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Attitudes to various areas of physical culture in view of indoor and outdoor physical education lessons

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Abstract

In times of increased expansion of modern technologies, there is still the debate about the health condition of the young generation being increasingly keen on the lifestyle characterised by physical passivity combined with commitment to virtual entertainment. A change in this reality depends, among other things, on physical education teachers who have an opportunity to increase activity of their students already at the level of fostering desirable attitudes towards physical culture. In addition to personality of the teachers, new innovation projects set up as part of physical education at school are more likely to be critical to the success of these measures.

The aim of this study was a comparative assessment of attitudes within individual areas of physical culture in the course of indoor and outdoor physical education classes.

The pedagogical experiment was attended by 220 students, out of whom 103 subjects accounted for the experimental group and 117 for the control group. The questionnaire of attitudes to physical culture was used as a research tool and consisted of 67 questions belonging to 10 various physical culture areas.

The final findings suggested a significant improvement in the attitudes of both groups compared to the initial study. This progress was noticeable in the experimental group to a greater extent.

The effects of the conducted experiment confirm the purpose of implementing innovation in the education system and in relation to this research, they indicate an important role of the natural

environment as a basis for developing attitudes intended to enhance an engagement in physical culture at later life stages.
Keywords: attitudes, areas of physical culture, outdoor physical education lessons

Introduction

In accordance with the biopsychosocial approach to health issues [1] established over years, preparation for lifelong active lifestyle should be provided at the school education stage. Fostering pro-somatic attitudes in line with the modern theory of physical education [2, 3], should be treated as the aim of physical education at school. However, the practical implementation of this aim is continuously encountering a number of obstacles [4-8]. This situation can be successfully improved by encouraging innovative physical activity initiatives in the school environment [9-11]. Adapting school curricula to theoretical assumptions is being postulated [12]. The ecological trend, which is instantly associated with physical activity in the context of outdoor physical education lessons or other forms of exercise in natural surroundings, is popular with numerous advocates [13]. Meanwhile, according to Frołowicz [14], supporting the development of ecological competences is considered by teachers to be a less significant task of physical education. A low position of these competences may result from the fact that combining the idea of physical education with a reflexion on ecological education does not enjoy a well-established tradition in Poland, the cherishing of which is largely dependent on commitment to natural environment education projects. This will better raise eco-health awareness among teenagers for whom contact with nature would not only mean the act of physical improvement, but would become the source of spiritual values, in which one may perceive the synthesis of physical culture towards natural culture and future culture of life [15].

The organisation of physical education at school is still encountering numerous obstacles. These concern social determinants relating to pupils as well as organisational conditions connected with school facilities. A sedentary lifestyle is common among families with hardly any physical activity in the open air or at least frequent staying in the open space. Additionally, during the school day children have PE classes in the hall or in small rooms used for corrective gymnastics. A pupil often enters a gymnasium for the first time only after completing elementary school education. Then physical education lessons are held in overcrowded groups [16], sometimes together with older students. An escape from this reality to the natural surrounds, in the opinion of still too many teachers, is possible only during the short-term periods at the beginning and at the end of the school year. On the one hand, the above-mentioned factors are not conducive to fostering positive attitudes towards physical culture, including approach to outdoor physical education lessons [17], whilst on the other hand these factors should oblige one during teaching practice to develop an innovative formula of the pupil-nature encounter.

The main task of school physical education is to develop in pupils a positive attitude to participation in physical culture and to support children's pro-health behaviour [18, 19]. The first

prerequisite for successful implementation of these activities is health education. Consequently, the awareness of health risk should be raised in an individual in whom we wish to develop needs which prove to be helpful in increasing motivation to pursue active and creative actions as part of concern for health. These needs are the elements of an individual's value system which should determine the choice of lifestyle [20]. The educator is expected to assist a student in discovering certain values and models of creating healthy body as a reliable means to achieve a life target. Such education is called a health education for positive life values as the culture of positive health teaches a deeper meaning of taking care of one's own corporeality. Consequently, health education in this sense is involved in axiologically advanced pedagogy [21].

The aim of this study was a comparative assessment of attitudes within individual areas of physical culture in the course of indoor and outdoor physical education classes. The aim was identified in order to determine the extent of the impact of school lessons organised in variable conditions on the effects of fostering attitudes of adolescents towards physical culture. Thus, the research was an attempt to evaluate the efficiency of physical education lessons in natural circumstances. In other words, it was necessary to establish whether the pedagogical intervention in the form of an increased number of outdoor physical education lessons would contribute to positive changes in the attitudes to physical education. In the background of the main research objective remained the issue whether the organisation of school physical education during two years of research can contribute to enhance attitudes to particular areas of physical culture also in the control group, that is the group which is not engaged in outdoor PE lessons.

The way of achieving physical education goals along with ecological elements, proposed in the implemented pedagogical project is an idea which relates to world-wide observations [10, 22, 23] and previous study conducted in Poland, where there has been presented the state of preparedness of young people to participating in physical culture also in terms of attitudes to physical culture [5] as well as health and educational effects of innovative activities at school [13, 24]. Besides, both problems were combined together for research purposes by analysing the attitudes towards physical education [25]. What is more, there was displayed the impact of experimental activities in the form of outdoor physical education classes on the attitudes towards physical culture [26], but not on individual elements of these attitudes. The role should be fulfilled by this publication the findings of which may provide a significant reference to subsequent studies carried out in future.

Material and methods

The study included four schools in the Pomeranian Voivodeship, two of which were located in the city of Gdynia and the other two were rural schools in Choczewo and Luzino in the northern part of this voivodeship. In each of the schools the project was participated by: two groups of boys (the experimental and the control group) and two groups of girls (the experimental and the control group). The same students took part in the study during the entire period of the project, so the time of the research covered the years of the second educational stage including forms IV-VI. The pedagogical

experiment was attended by 220 students, where 103 subjects accounted for the experimental group and 117 for the control group.

A natural experiment was the main method of confirmed usefulness applied in the research [27]. This method is based on a study of the phenomenon under normal conditions and manipulation relies in modifying the conditions by the researcher. It was required to choose the experimental and the control group for the purpose of the study in order to indicate the range of changes effected under the influence of a defined variable in the population covered by the experiment. A generally accepted principle is to make both groups similar so far as possible, which was achieved with respect to such variables as age, number of subjects, environmental conditions, level of their biological development and physical fitness and to the variables analysed in pedagogical experiments like time of teaching and educational contents [28]. The principle according to which this study was carried out is the so-called canon of the only difference between the experimental and the control group, according to which the case in which the analysed phenomenon occurs and the case where it does not occur, have the same circumstances except one difference observed only in the first case. Namely, the difference and the main assumption of the experiment was the implementation of a different number of hours of outdoor PE lessons in the experimental and the control group. This characteristic can be defined as the experimental factor.

At the initial stage the following hypotheses were established:

1. An increased number of outdoor physical education classes improves the attitudes to physical culture.
2. This improvement only results from the impact of the experimental factor; therefore, it will not be observed in the final results of the control group as opposed to the initial results.

The research objective was achieved by means of the research tool, that is, S. Strzyżewski's questionnaire [5, 25] which was used for the assessment of the attitudes towards physical culture, consisting of 67 questions relating to three attitude components, i.e. the cognitive, the emotional and the behavioural component. A 5-point Likert scale was applied and the following norms were established [13] to determine attitude sign and strength: 0-0.49 p. – definitely negative attitude; 0.5-1.49 p. – negative attitude; 1.5-2.49 p. – indifferent attitude; 2.5-3.49 p. – positive attitude; 3.5-4 p. – definitely positive attitude. The tool was used in the initial and the final test. The norms were applied to evaluate the attitudes towards 10 general components of physical culture, referred to interchangeably as physical culture:

I. The attitude to social values of physical culture: questions 23, 26, 34.
II. The attitude to health benefits of physical activity: questions 7, 8, 24, 28, 29, 30, 35, 66.
III. The attitude to one's own physical development and fitness: questions1, 2, 3, 4, 6, 25.
IV. The attitude to physical activity during leisure time: questions 12, 13, 15, 16, 17, 40, 42.
V. The attitude to self-control and self-esteem: questions 31, 32, 33.
VI. The attitude to PE lessons and exercises: questions 5, 9, 10, 11, 14, 41, 46, 63, 64, 65.

VII. The attitude to sport: questions 18, 19, 20, 21, 22, 27, 37, 38, 39, 43, 44, 45, 48, 54.

VIII. The attitude to one's partner in training and opponent: questions 36, 47, 49, 50, 51, 58, 59.

IX. The attitude to the idea of Olympism and tradition of physical culture: questions 52, 53, 55, 56, 57.

X. The attitude to cognitive activity in the field of physical culture: questions 60, 61, 62.

Arithmetic mean and standard deviation were used to assess responses to individual questions included in the range of particular components of attitudes to physical culture. There was a lack of normal distributions in all divisions in the overwhelming majority of cases. That gave rise to apply non-parametric statistical significance tests. In order to compare the experimental group with the control one considering quantitative modifications in attitude components, the Mann–Whitney U-test was applied. The effects concerning the assumptions of the experiment, estimated by comparing the results of initial and final tests separately in the experimental and the control group, were assessed using the Wilcoxon test. In all calculations, statistical significance was established at the level of maximum 5% of a random error ($p<0.05$), highlighting statistically significant cases.

Results

The analysis of research results concerning attitudes in the light of all components suggests that selected areas of physical culture require more work from teachers and parents. In each of physical culture areas, the experimental group achieved statistically better results in the final tests, except for the X area, where no difference was revealed between the results of the experimental and the control group. The summary index of attitudes to physical culture also turned out to be better in the experimental group.

The attitudes of adolescents towards their physical fitness and development appeared to be most advantageous, followed by the attitudes to one's partner in training and opponent. The lowest results were achieved in relation to the attitudes towards cognitive activity in the area of physical culture. It turned out, however, that already at the initial test stage students of the experimental group revealed clearly better attitudes as opposed to their counterparts from the control group. Thus, the question arouses whether outdoor PE lessons really exerted a stimulating effect on development of positive attitudes. This can be demonstrated by comparison of Z index in the statistical text, which stands for the value of test statistics. In each of ten cases this index is significantly higher in the final test than in the initial one, which means that students from the experimental group having an advantage over their counterparts from the control group within the level of attitude already in the initial study, even increased their advantage in the final test. Research results were shown as arithmetic mean despite the fact that the median is a measure of central tendency to use a statistical test. Yet in this case, with slightly varied grading scale from 0 to 4, the median would not indicate the actual differences between the groups.

Table 1. Score table of average results of individual components of attitudes to physical culture in the experimental and the control group in the initial and the final test.

Component	Test	Experimental Group		Control Group		Z	p
		$\bar{x}$	SD	$\bar{x}$	SD		
I	Initial	2.39	1.06	2.23	0.98	**2.10**	**0.035**
	Final	2.54	0.98	2.27	0.94	**3.51**	**0.000**
II	Initial	2.23	0.90	2.05	0.82	**4.62**	**0.000**
	Final	2.42	0.80	2.10	0.78	**8.39**	**0.000**
III	Initial	2.78	0.76	2.66	0.69	**3.06**	**0.002**
	Final	2.97	0.68	2.70	0.67	**6.96**	**0.000**
IV	Initial	2.45	0.80	2.26	0.75	**5.13**	**0.000**
	Final	2.64	0.69	2.34	0.68	**8.21**	**0.000**
V	Initial	2.13	0.86	2.05	0.82	1.16	0.244
	Final	2.31	0.73	2.09	0.79	**3.43**	**0.000**
VI	Initial	2.45	0.82	2.32	0.73	**4.41**	**0.000**
	Final	2.62	0.71	2.40	0.70	**7.20**	**0.000**
VII	Initial	2.42	0.86	2.30	0.81	**4.33**	**0.000**
	Final	2.58	0.77	2.34	0.78	**8.55**	**0.000**
VIII	Initial	2.53	0.80	2.33	0.81	**4.90**	**0.000**
	Final	2.71	0.71	2.37	0.74	**9.27**	**0.000**
IX	Initial	2.11	1.06	2.05	0.99	1.16	0.248
	Final	2.38	0.94	2.13	0.91	**3.69**	**0.000**
X	Initial	1.89	0.98	1.90	0.90	0.01	0.987
	Final	2.11	0.88	1.98	0.83	1.77	0.076
Total	Initial	2.39	0.29	2.26	0.29	**3.39**	**0.000**
	Final	2.58	0.30	2.31	0.30	**5.96**	**0.000**

The above results comparing both groups, suggest that the period of two years between the initial and the final research has improved the attitudes in each of the groups involved in the study, irrespective of the impact of the experimental factor. This was true about all areas of physical culture in the experimental group and in the control group except for area III.

Table 2. Score table of average results of individual components of attitudes to physical culture in the initial and the final test separately in the experimental and the control group.

Component	Test	Initial		Final		Z	p
		$\bar{x}$	SD	$\bar{x}$	SD		
I	Experimental group	2.39	1.06	2.54	0.98	**5.78**	**0.000**
	Control group	2.23	0.98	2.27	0.94	**2.69**	**0.007**
II	Experimental group	2.23	0.90	2.42	0.80	**8.95**	**0.000**
	Control group	2.05	0.82	2.10	0.78	**3.04**	**0.002**
III	Experimental group	2.78	0.76	2.97	0.68	**9.06**	**0.000**
	Control group	2.66	0.69	2.70	0.67	0.97	0.331
IV	Experimental group	2.45	0.80	2.64	0.69	**9.74**	**0.000**
	Control group	2.26	0.75	2.34	0.68	**6.12**	**0.000**
V	Experimental group	2.13	0.86	2.31	0.73	**5.68**	**0.000**
	Control group	2.05	0.82	2.09	0.79	**1.98**	**0.048**
VI	Experimental group	2.45	0.82	2.62	0.71	**10.38**	**0.000**
	Control group	2.32	0.73	2.40	0.70	**6.99**	**0.000**
VII	Experimental group	2.42	0.86	2.58	0.77	**12.27**	**0.000**
	Control group	2.30	0.81	2.34	0.78	**5.57**	**0.000**

VIII	Experimental group	2.53	0.80	2.71	0.71	**9.72**	**0.000**
	Control group	2.33	0.81	2.37	0.74	**3.13**	**0.002**
IX	Experimental group	2.11	1.06	2.38	0.94	**8.69**	**0.000**
	Control group	2.05	0.99	2.13	0.91	**4.46**	**0.000**
X	Experimental group	1.89	0.98	2.11	0.88	**6.76**	**0.000**
	Control group	1.90	0.90	1.98	0.83	**3.41**	**0.000**
Total	Experimental group	2.39	0.29	2.58	0.30	**8.81**	**0.000**
	Control group	2.26	0.29	2.31	0.30	**7.47**	**0.000**

Discourse

The classification system of attitudes in physical culture sciences was developed in the early 1980s, specifying over a dozen attitudes such as the attitude to one's own body, maintaining health, enhancing physical fitness or approach to various forms of activity, known as compounds of attitudes to physical culture, fostering of which should be the aim of educational impact [29] and should also express mental readiness to adopt positive measures in favour of one's own body in future. The purpose of physical education is also recognised as fostering pro-somatic attitudes, that is, relatively stable dispositions to behaviours in terms of maintaining health, fitness and physical beauty on the basis of understanding their meaning in human life as well as a positive emotional attitude to them [30]. There are also some claims that most of the measures within the field of physical education should ensure that the student performs certain activities during the educational period as well as gains the willingness and ability to conduct them in later life when the individual becomes mature and independent of the educator [31]. As a matter of fact, reports from the literature have shown examples of more detailed specification of the definition of attitude. This included specifying twelve different expressions of attitudes like willingness and invested effort, preparation for classes, participation in class, endeavouring, ensuring safety, observing the rules of fair play, friendly attitude to other students doing exercises, health related information, physical activity, being fit, development and game rules, practical skills relating to physical culture and health (self-control and self-esteem, organisation and refereeing of different forms of sport and recreation, conducting warm-up, knowledge of some corrective exercises, pre-medical first aid), attendance, activity in favour of school physical culture, participation in sports competitions and thematic contests, participation in extra-curricular recreational, sports, corrective and compensative activities as well as taking part in non-school forms of physical culture [32]. Similar in terms of detailedness, the division related to the areas of necessary educational impacts [5], which have become a significant reference in the discourse about the results of this research.

The study conducted among the adolescents of Zamość region [13] revealed a positive influence of outdoor physical education classes on the global component of attitude and also on all partial components. Likewise, significance of pedagogical innovations for improvement of the global attitude index is reported by Madejski [25], however, by means of other experimental factors.

The results of the initial test were very similar in both groups and the global attitude index oscillated between 2.31 and 2.26. Two years later, this insignificant difference considerably increased as the values of the global index 2.58 in the experimental group corresponded to the value of 2.39 achieved by the control group. The global index level of the group participating in a higher number of outdoor lessons turned out to be lower than the figure achieved in similar research conducted in the region of Zamość [13] and achieved 2.81 p. in the first measurement (2.24 - the control group) and 2.72 in the research repeated in other experimental group of students (2.26 - the control group). Larger diversity of results was achieved by Madejski [25] in the project involving two experimental factors (partial resignation from the classroom-lesson system and a new evaluation method) in various combinations. In the final test the experimental group achieved values ranging from 2.93 to 3.02 p., whereas the control group from 2.33 to 2.71 p.

Ten areas of necessary educational impacts were specified in accordance with the Strzyżewski concept [5]. The highest values were obtained by the attitudes in the experimental group in the final test and this finding was observed in all areas. The most advantageous was the attitude to physical fitness, reaching the level of 2.97 p. in this group, thus confirming previous findings according to which this area was given the highest score and maintained nearly identical levels of 75%, that is, ca. 3 p. [5]. Several other areas are characterised by a similar, higher evaluation in both tests, concerning in particular the attitudes to the partner in training, lessons and physical exercises and non-school physical activity. These are followed by the attitude to sport (from 2.30 p. in the control group during the initial test to 2.58 in the experimental group in the final test), evaluated similarly to the study conducted by Górna [5] as the average in the scale of all areas, yet, the Silesian studies revealed a slightly lower level in this area with a score between 2.10 and 2.50 p. Attention should be given to lower, than the Silesian results, score of self-esteem and self-control oscillating between 2.05 and 2.31, whereas groups involved in the Silesian research [5], compared according to gender criteria revealed minor differences and achieved values up to 2.80 p. Similar and the lowest among all areas results were achieved in relation to the idea of Olympism and cognitive activity in the field of physical culture, however, the Silesian research [5] revealed values exceeding 50% (2 p.) in each case, whereas in this study as regards the cognitive area the average achieved merely this level (from 1.89 p. in the experimental group in the initial test to 2.11 in the same group during the final test).

Conclusions

These findings confirm the usefulness of further pedagogical experiments in order to improve the effects of physical education lessons. The scope of contact with natural environment during PE classes provided the factor which differentiates the attitudes of students in the final test, in comparison with the initial research conducted in this group and in relation to final results in the control group. It is noteworthy that the two-year period of education also improved the attitude index in the control group. Outdoor physical education lessons are definitely not the only factor which can develop positive

attitudes towards physical culture, however, they are worth recommending also due to health benefits of a contact between a physically active person and natural environment.

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