



Motivation of Schoolchildren for Physical Education — Comparison of High and Low Achievers

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There is no doubt that motivation of schoolchildren is a concern for physical education teachers. Research data shows that usually physical education is pretty well considered by students. An European study of youth lifestyle showed that in many countries, 12 and 15 year old students like physical education (Pieron, Ledent, Almond, Airstone, & Newberry 1996). Percentage over 70% of these youth answered that they liked physical education lessons.

On the other hand, physical education is usually considered to be relatively unimportant. Several studies show that it is at the bottom of the ranking of school subject matters. Authors like Silverman & Subramaniam (1999) report on the marginality of physical education. Outcomes of research indicate variation of students' attitudes according to various contextual factors.

In their study of secondary school students, Carreiro da Costa, Perreira, Diniz & Pieron (1997) concluded (1) The most motivated students were characterized by a high level of self capacity, physical education aims expressed as promoting the learning of sports techniques as well as enjoyment; high rate of time on task; less frequent deviant behaviors; frequently asked by the teachers to provide models of performance. (2) The least motivated were characterized by a low level of self capacity; considering physical education as an optional subject; physical education aims as improving the fitness and their self image; more deviant behaviors; less support from teachers.

It could be hypothesized that low-skilled and high-skilled students report different attitudes and perceptions of objectives of school physical education. Pieron et al. (1998) concluded that low- and high-achievers were engaged in different lifestyle as far as out-of-school physical and sports activities were concerned.

The level of physical fitness and motor skill are students' characteristics on which teachers focus generally their attention when asked to identify differences between students within their classes. Authors underline the important role played by other students' characteristics to which it would be advisable to grant more interest. When considering the mediating variables paradigm, the importance of motivational variables appears prominent (Lee & Solmon, 1992; Pieron, Delfosse, & Cloes, 2000).

Three aspects directly related with motivation present a prominent importance by their consequence on student behavior, in classroom as well as in out-of-school sport activities: Attitudes towards physical education, the importance of physical education lessons and the importance of being good in sport.

The perception of objectives assigned to school physical education.

Their perceived competence in physical education and sport.

The aim of this paper was to compare attitudes, perception of physical education objectives and perceived competence of low and high achieving students.

Research method

Instrumentation

Data were collected through questionnaires and through description of specific events. Three aspects were dealt with:

1. Several closed questions related to the attitude, the importance of physical education in school and the importance of being good in sport were asked of students. Their opinions were assessed on a four-point Likert scale.
2. The objective of physical education. The student attitude to physical education could be related to the objectives that they confer to it. Subjects were asked to rank on a four-point scale the importance of the following physical education objectives:
 - a. Development of physical fitness and sports skills

- b. Improvement of health and physical appearance
 - c. Search for relaxation and pleasure in participating in physical activities and sport
 - d. Learning of sports skills and techniques
 - e. Social relations within the class, cooperation and meeting friends.
3. Perceived competence. The notion of perceived competence was considered in a global way with regards to activities during physical education lessons and a more specific way with regards to the activity proposed during the videotaped lessons.

Subjects

Data collection were completed during physical education lessons. Two types of students were considered: low and high achievers. Teachers were asked to identify eight students: four assessed as the most skilful (+) in the class, and four assessed as the least skilful (-). Teachers identified eight students: those four considered by teachers as high achievers and four considered as low achievers. They were selected in 39 high school classes (19 classes of boys and 20 classes of girls). 144 high achievers (76 girls and 68 boys) and 133 low achievers (70 girls and 63 boys) were administered the questionnaires. The anonymity of students' answers was guaranteed.

1. Attitudes towards school physical education

High achieving students showed a more positive attitude towards school physical education than low achievers. More than 90% of high achievers gave out favorable opinions about physical education. In the whole group, the importance of school physical education collected a lower percentage of favorable opinion than the two other items (70%). The high achieving students showed a more positive attitude towards school physical education than low achievers (table 1). Comparisons between high and low achievers were in favor of high achieving students, with a difference larger than 25% ($p = .01$).

Put on the perspective of a comparative international survey (Pieron et al., 1996), these results showed a large concordance with data collected with 12 and 15 year old youth analyzed in the international study. Let us recall that this research showed very little favorable attitudes in several countries.

The attitudes of this sample do not correspond to the strong criticisms of physical education expressed by authors like Locke (1992) or Crum (1990), whose comments appear to be based rather on personal opinions than on objective quantitative data

Table 1 - Attitude towards PE and sports in low and high achievers

Girls	Girls "+"	Girls "-"	Boys "+"	Boys "-"
Attitude towards PE	94,6	77,6	98,3	65,6
PE is important	82,4	61,2	78,3	54,1
Important to be good at sport	87,5	69,7	85,0	71,7

The separate comparison of the two favorable attitude levels indicated that the very favorable attitudes came from the high achievers, whereas the low achievers answered under the item (merely favorable). This result was confirmed by the importance granted to school physical education: 79.2% of high achieving students considered that school physical education is very important whereas the same opinion was given by 58.2% of the low achievers ($z = 2.9$; $p < 0.004$). The differences between the most and the least favorable attitudes were logical. Nevertheless, it should be pointed out that the answers are not (opposed depending on whether they are made by the high and the low achievers. In other terms, the proportions of unfavorable attitudes expressed by low achieving students are lower than the proportions of favorable attitudes expressed by the high achievers. Less than 30% of the low achievers expressed unfavorable attitudes towards school physical education. These results are in agreement with data provided by Goncalves, Carreiro da Costa & Pieron (1999, 2000) in a study completed in Portugal. One should be happy that low achievers are not further hostile to a subject matter that does not valorize them as much as it would be desirable or that they would wish it.

In the whole group, the importance of school physical education collected a lower percentage of favorable opinion than the two other items (70%). The comparisons were

significantly in favor of the high achievers (P between .001 and .01). Percentages differed of about 20%.

We can suggest a hypothesis bound to the specificity of school physical education. When weak in a classroom subject matter, students could feel difficulties to like it and see it favorably (Medley, 1979). All their school life, they are confronted with their weaknesses. Evaluation and assessment frequently recalled these weaknesses. In physical education, the array of activities proposed by teachers would help to find some wherein the low achievers are able to perform at a reasonable level of success. As an example, new activities like "step" or aerobic are well appreciated by girls. These activities are viewed by teachers as able to reduce the inequalities of skill levels. They only include a low technical component and are less prone to comparative assessment made on social aspects. On another hand, in spite of their inevitable technical aspects, team sports show many game aspects, like matches and adapted games. Even low achieving students can find an interest in these playing conditions. It should be kept in mind that the aspect of enjoyment or of pleasure appears among the top objectives in students' answers.

The analysis of teachers' behavior in relation to target students selected according to their skill level could provide interesting elements of interpretation (Pieron et al., 1998). We think about the feedback and the psychological reinforcement provided by teachers. It could be suggested that being successful in out-of-school sports practice favorably influences the motivation towards school physical education lessons.

The importance granted by students to being good in sport showed a profile similar to the results on attitudes. Even though this item was more important in high achievers, it should be pointed out that 75% of the low achievers considered that it is important to be good in sports.

It is relatively simple to seek reasons of differences according to skill level in students' opinions about sports practices. One will search for them in disinterest or dismissal of situations wherein the low achievers do not feel valorized, in physical difficulties like pains or injuries, in psychological obstacles like fear or contempt by others. Moreover it is interesting to refer to the value systems of the two groups of students. Indeed, it is possible that their perception of the objectives of school physical education is nearer than their attitudes and behaviors.

It is possible to conclude to a strong divergence in the three variables considered, attitude towards physical education, importance of being good in sport and importance of school physical education according to the students' skill level.

2. Perceptions of objectives assigned to physical education

Most students think that school physical education pursues mainly a goal related to maintaining or improving the health status (46.5%). This objective is important to youth. In the investigation on the lifestyle of young Europeans, almost all national groups ranked the health objective on top of their preoccupations (Pieron et al., 1996). The arguments of the benefits of physical and sports activity on health were very often put forward in campaigns promoting physical activities or in campaign launched to defend the place of physical education in the school curriculum. Students were very sensible and knowledgeable to these arguments.

Table 2 - Objectives of PE in low and high achievers

	Girls "+"	Girls "-"	Boys "+"	Boys "-"
Physical Fitness	6.8	4.5	5.3	6.8
Health	35.1	52.2	49.1	47.5
Enjoyment	36.5	20.9	33.3	28.8
Learning	21.6	22.4	12.3	15.3
Social contacts	0.0	0.0	0.0	1.7

Enjoyment and pleasure were ranked second in the hierarchy of school physical education objectives (27.2%). In reviewing the specificity of physical education within school subject matters, we should consider the motor and game or recreational aspects of physical education. Teenagers are very sensible to these characteristics of physical education. In a survey completed in Portugal more than 45% of students justified their interest for physical education by indicating that it enabled them (to have fun, to be together, to make a pause and to provide a change from the academic subject matter) (£ £ ref).

The learning objective ranked third and was reported by 15% of the students. Besides its recreational aspects, physical education remained present in the students' mind as a school subject matter with its corollaries of learning and assessment being strongly associated.

Social contacts between students and the development of physical fitness were ranked far behind the other objectives. This result departs somewhat of the findings reported by Carreiro da Costa, Pereira, Diniz & Pieron (1997). In their study, a quarter of students mentioned the improvement of the body image as an important objective.

The health objective stayed the main concern at whatever their skill level. Low achieving girls put forward this objective significantly. Low achievers were also more concerned by learning objectives. It is supposed that they see the learning objective as a means to reduce differences, sometimes the large gap, with their more gifted schoolmates.

In girls the enjoyment found in the practice of physical education and sports is significantly higher in high achievers ($z = 1.85$; $p = .06$). It could be hypothesized that high achievers mastering sports techniques can be more disposable to enjoy the activities. It is especially true in team sports where the higher quality of the game enables less interruption and is therefore perceived as more enjoyable.

3. Perceived competence

The index of perceived competence is a composite of several variables related on one hand to aesthetic and moral consideration as grace and courage, and on the other hand to physical qualities like strength, speed or flexibility. Comparisons showed statistically significant higher scores in favor of high achievers.

Table 3 – Perceived competence in low and high achievers

Girls	Girls "+"	Girls "-"	Boys "+"	Boys "-"
Level in PE	74,3	26,9	88,3	30,0
Level in the PE lesson	62,2	15,4	79,7	30,0
Physical qualities	90,4	52,2	98,3	55,0

All composite variables (level of competence in physical education, level of competence in the subject matter taught during the observed lessons, and perception of physical qualities) or isolated items like grace, flexibility, shape, speed, strength and courage were higher in the high achieving students self-assessment. Some of these qualities have a holistic character that corresponds to common sense.

Perceived competence by students were in agreement with teachers' opinion. Students considered as high achievers were viewed as such by their teachers. The same was observed in low achievers. The identification of perceived competence correlate of achievement supports the notion that student characteristics and thoughts are important mediators between instruction and achievement.

One should realize the educational consequences of these findings in considering the positive relationship between perceived competence and intrinsic motivation (Duda, 1992; Harter, 1982). Several study its importance in adherence to a regular participation in physical and sport activities (Feltz & Petlichkoff, 1983). Several authors gave perceived competence a key role in motivation (Duda, 1992; Harter, 1982). In the same way, enjoyment and satisfaction meant that in engaging in physical activities could reinforce their self-esteem, develop and enhance the will to be continuously involved in sport activities well beyond the school age. The quality of motor experiences, success and failure met during their participation are critical determinants of students perceptions in relation to sports activities, practiced at school or in sports clubs.

Achievement motivation theorists (Ames, 1992; Dweck, 1991; Nicholls, 1989) take a social cognitive approach and suggest that the primary focus of individuals in achievement settings is the demonstration of competence. When individuals believe they have demonstrated competence, they perceive themselves as successful. Feelings of failure are experienced when they have not shown themselves to be competent. Harter competence motivation theory predicts that students high in physical perceived competence are more likely to be active participants in physical activity (Harter, 1982).

It is obvious that physical education is a mark of large heterogeneity of students. It goes beyond the aspects of motor features of the students. Students' motivation and perceived competence are amongst the features differentiating participants. These findings were in agreement with Carreiro da Costa et al. (1997) results showing that a group of students high in perceived competence were highly motivated. The students were characterized by psychological aspects such as a high motivation toward school physical education and sport activities, and in their behavior in classes (high engagement time). Moreover they paid more attention during the physical education lessons than students low in perceived competence. All these aspects appeared frequently in the descriptive of teaching effectiveness or were related to learning gain achieved by students.

References

- AMES, C. (1992). Achievement Goal, Motivational Climate, and Motivational Processes. In G.C. Roberts (Ed.) *Motivation in Sport and Exercise* (pp. 161-176). Human Kinetics Books, Champaign, Illinois.
- CARREIRO DA COSTA, F., PEREIRA, P., DINIZ, J. & PIERON, M. (1997). Motivation, perception de competence et engagement moteur des eleves dans des classes d'education physique. *Revue de l'Education Physique*, 37, 2, 83-91.
- CRUM, B. (1990). The self reproducing failing of physical education. In: R. Telama et al. (Eds.), *Physical education and life-long physical activity* (294-303). Jyvaskyla: The foundation for promotion of physical culture and health.
- DUDA, J. (1992). Motivation in sport settings: a goal perspective approach. In G. Roberts (Ed.), *Motivation in sport and exercise*. Champaign, Ill., Human Kinetics Books, 57-91.
- DWECK, C. (1991). Self theories and goals: Their role in motivation and development. In, K. Fox, M. Goudas, S. Biddle, J. Duda & N. Armstrong (Eds.), *Children task and ego goal profiles in sport*, *British Journal of Educational Psychology*, 64: 253-261.
- FELTZ, D.L., & PETLICHKOFF, L. (1983). Perceived competence among interscholastic sport participants and dropouts. *Canadian Journal of Applied Sport Sciences*, 8(4), 231-235.
- GON LVES, C., CARREIRO DA COSTA, F. & PIERON, M. (1999). Relations entre le style de vie et les attitudes des eleves vis-à-vis de l'education physique scolaire. In, J.F. Grehaigne, N. Mahut, & D. Marchal (Eds.), *Qu'apprennent les eleves en faisant des activity physiques et sportives?/What do people learn from physical activity program?* Actes sur CD Rom du Congres International de l'AIESEP (Besancon). Besancon: UFM de Franche-Comté.
- GON LVES, C., CARREIRO DA COSTA, F. & PIERON, M. (2000). Relationships between pupils thoughts and behaviours in physical education classes. In, Carreiro da Costa, F., J. Diniz, L. Carvalho, & M. Onofre (Eds). *Proceedings of the AIESEP International Seminar (Research on Teaching, Research on Teacher Education)*. Lisbon: Universidade Tecnica de Lisboa, 67- 73.
- HARTER, S. (1982). The perceived competence scale for children, *Child Development*, 53: 87-97.
- LEE, A., & SOLMON, M. (1992). Cognitive conceptions of teaching and learning motor skills. *Quest*, 44, 57-71.
- LOCKE, L. (1992). Changing secondary school physical education. *Quest*, 44, 361-372
- MEDLEY, D. (1979). The effectiveness of teachers. In, P. Peterson, & H. Walberg (Eds.), *Research on teaching: Concepts, findings and implications*. Bekerley, Calif.: Mc Cutchan, 11-27.
- NICHOLLS, J. (1989). *The competitive ethos and democratic education*. Cambridge, MA: Harvard University Press.
- PIERON, M., DELFOSSE, C. & CLOES, M. (2000). Que pense l'eleve de la lecon qu'il vient de vivre ? *Revue de l'Education Physique*, Vol. 40, 3, 2000, 119-129.
- PIERON, M., LEDENT, M., DELFOSSE, C. & CLOES, M. (2000). Mieux connaitre les eleves: Les motivations. *Revue de l'Education Physique*, Vol. 40, 2000, 35 - 43.
- PIERON, M., LEDENT, M., LUTS, K., DELFOSSE, C., PIROTTIN, V. & CLOES, M. (1998). Pour un traitement differencié dans l'enseignement de l'education physique au niveau primaire. Decisions, perceptions et comportements des enseignants et des eleves. In, *Ministere de la Communauté Francaise. Le point sur la recherche en education*, 6, Mai 1998, 17-29.
- PIERON, M., LEDENT, M., LUTS, K., DELFOSSE, C., PIROTTIN, V. & CLOES, M. (1998). Pour un traitement differencié dans l'enseignement de l'education physique au niveau primaire. Decisions, perceptions et comportements des enseignants et des eleves. *Revue de l'Education Physique*, 38, 1, 1998, 11-24.
- SILVERMAN S. & SUBRAMANIAM P.R. (1999). Student Attitude Toward Physical Education and Physical Activity. A Review of Measurement Issues and Outcomes. *Journal of Teaching in Physical Education*, 19, 97-125