives: 1st, 2nd, 4th, 5th, and 3rd , respectively. Similarly, the lowest place in the hierarchy of PE goals in the opinion of students is successively taken by goals 13 and 12. Previous research supports this result because it has been determined that both students (Kuśnierz & Wręczycki, 2016) and teachers (Hardman & Green 2011; Kuśnierz, Pośpiech, & Rogowska 2015) place main emphasis on improving the health condition and promoting a healthy lifestyle and PA. The current results also agree with theoretical guidelines and suggest that goals and objectives are well clarified among respondents and that they both understand and are aware of the learning outcomes and what to learn in PE.

These conclusions also apply to the negligible gender differences in the hierarchy of goals of PE concerning only three goals. However, a more significant discrepancy was noted between the groups of youth from middle and high schools. In general, the significant difference in rating was recorded with regard to the nine of the thirteen presented goals. Various importance was clearly attached to the particular goals of PE depending on age. These data seem interesting compared with the results of correlation analysis between the 13

goals of PE and preferences for one of four profiles of PE classes. Furthermore, the analysis showed that the 1st and 2nd profiles of PE classes were significantly related to only three PE goals: 2, 5, and 11. The observed correlations opposing each other showed that the 2nd goal was positively correlated with the 1st profile and negatively correlated with the 2nd profile. However, goals 5 and 11 were positively correlated with the 2nd profile and negatively correlated with the 1st profile. The 3rd profile of PE classes positively correlated with only the 12th goal of PE, whereas the 4th profile had a week correlation with the 2nd goal of PE. Thus, only four goals from the hierarchy of 13 PE goals proposed by experts proved to be related to the profiles of PE classes, which represented needs, values, and motives driving students to participate in PE classes. Therefore, the question is whether the commonly agreed selection and effectiveness of the objectives of PE can really provide students with suitable competency if it does not necessarily correspond with their expectations.

Conclusions

It appears, that the better understanding of student preferences is one of the means to decrease the level of reluctance of attending PE classes and to boost the effectiveness of realizing the most important PE objectives. By organizing PE classes in a more fun-related forms for girls and in more exercise-related forms for boys and using knowledge about the changing proportion of two preferred profiles of PE classes with age in practice by increasing exercise-related and decreased fun-related forms may provide a useful guidance for teachers. Low PA and PE class participation may largely be a function of the lack of motivation for exercise amongst inactive children and adolescents. Thus, teachers should aim, amongst other objectives, to boost adolescents' motivation to maintain participation in PA.

Conflicts of interest − The authors declare no potential conflicts of interest with respect to the research, authorship, and publication of this article.

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