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## DIFFERENCES IN SOME PSYCHOLOGICAL CHARACTERISTICS BETWEEN PUPILS WITH POSITIVE AND NEGATIVE ATTITUDES TOWARDS ENDURANCE ACTIVITIES IN PHYSICAL EDUCATION

## RAZLIKE V NEKATERIH PSIHOLŠKIH ZNAČILNOSTIH MED UČENCI S POZITIVNIMI IN UČENCI Z NEGATIVNIMI STALIŠČI DO VZDRŽLJIVOSTNIH AKTIVNOSTI V ŠPORTNI VZGOJI

### Abstract

The aim of the study was to find out which factors of motivational orientation, attitudes towards sports activity, classroom climate, children's competency in the physical education classes and their actual sports activity most significantly differentiate pupils with positive and negative attitudes towards physically demanding, i.e. endurance contents. The study included 1477 pupils from 33 primary and 33 high schools from all 12 Slovenian regions. Discriminant analysis showed that the most significant differences between groups of pupils with positive and negative attitudes towards physically more demanding activities resulted from: level of participation in sports activity, appreciation of health and ascetic components of physical activity, task orientation focus and endeavour to improve oneself. To increase the influence of physical education on young people's lifestyle and the role of physical activity in their system of values, it would be reasonable to improve explication of the physical education process (better knowledge and understanding) and focus more attention on pedagogical approach so as to develop pupils' inner motivation. Endurance contents should play a very important role in this process.

*Key words:* attitudes, physical education, endurance activities, pupils

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### Izvleček

Namen študije je bil ugotoviti, kateri dejavniki s področja motivacijske orientiranosti, stališč do športne aktivnosti, razredne klime, kompetentnosti učencev pri pouku športne vzgoje in njihove dejanske športne aktivnosti v največji meri diferencirajo skupine učencev s pozitivnimi in nizkimi stališči do telesno zahtevnejših – kondicijskih vsebin. V študijo je bilo vključenih 1477 učencev in dijakov 33 osnovnih in 33 srednjih šol iz vseh 12 regij Slovenije. Diskriminantna analiza je pokazala, da skupino učencev s pozitivnimi stališči do telesno zahtevnejših športnih aktivnosti od skupine z negativnimi stališči v največji meri ločijo obseg njihove športne aktivnosti, vrednotenje zdravstvene in asketske komponente telesne aktivnosti, v nalogo usmerjena ciljna naravnost in težnja k lastnemu napredku. Za pomembnejši vpliv športne vzgoje na življenjski slog mladine in povečanje vloge telesne dejavnosti v njihovem vrednostnem sistemu je zato smiselno izboljšati osmišljenost procesa športne vzgoje (več znanj in razumevanja itd.) in usmerjati več pozornosti v pedagoška ravnanja za razvoj notranje motivacije učencev. Kondicijske vsebine bi v tem procesu morale imeti zelo pomembno vlogo.

*Ključne besede:* stališča, športna vzgoja, vzdržljivostne aktivnosti, učenci

## Introduction

The amount of physical activity of youth in Slovenia has been declining (Strel, Šturm, Ambrožič, Leskošek, & Štihec, 1995) similarly to the rest of developed world, resulting in a decrease in their physical abilities. Ntoumanis (2002) has found that the level of sports activity and consequently of fitness of British youth is too low to have any positive influence on health. Concern for increase of physical activity of young people and their physical fitness, which is an important ingredient of a healthy lifestyle, is one of the key tasks of the physical education curriculum in many European countries, including Slovenia (Assche, Auweele, Metlushenko, & Rzewnicki, 1999; Kovač & Novak, 1998a, 1998b).

Researches confirm that formation of positive attitudes of a young person towards physical activity is an important step towards his or her actual participation in activity. In the study by Smoll and Schutz (1980) the attitudes towards physical activity explain 20% of variance of actual physical activity of 16 to 18 year-old youth. In the study of 1986, Godin and Shephard found that the attitude of 13 to 15 year-old youth towards physical activity, their previous experience with physical activity as such and their current habits explain almost 50% of variance of participation in physical activity.

Formation of positive attitudes towards physical activity or individual types of physical activity depends on numerous intertwined factors. According to social psychology, the following factors are considered to significantly influence the formation and changing of attitudes (Nastran-Ule, 2000): information and knowledge, personal qualities and characteristics, and belonging to a group. These three factors are also decisive in the formation and changing of attitudes of young people towards physical activity. It is known that changes in attitudes result from increased knowledge, broader experiences and higher level of understanding (Ajzen, 1988). Already in 1976, Smoll, Schutz and Keeney on a sample of 264 pupils established a strong correlation between attitudes towards sports activity (CAPTA questionnaire: Children Attitudes toward Physical Activity) and participation of pupils in the sports activity programmes, and their sports efficiency.

Regular physical activity contributes to the formation of positive attitudes towards sports activity and healthy lifestyle, as confirmed by many other studies (e.g. Adams & Brynteson, 1992; Birtwistle & Brodie, 1992; Schutz, Smoll, Carre, & Mosher, 1985; Susust, 1987). The results of these studies show that pupils acquire experience and knowledge with sports activity and develop stronger understanding of the importance of physical activity for health and physical fitness. Therefore, the cognitive side of the physical education classes (greater knowledge and broader understanding of the basic principles of development of psycho-physical abilities, safe and efficient sports training etc.) is a very important element of curriculum.

Formation and changing of attitudes towards physical activity also depend on personal characteristics and qualities that determine self-image of an individual. Individuals with high levels of self-confidence and positive self-image will endeavour to develop a more harmonized and stronger structure of attitudes. Individuals with negative self-image and low self-confidence develop unstable, often incoherent attitudes (Nastran-Ule, 2000). The results of the studies (Marcina, Škof, Cecić Erpič, Boben, Zabukovec, & Tomažin, 2002; Škof, Cecić Erpič, Zabukovec, & Boben, 2002) have shown that the attitudes of young people towards endurance activities are significantly influenced by a personal characteristic *conscientiousness*,

which is defined by features such as reliability, care, orderliness and perseverance. Pupils with more positive attitudes towards endurance sports activities were also highly motivated (especially intrinsically) by physical education than pupils with negative attitudes towards these sports activities.

Groups to which an individual belongs and relations within these groups are among the most important factors in the formation of attitudes. A particularly important role in the formation of attitudes is played by primary and referential groups (Nastran-Ule, 2000). A person grows up in one of the primary groups (usually family), develops first skills and gains experience; close emotional ties are formed and they strongly influence the individual. Referential groups are those whose system of values an individual accepts and identifies with the most; therefore, their influence is especially strong. In the life of a young person peer referential groups have the strongest influence. Researches show that referential groups of an individual may also be those which he or she does not belong to, but wishes to. It has been established that in the formation of attitudes towards endurance activities, sports activity of the close family, especially the father, is significantly correlated with positive attitudes of young people towards these activities (Kukovič, 2001). Apart from the family environment, an even stronger influence on the positive attitude towards endurance activities is exerted by physical education, teacher's pedagogic approach and the climate during physical education classes. Numerous studies (Digelidis, Papaioannou, Laparidis, & Christodoulidis, 2003; Ferguson, Yesalis, Pomrehn, & Kikpatrik, 1989; Kukovič, 2001; Marcina et al., 2002; Škof et al., 2002) show that teacher's behaviour in formation of classroom relationships, adequate motivation of pupils, other mechanisms of classroom climate, selection of contents and value orientation of teaching significantly impact pupils' attitude towards sports activity.

The aim of the following study is to establish which factors (in the sphere of motivational orientation, classroom climate, competency in physical education classes, active participation of young people in sports activities and their interests) most significantly differentiate between groups of pupils with positive and negative attitudes towards physically more demanding – endurance contents. Identification and understanding of the factors constituting the opposite poles of the value orientation of young people's attitudes towards selected sports contents are important from both theoretical and practical aspects. From the theoretical aspect, it is an imperative to identify the structure of attitudes through a prism of complex and multi-dimensional construction and insight in interdependent influences.

From the practical aspect, it is important to recognise in what way and to what extent physical education environment and actual pedagogical performance of teachers – by means of changing pupils' motivation, influencing their perception of (un)successfulness during physical education classes and other factors – influence the formation of attitudes of young people towards the important segment of the curriculum contents of physical education. Furthermore, the practical aspect is important in recognising behavioural patterns of individual polarised profiles. Thus, teachers will be able to assess and modify their methods of work, especially in the case of rejecting attitudes towards individual contents. Understanding of young people's attitude towards individual physical education tasks and knowledge of their structure could help teachers to improve the quality of their relations and have a positive experience with pupils. From the theoretical point of view, it can be expected that groups of pupils with different attitudes will differ in terms of characteristics and behaviour observed. In the group of pupils with a positive attitude, task orientated motivation, higher competency

in physical education, higher satisfaction with classroom climate and higher level of physical activity should be noticed, compared with the group of pupils with a less positive attitude towards endurance activities.

## Method

### Participants

The study included 1477 pupils from different primary and high schools across Slovenia. Sampling was stratified and systematic. 33 primary and 33 high schools from all 12 Slovenian regions were included in the sample. Schools were selected randomly from the list of schools. Pupils from one of the 7<sup>th</sup> primary school class (last by alphabet order) were included into the sample of primary schools, and pupils from one of the 2<sup>nd</sup> high school class (last by alphabet order) were selected. Among the selected high schools were schools with general programme, i.e. grammar schools (11 classes: 276 pupils or 34%), technical schools (15 classes: 374 pupils or 47%) and vocational schools (8 classes: 155 pupils or 19%), the ratio thus being 3 : 5 : 2. The sample altogether consisted of 805 high-school pupils (55%), representing 3% of the generation, and 672 primary-school pupils (45%), representing 2.8% of the generation. 758 subjects were male (51%) and 699 were female (49%), while no data was available for the gender of 20 subjects. The average age of primary school pupils in the sample was 13.3 (SD = 0.5 years) and of high-school pupils 16.4 years (SD = 0.7 years).

### Instruments

#### *Pupils' attitudes towards endurance activities*

*Pupils' Attitudes towards Endurance Activities Questionnaire* was developed (Škof, Ceci Erpič, Boben, & Zabukovec, 2000) to measure attitudes of children and youth towards endurance and other physically demanding sports activities (e.g. endurance running, cycling, trekking, training of muscular strength and endurance) in the process of physical education. The instrument was based on a theoretical construct (Martens, 1975; Rot, 1983) where the attitude towards individual phenomenon was considered as multi-dimensional category, which includes the cognitive, emotional and action components. For the pilot sample, the internal consistency (reliability) of the questionnaire (Cronbach alpha) was 0.92.

The questionnaire included 14 statements on a five-point Likert-type scale (mark 5 representing strong agreement and mark 1 strong disagreement). Marking of the answers to the statements was then reversed. The questionnaire consisted of two dimensions:

a) *Emotionally active dimension (EMO)* includes 7 items signifying the emotional relationship of young people with endurance sports activities of physical education. An example is: "I like physically demanding contents of PE (e.g. strength exercising or endurance running)".

This dimension also includes statements reflecting the actual level of activity of individuals within these contents of physical education.

b) *Cognitive dimension (COG)* includes 7 items signifying the opinion about positive effects of endurance activities and also knowledge of young people about these contents of physical education. An example is: "People stay healthy and feel well by exercising regularly".

Internal consistency of EMO and COG was 0.85 and 0.78 respectively.

### *Attitudes towards physical activity*

*Attitude towards Physical Activity Questionnaire* (ATPA; Kenyon, 1968) was used to measure the attitude of young people towards physical activity. The instrument was suitably modified to the sports and cultural environment of Slovenia (Marcina, Cecić Erpič, Škof, Boben, & Zabukovec, 2004). ATPA includes 28 statements on a five-point Likert-type scale (mark 5 representing strong agreement and mark 1 strong disagreement).

Individual statements were selected out of 47 statements on the basis of the results of a pilot study (Marcina, Škof, Cecić Erpič, Boben, & Zabukovec, 2003). Based on a factor analysis 5 dimensions were formed, since the dimensions *relaxation* and *socialising* indicated low reliability (Cronbach alpha below 0.70). Additionally, the statements of these two factors overlapped. Therefore, one common dimension *physical activity as a social experience and catharsis* was formed. Factor analysis confirmed 5 dimensions:

- a) *Physical activity as the pursuit of vertigo (VE)*. It includes 6 items representing certainty in adventure and participant's experience with certain danger in physical and sports activity.
- b) *Physical activity as an aesthetic experience (AEST)*. It includes 6 items. Many people believe that the beauty of movement as an ingredient of art is an important part of sports activity.
- c) *Physical activity as a social experience and catharsis (SECA)*. It includes 5 items. Physical and sports activity satisfies certain social needs of a person. This dimension is being emphasized by people, who consider socialisation and contact networking with new people a primary goal.
- d) *Physical activity for health and fitness (HF)*. Physical and sports activity is known to help preserve health and vitality. Individuals value physical activities based on their impact on health and psychophysical fitness. HF includes 5 items.
- e) *Physical activity as an ascetic experience (ASC)*. People who value this dimension of physical and sports activity enjoy long endurance and physically more demanding activities, even the competitive ones. ASC includes 6 items.

Internal consistency (Cronbach alpha) of individual dimensions was as follows: VE = 0.83, AEST = 0.84, SECA = 0.63, HF = 0.78 and ASC = 0.73.

### *Goal orientations*

Goal orientations of pupils were assessed on the basis of *Task & Ego Orientation in Sport Questionnaire* (TEOSQ; Duda, 1993). The instrument measures individual differences in the orientation of a young person in achieving the set goals and includes two sub-dimensions:

- a) *Task orientation (TASK)* includes 6 items, representing orientation of an individual onto the task and development of ability. People focusing on task measure their own success on the basis of their progress and improvement of sports efficiency. They ascribe the results to the amount of effort put in. Criteria for valuation are internal, depending on their own satisfaction.
- b) *Ego orientation (EGO)* is primarily focused on result. It includes 6 items. People with ego orientation measure their personal success with regard to other people. They experience a feeling of success only when they feel superior. At the same time, they ascribe success to superior abilities and not to their effort and learning. Valuation of success is always normative and comparable with others.

The instrument was suitably modified to fit the sports and cultural environment in Slovenia and to the school subject of physical education in Slovenia (Cecić Erpič, Škof, Boben, & Zabukovec, 2003). TEOSQ includes 12 statements (originally 13) on a five-point Likert-type scale (mark 5 representing strong agreement and mark 1 strong disagreement). Factor analysis of the sample confirmed both dimensions. Internal consistency (Cronbach alpha) of both dimensions is 0.85.

#### *Classroom climate in physical education classes*

Classroom climate in physical education classes was measured with the use of *Classroom Climate in Physical Education Classes Questionnaire* (CCPECQ). The questionnaire was drawn up on the basis of several questionnaires: *My Classroom* (Fisher & Fraser, 1981; Fraser, Anderson, & Walberg, 1982; Fraser & Fisher, 1986), *Classroom Environment* (Moos & Trickett, 1973, 1974, 1987), *Study Climate* (Fraser & Rentoul, 1980; Fraser, 1990, 1993) and *Study Environment* (Fraser, Anderson, & Walberg, 1982; Fraser, 1990).

The purpose of the CCPECQ was to measure actual classroom climate in physical education classes. CCPECQ consists of 34 statements, representing 6 dimensions of classroom climate:

- a) *Pedagogic competency (PC)* includes 13 items, describing teachers' relationship with pupils and their perception of the implementation of lessons.
- b) *Satisfaction (SAT)* includes 5 items, identifying friendliness, well-being and happiness of young people during physical education classes.
- c) *Individual competitiveness (I-COMP)* – 5 items represent aspiration to be better than others, to measure up to others and to compete.
- d) *Group competitiveness (G-COMP)* – 4 items show satisfaction with the co-operation in the group and joint solving of problems.
- e) *Individual progress (PI)* includes 4 items, showing willingness of an individual to invest his or her efforts to achieve progress.
- f) *Difficulty (DIF)* includes 3 items, showing the perception of difficulty of physical education contents and the level of pupils' mastering of this difficulty.

The Cronbach's alphas were: PC = 0.89, SAT = 0.82, I-COMP = 0.78, G-COMP = 0.74, PI = 0.83 and DIF = 0.57.

#### *Pupils' perception of successfulness or failure in physical education classes*

The questionnaire *Pupils' Perception of Successfulness or Failure in Physical Education Classes* consists of two dimensions (Zabukovec, Boben, Škof, & Cecić Erpič, 2003) and was used to assess pupils' perception of their own competency in physical education classes:

- a) *Successfulness (SUCC)* includes 6 items, showing perceived competency in physical education classes (example: "I am successful in physical education classes, if I progress").
- b) *Failure (FAIL)* includes 6 items, showing when lesser competency of pupils in physical education classes is perceived (example: "I do not have enough abilities for physical education").

The questionnaire was compiled on the basis of a theoretical model of work motivation, defining success or fear from failure as a source of motivation (Ames & Ames, 1989; Nicholls, 1989). The questionnaire included 12 statements on a four-point Likert-type scale (mark 4 representing strong agreement and mark 1 strong disagreement). Internal consistency (Cronbach alpha) of individual dimensions was as follows: 0.75 (successfulness) and 0.81 (failure).

### *Sports activity*

Engagement of pupils in various sports activities was measured with an informative questionnaire. The subjects described frequency of their participation in running, cycling, cross-country skiing and trekking on a five-point scale (1 – never, 2 – couple of times a year, 3 – at least once a month, 4 – once a week, 5 – twice a week or more).

### **Procedure**

Written consents for testing were obtained from headmasters of the participating schools. All sampled pupils and their parents were acquainted about the purpose of the study beforehand and were informed in writing about the general contents of the questionnaire by the researchers, and additionally by school psychologist and teacher. After written consents had been obtained from parents, testing was carried out with the help of school psychologist and physical education teacher. Participation in the study was voluntary and anonymous. The pupils completed questionnaires in classroom.

The results of the previous studies (Škof, Cecić Erpič, Zabukovec, Boben, & Tomažin, 2001) have shown that the attitudes of young people in Slovenian schools towards physically more demanding contents of physical education are very ambivalent. Approximately one third of pupils perceive the contents positively, one third perceives them negatively and another third does not have a formed opinion. Slovene youth's ambivalence about endurance contents of physical education was the main reason for formation of two dimensionally opposite groups of pupils. 370 pupils (29.5% of total sample) had an attitude value (sum of values of COG and EMO dimensions) of less than 44 and were placed in the group 1 (negative attitudes). 392 pupils (30.1%) had attitude value of more than 56 and were placed in the group 2 (positive attitudes).

Statistical analysis was carried out using the STATISTICA programme. After two groups had been formed, descriptive parameters were calculated for each questionnaire dimension. Frequency distribution of responses to individual statements in the questionnaires was calculated. T-test for independent samples was used to calculate statistical significance of difference for each independent variable between pupils of both groups. Discriminant analysis was made to find out which independent variables of motivation, task orientation, classroom climate, attitudes towards sports activity and level of physical activity of young people differentiate between the defined groups of pupils the most.

## **Results**

### *Description of groups*

Group 1 (pupils with negative attitudes) included 174 boys (47.7 %), 191 girls (52.3 %) and 5 individuals, who did not specify their gender. This group consisted of 119 primary school pupils (32.2%) and 251 high school pupils (67.8%). Group 2 (pupils with positive attitudes) included 221 boys (57.5 %), 165 girls (42.4 %) and 3 individuals, who did not specify their gender. Group 2 consisted of 213 primary school pupils (54.3%) and 179 high school pupils (45.7%). Table 1 shows descriptive data of all independent variables for individual groups and significance of differences between them.

Table 1: Differences in independent variables between the groups with negative and positive attitudes towards physically more demanding contents of physical education

	<i>M Group 1</i>	<i>SD Group 1</i>	<i>M Group 2</i>	<i>SD Group 2</i>	<i>t-value</i>	<i>df</i>	<i>P</i>
COG+EMO	37.93	5.41	61.51	4.00	-68.63	760	<b>0.000</b>
COG	23.46	4.09	32.86	1.99	-40.72	760	<b>0.000</b>
EMO	14.47	4.19	28.66	3.24	-52.43	760	<b>0.000</b>
VE	19.83	6.03	22.72	5.48	-6.82	740	<b>0.000</b>
AEST	13.66	5.87	14.72	5.89	-2.43	732	<b>0.015</b>
SECA	18.65	3.54	20.71	3.50	-8.01	748	<b>0.000</b>
HF	17.74	4.02	23.20	2.10	-23.31	731	<b>0.000</b>
ASC	15.00	4.32	22.51	4.19	-23.86	730	<b>0.000</b>
EGO	18.24	6.11	20.11	5.99	-4.22	747	<b>0.000</b>
TASK	21.40	5.39	26.60	3.84	-15.27	746	<b>0.000</b>
FAIL	12.60	3.74	9.35	3.01	12.97	727	<b>0.000</b>
SUCC	16.55	3.08	20.00	2.99	-15.47	738	<b>0.000</b>
PC	35.31	7.05	41.28	7.24	-11.03	698	<b>0.000</b>
I-COMP	12.61	3.05	14.37	3.52	-7.25	741	<b>0.000</b>
SAT	13.72	3.52	16.70	2.99	-12.40	733	<b>0.000</b>
DIF	7.34	1.87	6.83	2.03	3.53	734	<b>0.000</b>
G-COMP	10.29	2.76	12.00	2.70	-8.57	746	<b>0.000</b>
PI	10.36	2.57	13.47	2.39	-17.10	743	<b>0.000</b>
SPORT	9.71	1.92	13.42	2.53	-36.11	698	<b>0.000</b>

Legend:

COG = Cognitive dimension; EMO = Emotionally active dimension; VE = Physical activity as the pursuit of vertigo; AEST = Physical activity as an aesthetic experience; SECA = Physical activity as a social experience and catharsis; HF = Physical activity for health and fitness; ASC = Physical activity as an ascetic experience; EGO = Ego orientation; TASK = Task orientation; PC = Pedagogic competency; I-COMP = Individual competitiveness; SAT = Satisfaction (SAT); DIF = Difficulty; G-COMP = Group competitiveness; PI = Individual progress; FAIL = Failure; SUCC = Successfulness; SPORT = Sports activity

Group of pupils with positive attitude towards physically more demanding contents (group 2) shows a statistically significant difference ( $p < 0.000$  to  $p < 0.05$ ) compared to the group of pupils with negative attitudes (group 1) in all measured variables.

Pupils with positive attitudes are significantly more sportingly active ( $p < 0.000$ ). Pupils with positive attitudes (both cognitive and emotional components) towards physically more demanding contents of physical education have in general a more positive attitude towards sports activity. In addition, they express more interest than pupils from the opposite group in all dimensions of the attitude towards sports activity (vertigo, aesthetic, ascetic, social component, component of health and fitness). Furthermore, the group of pupils with positive attitudes towards endurance activities expresses a significantly ( $p < 0.000$ ) higher level of both »task« and »ego« goal motivational orientation than the group with lower attitudes. Pupils with negative attitudes towards physically more demanding activities, compared to those from the opposite group, perceive their competency in physical education classes as significantly lower ( $p < 0.000$ ), their failure significantly higher and also a lower level of success. Primary and high school pupils with a positive attitude are also significantly ( $p < 0.000$ ) happier with teacher's



relationship with them, with their interpersonal relations in physical education classes and with physical education in general. They are more satisfied with physical education classes and they invest more efforts to achieve their goals and to progress.

### *Results of discriminant analysis*

The results of discriminant analysis (see Table 2) have also shown statistical significance of the discriminatory power of the used model – between two groups of pupils.

Table 2: Discriminant analysis of the variables included in the study

<i>Variables</i>	<i>Wilks' Lambda</i>	<i>Partial Lambda</i>	<i>F-remove (1,515)</i>	<i>p-level</i>	<i>Tolerance</i>	<i>1-Toler. (R-Sqr.)</i>
SPORT	0.44	0.88	100.95	0.000	0.90	0.09
EGO	0.39	0.99	8.38	0.004	0.80	0.19
TASK	0.40	0.98	18.93	0.000	0.72	0.28
VE	0.39	0.99	2.68	0.102	0.90	0.10
AEST	0.39	0.99	1.32	0.250	0.84	0.16
SECA	0.39	0.99	1.71	0.191	0.71	0.29
HF	0.42	0.93	51.88	0.000	0.77	0.23
ASC	0.40	0.96	32.30	0.000	0.64	0.36
PC	0.39	0.99	0.23	0.630	0.52	0.48
I-COMP	0.39	0.99	0.01	0.915	0.67	0.33
SAT	0.39	0.99	1.21	0.270	0.48	0.52
DIF	0.39	0.99	1.46	0.227	0.85	0.15
G-COMP	0.39	0.99	2.37	0.123	0.79	0.21
PI	0.39	0.99	6.13	0.013	0.51	0.49
FAIL	0.39	0.99	1.25	0.262	0.81	0.29
SUCC	0.39	0.99	0.11	0.743	0.66	0.34

Wilks' Lambda: 0.39;  $F(16,74) = 73.43$ ;  $p < 0.000$

Legend:

SPORT = Sports activity; VE = Physical activity as the pursuit of vertigo; AEST = Physical activity as an aesthetic experience; SECA = Physical activity as a social experience and catharsis; HF = Physical activity for health and fitness; ASC = Physical activity as an ascetic experience; EGO = Ego orientation; TASK = Task orientation; PC = Pedagogic competency; I-COMP = Individual competitiveness; SAT = Satisfaction (SAT); DIF = Difficulty; G-COMP = Group competitiveness; PI = Individual progress; FAIL = Failure; SUCC = Successfulness

Discriminant analysis has shown that six variables significantly contribute to differentiation of the groups of young people with high and low attitudes towards endurance contents of physical education, whereas the contribution of other variables is negligible (see Table 2).

Table 3: The discriminatory significance of the discriminant function

<i>Function</i>	<i>Eigen Value</i>	<i>Canonical correlation</i>	<i>Wilks' Lambda</i>	<i>Chi-square</i>	<i>df</i>	<i>p</i>
1	1.71	0.79	0.36	523.78	16	0.000

The discriminant function (Table 3) has a significant discriminatory power between the group of pupils with negative attitudes toward endurance sport activities and those with positive ones. The standardised coefficients for canonical variable point to the fact that the greatest difference between pupils with negative and positive attitudes results from the level of their participation in sports activity, appreciation of health and ascetic component of physical activity, task orientated focus and endeavour for own improvement.

The resulting mean values of canonical variable (see Table 4 and Figure 1) (Centroid for group 1 = 1.40 and group 2 = -1.22) have also shown great differences between the groups of pupils with different attitudes toward endurance activities.

Table 4: Canonical discriminant function, determined by group centroids

Group	Function 1
Group 1 – lower attitudes	1.40
Group 2 – higher attitudes	- 1.22

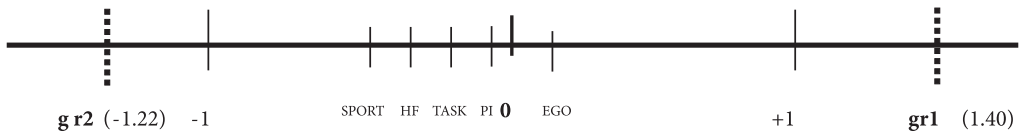


Figure 1: Centroids of individual groups and coefficients of canonical variable

Data from classification matrix show that 88% of individuals from group 1 and 94% of individuals from group 2 were correctly classified.

In view of the correlations between discriminant variables and the canonical discriminant function (table 5), the discriminant function may be termed *willingness to work for own improvement*.

The function of willingness to work for own improvement, which discriminates between the two groups of pupils, has confirmed that discriminant variables are connected more strongly with the group of pupils perceiving a more positive attitude toward endurance and other conditioning activities. This group is best described by a higher level of their participation in sports activity, appreciation of the health and ascetic components of physical activity, task orientated focus and endeavour for own improvement.

Table 5: Correlations between discriminant variables and the canonical discriminant function

Variable	Function
SPORT	- 0.64
EGO	- 0.09
TASK	- 0.36
VE	- 0.17
AEST	- 0.04
SECA	- 0.19
HF	- 0.68
ASC	- 0.69
PC	- 0.29
I-COMP	- 0.22
SAT	- 0.32
DIF	0.09
G-COMP	- 0.26
PI	- 0.46
FAIL	0.35
SUCC	- 0.42

Legend:

VE = Physical activity as the pursuit of vertigo; AEST = Physical activity as an aesthetic experience; SECA = Physical activity as a social experience and catharsis; HF = Physical activity for health and fitness; ASC = Physical activity as an ascetic experience; EGO = Ego orientation; TASK = Task orientation; PC = Pedagogic competency; I-COMP = Individual competitiveness; SAT = Satisfaction (SAT); DIF = Difficulty; G-COMP = Group competitiveness; PI = Individual progress; FAIL = Failure; SUCC = Successfulness; SPORT = Sports activity.

## Discussion

The results of the study confirm the hypothesis as well as the findings of previous researches (Birtwistle & Brodie, 1992; Bocket, 1994), which established that physically more active young people have more positive attitudes towards sports and physical activities. Pupils with higher competency i.e. higher feeling of success in physical education classes have more positive attitudes towards sports contents. Education for a healthy lifestyle and attitude towards physical and sports activity begins in the family and continues in school, peer groups, clubs etc. With their own activity young people acquire skills and experience, which enable them to form emotional and cognitive attitude – image and own beliefs about certain activity. The stronger these positive feelings are, more likely they will influence behaviour and actions.

The primary finding of this study, deriving from the methods used, is that the group of pupils with positive attitudes towards physically more demanding activities differentiates from the group with less positive attitudes by their willingness to work and intrinsic motives, such as care for health, psychophysical fitness and own progress. Goals and challenges are being represented by the task itself and not only by the outcome and comparison with the others.

Modern socio-cognitive approaches in the study of motivation of pupils in physical education (Duda, 1996) indicate two different goal-setting strategies: task goal orientation and outcome goal orientation (ego or performance orientations) (Nicholls, 1989). Task goal orientation places emphasis on personal improvement, willingness to put an effort into activity in order to progress. Aspiration to develop skills, master new activities and high motivation without external stimuli and rewards are also characteristic, as satisfaction is achieved with the activity itself and own progress. Mistakes and failures are considered a part of the learning process. Success is defined as personal growth i.e. improvement and personal–internal criterion is used to measure success (Deci & Ryan, 1985, 1991; Vallerand & Losier, 1999). The influence of motivation, which is based on outcome orientated goals (ego goal orientation), was negative. Positive attitudes towards physically more demanding sports activities (endurance and similar) are in negative correlation with »ego« goal orientation. In outcome goal orientation, success is defined as being better than others or satisfying a high external criterion. »Ego« orientated children want to be different from others and want to achieve normative records.

Participants in the study, who expressed high positive attitudes towards physically more demanding contents of physical education put more effort into improving their abilities and skills in order to achieve their goals, in comparison with pupils with lower attitudes. The former value health, fitness, self-discipline and determination highly. There is usually no external evaluation of endurance contents (especially practise of endurance and strength); these activities are not competitive by nature. There are no external stimuli and there is less social connection and external excitement than in a game. An individual depends on himself and his will when exercising, which undoubtedly strengthens his general abilities. Several studies (Marcina, Škof, Cecić Erpič, Boben, Zabukovec, & Tomažin, 2002; Škof, Cecić Erpič, Zabukovec, & Boben, 2002) found that individuals with the characteristic *conscientiousness*, representing reliability, caring, orderliness, determination and high level of self-tidiness, had more positive attitudes towards endurance running and physically more demanding physical activities.

Intrinsic aspiration for progress and improvement, which is based on effort and work, is characteristic for individuals, who build their motivation by setting goals, focused into task (task or learning goal orientation). The study of motivation showed that, in order to widen human

values in sport and physical education, development of task orientated goals and utilisation of intrinsic reasons to achieve goals are particularly important (Deci & Ryan, 1991; Duda, Olson, & Templin, 1991; Nicholls, 1989; Papaioannou, 1995; Vallerand & Losier, 1999). Individuals with high task goal orientation are more intrinsically motivated than individuals with low “task” orientation (Roberts, 2001). In comparison, high “ego” goal orientation is correlated with high level of somatic anxiety and with a belief that ability is an important determinant for the achievement of goals (Papaioannou & Kouli, 1999).

These findings indicate that the primary role of a physical education teacher should be to develop a high task-orientation atmosphere to heighten pupils’ intrinsic motivation. Individuals with intrinsic motivation show psychological well-being, interest in certain events, enjoyment, fun and determination (Biddle & Chatzisarantis, 1999; Deci & Ryan, 1985; Nicholls, 1992). Development of such atmosphere could undoubtedly be successful also with (or especially with) endurance contents. The results of this study entirely confirm these implications. The group of pupils with positive attitudes expressed significantly higher satisfaction with physical education, relations with physical education teacher and interpersonal relations during physical education classes. These pupils also expressed a significantly higher level of self-confidence. Pupils with positive attitudes perceive a high level of success and low level of failure in the physical education classes, which is important for formation of their positive self-image and self-confidence. In comparison, pupils with less positive attitudes perceive failure in physical education more often, they feel less capable; however, they are not prepared to invest enough efforts to progress. These are the characteristics of disincentive behaviour. As a rule, these pupils have a more critical attitude towards physical education classes and teacher’s relation with them.

Based on the fact that it is possible to predict cognitive, emotional and behavioural activities of a person on the basis of different types of motivation, Vallerand (1997) found that intrinsic motivation usually represents a starting point for the most positive behaviour. A study by Škof et al. of 2002 also established that intrinsic motivation had the strongest influence on the attitudes of pupils towards running and physically more demanding contents of physical education.

## Conclusion

The results of the study have confirmed that active pupils have more positive attitudes towards physically more demanding contents of physical education. In order to influence the lifestyle of young people and increase the role of physical activity in their system of values, an increase in understanding of the physical education process (more knowledge etc.) and introduction of more subtle approaches to direct execution of pedagogical work are needed. Development of high task-orientated atmosphere in classroom is necessary to increase pupil’s intrinsic motivation and psychological well-being, determination, interest in health and self-progression. Pupils with more positive attitudes experience this type of climate in physical education classes. It is worth trying to create such an atmosphere also for other pupils – and endurance activities are undoubtedly very suitable for that.

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