

## Summaries

### ***Joëlle Coasne et Monique Loquet - Teach circus arts to the middle school : an artistic devolution***

The article is based on a cooperative engineering as a specific design-based research, about circus arts as a part of physical education at school. Verbal and bodily interactions between teacher and students are analyzed, during a teaching session composed of nine lessons, thanks to the joint action theory in didactics. This theory aims to describe the transactions that are observed when knowledge is shared between teacher and students (Sensevy & Mercier, 2007; Sensevy, 2011; Gruson, Forest & Latch, 2013). The "didactics game", seen as the teacher's game on the student's game, is identified by both a didactic contract and a milieu (Brousseau, 1998) taking into account the specificity of circus knowledge studied. The transactions in class are analyzed during a particular situation called "the complex juggling machine". The results show that the teacher implements a favorable milieu which encourages creative activity and promotes, in the contract that binds him to the students, a subtle equilibration work between reticence and expression. This equilibration, finely worked by the teacher, allows students to integrate knowledge useful for artistic creation and gives them the responsibility to create their own spectacle.

Keywords : Circus arts – physical education - devolution – didactic contract and milieu - joint action theory in didactics

### ***Jérôme Visioli et Oriane Petiot - Dynamics of improvisation in the activity of a teacher in PE lessons : are there any relationships with emotions and specialization in APSA<sup>1</sup>?***

The objective of this exploratory study is to analyze the dynamics of the improvisation of a PE teacher, in relationships with emotions and degree of specialization in APSA.

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<sup>1</sup> That is the Physical, Sport or Artistic Activity, support of the teaching session.

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Based on the framework of the "cours d'action " (Theureau , 2006), we analyzed the activity of a teacher, François, faces two high school classes during two classes : ( 1) an APSA for which he expressed a high degree of specialization (badminton) ; (2) an APSA for which he expressed a low degree of specialization (circus arts). Two types of data were collected, leading to two specific types of treatment : (1) observational data and in situ verbalizations of the teacher highlighting the dynamics of François improvisation throughout the classes ; (2) post data verbalization, gathering qualitative data (comments by the teacher) and quantitative (self-rating scale of emotions) to a focal length of this dynamic in parentheses improvisationnelles (PI). Comparison of course of action François badminton and circus arts highlighted the added value of specialization in APSA to improvise, but also the importance of context, including social, in which improvisation emerges.

Keywords: improvisation - education - emotion - specialization in APSA - course of action

***Romain Chonaki et Denis Loizon - Clinical analysis of didactic knowledge taught by a basketball coach***

This research is part of the scientific part of the clinical teaching of Physical Education (EPS). Its characteristic is based on the consideration of the teaching subject, its history and its effect on his teaching practice. This article analyzes the transmission of knowledge by a basketball coach in terms of experience in the job. The case study with this coach, can account for a dual nature of knowledge taught: technical knowledge, priority and diverse knowledge and tactics, generally associated with the management of the game. It also shows the existence of a gap between the knowledge actually taught by the coach and the knowledge that he thinks teaching (virtual knowledge), showing traces of teachings that were originally not part of the objectives of education.

Key words : basket-ball, clinical didactic, knowledges, knowledge from experience.

***Olivier Dieu - Correlation between physical activity and tactically-oriented play in badminton.***

The aim of this study is to show that there is not a linear relationship between the amount of body movement and expertise in badminton. There is a the specific relationship between playing tactics and body movement quantity.

The physical activity of 99 players (from beginners to experts) was measured using a three-axis accelerometer during a badminton set (21 points, no extra scoring). 200 datas were collected. Participants were classified into five stages of badminton experience on the basis of conative criteria: structural (physical abilities), technical (technical skills), and functional (tactics). Stages 2 and 4, which are functional and contextual, are defined by an increase in the use of tactics.

The results showed that physical activity (counts/sec.) ranged between about 115 (Stage 1) and 155 (Stage 5) and differed significantly across the conative stages. A 13% increase in the mean between the structural and functional stages was observed, followed by a 3% decrease at the technical stage. There was another clear-cut increase (+22%) between the technical and contextual stages. Finally, a 1% increase in the mean was observed between the contextual and expertise stages.

Depending on the conative stage, body movement quantity varies in a non-linear manner. For Stages 2 and 4, defined by an increase in use of tactics, physical activity increased substantially, thus, tactically-oriented play appears to be closely related to physical activity.

To increase on-court body movement in badminton, teaching methods should therefore be based on the activity's guiding principle (scoring) rather than on simply "shadowing" artificial situations.

Keywords : physical activity- tactics – badminton- Responsibility & Strategy in Sport and Education