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6. KONGRES FIEP-a EUROPE 6TH FIEP EUROPEAN CONGRESS

Pod pokroviteljstvom/Under the patronage of

Ministarstva znanosti, obrazovanja i športa RH/
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Croatian Olympic Committee

ZBORNİK RADOVA PROCEEDINGS BOOK

**TJELESNA I ZDRAVSTVENA KULTURA U 21. STOLJEĆU –
KOMPETENCIJE UČENIKA**

**PHYSICAL EDUCATION IN THE 21ST CENTURY –
PUPILS' COMPETENCIES**

Poreč, Croatia

June 18 – 21, 2011

Hotel resort „Zelena Laguna“

Hotel „Delfin“

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SADRŽAJ

POZVANA PREDAVANJA / INVITED LECTURES

Ken Hardman

PHYSICAL EDUCATION, MOVEMENT AND PHYSICAL
LITERACY IN THE 21ST CENTURY: PUPILS' COMPETENCIES,
ATTITUDES AND BEHAVIOURS 15

Dragan Milanović, Hrvoje Čustonja, Zrinko Čustonja

ŠKOLSKI ŠPORT U HRVATSKOJ I ZEMLJAMA EUROPSKE UNIJE 27

SEKCIJA TJELESNA I ZDRAVSTVENA KULTURA / SESSION PHYSICAL EDUCATION

Eugenija Adaskeviciene, Neringa Strazdiene

PHYSICAL ACTIVITY, PHYSICAL FITNESS AND HEALTH
AMONG PRESCHOOL AGE CHILDREN IN LITHUANIA 45

Nemanja Badnjarević, Dragoljub Janjić, Marko Vasiljević

UTJECAJ VJEŽBANJA NA BOLESTI DIŠNOG SUSTAVA 52

Marko Badrić, Ivan Prskalo, Ninoslav Šilić

RAZLIKE U STRUKTURI SLOBODNOG VREMENA
IZMEĐU UČENIKA URBANIH I RURALNIH PODRUČJA 58

Alex Barreto de Lima, Haldo Jayron Cardoso Gonçalves

OBESITY AND ASSOCIATED HABITS AMONG
SCHOOL CHILDREN FROM MANAUS 65

Jozef Beňačka, Jozef Haring, Elena Haringová,

Eva Ďurinová, Ingrid Zámbojová
SELECTED SOMATIC INDEXES OF THE UNDERGRADUATES 66

Iva Blažević, Vesna Babić, Ljubomir Antekolović

SPRINTERSKO TRČANJE DJECE MLAĐE ŠKOLSKE DOBI 74

Ksenija Bosnar, Ivana Turkalj

RODITELJSKA POTPORA DJEČACIMA U
INDIVIDUALNIM I EKIPNIM SPORTOVIMA 82

Jana Vašíčková

Karel Frömel

Zbyněk Svozil

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Original scientific paper

KEY COMPETENCES OF CZECH STUDENTS IN PE LESSONS WITH DIFFERENT CONTENT

BACKGROUND

Key student competences at Czech secondary schools are being prepared as a part of a new school reform. This reform is going to be undertaken at middle and upper secondary schools in September 2012, but some schools have already been teaching according to the newly prepared school education programme. This reform integrates Physical Education and health education (with contents such as: healthy lifestyle, human relationships, prevention against civil diseases, etc.) into wider area „Humans and Health”.

Physical Education, according to this new reform document, advocates permanent attitude of pupils towards physical activities and their optimal development of physical, mental and social competences (Výzkumný ústav pedagogický, 2007). It is necessary to perceive the problem area of health in a wider sense, not only as one school subject, but as a lifestyle. Thus competences obtained in PE lessons should help to create physically educated young people. One of the main aims for PE that should be discussed in details seems to be the development of physical literacy. This term is defined by Whitehead (2010) „... physical literacy can be described as a disposition, evidenced through the motivation, confidence, physical competence, knowledge and understanding to maintain physical activity throughout the life course”.

The key competences focused on in this paper are rather latent in the process of teaching PE that is more oriented to movement skills, performance, fitness, feeling good about one's achievement, and challenging atmosphere. Key competences are a sum of knowledge, understanding, abilities, attitudes and values important for personal development and involvement in the society. Key competences in the new school reform for secondary schools should be achieved by all students by the end of secondary school education. These are: learning competence, problem-solving competence, communication competence, social competence, civil competence, „spirit of enterprise” competence. These competences are not linked to a particular school subject; they should be developed in students within the whole educational process through various school activities and should continue as part of lifelong learning.

We feel that physical literacy (physical competence is not in the new school reform) comprises all key student competences that are a part of the educational process in schools. There is no specific tool to confirm this. However, the questionnaire focusing on pupils' attitude towards PE lessons that had been applied for many years seemed a useful tool. After looking into its questions and discussing with experts, we decided to use some questions to identify four key competences.

OBJECTIVE

The main aim is to compare four key student competences (educational, problem-solving, communication, and social competence) in different types of PE lessons to help teachers prepare better their school education programmes.

METHODS

During students' teaching practice from 2008 to 2010, the questionnaire (pupils' attitude towards physical education lesson) (Frömel, Stratton, Vasendova, & Pangrazi, 2002) was applied in one typical PE lesson and one fitness oriented PE lesson. Fitness oriented PE lesson means that the content of exercise was the same as in typical lesson but exercising was more demanding (for instance, with extra tasks, higher heart rate or with higher load). The content of the lessons was games (football, volleyball, basketball, and others), athletics, gymnastics, exercising (fitness, conditioning), and dance (including aerobics). PE lessons were taught by experienced teachers.

Participants were pupils aged 12-19 from various elementary schools, middle secondary schools and secondary school students in the Czech Republic. In total, questionnaires from 4,247 pupils and students were gathered.

The questionnaire (pupils' attitude towards PE lesson) is designed to evaluate pupils' and students' attitude towards PE lesson. It contains 24 questions divided into six sections and one complementary section (pupil's role) (for more details see Frömel et al. (2002)). For this research, four questions have been chosen to describe each student's competence. *Learning competence* means that a pupil is able to plan and organise his/her own learning, to effectively use various strategies to obtain and process new information that is critically accepted, and to admit criticism from others, etc. (described by questions number 1, 7, 13, and 19). *Problem-solving competence* comprises, for instance, an identification of a problem, finding its core, suggesting ideas how to solve this problem; a pupil uses suitable methods for problem-solving, is critical, open-minded to all suggestions and evaluates pros and cons of particular solutions (questions 6, 8, 12, and 16). *Communication competence* means that a pupil uses various types of communication means (verbal and non-verbal), expresses himself/herself clearly in speaking and writing with respect to the audience and the

aim of a message, presents his/her work in front of familiar/unfamiliar audience, etc. (questions 4, 18, 20, and 22). *Social competence* comprises active cooperation with other people, prediction of own behaviour and dealing with others, adaptation to new working conditions and responsible relationships to personal and others' health (questions 2, 3, 10, and 15). Maximum score for each competence is 4 points (ordinal data).

In order to perform statistical analysis, score had to be counted for each competence, and three types of schools, two types of PE lessons and their content were specified. For statistical analysis, Kruskal-Wallis test was used for non parametric data to find differences between schools, the type of lessons and the content of PE lessons. To calculate „effect size”, η^2 (Morse, 1999) and its formula: $\eta^2=H/(n-1)$ was used.

RESULTS

We analysed 4,247 pupils' (2,341 girls' and 1,906 boys') questionnaires for evaluation of PE lessons. Mean and median values were calculated and compared according to the type of schools (Table 1). Four values were maximum values in each competence.

In PE lessons, students and pupils can learn the most at elementary school while in secondary schools they are more oriented to problem-solving competence. Communication competence is on the same level regardless of the type of school. No significant difference was found there. Students from secondary schools scored highest in social competence (M=2.77).

Table 1. Mean values for students' competences divided according to the type of school

	Elementary school (n=1686)	Elementary school – secondary school type (n=1407)	Secondary school (n=1154)	H	η^2
Learning competence	2.35	2.23	2.24	12.35**	0.003
Problem-solving competence	2.42	2.35	2.47	6.22**	0.001
Communication competence	2.35	2.35	2.40	1.84	0.000
Social competence	2.62	2.66	2.77	11.74**	0.003

Legend: H – Kruskal-Wallis test; **p<0.01; η^2 – effect size

If pupils' load during exercising in PE lessons is increased, there is decrease in obtaining certain competences (Table 2). Only social competence remained the same. Such a type of PE lesson had different objective than fulfilment of key students' competences; we can say, another added value for students.

Table 2. Mean values for students' competences in typical PE lesson and fitness oriented PE lesson

	Typical PE lessons (n=2274)	Fitness oriented PE lesson (n=1973)	H	η^2
Learning competence	2.32	2.23	6.61*	0.002
Problem-solving competence	2.44	2.38	1.97	0.000
Communication competence	2.40	2.31	8.17**	0.002
Social competence	2.67	2.68	0.29	0.000

Legend: H – Kruskal-Wallis test; **p<0.01, *p<0.05; η^2 – effect size

The comparison of PE lessons with various contents showed interesting results (Table 3). Learning competence, as well as social competence is best obtained in PE lesson containing dance or aerobics. Such content is not so typical for PE lessons (teachers must be skilful and experienced) and students (mainly girls) can learn new figures, new dancing styles, new terminology, etc. Problem-solving competence is best obtained in gymnastics lesson; partly because the content is oriented more to combining different exercises to create gymnastics line. It is not a separate task but a complex one. Communication competence is also mainly connected to gymnastics; sometimes as an inseparable part of problem-solving tasks where students are to communicate and discuss their solutions.

Table 3. Mean values for students' competences in PE lessons with different content

	Games (n=2624)	Athletics (n=356)	Gymnastics (n=338)	Fitness (n=808)	Dance (n=121)	H	η^2
Learning competence	2.22	2.50	2.57	2.19	2.64	64.48**	0.015 ^a
Problem-solving competence	2.41	2.52	2.54	2.32	2.40	16.34**	0.004
Communication competence	2.31	2.45	2.58	2.36	2.57	38.49**	0.009
Social competence	2.57	2.78	2.69	2.85	3.39	99.84**	0.024 ^a

Legend: H – Kruskal-Wallis test; **p<0.01, *p<0.05; η^2 – effect size; a – small effect size

In Figure 1 different games lessons were compared. Learning and communication competences are best obtained in basketball (n=1,282). Problem-solving competence is put forward into volleyball lessons (n=403). PE lessons with other games (e.g. floorball, ringo, Frisbee, handball, etc.) (n=604) are the best in offering problematic tasks and pupils are forced to discuss and work with other classmates. In football lesson (n=335) students recognised improvement in social contacts and personal relationships. Differences in median in all four competences were found as statistically significant, but effect size coefficient was calculated as small only for learning competence and social competence.

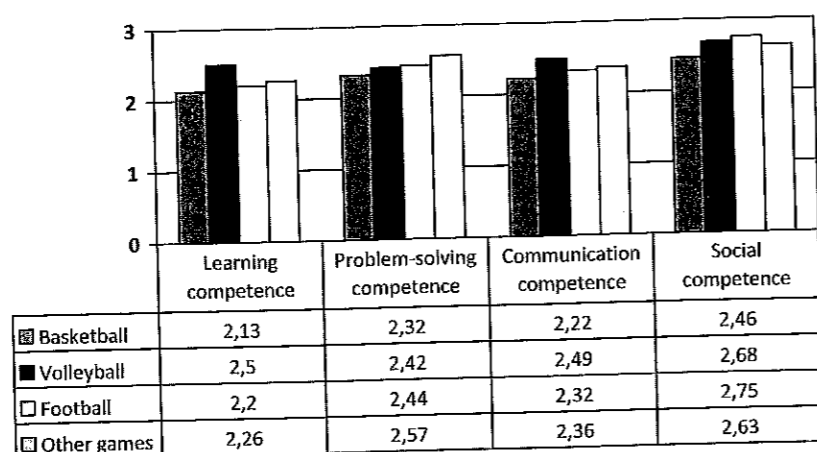


Figure 1. Students' competence in PE lessons with games (n=2624) according to questionnaire

DISCUSSION

This study concentrated on the comparison of four key students' competences in different types of PE lessons to help teachers prepare better their school education programmes. Despite the fact that there is no suitable and standardised tool for survey, we used our questionnaire for assessing pupil's attitude to PE lessons to obtain information about four key competences. This is one of the limitations of the study at the same time. Another limitation is an unequal number of questionnaires obtained in each type of PE lessons and schools.

Obtaining key competences throughout school education should prepare a student to lead successful life and to know how to deal with various obstacles. For a PE lesson to be considered 'high quality', a study by Haydn-Davies (2005) concludes that it should be actively aiming to prepare children and youth „to participate in lifelong physical activity (LLPA) by focusing on skills and attitudes to be used outside

limited curriculum time". In PE lessons teachers often concentrate more on pupils being good at specific sports thus acquiring various physical skills, and the problem of transferring this ability into adult life is not satisfactory solved.

Our findings, after we compared key competences in different types of schools, showed that there is a bigger gap between obtaining four competences in PE at secondary schools. Students there perceived social competence as more important than learning competence. Social contacts with their classmates in PE are more specific than in other subjects where they sit at the desk most of the time. Typical PE lesson enhanced learning and communication competences more than fitness oriented PE lessons. Learning outcomes are different in those two types and it is perceived by students as well. Programme and content of fitness oriented PE lessons comes from a typical lesson. The main difference is that exercises are more demanding (more possibilities of exercising, higher heart rate and so on) for pupils. In our analysis of the PE lessons content, it was found that learning competence is best recognised in dance and aerobics lessons and least developed in fitness (conditioning) lessons. Combination of action, new figures, and movements enrich pupils in knowledge sphere. Problem-solving (critical thinking) as well as communication competences are well developed in gymnastics lessons. Such educational gymnastics lessons (focusing on body management) are the basis of all other sports and can become a key aspect of developing physical literacy (Baumgarten & Pagnano-Richardson, 2010). Social competence is well developed in dance and aerobics lessons. This interesting finding can stipulate further research because in aerobics pupils exercise by themselves while dance in education involves purposeful and varied interaction with others in performance, composition and appreciation (Killinbeck, Bowler, Golding, & Sammon, 2007).

Games dominate in curricular PE and can be used as one strategy of helping students acquire key aspects of physical literacy (Mandigo & Holt, 2004). In volleyball, students enhance learning and communication competences; football is best to enhance social competence and in other games students solve problems connected with games strategy.

Potentially, teachers may incorporate key competences in all PE lessons regardless of the type and content. This study serves as the reflection on what and how things are taught and instructed in contemporary PE lessons and might help teachers to prepare better physical education programmes with respect to physical literacy.

CONCLUSION

Developing key students' competences in PE lessons tends to be the fundamental task for PE teachers. They should not only develop and enhance movement, technical and tactical skill but also students should be supported to solve and communicate problems within PE contents. It is, among others, inseparable part of the so-called physical literacy.

Findings from our research indicate that PE teachers should preferably concentrate on developing learning competence in secondary school students and problem-solving competence in students from elementary school or middle secondary schools. Given that games tend to dominate many PE programmes, we highlight game literacy as part of physical literacy. Volleyball, gymnastics and dance, including aerobics are the best contents of PE lessons for students' competence enhancement. Yet, teachers should try to concentrate on key competences also in PE with other content to be more effective.

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ABSTRACT

Background: Key student competences at Czech middle and upper secondary schools are being prepared as part of the new school reform. This reform is going to be applied in September 2012, but some schools have already been teaching according to the newly prepared school education programmes.

Objectives: The main aim is to compare four key student competences (learning, problem-solving, communication, and social competence) in different types of PE lessons. The paper analysed 4,247 pupils' evaluation questionnaires of PE lessons. Four questions were chosen as indicators of each competence.

Results: Learning competence in PE lessons is best recognised in dance and aerobics lessons and developed least in fitness lessons. Problem solving competence as well as communication competence are best developed in gymnastics lessons. Social competence is best developed in dance and aerobics lessons.

Conclusion: PE teachers should preferably concentrate on developing learning and problem-solving competence in students.

Key words: learning competence, questionnaire, problem-solving competence, communication, school reform, physical literacy