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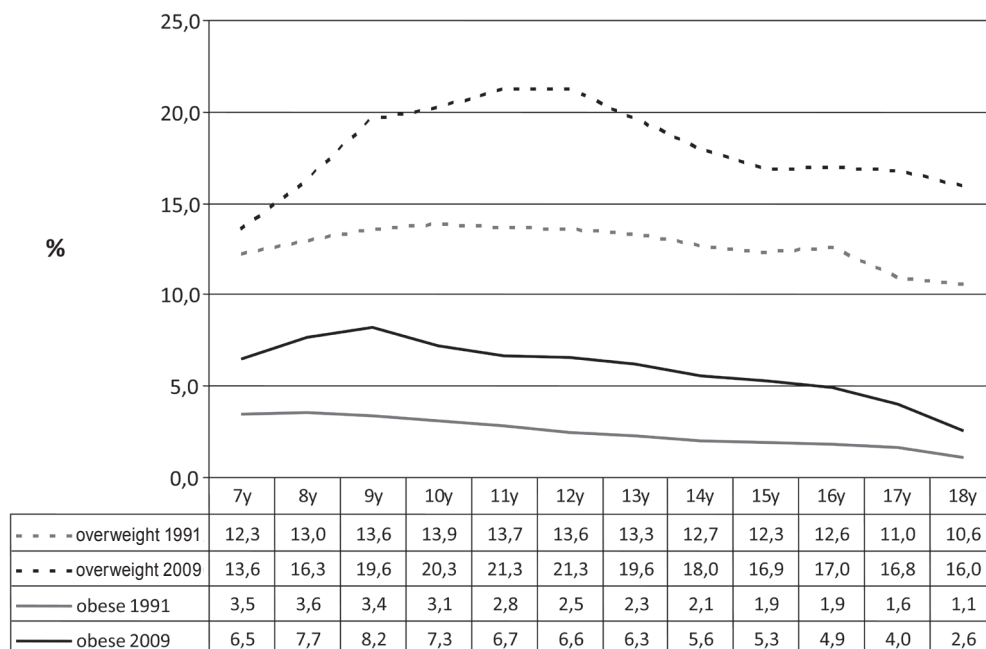
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Review

NO GYM OR E-GYM?

INTRODUCTION

Media and information technology which offer easy and immediate fulfilment of human needs for entertainment and communication are important factors of contemporary lifestyles of young people in developed countries (Jurak, Kovač, & Strel, 2002). Many young people live in half-virtual world of web social networks, far away from climbing the trees and ripping trousers. Also, they decide to participate in physical activities less often than they used to (Brettschneider et al., 2004; Strel, Kovač, & Jurak, 2007). In connection with some other trends (sheltering praxis of parents, individualisation), a sedentary lifestyle is common among young people (Ferreira et al., 2006; Jurak, 2006; Strel, et al., 2007; Armstrong, 2007). According to the findings of secular studies, it can be concluded that changes in the lifestyles of young people in developed countries are manifesting themselves in increased fat skin (Strel, et al., 2007), a higher proportion of the overweight population (Strauss & Pollack, 2001; Wedderkopp, et al., 2004; Currie, et al., 2004; Strel, et al., 2007) and in the deterioration of their physical fitness, mainly endurance and strength (Beunen et al., 1992; Strel, et al., 2007). Therefore, the findings also demonstrate a decline of results in activities which require young people's body movement (Wedderkopp, et al., 2004; Strel et al., 2007). It seems like battle is lost since also political decisions which influence their physical activity (Kovač & Jurak, 2010) are not in young people's favour.



Source: Kovač & Jurak, 2010

Figure 1. Increasing proportion of overweight and obese Slovenian young people in past decade

Significant changes in the environment, where young people grow up, and their consequences on motor competence of young people require different approaches to teaching. This paper therefore addresses the challenge of how to take advantage of modern lifestyles of youth and their parents in PE teaching.

NO GYM

Poorer physical fitness, lower physical self-image and worse health status in combination with lack of motivation for PE, inappropriate pedagogical measures and other factors can result in avoidance of PE.

Students can be excused partially or completely from participation in PE lessons. In Slovenia in 1973, staggering 10% of secondary school population were excused from PE lessons (Vučetić-Zavrnik, 1974), whereas at the beginning of 1990s approximately 3% of secondary school students were entirely excused from these lessons (Kovač, 1995). According to the data by Jurak et al. (2007), 3% of primary and secondary school students provided complete or partial doctors' letter of excuse from

PE lessons in 2004. Kolar (2010) analysed the archive of excuse letters at the Health centre for school children and youth in Maribor and found that in 2004/2005 2.6% of secondary school population from Maribor region received complete or partial letters of excuse and in 2008/2009 the proportion was 1.5%. As the study did not include letters of excuse from personal doctors or specialists, the author assumed that the overall proportion of excused students was even larger. In both monitored periods, the majority of letters of excuse were issued to girls (62.1% and 67.7%).

Students can be excused from individual lessons due to other commitments, e.g. to visit a doctor, to participate in a competition, etc. Often students excuse themselves when they are not ready for tests or when they did not finish their homework and then despite the excuse still participate in a lesson (Lovšin et al., 1988). Although the legislature in Slovenia states that a student can be excused only with doctor's letter, which has to include a recommendation about the degree of participation, it has been noticed that also in PE lessons students excuse themselves and consequently do not participate in practical lessons or they do so only in various activities. Jurak et al. (2004) examined the frequency of excuses, the justification of reasons for being excused when students nevertheless participate in other lessons, and the activities of students during the time when they are excused from physical education lessons. The authors have noticed that girls are more often excused from lessons, although the type of secondary school programme did not reveal statistically significant differences in the frequency of excuses. The most often actual reasons for excuses were illness, in girls also pains when menstruating, as well as lack of sports clothing. A comparison to the study by Vučetić-Zavrnik (1974) revealed that after more than 30 years, the materialistic and hygienic conditions do not present important reasons for excuses anymore. Students most often tell the teacher the real reason when they cannot present anything justifiable. Staggering 44.3% of students provide doctor's letter of excuse at least once a year despite not having a justifiable reason and 52.5% of students at least once a year provide false letter of excuse from parents, stating invented health difficulties. Whilst excused from PE, students most often remain passive or study for other subjects. A fifth of girls (18.9%) excuse themselves at every menstruation whereas more than a quarter (26.3%) of girls practice through it. A half of girls (49.8%) practice during the menstruation with the same intensity as other girls. Academically less successful students excuse themselves statistically most often. All the justified or unjustified reasons apart from one („teacher is unfair to me") are in negative correlation with the mark in PE.

Avoidance from PE classes can be decreased with suitable measures (see: Jurak et al., 2007). One set of measures must focus on the system of how and when PE teacher can excuse a student from PE lessons. But more important preventive measure for decrease of reasons for excusing from PE is attractiveness of PE classes and goal

orientation in providing of individual needs of the youth. Research data indicate that physical education teachers cannot compensate the long hours of sedentary life in children and youth with common teaching practices. With quick technological advance and its effects, it is a challenge for children and youth to create basic motor patterns, control their movement and acquire lifelong motor knowledge that will encourage a free time physical activity, similar to that in the past. Namely, only then a necessary consumption of energy will be achieved. The answer to the challenge might lie in the creation of different learning environment and all its elements.

E-GYM

Nowadays, physical education represents a counter-balance to ever increasing sedentary lifestyle, which is prompted particularly by the development of new technologies; therefore, many physical education teachers fight the inclusion of ICT in physical education. Computer and video-technology have been present in physical education for a period of time; however, Slovenian physical education teachers use them during lessons mostly in an indirect way (writing teaching plans, analyses, communication, promotional activities) and do not include them directly into the teaching process (Štihec & Leskošek, 2004; Markun Puhan, et al., 2007; Sitar, 2010). From the point of view of maintaining the sufficient volume and intensity of motor encouragement in physical education lessons this is understandable, on the other hand, modern technologies provide important visual and mental feedback information in learning of new movements and improved control of movement in various circumstances. This is particularly true when the feedback information is provided via a suitable e-material with the use of video-clips, video analysis, computer simulated movement etc.

Research studies on motivation have shown that enhancement of human values in sport and education, also physical education, is closely related to, and dependent on using intrinsic causes for achieving goals (Duda & Nicholls, 1992; Papaioannou, 2000). In physical education lessons this is particularly noticeable in motivation of older students to overcome effort or to conceptualise the contents. Namely, with age the positive attitude toward sport activity decreases, especially for physically more demanding contents as well as the satisfaction and degree of effort of young people (intrinsic motivation) in physical education lessons; in addition, older students feel less competent at physical education (Škof, Tomažin, & Dolenc, 2000). Consequently, cooperation in physical education lessons decreases with age (Jurak, Kovač, Strel, & Starc, 2005) and participation in sport out of school hours is smaller (Strel, et al., 2007).

Students who know more about physical activity are more likely to take an active approach to it (Birtwistle & Brodie, 1992; Bocket, 1994; Hunt, 1995). As these findings indicate, the primary role of the school and PE teachers should be to make physical activities meaningful and focus on promoting knowledge about physical activity and healthy lifestyle in order to increase a student's motivation, normally reflected in a wish to seek out and overcome challenges. In order for the learning process to be effective, we need to create such conditions for physical activities that would motivate the performers to want to progress, learn more about their interests, or perform better. This approach promotes active involvement of students in the process of acquiring knowledge and skills (Kolb, 1984). In such an approach augmented feedback given to students is important for successful learning. Students become actively engaged in the process of acquiring motor skills and improving movement control. Also, such practice develops their intrinsic motivation for personal progress and consequently, adds meaning to several stamina exercises which students otherwise tend to avoid as they see no benefit in them for their own development.

ICT is most often used in gymnasium in order to provide feedback information about the movement of a practicing person; it can also be used to present theoretical information, related to the importance of physical activity and healthy lifestyle. When using the ICT, physical education teacher faces several obstacles.

- Presentation of information with the use of ICT about safe and suitable exercise should not be static. Theoretical contents can be presented together with practical exercises, in this way they will result in better understanding. Similarly, learning of certain practical contents, which are uninteresting for some groups of children (e.g. endurance activities, exercises for correct posture, flexibility etc.), can be brought closer to students.
- The use of ICT should not reduce intensity of physical activities. A poor example of ICT use is organisation of PE lesson as a frontal type of video analysis, where all the students watch an analysis of everyone else, as this is very time consuming in relation to the limited number of PE lessons.
- Exaggerated or unnecessary use of various ICT media. The point of using the ICT is for students to learn curriculum faster and better. Therefore, teacher has to know, which goals are being fulfilled with the use of ICT, as its use for a sole purpose of entertainment of children, is inappropriate.
- Preparation of media. Less experienced user can easily have a bad day, thus it is sensible to check the functioning of media prior to their use in lessons. Furthermore, it is wise to use the same technology in different classes.

Physical education teacher should plan lessons, so that the use of ICT facilitates better utilisation of time and technology. One of the group organised teaching methods (e.g. work on stations, work with complementary and supplementary tasks) is appropriate for analyses, where teacher can concentrate on an individual student (as the coordinator of work; students work on all stations and teacher uses one of them for individual analysis). For simple and regular use of ICT in PE lessons it is important to adequately position technology in the gymnasium.

EXPERIMENTAL ENVIRONMENT ELAN FIT-ME

In the past, the primary role of school gymnasium was to provide covered practicing area in bad weather conditions. In Slovenia, the materialistic provision of schools is satisfactory from the quantitative point of view (Jurak, 2010); however, the quality aspect of learning environment sometimes becomes questionable. This includes solutions, related to the demands of learning environment in physical education. Nowadays, the described lifestyle of children and youth with its consequences as well as changes in teaching methods, require more than just a mere gymnasium. It is important what possibilities a gymnasium offers in connection with the knowledge of teachers.

Environment changes fast under the influence of modern technologies. In order to utilise the technology and conceptualise physical education in social context of future times, a concept of e- gymnasium for the future has been developed together with a business partner (Elan Inventa d.o.o.). Its working title is Elan fit-me. The aim of this experimental project is to develop and implement a new, professionally unique concept of acquiring diagnostic data through efficient use of ICT in a school gymnasium.

Augmented feedback given to performers of physical activities is important for evaluation of movement in PE and sport. Such feedback can be effectively transferred via ICT. Combining various diagnostic-based technology services in a school gymnasium with e-learning materials will establish a system that will make it easier for PE teachers to prepare for lesson and also enable the students, and all persons with whom the students will wish to share the information to see the diagnostic results. Thus, the system will ensure the information required for further use in effective PE and sports practice, as indicated in the acronym of the project.

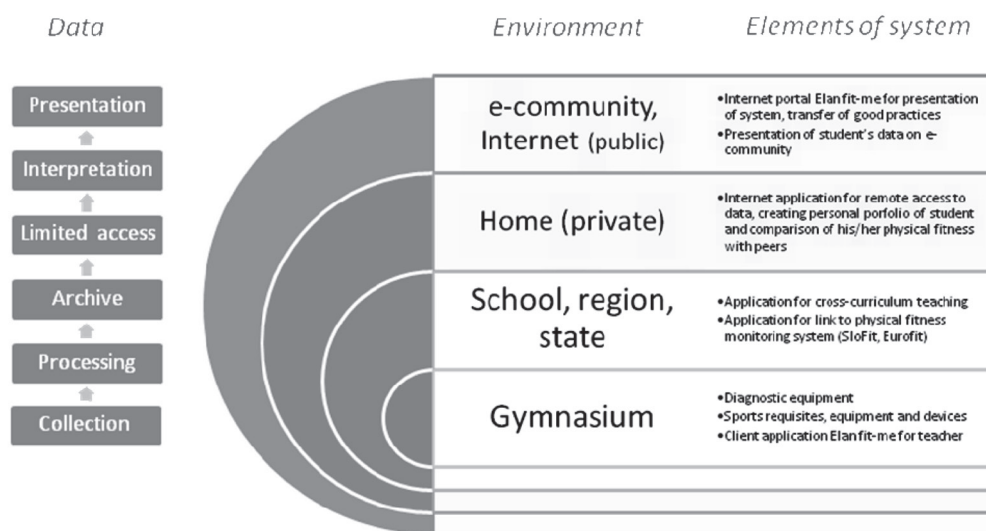


Figure 2. Diagram of the Elan fit-me processes

The Elan fit-me concept is made up of a software environment for teachers (client application) which allows central management of the diagnostic equipment system in the gymnasium (combination of the existing equipment from other manufacturers and newly developed equipment, an RFID system, an interface to store diagnostic data by individual codes, integration of all ICT equipment into the school gym facilities) and a web portal that enables exchange of diagnostic and other data between users of the system (teachers, students, parents, coaches, doctors, etc.). From the content view, the concept is divided into 3 stages:

- Gymnasium environment (client application in school gym for PE teacher and students)
- School environment (application for cross-curriculum teaching)
- Web environment (web portal for the presentation of the system, transfer of good practices, remote access to student's data)

In the client application, teachers will be able to make advance plans for using ICT in a gymnasium; the plans will include the use of various types of diagnostic-based and education technology (e.g. demonstration of a student's movement with a delay or in slow motion, video recording, heart beat and energy use monitoring, results of specific motor tests, presentation of data on worksheets). Using the software tool that will be developed in the course of the project, the teachers will be able to access and run all the software and hardware needed for the lesson plan via a

central medium, instantly arranging the gymnasium to the planned physical activities. Also, this concept will enable simple collection of data on the physical and motor development of children (e.g. SloFit, Eurofit).

Through the use of RFID technology, students will be identified at each station and diagnostic data will be stored to a data field in the gym. The data, such as a digital video of the movement or the heart beat frequency, will be immediately available for viewing inside the gym. At home or in the course of another subject (e.g. cross-curricular approaches – PE data used in a physics class) students will be able to access the data archive which will have been transferred to a web-based environment, and create their own portfolios. In the course of the project, appropriate software environment will be created to prepare, process, analyse and store data. It will enable the students to compare their physical (body height, weight, BMI, skin-folds) and motor development (endurance, strength, flexibility, speed, coordination) against their peers from the same school and other schools (SloFit) or to analyse their movement with optimal performance during the PE lesson with their teacher, or at home with their parents, coach, or physician. The web portal will also bring the users presentations of the ELAN fit-me system, transfer of good practice (system applications) and links to other useful web portals (e.g. theoretical background on movement enhancement). Finally, students will be able to publish their data on e-social networks.

The project will bring a new level to the quality of e-learning/teaching in PE and sports where teachers and coaches are otherwise limited as the primary focus of the lesson are physical activities. Gymnasiums with an integrated IT system will provide for easier combination of different types of modern ICT equipment to acquire diagnostic data, create diagnostic databases (in particular, physical fitness data), which will facilitate comparing the results for a specific student with those of his/her peers, cross-curricular cooperation, establish regular communication via current media between the PE teachers and parents regarding the execution of PE classes and activities; potential cooperation between PE teachers and the school doctor on planning the physical activities for students with health issues; a web portal for exchange of diagnostic data; one-stop-shop (web) for pictorial and word information on the performance of movements by a participant, learning these movements and the role of these in other school subjects (fields) and life. In such a learning environment PE teacher is not only transmitter of knowledge but also teaches students to gain knowledge with the usage of e-learning materials and ICT by themselves. With such an approach, a comeback to origins of PE can be achieved: more physical movement, sweating, acquiring motor skills, playing, socializing with peers etc.

Case scenario: Basketball

The aim of the lesson is to check the knowledge and motor skills in basketball: the tactical elements of the top of the ball defence, jumping ability and referee rules. The teacher organizes the lesson in stations.

Using the Elan fit-me software, the teacher determines the ICT equipment to be used:

- A camera is used to make RF ID based skill performance recordings in a part of the gymnasium; the teacher defines the data acquisition method (automatic – time delay between identification and action; or manual by prior confirmation – in case there are several performances of the skill and the teacher only wishes to record one)*
- RF ID based video recording played in slow motion on the LCD screen*
- RF ID based quiz testing (e-learning material) the knowledge of situations in basketball game is performed on the LCD screen (the teacher chooses from a selection of questions or creates new questions and answers)*

At the start of the lesson, the teacher explains the purpose and organization of the lesson to the students. The students put on their RF ID bracelets and perform identification by software. The work is carried out at the following stations:

- 1. Zone defence: Top of Ball Side. The teacher sets up a work station for zone defence drill in the part of the gymnasium that is covered by cameras. When a student in the group gets close enough to the LCD screen, the RF identification starts. The LCD screen displays the name and surname of the student along with the instructions for recording the actual performance. The group performs the task and the video of the student's performance is stored under his/her ID. Then, another student triggers the RF identification, and the group repeats the drill with the student taking different roles/zones. The task is repeated so many times that each of the students takes on all the roles.*
- 2. Defence Performance Analysis. Together with their teacher, the students analyse their defence performance at the LCD-equipped work station. On the basis of the RF identification, the Elan fit-me software finds a certain student's defence performance video(s).*
- 3. Three-on-three Half Court Defence. Three points are awarded for a shot that ends in a defence.*
- 4. Jump Ability Test. When the student approaches the work station, the LCD screen displays his or her name and the protocol for performing the jump. The Optojump measuring device measures the jump and enters the result under the student's ID.*

5. *Situations in basketball game. The student approaches the work station and performs identification. The screen displays a quiz testing the student's knowledge of proper player reaction in basketball game. The student completes the quiz, and the screen displays the score and correct answers.*

Students pass from station to station in the teacher-designated order. The teacher also defines the time interval needed for each station and coordinates all the other activities in the gymnasium.

CONCLUSION

Learning environment is an important factor of teaching and learning. Poorer conditions require adaptation of the teacher in his/her work; nevertheless, even excellent conditions cannot replace a teacher. It is crucial that the competences of teachers change in line with the changes in learning environment, which is presented in the paper. On the basis of the findings of studies involving Slovenian PE teachers (Štihec & Leskošek, 2004; Kovač, Sloan, & Starc, 2008; Sitar, 2010) it can be concluded that the competence of PE teacher for work with ICT is one of the important elements in improvement of their teaching. Teachers state to have lower than desired competence for ICT work in PE (Kovač, et al., 2010). At the same time, teachers obviously consider the use of ICT in PE more in indirect connection and not for direct inclusion into lessons. The answers of teachers, revealing that they do not require ICT for presentation of curriculum and additional motivation could indicate that teachers feel threatened in their two traditional roles in PE lessons: demonstration of skills and the motivation of students for PE and sport. Obviously a combination of improvement of materialistic conditions and the necessity of use of ICT (e.g. compulsory sending of data about physical fitness) will be required for a transition to higher level of accepting of ICT in PE; the thesis is confirmed with the fact that teachers, who have already been forced into such kind of work (external examination in PE at the end of primary school), are more familiar with e-learning material (Sitar, 2010).

Learning environment should not be considered too narrowly, merely as an ICT. Social changes influence the perception of school as a whole; therefore, entirely conceptual questions about the further education of young people are being considered. In some countries, in line with the „d.school” concept (<http://dschool.stanford.edu>) and the experience of ambient, a different picture of school environment has been designed with the aim of bringing school as a learning environment closer to modern lifestyle of children and youth. This context also includes a gymnasium as a learning environment of physical education. As such, physical education teachers will have to architecturally position a gymnasium through interdisciplinary cooperation into such school and also produce a conceptual image of its concepts.

REFERENCES

1. Armstrong, N. (2007). Physical fitness and physical activity patterns of European youth, Chapter 2. In W.D. Brettschneider & R. Naul (Eds.), *Obesity in Europe: young people's physical activity and sedentary lifestyles* (p. 27-56). *Sport sciences international*, vol. 4. Frankfurt am Main [etc.]: Peter Lang.
2. Beunen, G., Lefevre, J., Claessens, A., Lysens, R., Maes, H., Renson, R., et al. (1992). Age-specific correlations analyses of longitudinal physical fitness in men. *European Journal of Applied Physiology and Occupational Physiology* 64: 538-545.
3. Birtwistle, G. E. & Brodie, D. A. (1992). Canonical relationship between two sets of variables representing the CATPA subdomains and health-related fitness. *International Journal of Physical Education*, 28(1), 21-25.
4. Bocket, T. J. (1994). *Differences in Physical Activity Attitudes and Fitness Knowledge between Health Fitness Standard, Sex, and Grade Groups* (Unpublished doctoral dissertation, Faculty of Springfield College). Springfield: Springfield College.
5. Brettschneider, W. D. & Naul, R. (2004). *Study on young people's lifestyle and sedentariness and the role of sport in the context of education and as a means of restoring the balance*. Final report. Paderborn: Univeristy of Paderborn and Council of Europe Directorate-General for Education and Culture, Unit Sport.
6. Council of Europe (2002). Resolution No. 1/2002 on improving the quality and quantity of physical education and sport for children and young people in the member States of the Council of Europe. Warsaw, 12-13 September 2002.
7. Currie, C., Roberts, C., Morgan, A., Smith, R., Settertobulte, W., Samdal, O., et al. (2004). *Young people's health in context. Health behavior in school-aged children (HBSC) study: international report from the 2001/2002 survey*. (Health policy for children and adolescents, no. 4). Copenhagen: World Health Organization Regional Office for Europe.
8. Duda, J.L., & Nicholls, J. (1992). Dimensions of achievement motivation in schoolwork and sport. *Journal of Educational Psychology*, 84, 290-299.
9. Ferreira, I., van der Horst, K., Wendel-Vos, W., Kremers, S., van Lenthe, F. J., & Brug, J. (2006). Environmental correlates of physical activity in youth – a review and update. *Obesity Reviews*, 8, 129-154.
10. Hunt, J. D. (1995). *The impact of a daily physical education program on students' attitudes towards and participation in physical activity* (Unpublished Master Degree, University of British Columbia). Vancouver: University of British Columbia.
11. Jurak, G. (2006). Sports vs. the „cigarettes & coffee” lifestyle of Slovenian high school students. *Anthropological Notebooks* 12(2), 79-95.

12. Jurak, G. (2010). Analiza materialne podstrukture športa v Republiki Sloveniji. In E. Kolar, G. Jurak, & M. Kovač (Eds.), *Analiza nacionalnega programa športa v Republiki Sloveniji 2000-2010* [Analyses of national programme of sport in Republic of Slovenia 2000-2010. In Slovenian] (pp. 287-306). Ljubljana: Zveza za šport otrok in mladine Slovenije.
13. Jurak, G., Kovač, M., & Strel, J. (2002). Spending of summer holidays of Slovenian secondary school children. *Acta Universitatis Carolinae, Kinaanthropologica*, 38(1), 51-66.
14. Jurak, G., Kovač, M., & Strel, J. (2004). Opravičevanje od športne vadbe pri pouku športne vzgoje. [Excusing from practicing in physical education lessons.] In M. Kovač (ed.), *Zbornik 17. strokovnega posveta športnih pedagogov Slovenije* (p. 75-86). Ljubljana: Zveza društev športnih pedagogov Slovenije.
15. Jurak, G., Kovač, M., Strel, J., & Starc, G. (2005). Analiza opravičevanja od pouka športne vzgoje [Analysis of the Excuses from PE Classes Attendance. In Slovenian]. *Šport* (53),3 (Suppl): 13-20.
16. Jurak, G., Kovač, M., Strel, J., & Starc, G. (2007). To je prenaporno zame: opravičevanje pri športni vzgoji. [This is too strenuous for me: excusing from physical education lessons.] In M. Kovač, & G. Starc (Eds.), *Šport in življenjski slogi slovenskih otrok in mladine* (p. 191-202). Ljubljana: Fakulteta za šport, Zveza društev športnih pedagogov Slovenije.
17. Key competences for lifelong learning – European reference framework (2006). Official Journal of the EU, 394/06.
18. Kolar, B. (2010). Opravičila od pouka športne vzgoje. [Excuses from physical education lessons.] In J. Dolinšek (ed.), *Zbornik Otrok in šport. XX. srečanje pediatrov* (p. 65-66). Maribor: Univerzitetni klinični center.
19. Kolb, D. A. (1984). *Experiential Learning*. New Jersey: Prentice Hall.
20. Kovač, M. & Jurak, G. (2010). Can we talk about political decisions about children's sport participation?. In G. Starc (Ed.). *Hard reality of dream society - uses of anthropology in contemporary world : book of abstracts*. Ljubljana: Slovene Anthropological Society, 2010, pp. 34.
21. Kovač, M. & Jurak, G. (2010). Analiza interesne športne vzgoje otrok, mladine in študentov. In E. Kolar, G. Jurak & M. Kovač (Eds.), *Analiza nacionalnega programa športa v Republiki Sloveniji 2000-2010* [Analyses of national programme of sport in the Republic of Slovenia 2000-2010. In Slovenian], pp. 163-195. Ljubljana : Univerza v Ljubljani, Fakulteta za šport.
22. Kovač, M. (1995). Oprostitev od pouka športne vzgoje. [Being excused from physical education lessons] *Zdravstveno varstvo*, 34, 11-3.
23. Kovač, M., Sloan, S., & Starc, G. (2008). Competencies in physical education teaching: Slovenian teachers' view and future perspectives. *Eur. phy. educ. rev.*, 14(3), 299-323.

24. Lovšin, M., Meden, S., Plankar, D., Pušnik, M., Slivar, B., Sušelj, M. et al. (1988). *Izostajanje učencev od pouka v srednjih šolah*. [Pupils missing lessons in secondary schools.] Ljubljana: Zavod SRS za šolstvo.
25. Markun Puhon, N., Mrak, A., Šiler, B., Verovšek, D., Štuhec, D., Sotošek, G., et al. (2007). Rezultati posnetka stanja poznavanja in uporabe sredstev IKT pri pouku športne vzgoje v osnovnih šolah [The results of the status of knowledge and use of ICT tools in primary school physical education lessons . In Slovenian]. Retrieved November 14, 2010 from: http://info.edus.si/svz/index.php?option=com_content&task=view&id=41&Itemid=43.
26. Papaioannou, A. (2000). Attitudes, perceptions and behaviors in the physical education lesson, in the sport context, towards healthy lifestyle, of persons in age, gender, socioeconomic status, religion and level of motor difficulty. Athens: Center of Educational Research.
27. Sitar, B. (2010). E-gradiva v športni vzgoji [E-learning materials in PE. In Slovenian]. (Unpublished Bachelor's thesis, University of Ljubljana). Ljubljana: Faculty of Sport.
28. Škof, B., Tomažin, K., & Dolenc, A. (2000). Some proposals to increase of efficiency of methodic of endurance running in school physical education. *Kineziologija*, 12(4), 234-243.
29. Štihec, J., & Leskošek, B. (2004). Informacijska in komunikacijska tehnologija pri procesu športne vzgoje v šoli. In A. Adamič Makuc, I. Medica, Z. Labernik (Eds.). *Zbornik prispevkov 9. mednarodne izobraževalne računalniške konference - MIRK'04* (pp. 11-19). Ljubljana: Ministrstvo za šolstvo, znanost in šport: Zavod Republike Slovenije za šolstvo: Center za mobilnost in evropske programe izobraževanja in usposabljanja: Zavod za projektno in raziskovalno delo na omrežju internet: Akademsko in raziskovalno mrežo Slovenije; Piran: Osnovna šola Cirila Kosmača.
30. Strauss, R. & Pollack, H. (2001). Epidemic in childhood overweight, 1986-1998. *Journal of the American Medical Association* 286: 2845-2848.
31. Strel, J., Kovač, M. and Jurak, G. (2007). Physical and motor development, sport activities and lifestyles of Slovenian children and youth – changes in the last few decades. Chapter 13. In W.D. Brettschneider & R. Naul (Eds.), *Obesity in Europe: young people's physical activity and sedentary lifestyles* (pp. 243-264). *Sport sciences international*, št. 4. Frankfurt am Main: Peter Lang.
32. Strel, J., Kovač, M., & Jurak, G. (2004). Study on young people's lifestyle and sedentariness and the role of sport in the context of education and as a means of restoring the balance. Case of Slovenia – Long version. Ljubljana: Faculty of Sport, 2004. Retrieved September 1, 2004, from http://www.sp.uni-lj.si/didaktika/english/study_lifestyle.pdf

33. Vučetić-Zavrnik, L. (1974). *Vzroki oprostitve od šolske telesne vzgoje v SR Sloveniji*. [The reasons for being excused from physical education lessons in Slovenia.] Ljubljana: VŠTK.
34. Wedderkopp, N., Froberg, K., Hansen, H. & Andersen, L. (2004). Secular trend in physical fitness and obesity in Danish 9-years old girls and boys. An Odense School Child Study and Danish substudy of the European Youth Heart Study. *Scandinavian Journal of Medicine & Science in Sport* 14(3), 150-155.

ABSTRACT

Media and information technology which offer easy and immediate fulfilment of human needs for entertainment and communication are important factors of contemporary lifestyles of young people in developed countries. In connection with some other risk factors, a sedentary lifestyle is common among young people (Ferreira et al., 2006; Strel, Kovač & Jurak, 2007; Armstrong, 2007). Some young people avoid participation in PE and sport (Jurak et al., 2007). These changes are manifesting themselves in decreased physical fitness of young people (Ferreira et al., 2006; Wedderkopp et al., 2004). It seems like battle is lost since also political decisions on state and local levels which influence their physical activity (Kovač & Jurak, 2010) are not in young people's favour.

This paper addresses the challenge of how to take advantage from modern lifestyles of youth and their parents in PE teaching. It presents concept of acquiring sufficient data for student's feedback through efficient use of ICT in a future school (e-) gymnasium as appropriate learning environment. Augmented feedback given to student is one of the basis to successful PE teaching and student's understanding of contents of PE classes.

Key words: PE, ICT, e-learning, e-teaching, gymnasium, physical fitness