Analysis of the representation of the socio-constructivist approach in Wallonian physical education teachers

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Statement of the problem

Increasingly, it seems, in many regions of the world, a new teaching method emerges which tends to consign the approach known as traditional to the history books (Azzarito & Ennis, 2003; Silverman & Ennis, 2003). Indeed, rather than the didactic behaviour of the teacher and the analytical teaching of technical skills, emerging practice confers centre stage on the pupils who become the true players in the construction of their learning, justifying the name of the theory which is applied: socio-constructivism.

This means that the emphasis is set on the learners rather than on the instructor. The students become the engine of their own learning which builds through their experimentation. Indeed, following their interactions with their environment, the learners implement their ideas and invent their own solutions. They thus build their own concepts about the problems with which they are confronted (Gréhaigne, Richard & Griffin, 2005).

In the field of physical education, the proponents of this type of teaching encourage the development of a range of skills linked to solving a common problem. The setting in a real learning situation, the co-operation involved in the learning and the dialogue between the various actors (student-student, student-teachers) are thus key elements privileged by the constructivists.

If a socio-constructivist approach seems to be preferred at the present time, it is far from being in conflict with other teaching methods which can be used jointly in the teaching process, depending on the stages of development and the type of skills that are involved. Thus, as Durand (1997, p.176) underlined, "there does not exist only one method of teaching". Indeed, the strategies used by teachers frequently combine several approaches. It is thus more appropriate to speak about tendencies when trying to characterize the processes implemented in the field by teachers (Brau-Antony, 2001).

Particularly in team sports teaching, the socio-constructivist approach leads to lessons which are considerably different from the very structured, traditional approach where the improvement of specific skills dominates the major part of sessions (Gréhaigne, 1992; Kirk & MacPhail, 2002). In the socio-constructivist approach, the emphasis is placed more on conscious tactics and procedures of decision making. This is prioritised over a focus on sport skills and their execution (Lenzen, 2004).

When thinking about the apparent opposition existing between "tactical" and "technical" teaching methods, some authors recommend a combined use of several strategies. As mentioned by Vincent-Morin and Lafont (2005), the variability of the teaching content is such that it only one good way of teaching does not exist. Thus, if contemporary approaches recommend tactical teaching, one should not neglect more instructive methods, particularly when the pupils require this form of assistance. A diverse range of teaching approaches can thus be a very beneficial solution for learning (Harrison et al., 1999) and for teachers (Brooker, Braiuka, Bransgrove & Kirk, 2000). Following this assumption, it would be advantageous that all physical education teachers should be able to adopt the various approaches with as much effectiveness as possible.

This point of view is also shared by a series of authors according to whom the development of skills and the tactical approach are basically interdependent (Gréhaigne, Godbout & Bouthier, 1999; Holt, Strean & Bengoechea, 2002; Kirk & MacPhail, 2002). They consider that the tactical choices operated by the learners are closely related to the technical skills which they are able to carry out. Thus, even if these authors recommend a constructivist approach centered on the pupil, they do not exclude therefore any forms of direct teaching. Rink, French and Graham (1996) affirmed that a minimal control of the object of the game is essential before considering a tactical approach even if playing can constitute a means of acquiring some technical and tactical skills.

PE teacher educators increasingly advocate this teaching concept to their students. Interventions are also proposed to increase awareness amongst in-service teachers. Nevertheless, through our regular contacts with PE teachers, it appeared that most of them seemed to lack even basic knowledge about socio-constructivist educational theory. This observation was supported in recent data coming from a study focused on how basketball is taught in Wallonian secondary school level. Frédéric, Gribomont and Cloes (2009) showed that strategies used by PE teachers can be considered as "traditional", meaning that educators present a "technical" approach.

We could hypothesise that many teachers are not yet aware of the existence of different pedagogies and/or how to modify their usual way of teaching to progressively adopt the principles of more modern approaches such as socio-constructivism.

Goals of the study

This study is a part of one research project aiming to better identity the place of the socio-constructivist approach in PE teaching in Wallonia. To this end, the first steps consist of determining if PE teachers have been introduced to the concept of socio-constructivism and, if this is the case, to learn more about their own definition of this approach.

In addition, we were also interested in testing an instrument intended to investigate to what extent PE teachers use (or not) social-constructivist strategies, even if they are not fully aware of what socio-constructivism represents.

A secondary objective of the study was to test the use of an online questionnaire in collecting data on PE teachers in Wallonia where a strong paper-pencil tradition still exists.

Methods

We decided to use an online questionnaire because of its potential strengths (costs, ease, speed, modernity…). Even if this way of collecting data is far from common in Wallonia, it was thought that it would be more effective than the traditional paper-pencil questionnaire. We chose to work with a professional annual account on Survey Monkey Website (www.surveymonkey.com).

After "demographic" questions (graduation, teaching network, teaching experiences, in-service experiences), we asked the subjects if they had an idea about what socio-constructivism is ("Not at all", "Vaguely", "Broadly", "Completely"). In the event of one of the three last answers, they were required to propose their own definition of a socio-constructivist teaching process.

Moreover, 24 Likert scales of six levels were proposed. Items were paired according to 12 dimensions and aspects of socio-constructivism (Jonnaert & Vander Borght, 2006; Parmentier & Paquay, 2001): contructivism (n = 3); social aspects (n = 3), interactive aspects (n = 3), assessment (n = 1), transfer (n = 1), synthesis (n = 1). For each dimension/aspect, two items were developed: one describing a situation in which the teacher adopts a traditional approach and another one in which the situation corresponds to what should be identified in a socio-constructivist approach. The list was submitted to five experts (teacher- educators involved in research on Education). They were asked to analyse the project, to propose improvements and validate the instrument. According to their answers and suggestions, we adopted the final version presented at Table 1. The subject has to determine if he/she adopt very rarely (1) to almost all the time (6) each of the 24 teaching strategies.

A last question focused on the opinion on the subject about the online questionnaire.

The questionnaire was uploaded on the Website and we sent the URL by email using our PE teachers' mailing list asking these contacts to forward the message to their colleagues. This method of data collecting corresponds to the snowball sampling technique (Giannellonni & Vernette, 2001). It is recommended when the population of study is not clearly defined as was the case in this project.

Table 1 – Self perception of usual teaching approaches by PE teachers

Dimensions/aspects	Strategy	Items
Constructivism/ Guide of learning	SC	**14.** You work so that the students build their own learning
	T	**7.** You directly guide the learning of the students
Constructivism/ Availability of information	SC	**22.** You develop situations which allow the students to learn on the basis of their own knowledge
	T	**4.** You develop situations in which you give to the students the information allowing them to learn
Constructivism/ Justification of task	SC	**2.** You let the students discover the usefulness of the exercises
	T	**23.** You explain to the students the usefulness of the exercises
Social aspect/ Interaction	SC	**9.** You involve the students in situations where they must interact with others to improve
	T	**8.** You involve the students in situations where they must work alone to improve
Social aspect/ Feedback	SC	**18.** The students receive feedback from their classmates
	T	**13.** You provide the feedback to the students
Social aspect/ Learning tasks choice	SC	**1.** You plan moments when the pupils decide how to learn a task
	T	**21.** You create learning tasks justifying your choice on the basis of the course's objectives
Interactive aspect/ Students' involvement	SC	**11.** You create problem situations which the students must solve
	T	**20.** You create tasks in which the students know exactly what they must do
Interactive aspect/ Origin of information	SC	**12.** The students discover by themselves what they must learn
	T	**6.** You explain to the students what they must do to improve
Interactive aspect/ Origin of objectives	SC	**5.** What the students must learn is determined by what they are already able to do
	T	**24.** What the students must learn is determined by the objectives set for the lesson and/or the unit
Applications	SC	**16.** You propose to the students situations in which they must discover how they can apply in their everyday life what you are teaching them
	T	**15.** You explain to the students how they can apply in their everyday life what you are teaching them
Evaluation	SC	**3.** Students are evaluated by their classmates
	T	**19.** You personally assess the students
Synthesis	SC	**10.** You create opportunities when the pupils share their experiences to synthesize their learning
	T	**17.** You put forward syntheses of what the pupils learned during the lesson

SC: socio-constructivist strategy; T: traditional strategy.

The URL was live for four weeks (January 5 to February 5, 2009) and 123 answers were gathered. Never before have so many responses arrived so quickly in a "free" survey (teachers participated voluntarily).

Responses were automatically recorded by the Website and we analysed them from the Excel file that was downloaded at the end of the data collection. Responses to open questions (i.e. definition of one socio-constructivist approach) were subjected to a content analysis in order to develop an inductive system of categories (inter observer agreement = 91.2%).

The test of comparison of two proportions was used with a limit of .05 for significance (StatSoft, 2006).

Results and discussion

In this section, we will present first the findings focusing on what PE teachers know about socio-constructivism. Secondly, we will analyse the teaching strategies that PE teachers considered using. Finally, we will present a short overview about the opinion of the subjects about the online questionnaire.

Knowledge about socio-constructivism

PE teachers seemed to lack of an effective updating of their pedagogical knowledge as 41.1% of the subjects did not have an idea about what "socio-constructivism" is; 33.1% mentioned having a vague idea; 23.1% had a global view while only 2.5% considered knowing exactly what it means. This contradicts the competences recommended by the Council of the European Union (1997) as well as to those that are applied in Wallonia (Ministère de la Communauté française, 2001).

Finally, 56.5% of the teachers proposed one definition. Analysis of the proposals provided 100 items classified into seven categories (Figure 1). Interactive learning represented almost half of the items. This underlines the central place that PE teachers give to collaboration between students. Responses could also correspond more to teachers' deductive reflection (semantic interpretation) than to a real knowledge about pedagogical concepts. Table 2 lists the categories and their descriptions.

Other categories are linked to the dimensions described by Jonnaert & Vander Borght (2006): social aspects + constructivism + interactive aspects. Socio-constructivism is a learning process where people build their knowledge with the help of interactions with others as well as with their milieu.
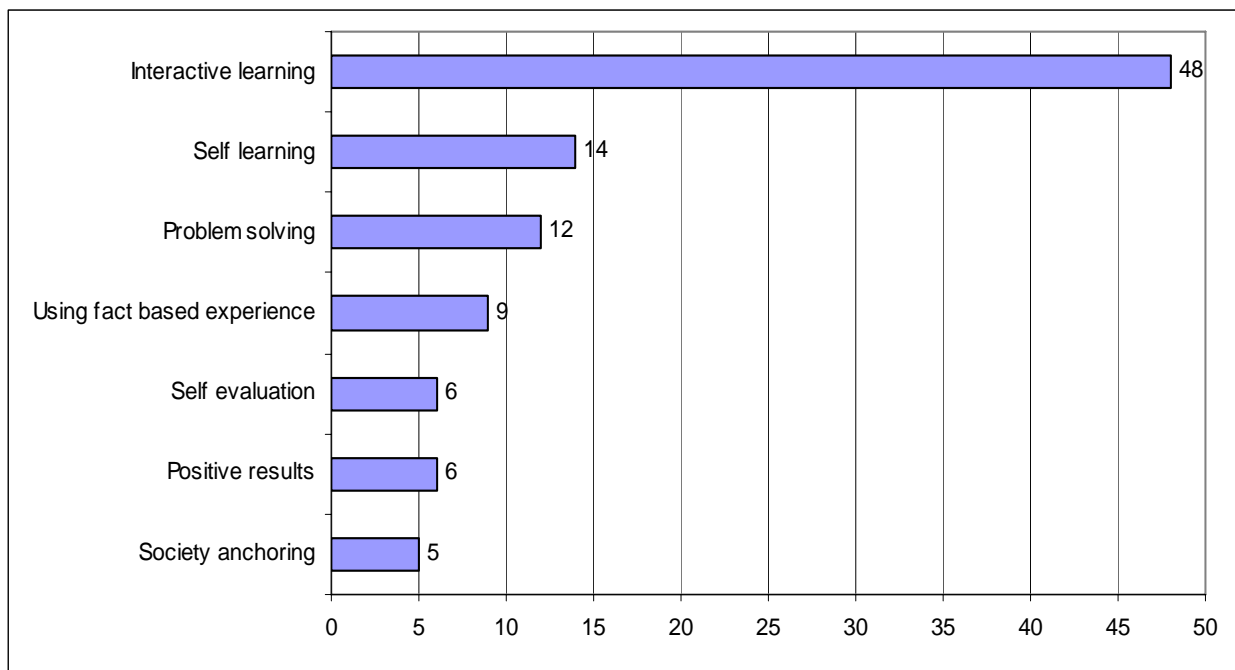
Figure 1 – Profile of the elements provided in the definitions of socio-constructivism proposed by PE teachers

Table 2 – Definition of socio-constructivist processes in PE teaching

Categories	Definitions	Examples
Interactive learning	Teacher underlines the existence of one group learning process, based on collaboration and confidence	To learn to act with others, to build together, interactions, community, group reflection, to work within a confidence climate …
Self learning	Teacher points out the student central place in learning	Learning by one-self, student builds his/her new knowledge, self learning, to discover by one self, student as actor of his/her own learning …
Problem solving	Teacher mentions idea that students are involved in problem solving	Students have to find answers to improve, looking for solutions to proposed situations, looking for objectives and pedagogical means …
Using fact based experience	Teacher emphasizes the importance of experiential learning	Using one's resources, learning through lived experiences, starting from one's experiences, using extra school experiences …
Self evaluation	Physical educator points out students' opportunity to be involved in assessment process	Self evaluation, students are involved in assessment process, they are correcting their classmates, …
Positive results	Teacher is focused on the positive impact of the approach	Good understanding within the class, higher participation of the students, reducing the differences between students, involvement of all students, respect of others, of the equipment as well as of the teacher
Society anchoring	Teacher is referring to the relationship between the course and the extra school reality	To be able to manage on one's own in real life, to prepare oneself for future life, to prepare for citizenship …

The findings underline the weakness of the teachers' education process in alerting them to "new" concepts. This underlines the need for an effective in-service programme encouraging PE teachers to open their mind to theory as well as to applied knowledge. Méard (2004) showed that Wallonian PE teachers were mainly interested in acquiring practical knowledge and in receiving ready-to-use content while their French colleagues were more responsive to discourses focusing on methods or programmes. This author pointed out that Wallonian in-service educators had to negotiate with the participants who tend to reject theoretical developments. This attitude can be related to the cultural characteristics of the PE teaching community in Wallonia where consensus and pragmatism result in practitioners being less interested in ideological and theoretical debates occurring in other countries or regions (Carlier, 2003).

No correlation was identified between the number of items proposed by the subjects and their teaching experience or amount of in-service training. This could be linked to a lack of interest in this theme in teachers' instructors as well as to teachers' resistance to change. At least one in-service session was organized on how to implement socio-constructivist teaching strategies in PE but the number of participants was about 50 (Frédéric & Cloes, 2007). During this session, most of the participants said that this new teaching approach could not be used in their classes. Developing new teaching strategies which appear challenging requires significant investment which few are prepared to make (Gréhaigne, in press; Perrenoud, 2001). This irrefutable fact often explains the resistance of teachers to developing and implementing socio-constructivist approaches by asserting waste of time, deficit of pupils' time on task and, sometimes, lack of competences and knowledge in the subject matter.

Usual teaching strategies

The analysis of the "usual" teaching strategies did not allow the identification of clear trends in PE teachers. However, the latter seemed to be more "traditional" than involved in "new" approaches (Figure 2): socio-constructivist items were "assessed" at a mean rate of 3.31/6 while traditional items scored at 4.22/6. This finding confirms data provided by Frédéric et al. (2009) based on questionnaire as well as on observation.

Only two items out of 12 were better assessed in the socio-constructivist version than in the traditional one (interaction in the social aspects and synthesis). This would underline the central role that teachers consider that they have to play.

This finding supports the facts that PE teachers should be more carefully informed of and understand the impact of modern teaching methods. Examples should be available in order to show to teachers that alternative approaches to "traditional" teaching may be advantageous. This might serve to limit the usual resistance to change of teachers (Perrenoud, 2001). Promoting approaches developed in team sport teaching could be a starting point: "Teaching Games for Understanding" (TGfU) (Kirk & MacPhail, 2002), "Sport Education", "Tactical Games" or "Co-operative Learning" (Dyson, Griffin & Hastie, 2004).

Opinions about the online questionnaire

Ninety four answers have been collected: 78.7% were positive (speed, ease of use, low cost), 16% neutral and 5.3% negative (difficulty to reread, lack of space to answer).

From the subjects' point of view, these findings underline that the use of online questionnaires present more advantages than inconveniences. When one considers that researchers can develop some interactivity with the responders, the tool is really useful. However, it means that subjects need to master some ICT (Information and Communication Technologies) competences. According to the current standards that are recommended (UNESCO, 2008), teachers should be increasingly able to use this tool.
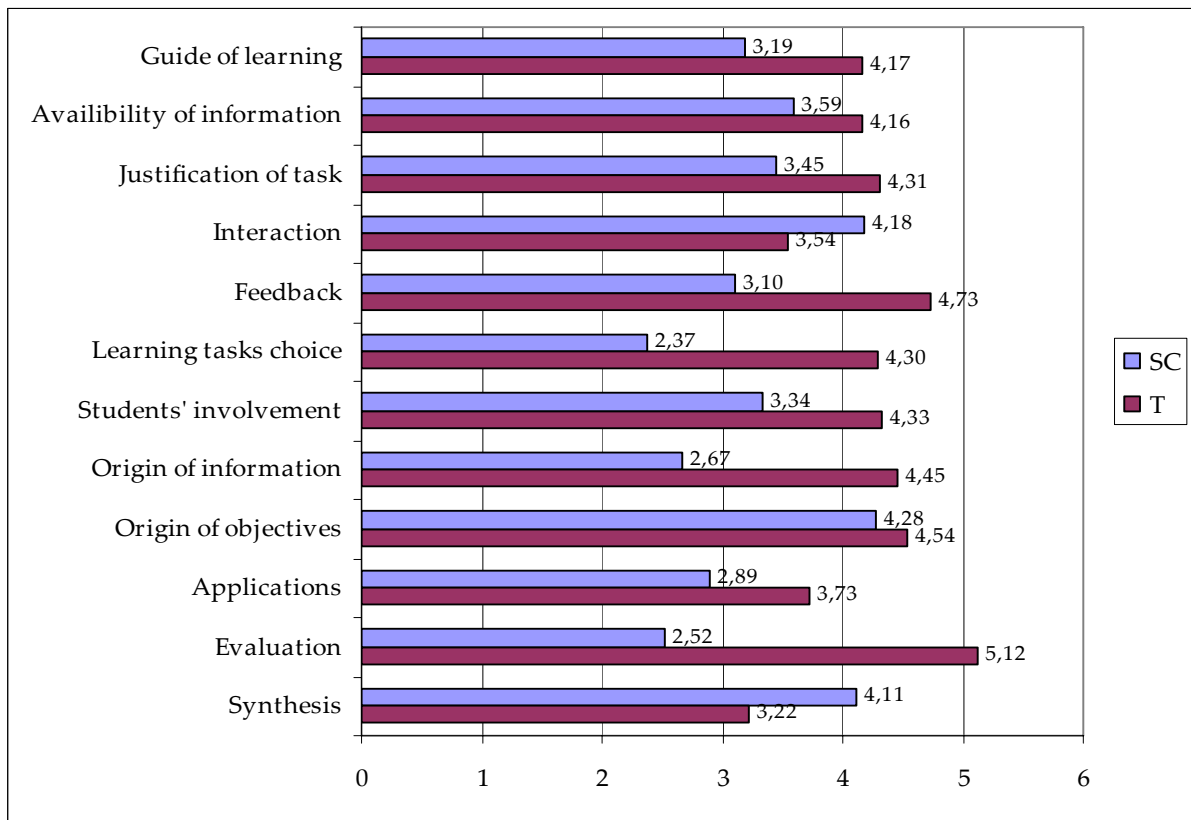
Figure 2 – Comparison of the use of teaching strategies in socio-constructivist/traditional ways (1 = Very rarely; 6 = Almost all of the time)

From the researchers' point of view, the latter is perceived as an encouraging instrument as it provides day to day information about the effectiveness of the survey process. Moreover, there is no need to transcribe the answers as subjects enter them immediately into the database. It simplifies the first step of the analysis and a careful choice of the survey design could increase the comfort of the subjects like in any survey.

Conclusion

The main finding revealed by this study was that most Wallonian PE teachers do not have a clear understanding of what socio-constructivism is and how this modern teaching approach could be implemented in PE lessons. It would explain the fact that PE lessons remain so traditional in terms of locus of control given to the teacher instead of to the learners as it was shown by the analysis of the teaching strategies that the subjects adopted in their classes.

Interactions between students during learning were pointed out as the main characteristic of socio-constructivism. Teachers considered that they emphasize this approach even if their global teaching style is more traditional.

As it was evidenced in the discussion, there is a need to promote more student centred teaching approaches among Wallonian PE teachers. This would be possible through the organization

of in-service programmes proposing applied content illustrating practical teaching examples as PE teachers need to see how they work. Moreover, the development of communities of practice allowing physical educators to share their experience and build their own resources would be an interesting concept (O'Sullivan, 2008).

Finally, according to the qualities that were identified by the subjects, using online questionnaire seems to be an approach to data collecting that should make a positive contribution to sport pedagogy studies.

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