

The performing of a secondary physical education department committed to the Portuguese physical education national curriculum

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ABSTRACT

This study examined the performance of a secondary physical education (PE) department committed to the Portuguese PE National Curriculum. PE department head perceptions, PE teachers' educational beliefs, school and PE department characteristics, PE curriculum, and PE classes were analysed. The main goal set by PE teachers was to prepare students for an active and healthy lifestyle. PE teachers showed a shared commitment about what is important to teach and the best way to have an organized learning environment. They worked as a team, focusing their teaching in students' learning. They showed high expectations, believing that students can succeed, which suggested a strong moral purpose. Teachers share different PE values orientations, however, students engaged in MVPA for more than 50% of the available class time. This reflected the teachers' collective compromise to follow the same PE objectives, along with making students' interests a top priority. To promote teamwork and coherent curricular decisions, as well as good educational practices in a school, the PE department is probably a crucial component to providing a positive learning environment.

Keywords: physical education department, health promotion, physical education

INTRODUCTION

The role of schools and physical education (PE) in the promotion of an active and healthy lifestyle has been largely recognized (Pate et al., 2006; Sallis & McKenzie, 1991; Sallis et al., 2012). It has been stated that if PE intends to promote an active and healthy lifestyle the main goals should be for the students to take part in appropriate amounts of physical activity (PA) during class time, and to become equipped with the knowledge, attitudes and physical skills to be active outside school and throughout life (MacNamara et al., 2011; Simons-Morton, 1994).

In spite of this recognition, research examining PE classes has consistently shown that students spend a limited amount of time engaged in moderate-to-vigorous PA (MVPA) (Fairclough & Stratton, 2006a; Scraggs et al., 2003), and students' knowledge and conceptions of fitness concepts are narrow, vague, and often inaccurate (Keating et al., 2009; Marques,

Martins, Sarmiento, Rocha, & Carreiro da Costa, 2015; Stewart & Mitchell, 2003). Moreover, studies concerned with the impact of PE on the practice of PA show that PE has not been especially successful in PA facilitation (Piéron, Ruiz, & García Montes, 2008; Rikard & Banville, 2006). These findings support the opinion of those who argue that PE is inadequately educating young people (Haerens, Kirk, Cardon, & De Bourdeaudhuij, 2011).

Castelli and Rink (2003) carried out a study whose purpose was to compare high (HPS) and low (LPS) performing secondary PE programs. Using both quantitative and qualitative methods, this investigation examined reform efficacy, teacher perceptions, program characteristics, department and school characteristics, and facilitators and inhibitors, in four HPS and four LPS schools. Relationships between PE members were an aspect that has distinguished HPS and LPS schools. HPS

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department members have demonstrated positive relationships, by communicating effectively, and taking a team approach to planning and data collection, while LPS department members acted as individuals, and presented informal and procedural communication, even though teachers did not necessarily lack resources, planning time, or teacher development. These results are in line with the characteristics of effective schools (Sammons & Bakkum, 2011). Despite the diversity of indicators regarding school effectiveness, strong leadership and a shared vision (Fullan, 2001), positive learning environment, good team work and team coherence (Reynolds & Teddlie, 2000) are indicators that have largely been considered vital.

Despite widespread acknowledgment of the power of professional collaboration, the norm in most schools is teachers working in isolation (DuFour, 2011; Hargreaves, 1995). Thus, through separateness, teaching becomes a trial and error process whereby the individual must depend heavily on his or her own ability to grow and solve problems.

Considering that we know little about which PE department organization and functioning characteristics are related to a supportive PA climate in schools, the purpose of this study was to analyse the functioning of a PE department of a secondary school located among the top places of the Portuguese academic achievement ranking, committed to follow the Portuguese National Curriculum of Physical Education (NCPE) (Carreiro da Costa, 2005). PE department head perceptions, PE teachers' educational beliefs, school and PE department characteristics, PE curriculum, and PE classes were examined. Notes from school and PE documents were also considered.

METHOD

The study was carried out in a public secondary school during one academic year. The first author was a participant researcher, working among teachers, in the PE department, for more than 9 months. During this time: (a) the head of

the PE department was interviewed; (b) PE teachers were questioned; (c) PE classes, meetings, and the organization of extracurricular activities were observed; (d) formal and informal conversations were held; (e) and school and PE department documents were analysed. The main ideas from these observations and conversations were written and used as field notes. The study was conducted according to the ethical standards in sport and exercise science research (Harriss & Atkinson, 2009) and the protocol received approval from both the institutional review board of the Faculty of Human Kinetics and the Portuguese Minister of Education. Prior to the data collection, the school was contacted and the authorization to carry out the study was granted. Informed written consent was obtained from each participant, from the students the approval was obtained from their legal guardians.

Participants

The school, situated in an urban location, had 1100 students enrolled, and is considered a reference in the Portuguese educational context, being in the top position of the best schools in academic achievement. The school principal has been leading the school for several years, working in order to have a stable group of teachers, and by implementing strategies to improve students' academic achievement. The facilities for PE were good, and the PE department was known for teaching according to the NCPE. The PE department was comprised of 10 teachers (6 women, 4 men), ranging from 25 to 58 years of age. Their peers perceived PE teachers as competent professionals, each had a Master's degree, and their teaching experience varied from 1 to 35 years. Some of them were leaders of national associations related with PE and sport, and two of them were co-authors of the NCPE.

Instruments and Procedures

Aiming to identify conceptual and methodological options, and the organization of the PE department with respect to the NCPE guidelines, an interview was conducted with the

head of the department. The interview was focused on his PE philosophy and how he imparts these ideas to other PE teachers. Some specific aspects of the NCPE were discussed, namely, promoting healthy lifestyles, the organization of teachers' work, the quantity and quality of PA extracurricular activities provided, and his opinion about PE time allocation. The interview was semi-structured and lasted approximately 60 minutes. The interview was recorded and then transcribed verbatim.

To assess teachers' educational beliefs, and to analyse how these beliefs influence decisions regarding curriculum content, the shortened version of the Value Orientation Inventory (VOI) (Chen, Ennis, & Loftus, 1997), validated for the Portuguese population (Vieira, 2007) was applied to the PE teachers. Each teacher of the PE department received the shortened version of the VOI, and they were asked to complete and return it within one week. Teachers had to rank and order each of the five items within each of the 10 sets according to his/her priorities (5=highest priority; 1=lowest priority). The score for each value orientation was calculated by adding up the rankings for the items within each orientation, across the 10 sets. Therefore, each teacher completing the VOI produced five scores (i.e. one for each value orientation) which range from 10 to 50. Scores 0.6 standard deviation above the mean were considered to reflect a high priority, while scores 0.6 below the mean reflected a low priority; scores within 0.6 standard deviation of the mean were categorized as neutral (Ennis & Zhu, 1991).

PE classes were analysed by the first author through the System for Observing Fitness Instruction Time (SOFIT) (McKenzie, Sallis, & Nader, 1991). This system has demonstrated reliability, validity, and feasibility (Rowe, Mars, Schuldheisz, & Fox, 2004), and was selected for the study due to its inclusion of the factors of curricular context and teacher behaviour, as well as factors associated with health-related fitness (Kulinna, Silverman, & Keating, 2000). A total of 30 classes were observed (three classes led by each teacher). On a rotation basis, the PA levels of four randomly selected students (i.e. lying

down, sitting, standing, walking, very active), the lesson contexts in which they occurred (management, general knowledge, physical fitness knowledge, fitness activity, skill practice and scrimmage, game play, other), and teacher behaviour (i.e. promotes fitness, demonstrates fitness, instructs generally, manages, observes, other-task) were observed and coded throughout each lesson.

A wireless microphone linked to a headphone was used to better understand the teacher's verbal instructions. A tape recorder using pre-recorded audio tapes paces the observation time by using a standard 10-second observe/10-second record format. Data collection followed the same procedures used in previous studies (Kulinna et al., 2000; Rowe et al., 2004). Descriptive analysis and percentage occurrence of intervals were calculated for each SOFIT sub-category. The categories of walking and very active were combined to create a measure of time spent in MVPA.

Observer training was done with the use of videotaped lessons. Data collection only began after intra observer agreement exceeds 0.85 achieved for three classes of 45 minutes between two times separated by one week. The values recorded for the first, second and third classes were 87%, 88% and 92%, respectively. Intra observer agreement was calculated using the formula (agreements/observed intervals) x.100.

Heart rates (HR) of 40 students (4 associated with each PE teacher) were measured during three lessons. The students observed via the SOFIT were fitted with the HR telemeters (Polar Precision Performance SW Version 4.00.022) while changing into their PE uniforms. HR was recorded once every 5 seconds for the duration of the lessons, and total lesson time was equivalent to total recording HR time on the telemeter. Telemeters were set to begin recording when the teachers officially began the lessons, and were stopped at the end of lessons. The telemeters were then removed and data was downloaded for analysis. Based on previous work (Armstrong, 1998; Armstrong & Welsman, 2006), moderate activity (brisk walking) generates a HR of about 140 bpm. This value was used as a threshold to interpret the

HR data. Mean and standard deviation of HR in PE lessons were calculated. Additionally, percentage and time spent in HR ≥ 140 bpm were also calculated. Differences in lesson time spent in HR ≥ 140 bpm in 45- and 90-minute classes were analysed using paired-samples t test. Previously, exploratory analyses were conducted. Shapiro-Wilk test revealed that data was normally distributed, and subsequent Levene's test confirmed the data's homogeneity of variance.

A document analysis of current materials for the PE department was also conducted. Reviewed documents included the PE program of school adapted from NCPE, annual plans from all grades (7th to 12th), initial assessment protocol of all grades, a self-evaluation questionnaire to apply to students at the end of the academic year (7th to 12th), evaluation test to assess health-related knowledge for each grade, a questionnaire to assess if the NCPE was being followed in each grade, evaluation criteria for each grade, Fitnessgram protocol used at school, school sport guidelines, and the annual report of trainee teachers. Due to lack of space we will not present the results of the inductive content analysis.

RESULTS

Goals of PE, methodological guidelines and the organization of the PE department

The results consist of the interview with the head of the PE department, conversations with PE teachers, and notes taken during department meetings and from the documents analysed. The main goal set by the PE department was to prepare students for an active and healthy lifestyle. Teachers sought to do so through an eclectic program, teaching a variety of sports. They claimed that the sports contained within the NCPE could be transformed into tools to be used by students in order to become physically active, and to practice PA autonomously. The PE department head said:

“What is implicit and explicit in our decisions is related to the preparation of students for their entire life, promoting an active lifestyle. This is the basic premise of what we

propose to do. The question is how can we do that? Well, using the NCPE, which is an eclectic curriculum, we try to teach students a wide range of physical activities for students to use to practice PA autonomously.”

For both the head of the department and PE teachers, the NCPE was an important document that helped guide their practices. However, not all of the teachers had the preparation necessary to teach all of the sports that are part of the NCPE. For this reason, in order to be prepared and correctly teach the activities from the NCPE, teachers organize courses within the department, in which each teacher has the responsibility to train their colleagues, teaching them how to teach the sport activities in which they are specialists. If there was a gap, and no one was able to train others in some specific sport, the teachers either assumed the responsibility for attending courses outside the school, or a specialist was invited to come to the school to deliver a training course. Thus, at the beginning of each academic year, PE teachers expressed their difficulties and planned the training process. For instance, while the research was taking place, the PE department invited a specialist to deliver a practical course on teaching handball; and commissioned the Portuguese Federation of Badminton to facilitate training in the teaching of badminton. These training programs took place during the first months of classes, so that teachers were prepared to teach these sports.

The PE curriculum at the school has made up of three defined areas, as defined by the NCPE: (1) PA (which includes sports, dance and expressive rhythmic activities, traditional games, and outdoor recreation activities), (2) Knowledge (which includes the learning of the development and maintenance of physical fitness, and knowledge concerning the interpretation and participation in sport in a social perspective), and (3) Physical Fitness (where they develop physical capacities). The PE department head stated:

“The NCPE defined clearly three major guidelines for teaching. One is related to PA, and the aim is to teach students for them to be

able to practice regularly. The other has to do with theoretical knowledge to enable students to understand how important PA and fitness is to improve health. The third is physical fitness, and in each class students have to work to improve their fitness levels, because there is a relationship between fitness and health.”

The PE department head added that teachers were supposed to teach more than one PA in each PE lesson, sometimes at the same time, with students performing different tasks according to their needs. Teachers should use the class time to explain the objective of each exercise, allowing students to better understand the real purpose of each exercise.

Apart from the implementation of the NCPE, extracurricular activities have great importance in school, being represented in several forms. They could be tournaments (organized by students, in which students, staff and teachers all participate), school sports, or activities for parents and former students. In school sports, the school provides 6 activities, as can be seen in table 1.

Table 1

<i>School sport activities provided by the school</i>		
Activity	Sessions per week	Mode
Expressive rhythmic activities	2	Recreation
Badminton	2	Competition
Korfball	2	Recreation
Futsal	2	Competition
Golf	2	Competition
Volleyball	4	Competition

The School sports were a complement to PE lessons, and were undertaken for a dual purpose. The first perspective was related to athletic performance. It was a space where students could compete with other students from other schools in a formal competition. The second role served to improve students' performance in sports in which they had more difficulties. It seems that school sports worked as a support for PE classes. For instance, this relationship between school sports and PE was the reason why the volleyball team had more hours to practice, and had more students enrolled, because teachers identified that most students had learning difficulties in this particular sport. Characterizing the school sports

activities, from the informal conversations, the head of the PE department stated:

“The school sports are a subsidiary of PE. We assume school sports in two different perspectives. The first is related with sports competition. The aim is to improve, but always using a formative approach. The other perspective, which is relatively recent in our school, is related to the sports in which students have difficulties in PE. In school, students play sports to practice and improve their performance. Naturally this will have a repercussion in PE marks at the end of the academic year. Sometimes we joke around with the parents; they send their kids to have extra lessons of mathematics outside school for them to achieve good marks, so we do the same in school sports to help them to achieve better marks in PE.”

With the intention to increase the educational opportunities for students to improve their motor skills in PE and physical fitness, the head of the department asked the school principal to allow more time to work with those students who had more difficulties. The request was granted. Every week more than 30 students (previously identified as having more difficulties) had an extra 45-minute, small-group PE session focused on physical fitness as well as the sport with which they were struggling.

PE teachers' value orientation

Data from VOI showed that teachers in the PE school department share different PE value orientations (table 2). Three teachers gave priority to the disciplinary mastery value orientation (T7, T8, T10); and three teachers gave priority to two value orientations, namely: T2 presented simultaneous preference to self-actualization and social reconstruction, T4 valued both self-actualization and ecological integration, and T9 favoured both the disciplinary mastery and social reconstruction orientation. T1 held mainly the social reconstruction value orientation, T3 gave priority to the learning process value orientation, and T6 gave priority to ecological integration. Finally, T5 showed a neutral value orientation.

Table 2
PE teachers' value orientations

	Disciplinary Mastery	Learning Process	Self-Actualization	Ecological Integration	Social Reconstruction
Teacher 1	Low priority (26)	Neutral (34)	Neutral (29)	Low priority (24)	High priority (37)
Teacher 2	Low priority (20)	Neutral (30)	High priority (40)	Neutral (24)	High priority (37)
Teacher 3	Neutral (37)	High priority (43)	Low priority (23)	Low priority (21)	Neutral (26)
Teacher 4	Low priority (27)	Neutral (30)	High priority (37)	High priority (29)	Neutral (25)
Teacher 5	Neutral (32)	Neutral (34)	Neutral (31)	Neutral (25)	Neutral (28)
Teacher 6	Neutral (39)	Neutral (29)	Neutral (30)	High priority (29)	Low priority (33)
Teacher 7	High priority (41)	Neutral (28)	Neutral (26)	Neutral (28)	Neutral (27)
Teacher 8	High priority (46)	Low priority (26)	Neutral (27)	Neutral (27)	Neutral (24)
Teacher 9	High priority (41)	Neutral (31)	Low priority (20)	Neutral (25)	High priority (33)
Teacher 10	High priority (44)	Neutral (33)	Neutral (29)	Neutral (28)	Low priority (16)
M±SD	35.30±8.64	31.80±4.71	29.20±5.96	26.20±2.53	27.30±6.11

Table 3
Percentage of lesson time for student activity, lesson context, and teacher behaviour

Category	Teachers (%)										M±SD	
	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10		
Student activity	Lying down	2.9	0.9	0.1	0.0	0.6	1.4	0.1	0.5	0.0	0.0	0.7±0.9
	Sitting	9.1	12.7	11.7	21.4	19.3	9.3	8.6	15.7	6.5	11.4	12.6±4.8
	Standing	24.6	23.1	27.5	32.4	27.1	27.8	28.1	27.5	39.3	28.1	28.5±4.5
	Walking	37.0	37.2	30.8	32.8	34.1	31.1	33.7	35.4	34.5	37.2	34.4±2.4
	Very active	26.4	26.1	30.0	13.4	18.9	30.4	29.2	21.0	19.7	23.3	23.8±5.6
	MVPA	63.4	63.3	60.8	46.2	53.0	61.5	62.9	56.4	54.2	60.5	58.2±5.7
Lesson context	Management	20.9	22.6	24.2	29.3	17.2	24.6	22.3	21.1	23.2	12.7	22.4±4.4
	Physical fitness	0.3	3.6	8.4	2.0	8.1	2.7	6.0	3.7	1.7	1.5	3.9±2.8
	General knowledge	11.0	10.5	8.0	21.0	18.5	4.2	4.5	19.1	15.7	6.4	11.9±6.3
	Fitness	7.0	18.0	18.0	8.0	4.3	20.9	28.8	17.0	10.6	16.6	14.9±7.4
	Skill practice	21.1	15.9	3.4	3.4	24.2	10.9	12.0	30.1	24.8	19.3	16.5±9.1
	Game play	39.7	29.4	38.0	36.3	27.7	36.7	26.4	9.0	24.0	43.5	30.9±10.1
Teacher behaviour	Other	0.0	0.0	0.0	0.0	0.5	3.5	0.0	0.0	0.0	0.0	0.4±1.1
	Promoting fitness	3.0	16.2	21.5	12.2	6.8	20.1	21.4	14.2	7.6	5.6	12.8±6.9
	Demonstrating fitness	0.0	0.0	2.9	0.2	0.0	0.0	2.3	0.0	0.4	0.0	0.6±1.1
	General instruction	60.5	54.1	43.4	46.0	73.3	31.4	38.1	46.9	59.8	65.4	51.9±13.0
	Class management	22.0	25.0	23.6	27.8	17.2	25.7	19.1	30.7	29.1	17.2	23.7±4.8
	Observing	14.8	4.7	8.7	13.7	2.7	21.1	19.2	8.2	2.7	11.8	10.8±6.5
Off task	0.0	0.0	0.0	0.1	0.0	1.7	0.0	0.0	0.5	0.0	0.2±0.5	

PE classes

Table 3 represents the proportion of lesson time for the main SOFIT categories (student activity, lesson context, and teacher behaviour). Overall, students spent the majority of their lesson time walking (34.4%), which is classified as MPA, followed by standing (28.5%), and in VPA (23.8%). Students from nine teachers engaged in MVPA for more than 50% of the available time during the three lessons observed. Six of the teachers have offered more than 60% of MVPA. Only one teacher did not provide 50% or more of MVPA. The lesson activity time was mainly devoted to game play (30.9%), with

students generally performing without major intervention from the teacher, followed by time focused on management (22.4%). In most of the observed classes teachers taught more than on PA, and during time devoted to game play the students performed more than one sport. As for the activity time devoted to activities in which the major purpose was to improve the students' fitness in terms of cardiovascular endurance, strength, or flexibility, the average was 14.9% (ranging between 4.3% and 28.8%). Only 3.9% of the lesson time was centred on delivering information related to physical fitness. Through information gathered based on observation and

conversation with teachers, the lower time centred on information related to physical fitness was due to the fact that it was expected that the students had already acquired this knowledge because it had been mentioned frequently throughout the year (SOFIT data were collected near the end of the academic year). With respect to teacher behaviour, 51.9% of their time was spent providing general instruction, followed by class management (23.7%), matching with 22.4% in the category with the same name but belonging to the level of lesson content. Promoting fitness took 12.8% of the class time, and teachers spent only 0.6% demonstrating fitness. When teachers were asked about this value, they indicated that the students were already familiarized with most of the exercises.

HR monitoring

The intensity of the PA provided to students shows an average of 131.9 bpm, ranging from 117.3 to 142.5 bpm (table 5). The average duration of PE lessons was 74 minutes. Students engaged in MVPA for 30 minutes of lesson, which represents 40% of the lesson time. In the 45-minute lessons, students were 20.8±9.7 minutes with levels of HR below 140 bpm and 23±10.6 minutes above 140 bpm. In 90-minute lessons, the averages were 42.2±15.3 minutes below 140 bpm and 37±16.9 minutes above 140 bpm. According to paired-samples *t* test, there were no statistically significant differences in mean levels of HR between 45 and 90-minutes classes ($t(23)=1.477$, $p=0.153$). The average time in which students were engaged in activities with an intensity below and above 140 bpm was not significant in 45-minutes ($t(23)=-0.542$, $p=0.593$) and 90-minutes classes ($t(23)=1.253$, $p=0.223$).

Table 4
Heart rate measures

	Teachers (bpm)										M±SD
	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	
Lesson 1	153.5	131.8	142.5	117.5	138.0	157.0	141.5	130.8	138.3	139.0	139.0±11.2
Lesson 2	141.8	133.5	133.5	133.0	141.8	154.3	125.0	109.0	132.0	136.8	130.3±10.6
Lesson 3	127.0	131.0	140.0	101.3	115.0	116.3	129.5	118.0	121.3	128.0	126.5±14.4
M±SD	140.8±13.3	132.1±1.3	138.7±4.6	117.3±15.9	131.6±14.5	142.5±22.8	132.0±8.5	119.3±11.0	130.5±8.6	134.6±5.8	131.9±8.3

Table 5
Heart rate values below and above 140 bpm

Teachers	Mean class time	HR below 140 bpm		HR above 140 bpm	
		% of lesson time	Minutes	% of lesson time	Minutes
T1	78	49.3	38	50.7	40
T2	64	56.0	36	44.0	28
T3	62	54.8	34	45.2	28
T4	68	77.0	53	23.0	16
T5	93	60.6	57	39.4	37
T6	94	50.6	47	49.4	46
T7	76	56.6	43	43.4	33
T8	50	79.9	40	20.1	10
T9	61	57.5	35	42.5	26
T10	89	60.4	54	39.6	35
Mean	74	60.3	44	40.0	30

DISCUSSION

This study analysed the functioning of a PE department of a secondary school focused on NCPE with respect to health and PA promotion. School PE teachers favoured an educational perspective of health-related PE (Johns & Tinning, 2006), and created an education climate that favoured the development of a

physically literate person (Castelli, Barcelona, & Bryant, 2015) by ensuring: (1) that students possessed the knowledge and motor skills to be able to value PA and (2) that they were able to design intentionally their PA and fitness exercises and practice, throughout their lives, in order to maintain and/or improve their health status.

The characteristics of the curriculum and the diversity of the PA entailed some difficulties for the teachers, because not all of them had the necessary preparation to teach all activities. To solve this situation, they organized a training plan, in which each teacher would teach their area of expertise to the other teachers. This attitude of the PE department clearly showed the importance they gave to the NCPE, while teaching the PA in a useful perspective so that, in the future, students could use what they have learned as a tool to practice PA autonomously. The way teachers organized the training plan, and planned the activities for the entire year, demonstrates that they work as a professional learning community (Hord, 1997; Schmoker, 2004). These types of communities are characterized by a shared vision and a focus on: collegiality, students' learning, individualizing the teaching process, and providing additional time for students with more difficulties.

Students engaged in MVPA for 58.2% of the lesson time. Only the students of one teacher did not reach 50% of lesson time in MVPA. On the other hand, six teachers have offered more than 60% of MVPA. This data was higher than those found in the literature (Fairclough & Stratton, 2006b; McKenzie, Marshall, Sallis, & Conway, 2000) and meets what is recommended for the PE class time (USDHHS, 2000). The fact that only one teacher had not achieved 50% of class time in MVPA takes on particular relevance when one considers that teachers don't share the same PE value orientations. This may reflect on the teachers' collective compromise to follow the same PE objectives, and valuing students' interests above all else. We also see the educational work characteristics of the school PE department, where the focus is on complying with the NCPE, and the principles and strategies to be employed to maximize the number of students engaged in active learning for the maximum amount of available time. These principles were successfully followed in the SPARK PE programs by non-PE specialist teachers, who have achieved the 50% MVPA goal in their lessons (McKenzie, Sallis, Kolody, & Faucette, 1997). This data seems to support

the recommendation that health-enhancing PA in PE should be deliberately planned (Fairclough & Stratton, 2005a, 2005b; Martin, Kulinna, Eklund, & Reed, 2001). The teachers' collective compromise to maximize students' time on task and to provide them with sufficient PA is probably a key ingredient to engaging students in MVPA and to avoid the influence of PE value orientations that do not support this goal.

Across all observed lessons most lesson time was apportioned to game play and skill practice, while teachers were giving general instructions. This addresses the knowledge and understanding, and motor skill development goals of PE. Apart from the time achieved in MVPA it could be said that, if time devoted to instruction was reduced, students could enhance their time in MVPA. Mersh and Fairclough (2010) indicated that when making judgments about PA and sedentary behaviour in PE time, it is important to do this in relation to the planned lesson objectives. If lesson segments designed to give instruction result in effective pedagogy, they should be viewed as a necessary part of PE and its potential to foster long-term positive PA attitudes and skills (Castelli & Rink, 2003; Cone, 2004). This means that active and inactive segments in PE classes, through enjoyable and motivating learning environments, are required to promote students' PA education by enhancing their knowledge and understanding (Brynteson & Adams, 1993; Dale, Corbin, & Cuddihy, 1998).

Regarding time devoted to management, teachers spent, on average, 22.4% of their total intervention on lesson context and 23.7% of their behaviour. Siedentop (1991) mentions that if classroom management time represents more than 20% of total intervention, it means that teachers faced some difficulties in organizing the class. Since most teachers are experienced, it is unlikely that they had difficulties. The high percentage of time devoted to classroom management was due to the diversity of activities that were taught in the same class. Several times, while some students were playing or practicing skills, teachers organized other students for another task. This explains why

both time devoted to management and MVPA were high.

According to the Portuguese education system, students from grades 7 to 9 have 135 minutes of PE per week, and students from grades 10 to 12 have 180 minutes. Schools have the autonomy to allocate this time as they want; in this school, students in grades 7 to 9 had a 45-minute plus a 90-minute class, and those who attended grades 10 to 12 had two 90-minute classes. Although the schools had the autonomy to allocate PE time, the NCPE recommends PE lessons of 45 minutes in order to provide students with a greater number of times to practice PA per week. PE teachers required that the PE time allocation should be as has been prescribed by the NCPE; however, their claim was not recognised by the school principal.

The results of comparative analysis between 45-minute and 90-minute classes showed no significant differences in mean levels of HR, suggesting that from a pedagogical viewpoint, both options are adequate and contribute to improved physical fitness. According to this data, the time allocated in a 45-minute class provided students with the opportunity to exercise at least three times a week. If we then add school sports, opportunities available for all students (free of charge), students could practice PA at least 5/6 times a week. This is almost sufficient to meet the youth PA recommendation (World Health Organization, 2010). It also demonstrates that schools can provide opportunities to help students to meet PA recommendation; PE and school sports play an important role.

Studies have found that teachers from secondary schools gave priority to social reconstruction value orientation, and delineating curricular goals for social responsibility, while disciplinary mastery value orientation was not favoured (Behets & Vergauwen, 2004; Ennis & Chen, 1995). These results are not in accordance with ours. Most of the PE teachers from the investigated school centred their attention on the contents of PE, appearing disciplinary mastery and ecological integration as the most valued value orientations. This may be the result

of the commitment of the PE department to promoting students' learning, teaching the PA from the NCPE, as well as preparing students to be fit, and acquire the knowledge that allows them to be autonomous.

Curriculum scholars argue that value orientations influence curricular decision-making and determine choices related to content, pedagogy, and assessment (Carreiro da Costa, 2005; Curtner-Smith & Meek, 2000; Ennis & Chen, 1995). This study has revealed that although teachers possess different value orientations, the goals for PE were similar in classes, as was the concern to provide high levels of intensity in these classes. We believed that the commitment expressed in the documents, and the collective work, contributed to minimize the individual differences. This demonstrates the importance of collective work and overlapping individual beliefs when the goal is promoting health-related PE.

CONCLUSION

The results seem to confirm the hypothesis that the diversity of educational beliefs shared by PE teachers in a school does not prevent them from pursuing common objectives. On the other hand, considering that a relationship between the belief system of the individual teachers and their teaching behaviours was not found, this result may become a valuable asset to argue that the importance given to the work climate characterizing the school PE department cannot be forgotten. This is especially pertinent as one considers a strategy aiming to improve the quality of PE and pupils' learning, specifically when the aim is optimizing the role of PE in PA (Solmon, 2015).

PE teachers showed a shared commitment about what is important to teach and how best to organize learning. They worked as a team, focusing their teaching in students' learning. They showed high expectations, believing that students can succeed. This suggests that they possess a strong moral purpose. They behave like an organized group whose members: 1) share a common goal, 2) wish to improve the quality of education, 3) have a desire to learn from each other, and 4) value contextualized and

collaborative professional learning. These characteristics are consistent with the literature about effective and better schools correlates (Lezotte & Snyder, 2011; Reynolds & Teddlie, 2000; Sammons & Bakkum, 2011) and are in line with the characteristics of the high performing secondary PE programs (Castelli & Rink, 2003). To promote teamwork and coherent curricular decisions, as well as good educational practices in a school, the PE department is probably a key determinant to provide a positive, motivating, and success-oriented learning environment with the potential to influence students' present and future participation in PA. Thus, PE teacher education programs have the responsibility to educate graduates that possess the ability to identify not only the correlates of better schools but also those of high PE programs, which value team work and are able to work accordingly, and assume that students' interests should take precedence over the differences that may exist in a PE department in relation to the aims of PE.

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