

Assessment of Physical Education Lessons with Different Content and Type by Girls

by

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The aim of the study is to contribute to a deeper understanding of girls' attitude to physical education (PE) lessons with various content and to a different presentation of the content in habitually and creatively oriented lessons. The research was carried out in randomly selected classes at six elementary schools in the Katowice region. In total, 826 girls aged 12-15 participated in the research. A standardized questionnaire was used to assess PE lessons with different content and of a different type. Girls reported most positively creative PE lessons which included aerobics, gymnastics, dance and ringo. Girls with a lower physical fitness level evaluated PE lessons with different contents as positively as girls with a higher physical fitness level. No significant differences were found in the "pupils' role" in PE lessons between girls with different fitness levels. New curricular approaches also require changes in the approach to PE content.

Key words: aerobic lessons, concept of PE, curriculum, creativity, dance lessons, physical fitness

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Introduction

The change of the education system under new social, political and economical conditions has introduced an “unprecedented” possibility of development into physical education but at the same time, it has brought problems resulting from growing differences in school quality. Recently, schools have gained greater competencies and responsibilities. Teachers and pupils themselves are more responsible for education efficiency. Moreover, family, other institutions and media currently have significant influence on the education process of children and youth.

The changes in PE concepts determine new aims and standards (competencies). The changes of contents (subject matters), forms, methods, and other teaching means are less determined. The approaches to PE content are regarded as the most neglected ones; therefore, they were emphasized in this work.

The premises of the approaches to the content of the current and the preferred concept of PE are:

- PE content can not be an “obstacle” to the realization of the defined aims and the fulfillment of PE standards
- Presentation of PE content is in agreement with the concept of PE
- PE content and its presentation adopts a healthy and active lifestyle
- PE content respects the needs, preferences, interests and inclinations of the pupils
- PE content reflects and respects new and “trendy” physical activities to some extent
- PE content establishes a “timeless motor base” for originating physical activities or changing them with regard to pupils’ age
- PE content respects the demands that arise from the specifics of lifelong PA
- PE content respects the specifics of PA for girls and boys
- PE content has a great “health and emotional charge”
- PE content respects and fulfils integrating curricular trends

The theoretical base of PE content also requires an application of multilevel and systemic approach to the education process in PE:

1. The multilevel approach (fig. 1)

a) *international* (global, European, EU, central-European etc.)

PE is influenced by globalization, therefore it should reflect the situation and trends in PE abroad, the influence of media, multicultural changes etc.,

b) *national*

PE should respect national traditions, the socio-historical context and social trends,

c) regional

PE is based on the uniqueness of a particular region and traditions, therefore it should seek to enhance their maintenance and development,

d) school

PE content significantly influences the position of PE at school, the school “climate”, and co-establishes the “school image” etc.,

e) class

PE content respects the characteristics of a class, class structure, interests and PA preferences of pupils etc.,

f) group

PE content is differentiated with regard to group interest and pupils’ preferences, sports performance, physical fitness etc.,

g) individual

The process of individualization of PE content which reflects individual needs and abilities, and the fundamental prerequisite for creating such conditions that enhance individual development and self-realization of each pupil (with lower fitness level, talented, handicapped, with specific needs, etc.).

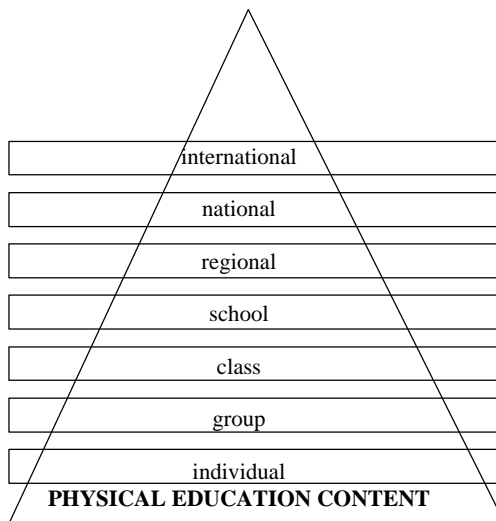


Fig. 1

Multilevel approach to PE content

2. Systemic approach (fig. 2)

a) PE teacher

PE teacher creates and realizes the content through which he/she fulfils the aims and standards of PE curricula along with forms, methods and other means. When forming the content, the teacher builds on his/her capacities and other conditions. The factor of gender has a significant role.

b) Pupils in PE

PE content is adapted to pupils; they can themselves adequately influence the PE content. The more pupils participate in the choice of the content the greater responsibility for results can be assigned to them. Gender factor plays a fundamental role in the interaction between pupils and PE content.

c) Curriculum of PE (school educational program)

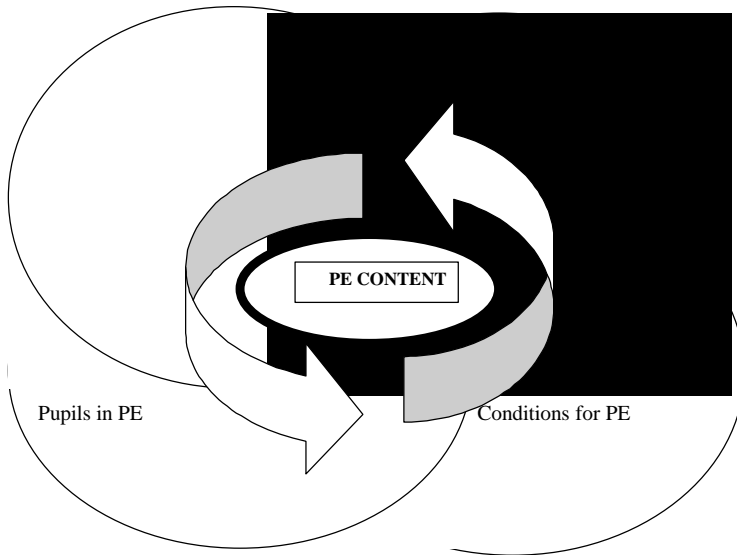
The selected PE content at a school needs to allow both the fulfilment of the state-wide determined standards and competencies in PE and, at the same time, the fulfilment of standards determined by the school within the school educational program. Among other factors, the content of PE lessons is influenced by the level of inter-disciplinary relations and the level of thematic integration at school. An integrated curriculum approach to physical activity and the lifestyle of pupils are to be considered a priority for schools (Oliver, Schofield, & McEvoy, 2006).

d) Conditions for PE

The PE content is selected with regards to conditions. On the other hand, the preferred PE content determines the change and formation of the conditions for PE. The conditions for leisure time physical activity, sport clubs, etc. are a considerable influence, too.

In order to determine the relevant PE content, it is important to respect the interaction between the main components of the education process. The choice of PE content depends on the interaction between the teacher and the PE content, but also increasingly on the interaction between the pupil and the PE content, as well as between the conditions and the PE content. The previous dominance of the statewide determined curriculum can be successfully eliminated by a school education program which can bring more benefits to pupils.

Despite the importance of PE content, only few studies have examined the gender aspect of this facet of the education process. Cheypator-Thomson, You and Hardin (2000) point out in their comprehensive study that only 4.11% of publications in the area of physical education focus on the factor of gender.

**Fig. 2**

Systemic approach to PE content in the education process

The content and the way of its realization in a PE lesson is a crucial factor in securing a positive attitude to lifelong physical activities in girls. The quality of physical education is based on such a content that meets the students' needs (Stirling & Belk, 2002). A research by Fairclough and Stratton (2005) shows that an increase in PA level can be reached without having a negative impact on girls' motivation and perceptions of competence. This is significant as these psychological constructs are strongly related to positive attitudes and persistence in physical activity.

Despite the differences in research results and opinions on the quality of PE, there is a prevailing agreement on the fact that a quality school program of PE has a significant influence on maintaining a healthy and active lifestyle in adulthood (Daley & Buchanan, 1999; Trudeau & Shephard, 2005). The prospects of introducing positive changes into girls' lifestyle increases along with the quality of physical education, leisure time physical activities and, moreover, a greater focus of PE content on lifelong physical activity (Pate et al., 1995; Prusak & Vincent, 2005).

An analysis of PE content is essential in order to establish an effective approach to coeducation and non-coeducation PE and to reflect the specifics of girls' PA. Girls prefer aesthetically oriented PA. Furthermore, they prefer activities they can perform during leisure time, for instance physical activities to

music, swimming, volleyball etc. (Frömel, Formánková, & Sallis, 2002). Chen and Ennis (2004) suggest that the research in the area of pupils' interests within physical education is insufficient.

Currently, physical education worldwide is attempting to narrow the gap between students' needs and what is actually being offered to them within PE. Due to this fact, the content of PE has been brought forward.

The questions necessary to be asked:

- Is contemporary PE really so unacceptable for pupils?
- Is PE content really so distant from pupils' needs and their lifestyle?
- To what extent do we respect girls' or boys' needs when forming the PE content?
- Are the aspects of either coeducative or differentiated PE in the forefront of our interest?
- Is the factor of gender in PE adequately reflected in the PE teacher preparation?

The aim of the research is to contribute to a deeper understanding of girls' attitude to different PE contents and their attitude to a different focus of PE content in the context of girl's specific needs in PE.

Material and Methods

The research was carried out in randomly selected classes at six elementary schools in the Katowice region. In total, 826 girls aged 12-15 participated in the research. The experiment was conducted by six PE students of the Academy of Physical Education in Katowice in cooperation with regular PE teachers.

The PE teachers were to lead two successive PE lessons with the same theme and structure, however, with a different concept. The first lesson of the habitual type represented a lesson prepared and delivered in the best way, effective and favoured by the girls; i.e. such a lesson that suits both the teacher and the students.

The aim of the second creatively oriented lesson was to increase the pupils' role in the education process. The PE teachers obtained only general recommendations in writing and concrete examples of their practical realization. The "pupils' role" is defined as the extent of the engagement of a pupil in the realization of the main components of the education process (diagnostic, motivational, cognitive, behavioural and evaluative).

Examples of recommendations:

- To incorporate creatively oriented and individualized episodes into the lesson (with respect to advantages of creative cooperation).

- To incorporate additional exercises which are creatively oriented into the lesson.
- To engage the pupils more often into the class management and enhance their responsibility for the results.
- To allow the pupils to choose from various alternatives during the lesson.
- Enhance pupils' participation in the decision-making process about the lesson content and the course of exercising.
- To provide the pupils with more opportunities to perform creative physical activities and other related activities.
- To provide the pupils with more opportunities for self-realization, the gratification of their social needs, and more satisfaction from performing the physical activity itself.
- To apply self-evaluation, auto-diagnostics, and mutual evaluation to a greater extent

Individualized episodes are understood as such interventions to the organization of habitual PE lessons that should lead to the enhancement of pupil's role in the education process and to a utilization of individual dispositions of each pupil.

The PE teachers were further recommended to use a wide spectrum of productive teaching styles (Byra, 2000; Mosston & Ashworth, 2002) so that "pupil's role" was strengthened. The PE teachers were informed about the practical application of the recommendations for various types of lessons and different school conditions during a methodical seminar.

The girls received greater opportunity to make independent decisions, achieve more self-realization and self-control, co-operate creatively, and have more responsibility. In addition, they were given further recommendations that were in agreement with the promoted PE concept. PE concept was determined in compliance with the school program. The PE lessons carried out within the experiment included aerobics, team sport games (volleyball and basketball), small games, ringo, gymnastics and dance. The key requirement was to carry out the experiment under natural school conditions.

A questionnaire was used to assess PE lessons. The pupils were asked to fill them out during the final relaxing part of the lesson. The standardized version of the questionnaire contains 24 questions divided into a cognitive, emotional, health, social, creative and supplemental ("pupil's role") dimensions (Frömel, Novosad, & Svozil, 1999; Frömel, Stratton, Vasendova, & Pangrazi, 2002). The maximum number of positive points in the total assessment is 24; there are 4 points in each dimension and 8 points in the supplemental dimension called

“pupil’s role”. Back translation and semantic analysis were applied during the standardization process. The questionnaire also investigated the girls’ physical fitness and “sports performance” as perceived by them. Based on self-evaluation, the girls ranked themselves either to the upper or the lower fitness half of the class.

The experiments were carried out during autumn and wintertime of the academic school year 2004/2005.

The results were analyzed with specially designed software that provides immediate feedback to PE teachers about pupils’ assessment of the lesson. For statistical processing of the data, Statistica 6.0 software was used. Non-parametric ANOVA in the form of Kruskal-Wallis test, Mann-Whitney U test and the “effect size” coefficient η^2 for ANOVA as 0.01, 0.06, and 0.14 for small, medium and large, respectively were used (Morse, 1999).

Results

In total, 70.48% of positive answers were recorded in the girls’ assessment of habitual PE lessons and 77.67% of positive answers were recorded in creatively oriented PE lessons. In comparison to habitual PE lessons, the girls assessed most positively the creatively oriented lessons of aerobics, gymnastics, dance and ringo (fig. 3).

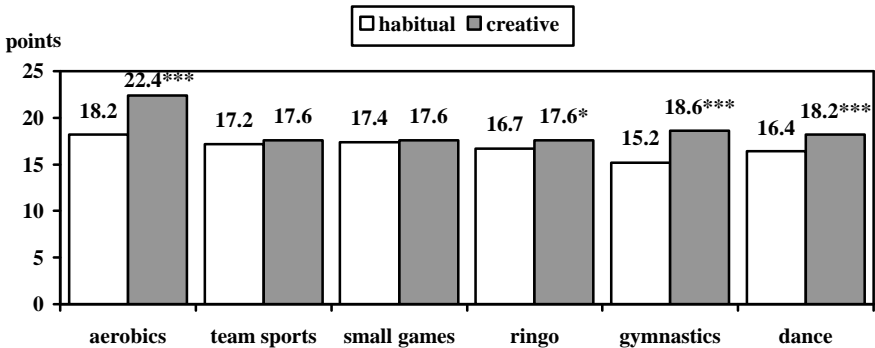


Fig. 3

Girls’ assessment ($n=826$) of habitual and creative PE lessons with different contents

Significant difference between lessons: * $p<0.05$; ** $p<0.01$; *** $p<0.001$

Except from team-sport PE lessons (volleyball, basketball), the “pupil’s role” increased in all creatively oriented lessons in comparison to habitual lessons (table 1). This means that opportunity for girls’ self-realization, engagement in lesson management and independent activity increased.

Table 1

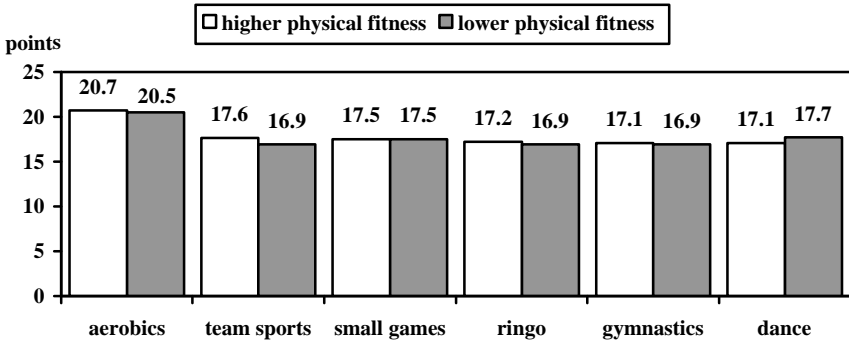
Girls’ assessment of habitual and creative PE lessons according to the content in the “pupil’s role” dimension

PE content	Lesson type	N	M	%	Mdn	IQR	U	p	? ²
Aerobics	H	72	3.72	46.53	3	1	9.14	0.000	0.07
	C	67	7.18	89.74	8	2			
Team sports	H	52	5.21	65.14	6	2	0.22	0.825	-
	C	50	5.40	67.5	5.5	2			
Small games	H	46	5.07	63.32	5	2	3.07	0.002	0.03
	C	62	5.81	72.58	6	2			
Ringo	H	81	4.51	56.33	4	1	4.24	0.000	0.03
	C	89	5.42	67.70	5	2			
Gymnastics	H	64	4.31	53.91	4	2.5	7.60	0.000	0.06
	C	67	6.31	78.92	6	1			
Dance	H	90	4.04	50.56	4	2	8.89	0.000	0.05
	C	86	6.10	76.31	6	1			

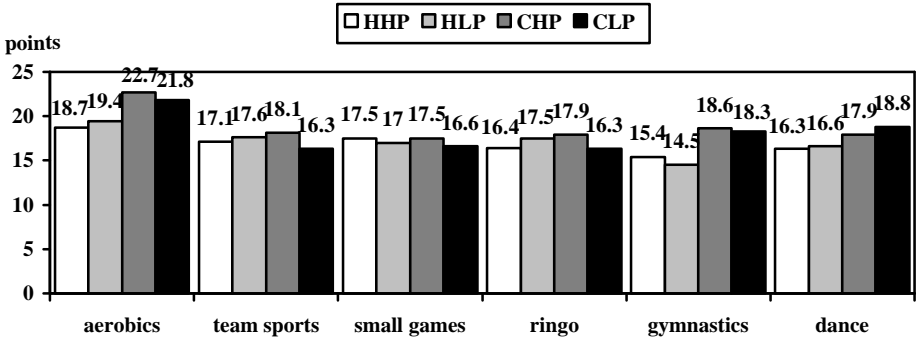
Note. H – habitual lesson; C – creatively oriented lesson; M – mean; Mdn – median; IQR – interquartile ranges; U – Mann-Whitney U-test; p – level of significance; ?² – „effect size“ coefficient

Girls of different levels of physical fitness (based on their self-evaluation) have assessed all lessons with different contents equally positively. The differences in the assessment of lessons were not significant. From the aspect of education, it is more important that girls with lower levels of physical fitness did not differ from girls with higher levels of physical fitness (or also more self-confidence) in their assessment of PE lessons (fig. 4).

In the assessment of PE lessons according to their type (habitually vs. creatively oriented) and of girls’ physical fitness (higher vs. lower), significant differences in aerobic lessons were registered [H (3, N=176) = 73.28; p=0.000; ?² =0.44]. The differences between girls with higher and lower levels of physical fitness were, however, neither significant in habitual nor in creatively oriented lessons (fig. 5).

**Fig. 4**

Assessment of PE lessons with different contents based on girls' self-evaluation of their physical fitness

**Fig. 5**

The assessment of habitual and creative PE lessons with different contents according to girls' self-evaluation of physical fitness

Similar results were recorded in gymnastic lessons [H (3, N=131) =27.79; $p=0.000$; $\eta^2=0.21$] and dance lessons [H (3, N=176) =23.12; $p=0.000$; $\eta^2=0.13$]. Only in ringo lessons [H (3, N=170) = 9.59; $p=0.022$; $\eta^2=0.06$], girls with lower levels of physical fitness evaluated the lessons significantly less positively than girls with higher physical fitness ($p=0.047$). In PE lessons, including team sports and small games, there were no significant differences between the groups.

HHP – group of girls with higher levels of physical fitness in habitual lessons

HLP – group of girls with lower levels of physical fitness in habitual lessons

CHP – group of girls with higher levels of physical fitness in creative lessons

CLP – group of girls with lower levels physical fitness in creative lessons

The results indicate that girls with lower levels of physical fitness have a similar attitude (engagement in class management and activities during

a lesson) towards the lessons as the girls with higher physical fitness (table 2). No significant differences were found between lessons with different contents.

Table 2

Girls' assessment of PE lessons with various contents according to the physical fitness in the „pupil's role” dimension

Content of lesson	Physical fitness	n	M	SD	%	Mdn	IQR	U	p
Aerobic dance	L	46	5.15	2.13	64.40	5.5	4	1.11	0.269
	H	93	5.51	2.19	68.82	6	5		
Team sports	L	26	5.23	1.39	65.38	7	2	0.35	0.728
	H	76	5.33	1.37	66.61	6	1.5		
Small games	L	28	5.50	1.55	68.75	6	1	0.39	0.693
	H	80	5.49	1.19	68.59	6	1		
Ringo	L	39	4.92	1.42	61.53	3	2	0.54	0.589
	H	131	5.00	1.39	62.50	5	2		
Gymnastics	L	28	5.29	1.49	66.07	5	2	0.55	0.551
	H	103	5.35	1.56	66.87	6	3		
Dance	L	56	5.36	1.62	66.96	6	2,5	1.94	0.053
	H	120	4.91	1.53	61.35	5	2		

Note. L – lower physical fitness; H – higher physical fitness; M – mean; SD – standard deviation; Mdn – median values; IQR – interquartile ranges; U – Mann-Whitney U-test; p – level of significance.

Discussion

The assessment of habitual (70.48% of positive answers) and creatively oriented lessons (77.67% of positive answers) corresponds with the results found by Górna et al., (2002) in pupils from selected regions in Poland, the Czech Republic and the Slovak Republic (68% of positive answers in habitual lessons and 73% in progressive lessons). Highly positive assessment of aerobic dance lessons corresponds with girls' PA preferences (Frömel, Novosad, & Svozil, 1999). Dance and aerobic dance along with swimming are among the most preferred types of sports by girls in all types of schools. The positive influence of extracurricular aerobic dance along with PE lessons over physical self-worth, sport competence, and body attractiveness, conditioning competence and strength competence of adolescent girls has been confirmed (Dishman et al., 2005).

The positive assessment of dance lessons is also in agreement with the results of experiments that Pelclová (2004) realized in the Czech Republic. Girls evaluated habitual PE lessons of dance in total sum of all dimensions with 16.2

points (in our experiment 16.4 points) and progressive dance lessons (wider conceived orientation on the increase of “pupil’s role” in lessons) 18.1 points (in our experiment 18.2 points). An active energy expenditure of $2.35 \text{ kcal} \cdot \text{kg}^{-1} \cdot 45 \text{ min}^{-1}$ was found in girls during habitual PE lessons and $2.34 \text{ kcal} \cdot \text{kg}^{-1} \cdot 45 \text{ min}^{-1}$ in progressive lessons, average heart rate was $138.5 \text{ beats} \cdot 45 \text{ min}^{-1}$ (in progressive lessons $141.8 \text{ beats} \cdot 45 \text{ min}^{-1}$) and $2825 \text{ steps} \cdot 45 \text{ min}^{-1}$ (in progressive lessons $2691 \text{ steps} \cdot 45 \text{ min}^{-1}$).

The changes found in the creative dimension confirm the success of creative intervention into the education process in PE lessons with different contents. In habitual lessons, 58.21% of positive answers were recorded compared to 82.07% of positive answers in creatively oriented lessons. Otherwise expressed, the majority of girls noted a change in the teaching style (creative interventions in education process) and moreover, they evaluated this change positively. The results indicate that 85.99% of girls in creatively oriented lessons can make their own decisions about the choice of activity at least once during the lesson compared to 36.05% of girls in habitual lessons.

Research carried out earlier has shown that creative interventions into the education process do not have to lower the PA level of girls (Frömel, Stratton, Vasendova, & Pangrazi, 2002; Frömel, Vašendová, & Krapková, 2000). In relation to this, it is very positive that 71.11% of girls in habitual lessons and 70.31% in creatively oriented lessons believed that the realized PE lesson supported development of their physical fitness (especially strength and endurance).

In creatively oriented lessons, 95.01% of girls (in habitual lessons 92.59% of girls) were satisfied with the physical activities. An important proof of the positive influence of intervention into physical education oriented on factors influencing PE enjoyment, physical activity enjoyment and attaining better self-evaluation of self-efficacy was mentioned by Dishman et al., (2005). Through “Lifestyle Education for Activity Program”, an increase of PE enjoyment as well as an increase of girls’ physical activity were achieved. The research results by Parish and Treasure (2003) suggest that if a PE teacher wants “to facilitate self-determined situational motivation and activity levels they should look to create social conditions that foster perceptions of a mastery oriented climate”. The results are also interesting from the aspect of girls’ physical fitness. In total, 95.92% of girls with higher levels of physical fitness positively evaluated the climate in habitual PE lessons (95.50% of girls with lower levels of physical fitness) and 96.12% of girls with higher levels of physical fitness in creatively oriented lessons (90.18% of girls with lower levels of physical fitness).

The positive perception of the atmosphere during lessons was not influenced by the physical fitness factor. No significant differences were found in the

emotional and social dimensions of PE lesson assessment between girls with higher and lower levels of physical fitness. Psychosocial and socio-cultural values of dance activities are of the same importance as health and fitness values. "A focus on dancing as a model of physical activity, rather than on fitness, exercise or sport, can encourage a non-reductive view of the body and suggests that the dance class is a dynamic site where values and meanings are negotiated and created" (Fensham & Gardner, 2005).

Further research is necessary to study the specifics of communication and girls' cooperation in PE lessons with various contents. It is, for instance, known that girls had often expressed resistance to bodily regulation through critiques of "other" girls (Oliver & Lalík, 2004). These situations often emerge in gymnastics or dance lessons. On the other hand, smaller social contact was recorded in aerobic dance lessons. In order to study these issues further, it is desirable to apply more extensive qualitative research similar to Oliver and Lalík (2006) who studied the problem of body perception in girls' physical education classes.

More extensive engagement of girls into the management of education process and greater possibility of independent decision making proved to be positive mainly in the assessment of "aesthetically oriented" PE lessons (aerobics, dance, and gymnastics). These results draw attention to the overestimates of team sports in girls PE lessons; despite the fact that team sports are still among girls' favourites (Frömel, Formánková, & Sallis, 2002). Only in team sports, girls with lower levels of physical fitness answered less positively (30.77% of girls) the question "If you had the chance to leave the lesson, would you do that?" compared to girls with higher levels of physical fitness (only 19.74% girls). In total, only 16.14% of girls with lower physical fitness and 17.74% of girls with higher levels of physical fitness expressed positively.

Greater opportunity for independent decision making by girls in PE lessons contributes to girls' higher responsibility for their own results and thus to higher motivation (Bulger, Townsend, & Carson, 2001). The enhancement of "pupil's role" in PE lessons is therefore considered as a fundamental task for PE teachers and as an important condition for introducing changes in PE concept.

The fact that girls with lower sports performance assessed both the types of lessons positively and that these girls played an important role to the same extent in the class as girls with higher level of self-evaluation is an essential finding. The difference of 5.61% in positive answers in the "pupil's role" dimension between both groups is regarded practically significant. It is interesting to note that 73% of girls reported themselves to be above average as far as physical fitness is concerned. From the aspect of desired self-consciousness, this finding

is positive. On the other hand, from the aspect of self-reflection or assessment of own possibilities the results are less favorable and the level of a student's self-diagnosis and self-evaluation should be examined.

Girls' open answers about the positives and negatives of just realized PE lessons were not in discrepancy with the answers to the questionnaire and confirmed the girls' positive attitude to PE lessons of various contents and types. For future research in this area, we recommend completing the existing research techniques with qualitative research. In addition, we suggest using such oriented research as a relevant evaluation means for the assessment of professional preparation of future PE teachers and of the realized concept of PE at schools of different levels and types.

Conclusions

1. PE content is primarily a means for realization of physical education aims and fulfilment of determined school PE standards but not a dominating factor in the education process. Through various contents of PE, the major aims of physical education can be met which fulfil the determined school standards and competencies.
2. The popularity of the content is the crucial factor for girls' assessment of PE lessons. Another essential factor is the presentation of the content, which was confirmed also in the assessment of gymnastics lessons. Creative interventions in PE significantly improved girls' assessment of gymnastic lessons.
3. Girls with lower levels of physical fitness based on self-evaluation, assessed PE lessons with various contents equally positively as girls with higher levels of physical fitness.
4. Along with the growing liberalization of school curricula, the significance of statewide determined standards and competencies of school programs increases. The same applies to the content of girl's physical education.
5. When creating and applying a new school education program, school physical education has a historical chance to eliminate deficiencies girl's PE.
6. Further development of curricular theory in PE is determined by more extensive research activity, grant support and more intensive international cooperation.

References

- Bulger, S. M., Townsend, J. S., & Carson, L. M. (2001). Promoting responsible student decision-making in elementary physical education. *J. Phys. Educ. Recr. Dance*, 72:18-23.
- Byra, M. (2000). A review of spectrum research: The contributions of two eras. *Quest*, 52, 229-245.
- Cheypator-Thomson, J. R., You, J., & Hardin, B. (2000). Issues and perspectives on gender in physical education. *Women Sport Phys. Act. J.*, 9, 99.
- Chen, A., & Ennis, C. D. (2004). Goals, interests, and learning in physical education. *J. Educ. Res.*, 97, 329-338.
- Christodoulos, A. D., Douda, H. T. Polykratis, M., & Tokmakidis, S. P. (2006). Attitudes towards exercise and physical activity behaviours in Greek schoolchildren after a year long health education intervention. *Br. J. Sports Med.*, 40, 367-371.
- Daley, A. J., & Buchanan, J. (1999). Aerobic dance and physical self-perceptions in female adolescents: Some implications for physical education. *Res. Q. Exerc. Sport*, 70, 196-200.
- Dishman, R. K., Motl, R. W., Saunders, R., Felton, G., Ward, D. S., Dowda, M., & Pate, R. R. (2005). Enjoyment mediates effects of a school-based physical-activity intervention. *Med. Sci. Sports Exerc.*, 37, 478-487.
- Fairclough, S., & Stratton, G. (2005). Improving health-enhancing physical activity in girls' physical education. *Health Educ. Res.*, 20, 448-457.
- Fensham, R., & Gardner, S. (2005.) Dance classes, youth cultures and public health. *Youth Studies Australia*, 24, 14-20.
- Frömel, K., Formánková, S., & Sallis, J. F. (2002). Physical activity and sport preferences of 10 to 14-year-old children: A 5-year prospective study. *Acta Univ. Palacki. Olomuc. Gymn.*, 32, 11-16.
- Frömel, K., Novosad, J., & Svozil, Z. (1999). *Pohybová aktivita a sportovní zájmy mládeže*. Olomouc: Palacky University.
- Frömel, K., Stratton, G., Vasendova, J., & Pangrazi, R. P. (2002). Dance as a fitness activity: The impact of teaching style and dance form. *J. Phys. Educ. Recr. Dance*, 73, 26-30, 54.
- Frömel K., Vašendová, J., & Krapková J. (2000). Esthetic aspects of physical education classes for girls. *Phys. Educ.*, 57, 146-151.
- Górna, K. et al., (2002). Pedagogická praxe studentu telesné výchovy v mezinárodním kontextu. *Ceská kinantropologie*, 6, 51-64.

- Morse, D. T. (1999). MINSIZE2: A computer program for determining effect size and minimum sample size for statistical significance for univariate, multivariate, and nonparametric tests. *Educ. Psychol. Meas*, 59, 518-531.
- Mosston, M., & Ashworth, S. (2002). *Teaching physical education*. San Francisco: Benjamin Cummings.
- Oliver, K. L., & Lalik, R. (2001). Critical inquiry on the body in girls' physical education classes: A critical poststructural perspective. *J. Teach. Phys. Educ.*, 23, 162-195.
- Oliver, K. L., & Lalik, R. (2004). The body as curriculum: Learning with adolescent girls. *J. Curric. Stud.*, 33, 303-333.
- Oliver, M., Schofield, G., & McEvoy, E. (2006). An integrated curriculum approach to increasing habitual physical activity in children: A feasibility study. *J. School Health*, 76, 74-79.
- Parish, L. E., & Treasure, D. C. (2003). Physical activity and situational motivation in physical education: Influence of the motivational climate and perceived ability. *Res. Q. Exerc. Sport*, 74, 173-182.
- Pate, R. R., Small, M. L. Ross, J. G., Young, J. C., Flint, K. H., & Warren, C. W. (1995). School physical education. *J. School Health*, 65, 312-318.
- Pelclová, J. (2004). *Dance in the contemporary system of school physical education*. Dissertation, Palacky University, Faculty of Physical Culture, Olomouc, Czech Republic.
- Prusak, K. A., & Vincent, S. D. (2005) Is your class about something? Guiding principles for physical education teachers. *J. Phys. Educ. Recr. Dance*, 76, 25-35.
- Stirling, J., & Belk, L. (2002). Effective teaching, quality physical education and the New Zealand curriculum. *J. Phys. Educ. New Zealand*, 35, 69-75.
- Trudeau, F., & Shephard, R. J. (2005). Contribution of school programmes to physical activity levels and attitudes in children and adults. *Sports Med.*, 35, 89-105.

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