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## 1. Scope and Organization of the Paper

In French the term "intervention" is used since a few years. According to Durand (1998), it includes the expression physical education as well as the action of physical education teachers. Instruction is part of this concept.

The paper will: (1) deal with the topic of instruction limited to teachers' decisions and interventions during the interactive phase in teaching. During this phase, activities planned in the pre-interactive phase are implemented; the interactive phase concerns the task's presentation, the pupils' activity and the control of this activity in terms of behavioural management and of the quality of the performance (feedback); (2) refer to the main research methods used in gathering data, and (3) develop the main findings in the domain of instruction: teacher thinking and behaviour, pupils' thoughts and behaviour, management of the class or in other words control of pupils' behaviour. It is evident that thoughts and behaviours are closely related and are part of the relationship between teachers and pupils. The paper focused only on texts appearing in French, Portuguese and Spanish published since 1997 in Physical education journals and Proceedings of international congresses.

## 2. Research Methods

Two types of information are collected to describe and understand the teaching process: (1) the visible information appraised through various observation techniques (systematic, ethnographic...) and (2) the invisible information approached through interrogation techniques (questionnaire, interview, and critical incident...). As any technique to collect data is not completely satisfactory, it is indispensable to combine both approaches.

In the literature reviewed in this paper, the most usual techniques of gathering data were observation systems, questionnaires and interviews. It occurred that observation was combined to stimulated recall by teachers and by pupils (Hauw & Durand, 1999). Another example is found in a study on the presentation of learning principles (rules) and behaviour conducted by Méard, Bertone, De Nadai, Euzet, Isnard and Langevin (1998) that combined participant observation, systematic observation and content analysis.

## 3. The Teacher

### 3.1 Teacher Behaviours

Investigating teacher behaviour is not frequent in France and in Spain. In these countries, many papers analyse the teaching content under various viewpoints. We considered that they pertained to the field of the Curriculum Theory. It is well known that teachers' behaviour providing information about the nature of academic tasks or the operations necessary to accomplish these tasks would affect pupil learning. Behaviours that are not related to the task structure are likely to have little effect on outcomes.

Méard et al. (1998) used a qualitative approach, based on participant and systematic observation combined with a content analysis to investigate how PE teachers present rules about learning and social interaction in the class. These authors attempt to characterize the teacher's intervention in terms of explanation, justification and variability of the rules.

Mahut and Gréhaigne (1999) focused on the analysis of teachers' gestures and more specifically of arm gestures. The objective was to know the nature of this non-verbal communication and the moment of apparition in relation to verbal messages. The authors concluded that communication was a determinant factor in the occurrence and sequencing of events. Mastering the non-verbal communication is viewed as a true teaching and communication skill. It was confirmed that in many cases pupils reacted more to the non-verbal aspects of the communication than to the verbal message.

## Research on Instruction in Physical Education. Review of the Research in Selected Roman Languages

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1. Scope and Organization of the Paper
2. Research Methods
3. The Teacher
  - 3.1 Teacher Behaviours
  - 3.2 Teacher Thinking
4. The Pupil
  - 4.1 Pupil Behaviour
  - 4.2 Pupil Thinking
    - 4.2.1 Thinking about the teacher
    - 4.2.2 Thinking about the PE and the PE Lesson
    - 4.2.3 Thinking about themselves in PE: Perceived Competence
    - 4.2.4 Thinking about the PE Lesson
    - 4.2.5 Cognitive Aspects of Pupils' Thinking
5. Conflict in the Classroom - Control of the Class - Pupil's Misbehaviour

### 3.2 Teacher Thinking

On one hand, the research on "teacher's thinking" is rooted in a set of beliefs and knowledge. This knowledge represents the teacher's "wisdom of practice", i.e., the information he/she really valorises and with which he/she is familiar too. On the other hand, research on "teacher's self-efficacy" or on "teacher's personal efficacy belief" has emphasised the depending relationship between the qualities of teaching, knowledge and confidence in own teaching abilities. These evidences support the idea that the teachers' practical knowledge content and structure are within the reasons explaining how they incorporate teaching quality references in their daily teaching activity. Onofre's study (2000) aimed to understand the relationship between teachers' self-efficacy, practical knowledge and teaching efficacy. A multicase intensive methodology design was adopted. Using the literal and theoretical replication strategy, four PE teachers with distinct levels of general self-efficacy and their classes were accompanied during two different teaching units. Data were collected from classroom ecology (systematic observation, field notes and pupils' perceptions about their PE classes), teachers' efficacy beliefs (questionnaires), and teachers' knowledge (focused and stimulated recall interviews).

Results allowed several general conclusions. The teachers who showed the best indicators of quality of teaching (they delivered higher opportunities to learn and obtained the highest positive pupils' perceptions about their teaching) were those who had assumed the highest sense of general self-efficacy. Concerning the relationship between the quality of teaching and the sense of specific self-efficacy, Onofre (2000) highlighted that the latter was only positively established for teachers who showed the highest stability for the four dimensions of pedagogical intervention (Instruction, Management, Discipline and Classroom Climate). Regarding the relationship between self-efficacy and practical knowledge the author referred that a highest sense of teaching capacity was closely related to a more reflexive and flexible practical knowledge and with higher affinity with the hints about quality of teaching (mainly the instruction function). Again, the relationship between the level of specific self-efficacy and the nature of the form and content of practical knowledge depended on the stability degree of the former. As for the issue of the relationships between quality of teaching and practical knowledge, it was concluded that the efficacy of the class ecology management was related to a more familiar knowledge of the conditions that research has stressed as decisive conditions to guarantee better learning opportunities.

#### 4. The Pupil

To accomplish classroom tasks, a pupil must acquire a special set of skills to identify task demands, adjust perceptions of these demands as they fluctuate over time, and compensate for the lack of complete information. Knowledge of subject matter is not sufficient for learning in classrooms. Several questions deserved to be asked: When are the pupils learning? Do the pupils learn when the teacher teaches? Do the pupils learn what the teacher teaches?

It should be reminded that the actions of a teacher do not directly induce changes in pupils. The mediating process paradigm research focuses on implicit processes that pupils use to process instructional stimuli and to produce learning outcomes. This explains why a factor was introduced between the process and the product of teaching, allowing for the inclusion of mediating elements. In physical education three aspects of mediation should be considered:

1. The pupil's motor activity and his/her motor engagement necessary to master the tasks set forth by the teacher. A large part of research based on pupil observation is based on this premise.
2. The motivational and affective aspects of pupil thought influence the quality of the engaged time during the lessons.

### 3. Cognitive aspects of pupil thinking play an important role in learning while pupil information-processing responses to the instructional stimuli intercede also in the direct link between teacher behaviour and pupil outcome assumed in the process-product paradigm.

In summary, pupils' outcomes are affected by their thoughts and by their motor participation in classroom activities. The mediating process implies that teachers do not influence directly achievement but cause pupils to behave and think in certain ways.

#### 4.1 Pupil Behaviour

Three strong convictions, some of them supported by a large research base, are related to the relationship between pupil's behaviour and his/her learning gains: (1) That a pupil's activity is central to his learning; (2) That the total amount of active learning time on a particular instructional topic is the most important determinant of pupil achievement on that topic; (3) That there is a high range of variation between pupils in learning time, time devoted to specific topics, and total amount of active learning time.

According to these convictions, achievement-relevant time is mediated by a number of factors, including the aptitude and prior achievement of the pupil, clarity of instructions, task difficulty, and pacing. Thus, only that portion of time is effective for learner's improvement. The additional element is feedback, since it is assumed to influence understanding and thereby achievement. In research, several questions are frequently investigated around the topic of pupil participation in activities. Let us cite a few: From a quantitative point of view, how do the pupils participate in activities? How long are the pupils involved in the task? Which is the intensity of the involvement? Which is the quality of the involvement? Is it possible to identify various types of pupils' participation?

It is highly surprising not to find studies dealing with pupils' motor engagement during the PE lesson in France and in Spain, when the role played by time-on-task and pupils' involvement in learning is concerned.

#### 4.2 Pupil Thinking

Pupil's thinking in relation to motivation can be considered under various viewpoints: (1) What does the pupil think about the teacher? (2) What do pupils think about PE in general, about the lesson, and about events occurring in their relationship with the teacher? (3) What do the pupils think when following the lesson?

##### 4.2.1 Thinking about the teacher

Martel, Gagnon, Grenier, Pelletier-Murphy and Dumont (1999) examined children's perceptions of PE teachers' actions. One might assume that children's perceptions can greatly influence pupil behaviour and performance and therefore constitute a very important source of information for teachers who wish to create learning conditions adapted to pupils needs. According to the review of literature by Martel et al. (1999), children perceive and are aware of teacher differential treatments of high and low expectancy pupils. Moreover, they interpret differently teacher's behaviour directed towards them. Although interesting, this information remains insufficient to provide PE teachers with an exhaustive and specific picture of teacher behaviours that pupils perceive as indicators of differential treatments. Thus, the authors proposed:

- To determine what degree pupils estimate being appreciated by their PE teacher;
- To identify teacher behaviours most relevant in determining what degree pupils estimate being appreciated by their PE teacher;

Piéron et al. (1998) have hypothesized that low-skilled and high-skilled pupils report different attitudes of perceptions of objectives of school physical education. Three aspects directly related to their motivation present a prominent importance by their consequence on pupils' behaviour in classroom as well as in out-of-school sport activities: (1) Attitudes towards physical education, the importance of physical education lessons and the importance to be good in sport; (2) The perception of objectives assigned to school physical education; (3) Their perceived competence in physical education and sport. These variables were compared from low and high achieving pupils, using four-point Likert scales and closed questions. Data collection was completed during physical education lessons. Pupils were selected in 39 high school classes (19 classes of boys and 20 classes of girls). 144 high achievers (76 girls and 68 boys) and 133 low achievers (70 girls and 63 boys) filled in the questionnaires.

a. Attitudes towards school physical education  
High achieving pupils showed a more positive attitude towards school physical education than low achievers. More than 90% of high achievers gave out favourable opinions about physical education. In the whole group, the importance of school physical education collected a lower percentage of favourable opinions than the two other items (70%). The high achieving pupils showed a more positive attitude towards school physical education than low achievers. The importance granted by pupils to being good in sport showed a profile similar to the results on attitudes. Even though this item was more important in high achievers, it should be pointed out that 75% of the low achievers considered nevertheless that it is important to be good in sports. Pereira, Carreiro da Costa & Diniz (2000b) focused on the same variables related to the motivational aspects of pupil thinking, i.e. the motivation, the perceived competence, the perception of PE objectives and of the teacher's behaviour. This study confirmed that the pupils from this study were highly motivated for PE (wish to be active, to learn new techniques, feeling well to attend PE lesson).

b. Perceptions of objectives assigned to physical education  
Most pupils (46.5%) think that school physical education pursue mainly a goal related to maintaining or improving the health status (Piéron, 2000). The arguments of the benefits of physical and sports activity on health were very often put forward in campaigns promoting physical activities or in campaign launched to defend the status of physical education in the school curriculum. Pupils were very sensible and knowledgeable to these arguments. Enjoyment and pleasure were ranked second in the hierarchy of school physical education objectives (27.2%). The learning objective ranked third and was reported by 15% of the pupils. Besides of its recreational aspects, physical education remained present in the pupils' mind as a school subject matter with its corollaries of learning and assessment being strongly associated. Social contacts between pupils and the development of physical fitness were ranked far behind the other objectives. In girls the enjoyment found in the practice of physical education and sports was significantly higher in high achievers.

4.2.3 *Thinking about themselves in PE: Perceived Competence*  
Several studies underlined its importance in the adherence to a regular participation in physical and sport activities. One should realize the educational consequences of these findings in considering the positive relationship between perceived competence and intrinsic motivation. In the same way, enjoyment and satisfaction met in engaging in physical activities could reinforce their self-esteem, develop and enhance their will to be continuously involved in sport activities well beyond the school age. The quality of motor experiences, success and failure of their participation are critical determinants of pupils' perceptions in relation to sports activities practiced at school or in sports clubs.

- To describe pupils' interpretation of teacher behaviours directed toward them;
- To identify pupil feelings in response to perceived teacher behaviours;
- To identify pupils' perceived reasons for teacher behaviours directed toward them.

One hundred and eighty pupils (86 boys and 94 girls) between the ages of 10 and 12, from three primary schools (grades 5 and 6) in the Montreal metropolitan area collaborated in that study. The questionnaire developed by the researchers made possible the gathering of the pupils' perceptions concerning their PE teacher's behaviour. The pupils used a list of 20 possible behaviours qualified as favourable or unfavourable to the pupil's development. Results revealed that dissatisfaction incurred by most pupils in response to teacher behaviours directed toward them in PE classes. The teacher self-evaluation process can greatly be enhanced if one would consider pupil interpretations of teacher actions when evaluating their interactions with pupils. PE teachers could also favour equity within pupil learning conditions by: (a) more often adopting teacher actions directed to all pupils which pupils perceived as being beneficial to their development; (b) being more attentive to appropriate behaviours and reacting more positively to pupils with whom the pedagogical relationship is more difficult; (c) systematically utilizing indicators such as a verification list of behaviours permitting all pupils to perform tasks that pupils perceive as privileges (demonstrate motor skills, being chosen as team leader).

In relation to the perception of the personalized treatment of pupils by the teacher, Piéron, Ledent, Deloëse, Luts, Pirottin, and Cloes (1998) considered two aspects of what has occurred during the lesson: (1) the personalized treatment of pupils by the teacher and (2) the perception of various aspects of the lesson. The first point was approached by collecting critical incidents in individual pupils. The second was appraised by a short questionnaire filled in at the end of the session. High and low achievers tended to consider differently individualized teacher intervention: high achievers focused on events able to valorise them while low achievers reported teachers' behaviour searching to help them closing the gap with high achievers in their skill level. Most individualized interventions dealt with adapting tasks to skill level. Girls focused on events related to health aspects of physical education. Boys thought that teachers do not account for their personality and that they did not adapt the organization of the class. In perceiving teachers' individualized treatment, girls gave more importance to interventions on content and on affective aspects of the teacher-student interaction. Boys regretted the inappropriateness of the lesson content.

4.2.2 *Thinking about the PE and the PE Lesson*  
Research studies focused on several questions: Is the pupil satisfied after the physical education lesson? What type of pleasure do pupils feel? How do they perceive their participation? Was the lesson intense? Which is pupils' perceived competence in the activities practiced during the lesson?  
All these thoughts are strongly related to motivation. Motivation defined by Wittrock (1986) as the process of initiating, sustaining, and directing activities is perhaps the central cognitive process underlying the interwoven network of variables that impact learning. Predictions from theories of achievement motivation are that pupils low in perceived competence would likely have a corresponding low level of motivation.  
Students enter classrooms with notions concerning their own abilities, ideas about the subject matter being taught, and attitudes about the class. These entry characteristics affect the nature of their interaction and participation during class and subsequently what they learn. A basic assumption of models formulated about the teaching-learning process from a cognitive perspective is that cognition governs action.

All composite variables (level of competence in physical education, level of competence in the subject matter taught during the observed lessons, and perception of physical qualities) or isolated items like grace, flexibility, shape, speed, strength and courage were higher in the high achieving pupils self-assessment. Some of these qualities have a holistic character that corresponds to common sense (Piéron et al., 1998). It is obvious that physical education is marked of a large heterogeneity of pupils. It goes beyond the aspects of motor features of the pupils. Pupils' motivation and perceived competence are amongst the features differentiating participants. These findings were in agreement with Carreiro da Costa, Ferreira, Diniz and Piéron (1997) results showing that a group of pupils high in perceived competence were highly motivated. The pupils were characterized by psychological aspects such as a high motivation toward school physical education and sport activities, and in their behaviour in classes (high engagement time). Moreover they paid more attention during the physical education lesson than pupils low in perceived competence. All these aspects appeared frequently in the descriptive of teaching effectiveness or were related to learning gain achieved by pupils.

Carreiro da Costa et al. (1997) concluded also that: (1) the most motivated pupils were characterized by a high level of self capacity, physical education aims expressed as promoting the learning of sports techniques as well as enjoyment; high rate of time on task, less frequent deviant behaviours; frequently asked by the teachers to provide models of performance; (2) the least motivated pupils were characterized by a low level of self capacity; they considered physical education as an optional subject which aims related to the improvement of the fitness and self image; they reported more deviant behaviours and less support from teachers.

#### 4.2.4 Thinking about the PE Lesson

It is evident that it is extremely important that when finishing a PE lesson, pupils feel satisfied. Assessing the pupils' enjoyment should be completed by other perceptions like the intensity of the lesson, the perceived competence in relationship with skills, the feeling of deep task involvement and being well considered by the teacher.

In Piéron, Delfosse, Ledent, & Cloes (2001) study, at the end of the lesson, 80% of pupils were satisfied, they did not feel specifically competent, they felt to have made progress (70%), to enjoy the session (75%). High achievers were more satisfied, felt more competent, were enjoying more, were more tasks involved, and considered to have participated more intensely than low achievers. On the contrary, low achievers perceived to have received more corrections. In the Portuguese study (Carreiro da Costa et al., 1987), a majority of pupils were satisfied after the lesson. The differences between boys and girls were small.

#### 4.2.5 Cognitive Aspects of Pupils' Thinking

What are the pupils thinking when they are carrying out the skill to learn or the task? What does the pupil think when performing learning tasks? These thoughts are related to cognitive processes and mediating processes. Studies about pupils' thinking during their participation in PE lessons are very rare, especially in the area of cognitive thinking. However, a study of Pereira, Carreiro da Costa and Diniz (2000a) focused on the pupils' attention during PE lesson. The authors used an interesting research method proposed by Locke and Jensen (1974) to collect data on pupils' attention in four different situations: when (1) the teacher was presenting the lesson objectives and presenting tasks, (2) the teacher was demonstrating, (3) the pupil was performing a task, and (4) during a game. The pupils' attention focused predominantly on the task in comparison with attention towards the lesson in general and towards themselves. The average level of attention ranked as follows: (1) during a game, (2) when performing a task, (3) during teacher demonstration, and (4) during objectives and task presentation by the teacher. A cluster analysis enabled to characterize the most and least

attentive pupils. The most attentive pupils were characterized by: (1) thoughts higher than average related to the motor plan, the general aptitude and instruction, and (2) in terms of participation their aptitude were lower than average in the motor engagement time and time spent in misbehaviours. Almost 70% of girls were in the most attentive group.

#### 5. Conflict in the Classroom - Control of the Class - Pupil's Misbehaviour

It is currently accepted that managing or controlling a class is a difficult task for teachers. Misbehaviour impedes the fulfilment of learning objectives. It is worth to note that in this area a growing number of studies are completed in the literature in French, Portuguese or Spanish. The research methods are going well beyond the unique observation of pupils' behaviour or the simple approach by questionnaire. Observation and videotapes are confronted to data and interpretations gathered by stimulated recall (Flavier, Hauw, Ria & Durand, 1999). The critical incident technique is also used in collecting data (Mahut, Marchal & Masselot, 1999). Studies use data collected by the critical incident technique, by combining observation and stimulated recall. Data are collected in classes without acute problems as well as in poor working areas. Misbehaviour is frequently the result of a history of the relation between the teacher and the misbehaving pupil. It is clear that the interpretation of misbehaviour could be quite different from teacher and pupil's viewpoints.

It is also evident that there is an interaction between the misbehaviour and the teacher's reaction. Leroy, Roussseau, Carlier and Renard (1998) confirmed earlier findings about the most frequent incidents (modifying the activity, conflicts between pupils, stopping the activity...) and teacher's behaviour (not seeing the incident, ignoring it, imposing a behaviour). From the analysis of 12 cases from classes in a school located in a poor area, Flavier, Hauw, Ria and Durand (1999) described the model of intervention of the teacher in the class: (1) supervising pupils, (2) sanctioning the pupils misbehaviour, (3) applying the sanction, (4) exploiting the situation, and (5) maintaining or re-establishing the order in the class.

Rosado and Januário (1999) analysed how pupils perceived misbehaviour incidents according to gender, age, parents' socio-professional status, grading and ethnicity of pupils. Data were collected by questionnaire and concerned the pupils' behaviour and teachers' reactions. Gender was the variable presenting the largest number of behaviour perceived differently by pupils. Seven behaviours differed between boys and girls: not bringing the appropriate equipment, aggression, impeding classmates to work, aggressive words and gestures towards the teacher, obscenities towards classmates and leaving the class without justification. Girls gave a higher gravity to misbehaviours than boys. Boys suggested less severe strategies to deal with misbehaviour problems.

Cloes, Demblon, Pirotin, Ledent & Piéron (1988) interviewed 15 PE teachers to identify what they considered as discipline problems and their causes. The authors gathered discipline incidents in 222 PE teachers. Whatever teachers' characteristics (gender, teaching level, teaching experience) isolated pupils were most often at the centre of the problems (from 62.5 to 80% according to teachers' characteristics). Not abiding to rules (33.3%), refusing activity (14.3%) and disrupting the activity (11.9%) were the most frequent categories related to discipline incidents. The authors suggested that pupil characteristics (education, lack of motivation...), poor equipment, social conditions (number of pupils, racism, exigency of the gym...), cohesion and stability of the teaching staff (support of the principal) were the main causes of the problems.

Reported incidents occurred mostly during the lesson (64.1%) and in the gym (81%). Some problems occurred also in the dressing room (14.2%). The most frequent reactions were verbal interventions (34.1%), punishment (28%) and non-verbal interventions (17%). The

authors concluded that serious problems were rather rare. PE teachers' unfavourable opinions towards discipline would be related to the repetition of n ) incidents.

Euzet and Méard (1998) observed 25 pupil teachers through videotapes to identify critical incidents in classes. ~~The most frequent incidents dealt with task-related misbehaviours (3.6 incidents/lesson) and persisting incidents (2.4 incidents/lesson).~~ Misbehaviours were less frequent at the end of the school year. Non-significant differences were observed between track and field and team sports lesson.

Beaudoin, Trudel & Demers (1999) developed an interesting approach about misbehaviour problems within a perspective of teacher preparation and of reflective teaching. The authors collected misbehaviour incidents by interviewing teachers to describe critical incidents in 14 to 18-year-old pupils. The most common incidents were: (1) being rude, (2) non abiding or resisting to rules, and (3) aggressing. The three most frequent teacher's reactions were: (1) applying a consequence, (2) imposing behaviour, and (3) describing the misbehaviour. The incidents were introduced as scenarios in a database of misbehaviours to submit to student teachers during their professional preparation.

## References

Due to space limitations the references may be asked from the author.