The Role of the Social Constructivism in Physical Education

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Abstract

The purpose of this study was to investigate the role/contribution that constructivist learning theories may offer to socio-cognitive development of students trough physical activity and sport. The Constructivism Theories adopt a holistic view of learning that cognition is not only an intra individual process but also a social process in which various cognizing agents/learners are inseparably intertwined. This theoretical framework offers implications for teachers and school that should help pupils to create the conditions to build knowledge moving from directive teacher-centered approaches to student-centered approaches. In this direction the body itself and social/motor interaction are seen to learn.

Keywords: social constructivism, learning active process, physical education

Introduction

Constructivist Theories of learning overcome the idea of the cartesian dualism that separates mind from body, learner from learned, and subject from object to espouse more ecological notions of learning. The mind–body split has obvious implications for physical education. Descartes' idea that "I think—therefore I am" separates the mind from, and elevates it above, the body.

In schools, this is manifested in a knowledge hierarchy (Goodson, 1993), or discourses of power (Corson, 1996), that devalue the practical knowledge that physical education is seen to develop. It also encourages teaching in physical education that focuses on the physical dimensions of learning yet neglects the intellectual.

A constructivist approach locates "the human mind and cognition in a larger framework comprising the socio cultural and historical milieu in which human individuals live" (Saito, 1996, p. 400). As social learners, students of different levels of ability explore the socio-cultural significance of human movement and construct knowledge by social interaction with their peers.

Pedagogical framework

The past decade has seen a marked growth in interest from researchers in Constructivist Theories of learning in physical education (Grehaigne, Richard, & Griffin, 2005; Kirk & Macdonald, 1998; Kirk & MacPhail, 2002; Light, 2006; Light & Fawns, 2003; Rink, 2001; Rink, French, & Tjeerdsma, 1996). All the approaches grouped under the banner of constructivism are aligned with a postmodern perspective that criticizes the Cartesian dualism.

They all have at their core a rejection of the dualism that separates mind from body, learner from learned, and subject from object to espouse more ecological notions of learning. The mind–body split has obvious implications for physical education. Descartes' idea that "I think—therefore I am" separates the mind from, and elevates it above, the body.

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It also encourages teaching in physical education that focuses on the physical dimensions of learning yet neglects the intellectual. Dewey (1997) speaks of "the evils of dualism" in education over 90 years ago.

In this direction, Physical Education teachers practice is typically based upon assumptions about learning that assume it to be an explicit linear and measurable process of internalizing knowledge. From this perspective, knowledge is conceived as a preexisting, "out there" entity and learning as being a process of internally representing this reality in the mind of the learner (Davis, Sumara, & Luce-Kapler, 2000; Varela, Thompson, & Rosch 1991).

This is evident in the teaching of predetermined "fundamental" motor skills seen as being a prerequisite for playing games and sport.

From a constructivist perspective, learning involves processes of interpretation in which there is no pre-given external reality. Merleau-Ponty (1962) suggests that the world is inseparable from us and we can know it only as we experience it. Rovegno (1999) also notes from her

reading of the educational learning theory and motor control literature, learning in a complex medium such as games is not linear.

The Constructivism adopts a holistic view of learning and cognition that extends beyond the mind as a separate entity to include the body and all its senses. From a constructivist perspective, cognition occurs not only in the mind, but is embodied. Learning is not reduced to simple components but is instead seen as being essentially complex. Nor is learning restricted to what is consciously apparent, but rather it is seen to include the immense range of implicit learning and knowledge that is enacted. In constructivism, knowledge includes the unformulated knowledge enacted in daily life that is captured in the suggestion that, "we know more than we know we know" (Davis et al., 2000, p. 66). A constructivist view of learning sees it as a process of modifying to and fitting into a constantly changing world. Understanding thus arises from the learner's engagement in the world through perception, motor action, and bodily senses. The biological body is seen as being more than a just a structure through which we learn.

The various forms of constructivism meet around three interrelated and broad issues (Perkins, 1999; Von Glasersfeld, 1984). This is helpful in developing a concept of what they share and seeing how they can be applied to physical education teaching.

1. *The knowledge is not passively accumulated, but rather, is the result of active cognizing by the individual.*

As active learners, Perkins (1999) argued that students are not passive recipients of knowledge but are involved in tasks that stimulate decision-making, critical thinking, and problem-solving. According to Piaget (1954, 1970) are a two key principles for teaching and learning:

A. Learning is an active process: direct experience, making errors, and looking for solutions are vital for the assimilation and accommodation of information. How information is presented is important. When information is introduced as an aid to problem solving, it functions as a tool rather than an isolated arbitrary fact.

B. Learning should be whole, authentic, and "real": Piaget helps us to understand that meaning is constructed as children interact in meaningful ways with the world around them such as operating a class "store" or "bank" or writing and editing a class newspaper.

2. *Cognition is not only an intraindividual process, but also a social process in which various cognizing agents/learners are inseparably intertwined.*

This means that personal knowledge and activity are enfolded in, and unfold from, social interaction, collective knowledge and activity (Davis & Sumara, 2003).

Constructivism rejects the idea that cognition takes place only as an intraindividual process to locate "the human mind and cognition in a larger framework comprising the sociocultural and historical milieux in which human individuals live" (Saito, 1996, p. 400). As social learners, students construct knowledge through social interaction with their peers. The teacher, rather than a dispenser of knowledge, is a guide (coach), facilitator, and co-explorer who encourages learners to question, challenge, and formulate their own ideas, opinions, and conclusions. Vygotsky (1978,p. 90) stated that "an essential feature of learning is the zone of proximal development" that is, the zone between what a learner can achieve independently and what s/he may achieve interacting in his environment and with his peers.

3. *Students as creative learners*

They are guided to discover knowledge themselves and to create their own understanding of the subject matter. Individuals draw on prior knowledge and experiences to construct knowledge. Rooted in the Constructionist Theory of Learning (Hay & Barab, 2001), constructionist learning environments, like the ones that can be created through self-made materials, allow students to cooperatively reflect on the sharable artefacts they build. Developing on this idea, students could also be challenged to invent different uses and/or games according to available resources. This can encourage students to construct personal meanings by understanding their experiences in physical education in relation to their lives, backgrounds, and personal values.

Environment, Experience and Learning

Authentic learning, results when students connect classroom activities to their lived experiences and to their lives. Dewey (1997) was perhaps the first modern educator to recognize education as a social enterprise. In Dewey's philosophy, children's educational development cannot take place through direct teaching of beliefs, emotions, and knowledge, but instead occurs through the intermediary of community where collective experiences or activities are shared. Conjoint activities, or activities that relate to the social and the community, are essential for the growth of the young. Dewey argued that the educational environment should include conditions and situations that have the characteristics of real life.

According to Vygotsky and other social constructivists (Hollins, 1996; Prawat, 1996a/b), the locus of knowledge does not reside in the individual, but rather is a social construct produced through the interconnectedness between the social context and the individual.

Kirk and Macdonald (1998) suggested that learning occurs with any collectivity in which "a community of practice exists and ... its activities ... have a significant influence on what is learned and how learning takes place" (p. 380).

In fact reflecting, how does an infant learn language? Not by any direct instruction from its parents, but by engagement and participation in a particular socio-cultural environment, in Dewey's (1997) terms, he or she "absorbs" language.

How to do children in Australian beach communities learn to surf? Typically, very few of them receive any formal lessons.

Learning how to surf involves a complex interplay of motor skills, anticipation, responses, and a remarkable interaction with a literally dynamic and fluid environment. It does not involve the learning of a set of discrete techniques. Instead, learning involves engagement in practice that simultaneously involves the mind and the body and its sensations operating in, and in relation to, a dynamic and unpredictable physical environment.

They learn through complex processes of drawing on what they already know to experiment, reflect on, and in, action and engage their bodies and minds in adaptation and modification. The idea of learning basic skills or techniques before entering the ocean to surf is as untenable as the idea of having to learn to swim before being able to go in the pool. Learning is not a simple linear and easily quantifiable process. It emerges from "our sensory perceptual and cognitive (whole person) interactions *with* self and *between* self and other, self and the world, and self and contexts" (Gunn, 2001, p. 96). Learning is part of social life. As Begg (2001)

suggests, the process of *being* is fundamentally a process of *learning*. The ways in which learning is deeply situated in particular cultural, social, and physical environment.

Implications in Physical Education for students and teachers

In light of the framework outlined, the role of a community, be that a school or a group of teachers, is to help learners construct knowledge. Dewey posited that learning was idea-based, and that the generation of new ideas was a product of a group anticipating knowledge together (1997). Dewey inspired educational Progressivism suggests active learning while promoting community and cooperation. Kirk and Macdonald (1998,p. 382) have argued that "school physical education may regularly and consistently fail to provide young people with the opportunity for legitimate peripheral participation in a community of practice of exercise, and physical recreation".

Mosston and Ashworth (1986) depart from the idea that there is a range of teaching approaches, drawing on notion of a spectrum moving from directive teacher-centered approaches to student-centered approaches, in particular from "command style" to "problem-solving style."

Some research suggests that this is an effective approach for encouraging elementary pre service teachers to adopt inquiry-based, student-centered approaches to physical education (Light & Georgakis, 2005). Rink (2001) suggests that, rather than just knowing what works in teaching, teachers need to know why it works. In the same way, learners need to know not only what works, but also, perhaps even more importantly, why it works. Dewey (1997) noted that student learning is most effective when they recognize relevance and immediate applicability in their learning. "a monotonously uniform exercise may by practice give great skill in one special act, but this skill is limited to that act" (Dewey,1997 p.66). The implications of this for the teaching of physical education are clear. The teacher encourages students to reflect upon experience, interpret it, and build upon it drawing on their existing knowledge and experience. Through this empowerment of the learner in the learning process, he or she is able to find meaning in the specific movements of swimming, running, throwing, and a range of other activities.

The reference is to the comprehensive and embodied understandings that complex learning theories promote to include a kinesthetic understanding through the developing a "feel" for the water in swimming and understanding at a conscious level through immediate reflection upon action driven by teacher/coach questioning. In this direction the scientific research has identified some indicators:

The positive attitude of the teacher

Encourage students to arrive at answers in different ways; invite students to describe how they generated solutions to the learning problems. Solutions to the problem are identified through a questioning process (Frame questions in a manner whereby students can be successful at their own level) and these solutions then become the focus of a situated practice. As Socrates would say, "to understand right action is to engage in it" (Butler, p.46).

Students work in small cooperative groups

In Cooperative Learning students have a high rate of engagement. Students take responsibility for organization, management and take on leadership roles. Teachers delegate responsibility so that more students can talk and work together on multiple learning tasks. Therefore,

students have positions of responsibility. Grouping is usually heterogeneous(for ability, gender, geographical origin) in small groups (4 students) with peer collaboration and peer tutoring. The developers of Cooperative learning recommend that prior to implementing cooperative learning, teachers use team-building or social skill-building activities that are designed to develop the appropriate behaviors for cooperation as well as some specific skills for working successfully with others (Dyson & Rubin, 2003; Dyson, 2002; Antil et al., 1998).

Use modified games and rules

Games and rules are *modified* to suit the developmental level of the players (Lieberman & Houston-Wilson, 2009) Modifying the games allows students to practice their skills and decision-making in "real" game-like situations. Having the teacher emphasize authentic realization of the movements and the fun puts students in an active learning situation.

Structuring space and time of activities

Organize daily routines using schedules and calendars, 5-7 min free play between students, 2-3 min introductory activity, 30 minutes fitness/games development and 10 min closing activity talking with students about problems, successes, emotions, new knowledge emerged during activities (de Anna, 2009). Students are more likely to participate in physical activity if they are positively disposed to it, if they receive social influence to do so, and if they believe they will be successful (Armitage, 2005)

Games invention and self-made materials

Rooted in the Constructionist Theory of Learning (Hay & Barab, 2001), constructionist learning environments, like the ones that can be created through self-made materials, allow students to cooperatively reflect on the sharable artefacts they build. Developing on this idea, students could also be challenged to invent different uses and/or games according to available resources. This can encourage students to construct personal meanings by understanding their experiences in physical education in relation to their lives, backgrounds, and personal values.

Assessment and self-assessment of students

Assessment is an ongoing part of instruction, and students are provided with continuous feedback for reflecting on problem solving during physical activity experiences. Assessment should be "authentic": students assessment tests are chosen for their analogy with real tasks (Comoglio, 2002; Wiggins, 1993)

Conclusion

Constructivism theories of learning hold considerable promise for the ongoing development of physical education as a valuable and integral part of the school learning experience.

In this direction they recognize and account for the role of the body, its movements, and its senses in learning helping students to develop positive attitudes towards themselves and physical activity. This requires professional learning to move beyond the "Cartesian dualism" approach, to one that views learning as a complex system considering the interaction of a range of contextual factors within the educational environment. The reflections of these elements have guided the proposition of indicators that can help teachers and researchers to implement, evaluate and monitor any projects relating to physical activities and sports for all.

We believe that teaching activity based on a constructivist view of learning can bring forth more engaged students with deeper awareness of real and more prepared to face everyday decision-making situations within the Project for Life.

Conflict of Interest

The author has not declared any conflicts of interest.

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