

# **Preparing physically educated citizens in physical education. Expectations and practices**

Marc CLOES

Unité de Recherche en Didactique et Formation des Enseignants (DIDACTIfen)

University of Liege, Belgium

## **Abstract**

Since physical education (PE) became a compulsory school subject, its objectives have often been related to the expectations of society. Since the turn of the new millennium, this has resulted in PE being increasingly linked to the promotion of physically active lifestyles. In this paper, we try to determine whether practitioners have the capacity to reach recent objectives for the subject or should reconsider their work on this issue. Moreover, we propose to extend the current focus on physical literacy to encompass the concept of societal transfer, underlining the need for an authentic pedagogy of PE.

## **Introduction**

Nowadays, as is the case with schools in general, physical education (PE) is facing many challenges. More than ever, the subject is expected to serve the interests of a society characterized by increasing levels of sedentariness. In the context of calls from researchers, international bodies, and stakeholders underlining the role that the subject should play, our aim is to analyse evidence-based resources in order to determine if practitioners can meet societal expectations. Moreover, we will focus on important principles that could contribute to enhance the role of PE and help teachers to implement strategies that will be effective.

## **What does society expect from PE?**

PE is a compulsory school subject in most countries. Its status can differ considerably from one state to another, as has been highlighted in several studies (Hardman, 1998, 2000; Eurydice, 2013; Klein & Hardman, 2007, 2008; Pühse & Gerber, 2005). As pointed out by Kirk (2010), the definition of PE depends on the beliefs, values, and aspirations that society develops about it. This can lead to a lack of consensus about the nature of the subject, although its role in human development has been quite well recognised since the 19<sup>th</sup> century. All around the world, priorities for the subject have changed across the time (IOM, 2013). Following the work of authors such as Metzler (2005) in the USA, Kirk (2010) in the UK, During (2005) in France and Bonaventure (2007) in Belgium, it is possible to identify three overall phases of PE: a long hygienic phase, up to the 1960s, influenced by Swedish and German gymnastics; a sport-centred phase, during the last third of the 20<sup>th</sup> century; and a phase since the beginning of the new millennium increasingly focused on health outcomes.

Recognising the needs of US society, where obesity and physical inactivity were increasing rapidly, Sallis and McKenzie (1991) pointed out that PE should focus on two main goals: preparing children and youth for a lifetime of physical activity (PA) and engaging them in PA during PE. Tappe and Burgeson (2004) also supported the idea that PE should play a determining role in promoting active lifestyles among youth. They identified PE teachers as the cornerstones of the actions that schools can implement in order to respond to this societal issue.

During the last decade, the health benefits of PA have been strongly highlighted in the literature. This has likely contributed to the growing attention paid worldwide to the number of people who are not active enough, whatever their age, gender or socioeconomic status (WHO, 2016), and to the place of sedentariness in daily life (Saunders, 2014; SBRN, 2012).

The call to action launched by Kohl et al. (2012) underlined that society needed to react in order to advance global health through PA. Calls such as this were justified by the compounding human costs of physical inactivity over the lifetime that have clearly been illustrated by the authors of the *Designed to Move* report (2012) and recently received important support by Ding et al. (2016).

After the MINEPS V<sup>1</sup>, held in Berlin in 2013, one of the actions that the experts of the Intergovernmental Committee for Physical Education and Sport (CIGEPS) were invited to implement was to update the original version of the 1978 UNESCO Charter of Physical Education and Sport. This important document states that every person has the right to be physically active. In the revised version, published in 2015, one of the main changes centred on the emphasis placed on PA, reinforcing the links between PE and PA. At the same time, UNESCO published a document advocating the implementation of Quality Physical Education (QPE) (McLennan & Thompson, 2015), while the European Union proposed a series of recommendations regarding PE in schools (Expert Group on Health-Enhancing Physical Activity, 2015).

In light of the above, it seems that PE's goals, content and teaching approaches needed to evolve. From a starting point of sport-oriented teaching, often guided by direct instruction principles (Metzler, 2005), PE teachers were invited to develop and introduce new approaches in order to convince their students to become physically active citizens. Most PE programmes emphasized PA promotion. For example, developing physically-educated persons became a priority for US PE teachers, based on the assumption that students will use what they learn in PE throughout their lives (NASPE, 2004).

Such a change of paradigm requires the involvement of the practitioners who must leave their comfort zones and develop and implement new teaching habits within their given educational support structures. Moreover, complicating things further, all around the world, PE teachers have also had to add a focus on health education within their lessons (Chin & Edginton, 2014).

It is clear that the role of the PE teacher has been expanded and diversified and our interest here lies in exploring whether PE is reaching these goals and how the work of PE teachers is being affected.

### **Does PE meet expectations?**

Our own informal conversations with practitioners have led us to consider that PE teachers derive particular satisfaction from finding that a student has decided to become physically active outside of school. Traditionally, this has meant that the student joins a sport club or begins a fitness training programme (jogging, activity in fitness centre ...).

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<sup>1</sup> International Conference of Ministers and Senior Officials Responsible for Physical Education and Sport. For more details, see on <http://www.unesco.org/new/en/social-and-human-sciences/themes/physical-education-and-sport/mineps-2013/>

When trying to determine the impact of PE, we considered positive and negative effects classified according to the time of their occurrence (Table 1). In fact, teaching PE is like building a house: each exercise, drill or game represents one brick that the teacher puts down on another to set up a wall making sure that all stones are interlinked to be solid; there is a wall for each school year, and the house is finished when the roof is fixed at the end of compulsory education. The house should be ready for lifelong use. This means that the way in which each single exercise, each lesson, each unit, and each school year are arranged can affect the quality of the house ... resulting in a set of competences, knowledge, and attitudes that contribute to the personal development of the individual and to their integration into society.

It seems that PE teachers are often convinced that when they teach, students learn automatically what is taught and become able to use it. It is also important to consider that all students are not equally passionate about one of the traditional values described by the IOC (2016): that of excellence, even with the proviso that it is doing your best rather than winning which is important. Consequently, it must be remembered that a really motivated PE teacher may not meet the expectations of some students who are not persuaded that fitness testing, conditioning, or learning specific sports skills are interesting objectives. If this situation is combined with low self-perceptions, such students can develop negative attitudes towards PE and reject PA (Wiersma & Sherman, 2008). Zeng, Hipscher, & Leung (2011) showed that students' attitudes towards PE is notably influenced by the perceived benefits of the activities proposed during the lessons. The participation of students could be considered as an interesting indicator of the effectiveness of PE. The rate of practical attendance in Wallonian PE classes raises questions, particularly with regard to girls' swimming lessons (Cloes, Motter & Maraite, 2007; Van Hoye & Cloes, 2013).

### *Insert Table 1 approximately here*

At the beginning of the second millennium, several authors underlined that PE is facing a worldwide crisis. Hardman (2005) mentioned serious concerns such as the decline and marginalization of the subject as well as curriculum time allocation, subject status, material, human and financial resources, inadequate facilities and equipment supply, and low remuneration of teachers. At the same time, questions have been raised about PE quality. Several characteristics of common teaching approaches could be linked to a lack of recognition of the subject: ineffective teaching processes; inadequate school-community coordination; a focus on competitive sport; a lack of interest in 'basic human movement'.

In parallel, as stated earlier, several publications emphasized PE's important role within school from a developmental perspective. As Sallis et al. (2012) put it, it is necessary to determine if the gym is half empty or half full ... Rather than embarking on a systematic review, we have selected some examples below which give an overview of available data.

### *Half empty*

As a starting point, we explore the status of the subject in society. In the specific case of Flanders (Belgium), Huts, De Knop, Theeboom, and De Martelaer (2004) analysed the perceptions of PE of 1,730 students and 182 adults. Their results provide a mixed picture:

- 57% of adults and 49% of students considered that the objectives of PE are too rarely achieved;
- 48.1% of students estimated that their PE lessons contribute too rarely to the development of a physically fit and healthy lifestyle;
- 45.1% of students thought that PE too rarely develops self-image and social functioning;
- 43.1% of students felt that motor competencies are too rarely developed in PE.

In the UK, Flintoff and Scraton (2001) interviewed 21 15-year-old girls. The students did not clearly see the purpose of PE; they criticized the choice of activities (generation gap, mainly team sports), blamed the lack of physical challenge (number of students limiting the opportunities for practice and increasing the waiting time, insufficient length of the lessons), considered that PE failed to help with skill development, were critical of teachers' attitudes and low expectations, as well as PE clothing, and were not in favour of co-educational teaching due to the behaviour of some boys. For us, one of the main findings of this study dealt with the identification of *a gap between the PE programme and young women's active leisure lifestyles out of school* (p.18).

In 2003, Portman conducted individual interviews with 46 9<sup>th</sup> graders (USA) in order to determine how they felt about their PE experience and whether/how they expect to engage in organized PA in the future. The results showed that students of all skill levels expressed that "gym is fun when they can do it", they "do not like what they cannot do" and "gym is best when one can be with one's friends". Other experiences were different according to the skill level or to the gender: "separate gender is better", "I will probably be a couch potato", "Why try?" It is surprising to see that only 19 of the students planned to continue to do sport, all of whom belonged to the skilled group, meaning that students who were most in need of PA were not encouraged by PE to change their lifestyles.

In a cross-cultural study, Cloes, Motter, and Van Hoye (2009) analysed the opinions of students at the end of secondary school (4 schools in the French speaking part of Belgium, 1 school in the middle of the UK and 3 schools in the German speaking part of Belgium – 223 students in all). For the question about the role of their school in their motivation to be physically active as an adult, few students totally agreed with the proposal (2.3%, 8.9%, and 2.0%, respectively in Wallonia, the UK, and the German speaking community of Belgium). The differences between the regions remained when considering all positive opinions with, respectively, 37.5%, 64.4%, and 20.4% of the students believing that their school helped them to be active throughout their lives. This underlines that a special effort must be made in Belgium. This could be linked to the prevalence of a technocratic teaching approach amongst Belgian PE teachers (Frédéric, Gribomont, & Cloes, 2009; Cloes, Berwart, & Frédéric, 2010). On the other hand, the emphasis of the UK PE curriculum on PA promotion and health education could also explain why students would be more aware of the influence of the school. On a practical level, PE teacher educators could ask their incoming students to identify how PE benefited them. It is sometimes surprising to read the answers ... to see that most of these young adults are not able to explain what the objectives of the subject were. This appears to imply that there is room for secondary school PE teachers to ensure that students understand the place of PE in the school curriculum.

While at the end of secondary school each student should have established an active lifestyle and gained the competences needed to maintain it through life, the end of secondary school

and the entry into higher education correspond usually to a real decline in PA rates (Bodson, 1997; Diehl & Hilger, 2016; Gomez-Lopez et al., 2010; Kwan & Faulkner, 2011).

Considering the long-term effect of PE, Green (2014) underlined how difficult it is to collect evidence tracing PA from school to adulthood. After an extensive review of literature, this author concluded that a real doubt exists regarding the foundation for practitioners' usual beliefs regarding the link between PE and PA. Beyond this scientific analysis, PE teachers cannot ignore the negative testimonies coming from some people who express their frustration and/or resentment towards what they experienced during their schooling, sometimes many years after, when they are in a position to influence public choices... For the French speaking community, illuminating examples can be mentioned as they contribute to the reinforcement of a negative image of our subject. The Quebec artist, Lynda Lemay, wrote and interpreted a song describing her poor experience during PE lessons and shared these feelings to a large audience<sup>2</sup>. Such feelings seem not to be unique among the public. In France, a journalist published an online paper in which she collected many histories and anecdotes proposed by people who felt some humiliation as a result of their experience of outdated teaching practices (Greusard, 2012). Such public displays can be perceived as unpleasant, particularly because the journalist selected only negative testimonies rather than trying to conduct a balanced enquiry. However, the fact remains that a substantial number of students can have somewhat traumatic experiences in PE lessons. A last illustration of the poor publicity that PE received comes from a Belgian humourist, François Pirette, who created a sketch representing the behaviour of a PE teacher during one lesson<sup>3</sup>. Even if this funny description is a caricature and has to be viewed as such, the message that people receive does not serve our discipline well.

To explain why PE cannot reach its objectives, it is necessary to question what PE teachers propose to their students and how they might build a motivational climate with all young people they meet year after year. Among others, Boudreau (2004) underlined that an explanation of the lack of concrete impact could be found in choices such as an excess of matches or drills without challenge ...

### ***Half full***

van Sluijs, McMinn and Griffin (2007) embarked on the first meta-analysis attempting to identify the evidence base of interventions aiming to promote PA among children and adolescents. They found that interventions in PE are effective. Positive changes on PA were identified during the PE lesson where the lesson number was increased, where teachers' education was enhanced, and where equipment provision was improved. These findings confirm the potential direct effect of PE on the school PA of young people. On the other hand, there was little evidence of effect on overall PA levels, encompassing out-of-school activities. The authors mentioned the mediating role of the students and the influence of many external variables illustrated in the socio-ecological model (Sallis et al., 2006).

Interest in this model was also expressed by Cale and Harris (2006). These authors reviewed the literature focusing on interventions aiming to promote young people's PA. They concluded that the '*evidence on the effectiveness of physical activity interventions, and most*

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<sup>2</sup> *Le dernier choix* is a song from the album 'Ma signature' (Warner Music Canada, nov. 2006).

<sup>3</sup> François Pirette (1996). *Le prof de gym. J'ai connu chose ...* {videotape}. Brussels : RTBF Editions.

*notably school based interventions, suggests that efforts to plan and implement programmes with young people can be worthwhile' (p. 330).*

More recently, Demetriou & Höner (2012) analysed 129 papers (interventions in PE and/or other dimensions of school PA) and paid attention to three categories of objectives: health and fitness; behaviours (PA); psychological determinants. They identified positive impacts in a significant number of the papers when considering BMI (28%), motor performance (69.7%), PA (56.8%), knowledge (87.5%), self-esteem (30%), and attitudes (43.8%).

Such encouraging findings were also obtained by Dudley, Okely, Pearson, and Cotton (2011). Despite methodological weaknesses, they selected 23 papers focusing on the effectiveness of PE (and school sport) in relation to three main outcomes (promoting high levels of PA participation; movement skill instruction and practice; active learning strategies with an emphasis on enjoyment). Positive impacts were identified in 79% of the studies aiming to increase PA during the lessons, 100% of the studies focused on motor skill development, and 43% of the studies seeking students' enjoyment.

In 2013, Lonsdale et al. published another meta-analysis in which they analysed studies of interventions aiming to increase moderate to vigorous physical activity (MVPA) during PE lessons. Fourteen papers were scrutinized. It was shown that PE-based interventions can increase students' MVPA during lessons by about 24% compared with usual practice. It appeared that professional learning focused on teacher pedagogy and behaviour offers considerable potential for increasing PA in youth. On the other hand, the long-term effects of these modifications were again less well documented.

In summary, Sallis & McKenzie (1991) stated that PE teachers need to adopt a new role and recommended the implementation of a new concept called Quality Physical Education (QPE), aiming to prepare youth for a lifetime of PA and provide them with PA during PE classes. Little more than 20 years later, Sallis et al. (2012) estimated that some improvements had been made<sup>4</sup> (growing support for PE outside the profession; development of evidence-based PE programmes; demonstration of a positive association between PE and academic outcomes; implementation of rigorous direct observation methods aiming to collect data about PE quantity and quality). On the other hand, there is room for more improvements (reduced PE time; absence of a comprehensive tool designed to measure the quality of PE teaching that could be widely adopted; lack of data regarding the actual implementation of PE programmes that respect the guidelines of evidence-based PE programmes). This mixed view is also described by Pate, O'Neill, and McIver (2011) who conclude that even if students could be provided with significant doses of PA during PE classes, the effects of PE on health and fitness outcomes are still poorly understood.

The effectiveness of PE teachers was a core theme of research in sport pedagogy when pioneers such as Cheffers, Siedentop, Piéron ... launched the field at the end of the 1970s and during the 1980s. In his homage to Maurice Piéron's invaluable work, Siedentop (2005) summarized the general picture emerging from the studies focusing on teacher effectiveness research: *'teachers who believe they can make a difference with students, develop managerial systems that help students stay on task and optimize time for learning, plan and implement instructional systems that are action-oriented and attractive to students, motivate students,*

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<sup>4</sup> In the USA !

*create accountability systems that are fair and supportive of learning, and do so within a class climate that is energized, yet supportive and respectful of students.’ (p. 91)*

So, if the ingredients are known, what remains is to use them in the gym while taking into account the absence of a single recipe in the context of infinite individual and contextual variations. The gap between evidence-based recommendations and their implementation in the field is well known (Haag, 1994). To increase the instances of successful PE teaching, the following conditions are necessary: clear requirements and objectives; well prepared teachers; appropriate teaching environments; regular follow up of teachers in the field; in-service opportunities; professional support for practitioners. Support from society at large has often been requested by PE teachers who consider themselves alone in their actions. Nowadays, it seems that things are changing. Most of the aspects listed above are proposed within recommendations of public agencies (CDC, 2010, UNESCO, 2015 ...). The challenge has now become how to implement them all in a single school and class because PE is clearly identified as one of the key components of strategies aiming to help schools to contribute to the fight against sedentariness (Heath et al., 2012). PE cannot disappoint such expectations and is facing a crucial moment that will determine its credibility. Developing evidence-based approaches that are suitable and helping PE teachers to expand the boundaries of their comfort zone is now a priority.

### **What should the PE teacher do to reach the expectations?**

Sallis and McKenzie (1991) stated that PE is education content using a “comprehensive but physically active approach that involves teaching social, cognitive, and physical skills, and achieving other goals through movement” (p. 126). This perspective was also emphasized by Siedentop (2009), who considered that PE is education through the physical. These conceptions of PE emphasize that movement should be a central focus in the gym but also that PE has to bring about effects that will be seen outside of the school, viewing the student as a whole. Following this, we can make a link with some principles that appeared and quickly took hold during the last decade. Some aspects have already been mentioned above but it seems pertinent to describe them in a little more detail.

If the main objective of PE is to prepare physically educated persons, two principles should be applied: developing physical literacy and ensuring accountability.

Physical literacy is linked to the acquisition of knowledge, skills and attitudes that will make young people physically educated persons for their whole life (NASPE, 2004). The concept focuses on physical and motor competences, understanding of PA fundamentals, and modification of students’ lifestyles (Mandigo, Francis, Lodewyk, & Lopez, 2009; Whitehead, 2013). For us, the concept of physical literacy implies that PE has a concrete mission to achieve learning objectives that are useful for the development of an active lifestyle. Such a vision supports global initiatives promoting active lifestyles: Active for Life in Canada, Designed to Move ... Moreover, in the specific case of PE, it seems that students should be supported in the process of understanding how PE is providing tools that can be of use outside of the school context. Such an approach is not automatically adopted by PE teachers who usually wait for students’ requests.

Accountability refers on the question ‘PE for what?’ According to Clements (2013), this concept relates to the responsibility of PE teachers for students’ concrete

achievement/changes in all dimensions of their development (motor, physical, cognitive, affective, and social). It implies that PE contributes some 'added value' in the short-, mid-, and long-term. This concept is obviously linked to teaching effectiveness but in the current philosophy of PE, we would point out that each student should always leave the gym with the conviction that he/she learned something and the teacher is responsible for making him/her aware of such learning. We estimate that explaining to students and their parents the concrete objectives of the PE curriculum and demonstrating their achievement can be effective in order to emphasize the impact of the subject and enhance its status.

Applying the principles of physical literacy and accountability will contribute to the enactment of QPE. AIESEP (2014) defines QPE as:

at any level, as that which concerns the physical, affective, social and cognitive development of young people, exposing them to positive individual and collective learning experiences where they develop knowledge, skills and dispositions that allow them to be informed and responsible decision makers relative to engagement in physical activity and sport in their lives (p.3).

In order to achieve QPE, we often recommend the PAMIA principles (Table 2). They come from well-known theories: priority of task-oriented achievement goals and importance of individual fundamental needs evidenced by self-determination theory.

*Insert Table 2 approximately here*

One common element present in the three previous concepts deals with the potential transfer of what is learned in PE to the out-of-school context. We highlighted that PE teachers should endeavour to equip their students with knowledge and experiences that they can take with them when they leave the gym. Beyond the specific PE topics linked to physical aspects and wellness, PE teachers should also focus on general educational objectives that are defined in the school curriculum. Informal observations and talks with practitioners reveal that few PE teachers pay systematic attention to such aspects even though our subject could be a source of inspiration as a way to teach multidisciplinary topics. This points to an opportunity for PE to expand its impact on young people beyond the physical.

In fact, for many students, the usual activities of school are rarely considered meaningful, significant, or worthwhile (Newmann, King, & Carmichael, 2007). This can pose a particular challenge for PE teachers, even if they are themselves convinced that their work is important for young people. It seems necessary to implement a teaching approach that emphasizes the applicability of lessons to students' lives. Such a vision is linked to the authentic instruction described by Newmann and Wehlage (1993), in which connectedness to the world represents one central aspect that could also be called 'value beyond school' (Newmann, Marks, & Gamoran, 1996). Authenticity of the teaching task has been identified as one of the 10 conditions to motivate students (Viau, 2000). According to this author, a learning task should lead to a realization (a product resembling those found in everyday life), avoiding the risk that the student has the feeling of having to perform work that is of interest only to the teacher and is useful only for academic assessment.

Such an adaptation of PE would be a fascinating way to increase both the motivation of students and the perceived value of our discipline to society. Such an approach has been illustrated by Florence, Brunelle, and Carlier (1998), while Fernandez-Balboa (1997)



underlined its theoretical basis. Despite these invitations to introduce change to the PE world, it seems that the implementation of such changes in the gym are uncommon, in particular in the Wallonian context (Cloes Del Zotto, & Motter, 2009).

At a local level, within pre- and in-service PE preparation, we recently launched an initiative aiming to promote the concept of “ancrage societal”, which roughly translates as “societal transfer”. The notion of transfer is proposed as the fifth level within the Personal and Social Responsibility model (Hellison, 1995)<sup>5</sup>. Following our definition, it corresponds to anything the physical education course brings to students that they will be able to use in their daily lives, throughout their lives. This is a concrete contribution to the development of the individual and relates to all facets of his/her personality. Implementing societal transfer would ensure that what is learned in PE can be used out of school and that students (and society) can realize the concrete and diversified contribution of the subject.

At the same time, an important responsibility of PE teachers is to ensure that there is a ‘didactic transposition’ (Amade-Escot, 2006), underlining that student learning will happen only if an appropriate content is proposed. We consider also that PE teachers should highlight more regularly the applicability of what they teach to the young people because the latter rarely make the link themselves between what is taught and its potential use out of school. This is not a revolutionary proposal but its routine application would be a major change compared to the current situation where PE teachers often only react when a student asks spontaneously for further details.

It means also that traditional PE content, such as sports, should be considered a tool to reach general aims and not as a final objective (Pühse, Gerber, Mouton, & Cloes, 2010). Haerens, Kirk, Cardon, & De Bourdeaudhuij (2011) advocated the development of a Pedagogical Model for Health-Based Physical Education based on the interdependence and irreducibility of learning, teaching, subject matter and context; considering pupils valuing a physically active life as the central theme; orienting teachers’ beliefs about teaching and learning in PE toward self-actualization and social reconstruction; providing prominence of the affective domain in planning for learning.

The specific role of the PE teacher could be focused on the above-mentioned priority of the promotion of an active lifestyle: fight against inactivity (starting from students’ own experiences and contexts); life skills such as water safety, basic life support, automated external defibrillation; practical knowledge about warming up, cooling down, stretching methods, fitness training; implementation of ergonomic principles, respiratory control, relaxation techniques; selection of ones working intensity, heart beat monitoring, muscles and body functioning; improvement of motor skills such as balance, manipulative skills, work at height, running ...; and – of course – learning of sport activities! Cloes et al. (2009) identified other activities implemented to promote an active lifestyle (diversified activities, students’ notebook/portfolio, out-of-school sport activities, initiation into unusual sports ...). Other examples are available: student projects such as team pentathlon (Martel et al., 2011), collaboration with other teachers/partners, a PE book (Fahey, Insel, & Roth, 2007), use of technologies such as HRM, computers, video, iPad ... (Fiorentino & Castelli, 2016).

We believe that PE teachers should diversify their ‘messages’: relate to the students’ level of understanding of physiology, anatomy, biomechanics ...; produce written material that will be

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<sup>5</sup> For a nice illustration of this model, see Luttrel, S. & Chambers, F.C. (2013). Senior cycle physical education curriculum & instructional models. Dublin, Ireland: eprint.ie

useful for the students (and the school community); disseminate extracurricular ‘ready to use’ examples of PA that can be implemented at home; provide information about PA opportunities available in the community; reflect on society’s questions regarding PA and sport (doping, match fixing, integration ...). Moreover, without encroaching upon health education, PE teachers could introduce more systematically knowledge related to nutrition (hydration, sport dietetics ...), sleep, stress management (relaxation in daily-life situations as described by Hartmann, Gerber, Lang, & Pühse, 2015).

In parallel with their actions in the gym, PE teachers can also be the linchpin of projects designed to respect active school models: collaboration with classroom teachers, implementation of PA breaks in classroom, interdisciplinary activities ... Snyers et al. (2014) identified six dimensions in which PE teachers could propose actions: physical education, ‘sport’ at school, life environment (recesses, spaces), PA in the classroom, active transportation, and school policy. Implementing PA projects would involve PE teachers in school policy, regular analyses of the PA level of the school, marketing targeted at the other actors within the school environment (colleagues, parents ...), development of relationships with the community, and creation of networks with other PE teachers (communities of practice) in order to produce and disseminate good practices. Five management competences would be needed (Figure 1).

*Insert Figure 1 approximately here*

### **How to move in this direction**

During their preservice preparation, PE teachers acquire competences and accumulate knowledge in most of the domains of sport and exercise sciences identified by Haag (2004). They ‘just’ have to learn to use them. PE teachers’ educators have also to show them how to translate this large body of knowledge into adapted pedagogical content. This means placing an emphasis on societal transfer, implementation of action research during teaching field practices, reflective practice, and paper writing. Armour (2014) proposed the use of pedagogical cases. In such approach, scenarios imagined by sport science experts and their sport pedagogy colleagues can be used as the starting point for professional development.

Castelli, Centeio, and Nicksic (2013) listed some conditions needed in order to convince PE (student) teachers to become PA promoters: targeting the student population of the teachers, proposing collective and collaborative participation, offering enough duration and contact, making connections to personal experiences, ensuring active learning and engagement, and building a community of practice. A research-based example provided by Aelterman et al. (2013) described the experience of a one-day training designed to help in-service PE teachers to create a more needs-supportive class environment which promoted students’ optimal motivation.

Such preparation sessions should be available in pre- and in-service programmes but we suggest that mentors or cooperating teachers should also be educated accordingly in order to guarantee a consistency between all actors involved in PE teacher education.

### **Conclusions**

To conclude this paper, we would like to put forward a number of messages for those who are in charge of preparing PE teachers:

- PE teachers should become the real cornerstones of PA promotion at school;
- They have to be involved in PE as well as in the other dimensions of PA at school;
- They have to collaborate because they will not be able to change the world alone;
- Societal transfer can enlarge PE teachers' status and should become a main focus;
- Pre-service and in-service PETE has to be adapted to show direction and change thinking.

Researchers have a central role to play in the evolution of teaching practices:

- Studies focusing on long the term effects of PE are needed;
- The implementation of new teaching approaches in schools should be documented more extensively;
- There is a need for evidence-based teaching resources;
- Resistance to change of PE teachers should be better understood in order to develop effective strategies to turn resistant teachers into resilient teachers.

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**Table 1 – Potential effects of PE**

	Positive effects	Negative effects
Very short term (during the lesson)	Excitement, enjoyment, energy expenditure	Muscular soreness, frustration, boredom
Short term (next days)	Feeling of well-being, speak about the lesson with friends, family, interest in PA topics	Critical about the lesson to others, fatigue, DOMS
Middle term (next weeks, months)	Positive reactions towards PE, curiosity towards PA, involvement in PA	PE avoidance (medical excuses), sedentary lifestyle
Long term (until the end of schooling)	Sustain PA, speak positively about PE	Regular sedentary lifestyle, recall negative events
Very long term (during the whole life)	Remain physically active, encourage ones' children to be active	Resistance to PA promotion, denigrate PE

Table 2 – The PAMIA principles for a QPE intervention

<b>P</b>	Foster play/pleasure	<i>Give meaningfulness and increase pleasure</i>
<b>A</b>	Foster achievement and learning	<i>70-80% («delicious uncertainty») through individualizing (levels +1 et -1; individual goals)</i>
<b>M</b>	Foster movement	<i>Create activities and situations that lead students to move, to expend energy</i>
<b>I</b>	Foster interaction	<i>Increase contact with others and with the environment</i>
<b>A</b>	Foster autonomy	<i>Give students opportunities to make decisions</i>

Figure 1 – Five management competences in order to act as a physical activity promoter

