

Assessment for learning in Physical Education: Its emergent relationships with motor competence development and intrinsic motivation toward physical literacy

Evaluación formativa en Educación Física. Sus emergentes relaciones con el desarrollo de la competencia motriz y la motivación intrínseca hacia la alfabetización física

ANA LUÍSA QUITÉRIO

Faculdade de Motricidade Humana, Universidade de Lisboa, Portugal

Estrada da costa 1495-688, Cruz-Quebrada, Portugal

a.l.quiterio@gmail.com

ORCID: <http://orcid.org/0000-0002-6797-2336>

Recibido / Received: 9/01/18. Aceptado / Accepted: 2/07/18

Cómo citar / Citation: Quitério, A. L. (2018). Assessment for learning in Physical Education.

Its emergent relationships with motor competence development and intrinsic motivation toward physically literacy. *Ágora para la Educación Física y el Deporte*, 20(2-3), 213-234.

DOI: <https://doi.org/10.24197/aefd.2-3.2018.213-234>

Abstract. By pursuing the well-known idea that assessment for learning is paramount for enhance learning, this paper argues that assessment for learning in physical education (PE) is the best process and strategy to ensure an adequate motor competence development, physical literacy and foster intrinsic motivation in PE. There is the need to consider assessment for learning as a cornerstone for successful motor competence development, PE learning and physical literacy, recognized as an essential basis for the whole-child education. The current paper presents a set of arguments supporting motor competence development and its assessment within PE. Finally, it is briefly provided a background to improve the strategies that facilitate the promotion of PE autonomy-supportive environments in order to enhance motor competence, intrinsic motivation for PE learning, physical literacy, and physically active lifestyles.

Keywords: Physical Education; assessment; learning; motor competence; physical literacy; intrinsic motivation.

Resumen. Siguiendo la reconocida idea de que la evaluación formativa del aprendizaje desempeña un papel fundamental en la optimización del aprendizaje, en este artículo se defiende que su utilización en Educación Física (EF) constituye la mejor estrategia para asegurar un desarrollo adecuado de la competencia motora, la alfabetización física y una mayor motivación intrínseca en/hacia la EF. Es

necesario considerar la evaluación formativa del aprendizaje como una pieza clave para el desarrollo de la competencia motriz y para una alfabetización física exitosa, aspectos esenciales ambos en la educación integral del niño. Se presentan, pues, distintos argumentos que inciden en el desarrollo de la competencia motriz y su relación con la evaluación formativa del aprendizaje dentro de la EF. Finalmente, se hace una breve reseña que aborda la mejora de estrategias facilitadoras de la promoción de entornos de EF en los que prime el trabajo autónomo, con el fin de promover la competencia motriz, la motivación intrínseca para el aprendizaje, la alfabetización física y los estilos de vida activos.

Palabras clave. Educación Física; evaluación; aprendizaje; competencia motora; alfabetización física; motivación intrínseca.

INTRODUCTION

Nowadays, physical education (PE) is considered the most effective school subject to develop skills, attitudes, values and knowledge for a lifelong participation in physical activity (PA) (UNESCO, 2013). In the words of Sallis (2012) “Physical education, a school curricular subject over the past 100 years, has a number of goals, including providing students with the knowledge, skills, abilities, and confidence to be physically active throughout their lifetime”. In this paper, Sallis (2012) identified multiple goals of PE which have been discussed 20 years ago, and highlighted the role of PE for optimize health preparing youths for a lifetime of PA (Metzler, 2013).

The most appropriate PE curriculum, and generic pedagogical practices approaches for a healthy and physically active lifestyle have been a concern among physical educators (Amade-Escot & Amans-Passaga, 2006; Ennis, 2006; Evans, 2004; Hardman, 2008; Metzler, McKenzie, van der Mars, Barrett-Williams, & Ellis, 2013; Nyberg & Larsson, 2012; Penney & Jess, 2004; Penney, 2008, 2009; Thorburn & MacAllister, 2013; Trudeau & Shephard, 2008; Kirk, 2013). The PA opportunities and the type of activities across the curriculum are likely to generate enough enthusiasm for sustained engagement in physical activities (MacNamara, Collins, Bailey, Toms, Ford, & Pearce, 2011) and can contribute to the attainment of physical literacy in many ways (Castelli, 2014). Indeed, recently, PE has been assumed as an avenue for young students to become physically literate (European Commission, 2015; Whitehead, 2010), and physical literacy as an outcome of PE has been discussed in the literature (Castelli, 2014, 2015; Ennis, 2015; Lundvall, 2015). The notion that young people who become physically literate enjoy discovering diverse physical activities in PE, move with

competency in a wide variety of physical activities, and develop principles for lifelong activity, involving physical, social and intellectual domains is recognized (Whitehead, 2010; Mandigo, 2009, Roetert, 2015).

The educational value of PE is a cornerstone in the educational field and sports sciences. The idea that a student must be physically educated (Aspen Institute, 2015; Castelli, 2015; Lounsbury & McKenzie, 2015; Roetert, 2015; Whitehead 2001, MacAllister, 2013) through the academic journey is embodied in several important efforts concerning PE practices. A quality PE program is thus crucial for the development of the “whole child” and curricular outcomes shall be designed to foster the development of physically educated students, which enables them to demonstrate physical literacy across different domains of life (Mandigo, 2009).

Within PE, the pedagogical strategies of how physical literacy is developed involves primarily the acquisition of fundamental movement skills, and the processes by which pupils develop their motor competence in multiple-joint activities and achieve their levels of motor competence proficiency (Mandigo, 2009, Roetert, 2015). PE is the only formalized educational opportunity for all children to learn the different domains of physical activities (physical, cognitive, social and affective), and the particular role of motor competence as the basic movement vocabulary of physical literacy is recognized as an expectation for all PE learners (Aspen Institute, 2015; Castelli, 2014; Mandigo, 2009; Roetert, 2015).

In its 2015 Quality Physical Education, Guidelines for Policy Makers (UNESCO, 2015), the UNESCO stressed the importance of quality PE policy development as a core priority to a global citizenship education. Additionally, it was highlighted that PE constitutes the only pathway for all children to learn the skills, confidence and understanding for a lifelong participation in PA, emphasizing the importance of any PE curriculum throughout primary and secondary education (UNESCO, 2015).

Quality PE needs to consider a holistic understanding of PE, embracing emotional, social and interpersonal skills development toward a central focus of whole child education (Dyson, 2014). In this context, assessment has been slightly discussed, but sufficiently argued as a main feature of a quality PE (Dyson, 2014).

The traditional approaches, which are “often product oriented, focusing on components of fitness, or de-contextualised, as in the case of assessment of “isolated skills” (Penney, 2009, p.435) are weak and do not facilitate a comprehensive and integrated assessment practice for PE efficacy, through an integration of curriculum, pedagogy and assessment.

Furthermore, it is known that the individual competence development requires the promotion of PE autonomy-supportive environments and structures for autonomy, competence and relatedness needs of youth, which contribute to intrinsic motivation in PE and activity behaviours (Haerens, Kirk, Cardon, Bourdeaudhuij, & Vansteenkiste, 2010; Standage, Gillison, & Treasure, 2007).

From the above, we assume that physical literacy is a desired outcome of PE (Roetert, 2015), involving quality motor competence development and confidence in early years, for an enjoyable and enthusiastic participation in a wide range of physical activities, providing a powerful framework from which this participation occurs around different domains. The individual competence and confidence development requires the promotion of PE autonomy-supportive environments and the development of intrinsic motivation for PE and activity behaviours.

During childhood the development of motor competence is influenced by a combination of environmental factors, opportunities, experiences, encouragement and instruction (Gallahue, Ozmun, & Goodway, 2012; Iivonen & Sääkslahti 2014). It is thus vital to consider PE teaching strategies and assessment for improve learning as key factors that enable teachers to effectively increase motor competence development in children and youth. Assessment for learning must actively involve pupils by providing information about how well they are doing and guide their subsequent efforts toward learning (Assessment Reform Group [ARG], 2006). Moreover, students gain perception of their competence for PE through assessment and the consequent feedback to enhance learning and competence (Haerens et al., 2010).

As Evans (2004, p. 98) claimed, “PE cannot compensate for society”. The author stressed that schools must not substitute the critical analysis of their practices regarding the curriculum, the pedagogies and the assessment strategies and overall organization for a rhetoric discourse concerning the society’s ills.

The current paper aims to contribute to the discussion concerning quality PE, adding knowledge regarding assessment for learning as one of the critical pedagogical tools to enhance physical literacy, particularly across one of its most important domains: motor competence development. Furthermore, our goal is to provide a framework for PE teachers to consider assessment for learning in the curricular development and lesson plans in order to create PE environments within which autonomy, competence and

relatedness become vital to develop intrinsic motivation, embedded in PE learning and physical literacy.

1. REFUTING THE GAP BETWEEN INSTRUCTION AND ASSESSMENT-TOWARD AN ONGOING VISION OF ASSESSMENT FOR LEARNING

In 1993, Elisabeth Graue (1993) presented the historical movement of change in curriculum and instruction toward the implementation of constructivist approaches to instruction and assessment. Graue's (1993) conceptual framework illustrated the contrast between the old traditional paradigm, which separates instruction and assessment in both time and philosophy, and the new proposed integrated model based on a constructivist perspective of instruction and assessment (Graue, 1993). In an attempt to illustrate Graue's picture of the historical separation between instruction and assessment and the movement from the behaviouristic model toward a constructivist perspective, Shepard (2000), stating the slogan that "all students can learn" aimed to counter past beliefs that only elite students "could master challenging subject matter" (Shepard, 2000, p.7). In this context, the author argued the need to change assessment practices, not only its content and form to better represent important thinking and problem solving skills, but also the use of assessment as part of the learning process. The author stressed that "our aim should be to change our cultural practices so that students and teachers look at assessment as a source of insight and help instead of an occasion for meeting out rewards and punishments (Shepard, 2000, p.10).

The movement supporting constructivist forms of assessment has shift the focus of attention from measurement perspectives of assessment toward the relations between classroom assessment and learning. Supported by this conceptual movement the term *formative assessment* created in 1967 by Scriven has moved away from a restrictive view based on the level of achievement of behavioural goals at the end of a learning unit, focused on the results, to a more sophisticated view, based on constructivism-learning theories within witch feedback, regulation and self-assessment are important processes for enhance learning. The development of knowledge related to the processes involved in learning, namely the active role of the pupils in the regulation of learning, and the changes in curriculum theories occurred over the past 30 years have contributed to this vision of formative assessment, integrated in a *ongoing* process of teaching and learning (Allal, 2010).

The evidence that assessment affects, positively and negatively,

students' learning (Black & William, 1998) was the base for the development of another concept: *Assessment for Learning*. The Assessment Reform Group (ARG) formulated a definition of Assessment for Learning that has been widely adopted: "Assessment for Learning is the process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to go and how best to get there" (ARG, 2006, p.9).

Accordingly, successful learning occurs when learners have ownership of their learning; when they understand the goals they are aiming for; when they are motivated and have the skills to achieve success (ARG, 2006). The authors argued that Assessment for Learning must actively involve pupils by providing information about how well they are doing and guide their subsequent efforts toward learning. This information may come as feedback from the teacher, and through their direct involvement in assessing pupil's own work (ARG, 2006).

Traditionally, it is recognized that summative assessment is designed to determine students' academic achievement at the end of a learning unit, and deals with the need for accountability. Formative assessment was defined as all those activities undertaken by teachers, and/or by their students, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged (Black & William, 1998). From the above, it was suggested that, although assessment for learning is primarily concerned with the formative function of assessment, it can, however, encompass forms of summative assessments that are devised to exert a positive influence on the way students approach learning (Allal, 2010).

Assessment for learning has gained increasing international relevance especially because it is strongly associated with regulation, which involves four main processes: goal setting, monitoring progress toward the goal, interpretation of feedback derived from monitoring, and adjustment of goal-directed actions and/or of the definition of the goal itself (Allal, 2010). The models of self-regulation and the role of social or contextual aspects of regulation have several implications for the design of assessment (Allal, 2010).

From the above, we agree with the words of Hay when he stated that 'quality assessment' can only be understood and realized in relation to quality curriculum and pedagogy, and the clear and enacted alignment of these three message systems (Hay & Penney, 2009, p.391).

Within PE, teacher should firstly focus on the development of specific

pedagogical practices that increase and consolidate motor competency and motivate students in order to encourage them to further learn different sports and more complex skills (Goodway, Famelia, & Bakhtiar, 2014). Assessment for learning is the only process that provides information for PE teachers on the progress of their students' learning, so that appropriate adjustments in curriculum and pedagogy can be made to optimize future learning (Hay & Penney, 2009, p.392).

Subsequent sections of this paper therefore begin with a discussion of the importance of motor competence development and its assessment for PE, physical literacy and lifelong PA. Then it is discussed the role of assessment for learning and motor competence development in intrinsic motivation.

2. THE IMPORTANCE OF MOTOR COMPETENCE DEVELOPMENT AND ITS ASSESSMENT FOR PHYSICAL LITERACY

Although fundamental motor skills are considered the equivalent of the ABCs in the world of PA and sport, investigators have been focused on measuring PA in children, without addressing the development and level of motor competence and its role in promoting lifelong activity (Robinson, Stodden, Barnett, Lopes, Logan, Rodrigues, & D'Hondt, 2015; Stodden, Goodway, Langendorfer, Robertson, Rudisill, & Garcia, 2008). If children have limited competences to run, jump, catch a ball, balance, etc., they will have more difficulties in learning and performing complex motor skills (Gallahue et al., 2012).

The investigators of motor development often use a mountain as a metaphor for the acquisition of motor skills, where fundamental motor skills are the foundation for future PA and sports (Clark & Metcalfe, 2003; Gallahue et al., 2012; Seefeldt, 1982). Within this process, the notion that children need to break through a hypothetical "proficiency barrier" is accepted (Seefeldt, 1982). A sufficient level of fundamental movement skills developed through childhood would allow children to apply these skills later in sports and games.

An hour glass model of motor development has also been proposed to describe the process of motor development, within which a fundamental movement phase during primary school is considered as a period of time where children experiment and explore diverse fundamental movement skills, that form the building blocks for complex movement patterns involved in sports (Gallahue et al., 2012).

Stodden and colleagues (2008) purposed an engagement-disengagement physical activity model. The author focused on the value of actual motor competence, suggesting that if a child does not have actual motor competence, perceptions of competence will decrease (Stodden et al., 2008). Over the time, children with low motor competency will become less active and will perceive themselves as less competent. The author proposed that the development of motor skill competence is important in its own right, by either encouraging or discouraging (depending on the level of competence) individuals' PA levels (Stodden et al., 2008, p.292). Higher levels of motor competence will offer greater options to engage in different types of physical activities, sports and games (Stodden et al., 2008).

Opportunities to be physically active are critical for children's physical literacy, and thus will determine their decisions to remain physically active in later years (Goodway et al., 2014). Whitehead described physical literacy as the "motivation, confidence, physical competence, understanding and knowledge to maintain physical activity at an individually appropriate level, throughout life", arguing that the development of motor competence during the early years is paramount (Whitehead, 2010), and although this is an ambiguous concept, physical literacy has become an important focus of PE curricula (Mandigo et al., 2009). For Canadian PE teachers it was proposed a working definition of physical literacy, which postulates that:

Physically literate individuals consistently develop the motivation and ability to understand, communicate, apply, and analyze different forms of movement. They are able to demonstrate a variety of movements confidently, competently, creatively and strategically across a wide range of health-related physical activities. These skills enable individuals to make healthy, active choices throughout their life span that are both beneficial to and respectful of themselves, others, and their environment. (Mandigo et al., 2009, p.7).

A common misconception is that children "naturally" learn fundamental movement skills (Stodden et al., 2008). During childhood it is known that motor competence does not develop naturally, spontaneously, without proper opportunities (Gallahue et al., 2012). Nowadays, children have fewer opportunities to develop motor skills on their own (Graham, Holt, Parker, 2007) and the role of a quality PE is thus increasingly important in this domain.

The observation of motor competence development is of great importance. Indeed, closer observations of fundamental movement skills

among children with the same age often reveal differences in the way each child performs specific motor skills (Gallahue et al., 2012), and children's proficiency level (Graham et al., 2007).

It seems that PE teachers have limited ability to improve motor competence during PE and no uniform criteria for motor competence assessment within PE has been sufficiently discussed in the literature (McKenzie & Lounsbury, 2013; Herrmann, Gerlach, & Seelig, 2015). In order to determine if and to what extent a student demonstrates ability and competence performing a set of pre-established tasks, that is, during the *ongoing* process what was learned until that moment and how well it was learned, valid and accurate assessment instruments are thus required.

Herrmann and colleagues (2015) have recently developed a valid instrument for motor competence assessment in PE, in first grades (6-7 years), suitable for both scientific evaluation and internal evaluation within PE (Herrmann et al., 2015). This test battery - MOBAQ - is fast to be carried on, the test items are easy to evaluate, and the results are interpretable without a standard table and statistical distribution (Herrmann et al., 2015). The MOBAQ test items were constructed on the basis of normative pedagogical discussions, which responded to the question of which competencies a child should exhibit at a certain age to be able to participate in PE as well as in sport and exercise culture. MOBAQ aimed to have a closely relation to the curriculum, which ensures that the test can measure motor competence defined in the course curricula, enabling PE teachers to assess pupils' progression among different grades. On the basis of these results, teachers can adapt their teaching content to the current performance level of their pupils (Herrmann et al., 2015).

In an individual basis, this assessment will ensure adequate actual motor competence development, which will increase perceptions of competence and/or self-efficacy, essential for the engagement in diverse physical activities, for taking part in the culture of sport and exercise, and for the development of physically active lifestyles (Robinson et al., 2015; Stodden et al., 2008).

3. WHAT DOES MOTIVATION GOT TO DO WITH IT? ASSESSMENT, PERCEIVED COMPETENCE AND SELF-DETERMINED MOTIVATION FOR PE

“Why children are not motivated to move?”; “why girls do not like to perform a wide range of sports and physical activities?”; “why boys don't want to dance in PE classes?”; “why pupils demonstrate fear and insecurity

performing a set of gymnastic exercises in my PE classes and I am not able to motivate them to do it?"; "why students don't want to run in my PE classes?"... Why, why...?

The topic of motivation has been widely studied from different perspectives within sports, exercise and PE. Probably, the "Why" questions are one of the common issues of this field and enable us to understand the sources and consequences of motivation. For PE teachers, a typical concern is related with the strategies that foster motivation among each pupil to learn and be engaged in physical activities inside and outside the school. A goal of PE teachers is to increase pupil's motivation to physically participate in PE classes and to learn, and also to identify strategies to ensure that all learners enjoy movement and increase their likelihood for engaging in lifelong activity.

Considering assessment as a key for enhance learning since the youngest ages, because it enables adequate teaching (including feedback) according to a particular need of each student, this paper will now briefly explore how this practice can contribute to the intrinsic value of moving and engagement in autonomous physical activity behaviours.

From early to middle childhood, children increase their cognitive capacity and begin to more accurately compare themselves to their peers. As a result, perceived motor competence becomes more strongly correlated to actual motor competence as children grow (Barnett, 2015). It is thus expected that if a child perceive him/herself to be highly skilled, this perception might be strongly correlated with his/her actual motor skill competence (Robinson et al., 2015; Stodden et al., 2008).

Harter (1981) argued that children who experience success in movement are more likely to perceive competence, internal control, support from significant others, pleasure at mastery, and are more likely to seek out optimal challenges in the physical domain (Harter, 1981). On the other hand, children who repeatedly fail in performing specific behaviours, negative perceptions ensue, which leads to more extrinsic forms of motivation (Harter, 1981). Indeed, a child who often fails at motor tasks will be perceive less competent and less intrinsically motivated to repeat that task, which will have serious impact in the development of the child's PA behaviour.

Self-Determination Theory (SDT) (Deci & Ryan, 2000) is one of the most widely used theoretical frameworks to study motivation in PE (Ntoumanis, 2001). It provides a conceptual foundation for the study and understanding of PE students' motivation (Standage et al., 2007).

Briefly, SDT distinguishes three basic psychological needs that determine the direction and persistence of an individual behaviour, likely to result in satisfying these needs (Standage et al., 2007). The respective needs are: autonomy in performing an activity, which involves the need to self-organize behaviour and to achieve concordance between the activity and one's integrated sense of self (Deci & Ryan, 2000); competence, which means the need to being effective in *ongoing* activities that one engages in, and feelings of effectiveness when trying to master a task (Sun & Chen, 2010); and relatedness, which implies that individuals have a desire to feel connected to others when engaging in activities (Koka & Hagger, 2010; Sun & Chen, 2010). These needs must be supported in order to initiate or persist in positive behavior during PE.

According to SDT, there are different motivational regulations that influence individuals' participation in activities, each reflecting varying levels of self-determination (Ryan & Deci, 2002). At the most self-determined end of the continuum is intrinsic motivation, which means to do something because it is inherently interesting or enjoyable. Next, extrinsic motivation refers to do something because it leads to a separable outcome, that is, the engagement in an activity is due to reasons separated from the activity itself. Amotivation is the end of the continuum and means that an individual is amotivated to engaged in an activity, that is, he or she perceives no worthwhile reason for partaking in an activity (Deci & Ryan, 2000).

Within PE, increasing data supports that self-determined forms of motivation are positively associated with higher levels of reported positive affect (Ntoumanis, 2005; Standage, Duda, & Pensgaard, 2005), greater concentration (Ntoumanis, 2005; Standage et al., 2005), higher effort (Ferrer-Caja & Weiss, 2000; Ntoumanis, 2001), a preference for attempting challenging tasks (Standage et al., 2005), an intention to be physically active in leisure time (Hagger, Culverhouse, Chatzisarantis, & Biddle, 2003; Standage, Duda, & Ntoumanis, 2003), and optional PE activities (Ntoumanis, 2005). Intrinsic motivation for activity behaviours, inside and outside PE classes results in high-quality learning and creativity (Deci & Ryan, 2000).

Indeed, research on SDT application may help teachers to move the students from a motivation state, developed, regulated, and maintained by external issues (extrinsic motivation such as teacher's rules, evaluative judgements, evaluations and summative assessment, parents, etc), to a state where motivation is self-determined. This means that pupils' perceived motor competence, along with their actual motor competence improve

overall competence, autonomy and relatedness, and this relation may be a path to lead students from a state of “having to” to one of “wanting to” based on which a physically active lifestyle can be developed and acquired (Sun & Chen, 2010). Perceived competence, emotions, perceived autonomy, and feelings of relatedness are essential components of intrinsically motivated engagement in sports, PA and PE.

Despite the recognition of this central role of SDT in PE due to its potential to lead students to a self-motivated state toward autonomous PA behaviours (Haerens et al., 2010; Hagger et al., 2003; Koka & Hagger, 2010; Ntoumanis, 2001, 2005; Standage et al., 2003; Taylor, Ntoumanis, & Standage, 2008; Sun & Chen, 2010), its real application within PE contexts is still in its infancy (Sun & Chen, 2010).

One way for students to gain a perception of their competence for PE is through assessment and the consequent feedback to enhance learning and competence (Haerens et al., 2010). During PE it is thus crucial that PE teachers provide children with sufficient practice and appropriate feedback in order to improve their pupil’s motor competence (Gallahue et al., 2012). Additionally, appropriate feedback also contributes to a favourable learning environment (Koka & Hagger, 2010; Sierens et al., 2009), and a child who receives positive feedback about performance will be intrinsically motivated to take up more challenges (Rose et al., 1998).

Constructivist forms of assessment, such as self-assessment, when correctly implemented, can promote intrinsic motivation, metacognitive skills, self-efficacy, internally controlled effort, a mastery goal orientation and more meaningful learning (McMillan, 2008). In the words of McMillan:

We believe that student self-assessment, defined as a dynamic process in which students self-monitor, self-evaluate, and identify correctives to learn, is a critical skill that enhances student motivation and achievement. (2008, p.48)

Nonetheless, there is lack of data supporting the relationship between assessment and motivation in PE. We believe that this is in part due to a separation between assessment and the role of feedback. Indeed, as previously described in this article, assessment is still often viewed as a measurement technique developed to produce grades at the end of a learning unit.

4. WHAT DOES THIS PAPER ADD TO QUALITY PE?

We suggest that assessment for learning, viewed within a constructivist form of learning, plays a fundamental role in the development of motor competence and physical literacy, and can promote intrinsic motivation. This relationship is paramount for quality PE.

It is argued that quality PE requires pedagogical and developmental approaches, namely assessment for learning, and both motor competence development and intrinsic motivation. Pupils' physical literacy can thus be developed around motivation, confidence, and perceptions of competence connected with an enthusiastic participation in PA (Whitehead, 2001).

The current paper draws attention to the need to look at assessment as a fundamental instrument to influence student's development of motor competence and motivation in PE, and should be used to promote autonomy-supportive environments, competence and relatedness. Accordingly, assessment for learning gives an *ongoing* information regarding student's performance relative to a set of pre-established goals. When those goals, along with instruction provide a meaningful rationale, students may develop positive feelings, especially when there is a link with their personal goals (Taylor et al., 2008). These types of autonomy-supportive environments and motivational strategies are not always employed by teachers, with controlling environments (e.g., autonomy thwarting) and maladaptive teaching strategies (e.g., promoting a normative-referenced environment) being often used by teachers due to different kinds of school pressures (Taylor et al., 2008).

Underestimating the processes involved in the assessment for learning, the decisions regarding assessment, the development of motor competence, the learning environment, the type of feedback, and the communication between PE teachers and pupils may discourage less competent children and youth, and contribute to lack of motivation to participate in overall physical activities. The process toward physical literacy can thus be compromised.

The nature of feedback and teaching management (Cauley & McMillan, 2010) in order to improve student's learning, are linked to formative assessment. Formative assessment is thus far more than a set of observational techniques and sheets to record students learning in a given moment. Its relationship with motivation is one of the arguments for PE teachers to look at formative assessment as an opportunity to develop positive attitudes toward autonomous physical activity (Stiggins, 2005; Cauley & McMillan, 2010).

Empirical data follows the previous evidence that students' lack of competence and control largely contribute to amotivation (Deci & Ryan, 2000). Stiggins (2005) warned us about the student - the one who uses assessment information: "Students are deciding whether success is within or beyond reach, whether the learning is worth the required effort, and so whether to try or not" (2005, p.325). The author also highlighted the critical emotions that underpin the motivation process of keep trying to learn or give up with no hope of learning: anxiety, fear of failure, uncertainty, and unwillingness to take risks (Stiggins, 2005). These emotions take part of students' perceptions regarding personal, social, and physical capacities and are a result of assessment at the same time that are also reflected in assessment.

5. IMPLICATIONS

In response to the proliferation of frameworks for development of physical literacy within PE, it is highly recommended that quality PE embraces multiple pedagogical practices involving curricular development and assessment for learning, emphasizing adequate motor competence development and the promotion of intrinsic motivation. Successful assessment must ensure that every pupil and the whole class develop appropriately their motor competence, ensuring high levels of perceived competence and motivation for learning. The pedagogical environment must also promote autonomy, relatedness and confidence for PA performance. If PE teachers ensure adequate motor development, adopting inclusive and individual pedagogical strategies, designed differently according to each student's needs, after different assessment for learning approaches, children will have high levels of motor competence, will consider themselves as more competent (demonstrating high levels of perceived competence), which will allow them to autonomously experiment different physical activities, intrinsically motivated and not limited to extrinsic values. The benefits to embrace these PE features include the development and attainment of physical literacy among PE pupils.

Acknowledgments: The author wants to thank to Docent Arja Sääkslahti (PhD), University of Jyväskylä, Department of Sport Sciences, for her valuable comments to this manuscript.

REFERENCES

- Allal, L. (2010). Assessment and the Regulation of Learning. *International Encyclopedia of Education*, 3, 348-352. doi: 10.1016/B978-0-08-044894-7.00362-6
- Amade-Escot, C. & Amans-Passaga, C. (2006). Quality Physical Education: A Review from Situated Research (1995-2005); Part One: Curriculum and Content Issues. *International Journal of Physical Education*, 43, 162-172. Retrieved 13, February, 2017, from <https://hal-univ-tlse2.archives-ouvertes.fr/hal-00782633/document>
- Aspen Institute. (2015). *Physical literacy in the United States: A model, strategic plan and call to action*. Retrieved 13 December, 2017, from <https://www.aspeninstitute.org/publications/physical-literacy-model-strategic-plan-call-action/>
- Assessment Reform Group. (2006). *The role of teachers in the assessment of learning*. Retrieved from: <http://www.aiaa.org.uk/afl/assessment-reform-group/>. (15 February, 2017)
- Barnett, L. M., Ridgers, N. D., & Salmon, J. (2015). Associations between young children's perceived and actual ball skill competence and physical activity. *Journal of Science and Medicine in Sport*, 18(2), 167-171. doi: 10.1016/j.jsams.2014.03.001
- Black, P. & Wiliam, D. (1998). Assessment and classroom learning. *Assessment in Education: Principles, Policy and Practice*, 5(1), 7-74. doi: 10.1080/0969595980050102
- Castelli, D. M., Centeio, E. E., Beighle, A. E., Carson, R. L., & Nicksic, H. M. (2014). Physical literacy and comprehensive school physical activity programs. *Prevent. Medicine*, 66, 95-100. doi: 10.1016/j.yjpm.2014.06.007
- Castelli, D. M., Barcelona, J. M., & Bryant, L. (2015). Contextualizing physical literacy in the school environment: The challenges. *Journal of Sport and Health Science*, 4,(2) 156-163. Retrieved: 10 December 2017, from <https://www.sciencedirect.com/science/article/pii/S2095254615000332>. doi:10.1016/j.jshs.2015.04.003
- Clark, J. E., & Metcalfe, J. S. (2002). The mountain of motor development: A

- metaphor. In J. E. Clark and J. H. Humphrey (Eds.) *Motor development: Research and reviews*, Vol. 2, (pp. 163-190). Reston, VA.: NASPE Publications.
- Deci, E. L. & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry: An International Journal for the Advancement of Psychological Theory*, 11(4), 227-268. doi: 10.1207/S15327965PLI1104_01
- Dyson, B. (2014). Quality physical education: a commentary on effective physical education teaching. *Research Quarterly for Exercise and Sport*, 85(2), 144-152. doi: 10.1080/02701367.2014.904155
- Ennis, C. D. (2006). Curriculum: Forming and Reshaping the Vision of Physical Education in a High Need, Low Demand World of Schools. *Quest*, 58(1), 41-59. Retrieved: 10, December 2017 from <https://www.tandfonline.com/doi/abs/10.1080/00336297.2006.10491871>. doi: 10.1080/00336297.2006.10491871
- Ennis, C. D. (2015) Knowledge, transfer, and innovation in physical literacy curricula. *Journal of Sport and Health Science*. 4(2), 119-124. Retrieved: 10, February, 2017 <https://www.ncbi.nlm.nih.gov/pubmed/26558137>. doi: 10.1016/j.jshs.2015.03.001
- European Commission. (2015). *Expert Group on Health-enhancing physical activity. Recommendations to encourage physical education in schools, including motor skills in early childhood, and to create valuable interactions with the sport sector, local authorities and the private sector*. Retrieved from <http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetailDoc&id=19860&no=1>
- Evans, J. (2004). Making a difference? Education and 'ability' in physical education. *European Physical Education Review*, 10(1), 95-108. doi: 10.1177/1356336X04042158
- Ferrer-Caja, E. & Weiss, M. R. (2000). Predictors of intrinsic motivation among adolescent students in physical education. *Research Quarterly for Exercise and Sport*, 71(3), 267-279. doi: 10.1080/02701367.2000.10608907
- Gallahue, D. L., Ozmun, J. C., & Goodway, J. D. (2012). *Understanding Motor Development: Infants, children, adolescent and adults* (7th ed.). Boston: McGraw-Hill.

- Graham, G., Holt, S. A., & Parker, M. (2007). *Children Moving. A Reflective Approach to Teaching Physical Education*. New York: McGraw Hill.
- Graue, E. (1993). Integrating Theory and Practice through Instructional Assessment. *Educational Assessment*, 1(4), 283-309. doi: 10.1207/s15326977ea0104_1
- Goodway, J. D., Famelia, R., & Bakhtiar, S. (2014). Future Directions in PE and Sport: Developing Fundamental Motor Competence in the Early Years Is Paramount to Lifelong PA. *Asian Social Science*, 10(5), 44-54. Retrieved 27 August 2017 from: <http://ccsenet.org/journal/index.php/ass/article/view/34737>. doi: 10.5539/ass.v10n5p44
- Haerens, L., Kirk, D., Cardon, G., Bourdeaudhuij, I.D., & Vansteenkiste, M (2010). Motivational profiles for secondary school physical education and its relationship to the adoption of a physically active lifestyle among university students. *European Physical Education Review*, 16(2), 117-139. doi: 10.1177/1356336x10381304
- Hagger, M., Culverhouse, T., Chatzisarantis, N. L. D., & Biddle, S. J. H. (2003). The Processes by Which Perceived Autonomy Support in Physical Education Promotes Leisure-Time PA Intentions and Behavior: A Trans-Contextual Model. *Journal of Educational Psychology*, 95(4), 784-795.
- Hardman, K. (2008) Situation and sustainability of physical education in schools: a global perspective. *Journal of Sport Sciences*, 19(1), 1-22. Retrieved from: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.608.2737&rep=rep1&type=pdf> (27 August 2017).
- Harter, S. (1981). A new self-report scale of intrinsic versus extrinsic orientation in the classroom: Motivational and informational components. *Developmental Psychology*, 17(3), 300-312. doi: 10.1037/0012-1649.17.3.300
- Hay, P. & Penney, D. (2009). Proposing conditions for assessment efficacy in Physical Education. *European Physical Education Review*, 15(3), 389-405. doi: 10.1177/1356336x09364294
- Herrmann, C., Gerlach, E., & Seelig, H. (2015). Development and Validation of a Test Instrument for the Assessment of Basic Motor Competencies in Primary School. *Measurement in Physical Education and Exercise Science*, 19(2), 80-90. doi: 10.1080/1091367x.2014.998821

- Iivonen, S. & Sääkslahti, A.K. (2014) Preschool children's fundamental motor skills: a review of significant determinants. *Early Child Development and Care*, 184(7), 1107-1126. doi: 10.1080/03004430.2013.837897
- Kirk, D. (2013). Educational Value and Models-Based Practice in Physical Education. *Educational Philosophy and Theory*, 45(9), 973-986. doi: 10.1080/00131857.2013.785352
- Koka, A. & Hagger, M. S. (2010). Perceived teaching behaviors and self-determined motivation in physical education: a test of self-determination theory. *Research Quarterly for Exercise and Sport*, 81(1), 74-86. doi: 10.1080/02701367.2010.10599630
- Lounsbery, M. A.F., & McKenzie, T.L. (2015) Physically literate and physically educated: A rose by any other name? *Journal of Sport and Health Science*, 4(2), 139-144. Retrieved the 27, November, 2017, from: <https://www.sciencedirect.com/science/article/pii/S2095254615000290>. doi: 10.1016/j.jshs.2015.02.002
- Lundvall, S. (2015) Physical literacy in the field of physical education - A challenge and a possibility. *Journal of Sport and Health Science*, 4(2), 113-118. Retrieved 7 June 2017 from: <https://core.ac.uk/download/pdf/81942278.pdf>. doi: 10.1016/j.jshs.2015.02.001
- MacAllister, J. (2013). The “physically educated” person: Physical education in the philosophy of Reid, Peters, and Aristotle. *Educational Philosophy and Theory*, 45(9), 908-920. doi: 10.1080/00131857.2013.785353
- MacNamara, A., Collins, D., Bailey, R., Toms, M., Ford, P., & Pearce, G. (2011). Promoting lifelong PA and high level performance: realising an achievable aim for physical education. *Physical Education and Sport Pedagogy*, 16(3), 265-278. doi: 10.1080/17408989.2010.535200
- Mandigo, J., Francis, N., Lodewyk, K., & Lopez, R. (2009). *Position paper. Physical literacy for educators*. PHE Canada. Retrieved 7 October 2017 from: https://phecanada.ca/sites/default/files/content/docs/resources/pl_position_paper.pdf
- McKenzie, T. L., & Lounsbery, M. A. F. (2013). Physical education teacher effectiveness in a public health context. *Research Quarterly for Exercise and Sport*, 84(4), 419–430. doi: 10.1080/02701367.2013.844025

- McMillan, J. H., & Hearn, J. (2008). Student self-assessment: The key to stronger student motivation and higher achievement. *Educational Horizons*, 87(1), 40-49. Retrieved 7 May 2017 from: <https://files.eric.ed.gov/fulltext/EJ815370.pdf>
- Metzler, M., McKenzie, T. L., van der Mars, H., Barrett-Williams, S., & Ellis, R. (2013). Health Optimizing Physical Education (HOPE): A new curriculum model for school programs. Part 1: Establishing the need and describing the model. *Journal of Physical Education, Recreation and Dance*, 84(4), 41-47. doi: 10.1080/07303084.2013.773826
- Ntoumanis, N. (2001). A self-determination approach to the understanding of motivation in Physical Education. *British Journal of Educational Psychology*, 71(2), 225-242. Retrieved 28 November 2017 from: <https://onlinelibrary.wiley.com/doi/abs/10.1348/000709901158497>. doi: 10.1348/000709901158497
- Ntoumanis, N. (2005). A prospective study of participation in optional school physical education using a self determination theory framework. *Journal of Educational Psychology*, 97(3), 444-453. Retrieved 28 November 2017 from: http://selfdeterminationtheory.org/SDT/documents/2005_Ntoumanis_JEP.pdf
- Nyberg, G., & Larsson, H. (2012). Exploring 'what' to learn in physical education. *Physical Education and Sport Pedagogy*, 19(2), 123-135. doi: 10.1080/17408989.2012.726982
- Penney, D. (2008). Playing a political game and playing for position: Policy and curriculum development in health and physical education. *European Physical Education Review*, 14(1), 33-49. doi: 10.1177/1356336x07085708
- Penney, D. & Jess, M. (2004). Physical Education and Physically Active Lives: A Lifelong Approach to Curriculum Development. *Sport, Education and Society*, 9(2), 269-287. doi: 10.1080/1357332042000233985
- Penney, D., Brooker, R., Hay, P., & Gillespie, L. (2009). Curriculum, pedagogy and assessment: three message systems of schooling and dimensions of quality physical education. *Sport, Education and Society*, 14(4), 421-442. doi: 10.1080/13573320903217125
- Robinson, L. E., Stodden, D. F., Barnett, L. M., Lopes, V. P., Logan, S. W., Rodrigues, L. P., & D'Hondt, E. (2015). Motor Competence and its Effect

- on Positive Developmental Trajectories of Health. *Sports Medicine*, 45(9), 1273-1284. doi: 10.1007/s40279-015-0351-6
- Roetert, E. P., & Couturier MacDonald, L. (2015). Unpacking the physical literacy concept for K–12 P.E.: What should we expect the learner to master? *Journal of Sport and Health Science*, 4(2), 108-112. Retrieved 25 November 2017 from: <https://www.sciencedirect.com/science/article/pii/S2095254615000241>. doi: 10.1016/j.jshs.2015.03.002
- Rose, B., Larkin, D., & Berger. B. G. (1998). The Importance of Motor Coordination for Children's Motivational Orientations in Sport. *Adapted Physical Activity Quarterly*, 15(4), 316-327. doi: 10.1123/apaq.15.4.316
- Ryan, R. M. & Deci, E. L. (2000). Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions. *Contemporary Educational Psychology*, 25(1), 54-67. Retrieved from <https://mmrg.pbworks.com/f/Ryan,+Deci+00.pdf> (2, May, 2017). doi: 10.1006/ceps.1999.1020
- Sallis, J. F., McKenzie, T. L., Beets, M. W., Beighle, A., H., Erwin, H., & Lee, S. (2012). Physical education's role in public health: Steps forward and backward over 20 years and HOPE for the Future. *Research Quarterly for Exercise and Sport*, 83(2), 125–135. Retrieved 25 November 2017 from: <http://sparkpe.org/wp-content/uploads/Sallis-mckenzie-PE-and-PH-RQES-6.12.pdf>. doi: 10.1080/02701367.2012.10599842
- Seefeldt, V. (1980). *Developmental motor patterns: implications for elementary school physical education*. In C. Nadeau, W. Holliwell, K. Newell, & G. Roberts (Eds.), *Psychology of motor behavior and sport* (pp. 314-323). Champaign, IL: Human Kinetics.
- Shepard, L. A. (2000). The Role of Assessment in a Learning Culture. *Educational Researcher*, 29(7) 4-14. Retrieved 25 February 2017 from: <https://nepc.colorado.edu/sites/default/files/TheRoleofAssessmentinaLearningCulture.pdf>. doi: 10.3102/0013189x029007004
- Sierens, E., Vansteenkiste, M., Goossens, L., Soenens, B. and Dochy, F. (2009). The synergistic relationship of perceived autonomy support and structure in the prediction of self-regulated learning. *British Journal of Educational Psychology*, 79(1), 57-68. doi: 10.1348/000709908X304398
- Standage, M., Duda, J. L., & Ntoumanis, N. (2003). A model of contextual motivation in physical education: using constructs from self-determination and

- achievement goal theories to predic PA intentions. *Journal of Educational Psychology*, 95(1), 97-110.
- Standage, M., Duda, J., & Pensgaard, A. M. (2005). The effect of competitive outcome and taskinvolving, ego-involving, and cooperative structures on the psychological well-being of individuals engaged in a co-ordination task: A selfdetermination approach. *Motivation and Emotion*, 29(1), 41-68. doi: 10.1007/s11031-005-4415-z
- Standage, M., Gillison, F., & Treasure, D. C. (2007). Self-Detremination and Motivation in Physical Education. In M. S. Hagger and N. L. D. Chatzisarantis (Eds). *Intrinsic motivation and Self-Determination in Exercise and Sport*. (pp. 71-85). Champaign, IL.: Human Kinetics.
- Stodden, D. F., Goodway, J. D., Langendorfer, S. J., Roberton, M. A., Rudisill, M. E., Garcia, C. & Garcia, L. E. (2008). A Developmental Perspective on the Role of Motor Skill Competence in Physical Activity: An Emergent Relationship. *Quest*, 60(2), 290-306. Retrieved 25 February 2017 from: <https://www.tandfonline.com/doi/abs/10.1080/00336297.2008.10483582>. doi: 10.1080/00336297.2008.10483582
- Sun, H. &Chen, A. (2010). A Pedagogical Understanding of the Self-Determination Theory in Physical Education. *Quest*, 62(4), 364-384. Retrieved 25 May 2017 <https://www.tandfonline.com/doi/abs/10.1080/00336297.2010.10483655>. doi: 10.1080/00336297.2010.10483655
- Taylor, I. M., Ntoumanis, N., & Standage, M. (2008). A self-determination theory approach to understanding the antecedents of teachers' motivational strategies in physical education. *Journal of Sport & Exercise Psychology*, 30(1), 75-94.
- Thorburn, M. & MacAllister, J. (2013). Dewey, Interest, and Well-Being: Prospects for Improving the Educational Value of Physical Education. *Quest*, 65(4), 458-468. In: <https://www.tandfonline.com/doi/abs/10.1080/00336297.2013.805657> (retrieved 25 November 2017). doi: 10.1080/00336297.2013.805657
- Trudeau, F. & Shephard, R. J. (2008). Is there a long-term health legacy of required physical education? *Sports Medicine*, 38(4), 265-270. Retrieved 25 February 2017 from: <https://link.springer.com/article/10.2165/00007256-200838040-00001>. doi: 10.2165/00007256-200838040-00001
- UNESCO. (2013a). *Declaration of Berlin*. UNESCO's 5th World Conference of Sport Ministers (MINEPS V). Retrieved the 25 November 2017 from:

<http://unesdoc.unesco.org/images/0022/002211/221114e.pdf>

UNESCO. (2015). *Quality Physical Education. Guidelines for Policy-Makers*. <http://unesdoc.unesco.org/images/0023/002311/231101E.pdf> (Retrieved the 25 November 2017)

Whitehead, M. (2001). The Concept of Physical Literacy. *European Journal of Physical Education*, 6(2), 127-138. doi: 10.1080/1740898010060205

Whitehead, M. (2010). *Physical Literacy throughout the Lifecourse*. London: Routledge.