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“I have slapped them but I haven’t slapped them really”:
Epistemic Quality for Equitable Learning through Physical Education in France

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Abstract

This paper focuses on the epistemic quality of content through a case study of a series of dance lessons at a secondary school in Rennes, France. The study was conducted with a class of 14- to 16-year-old students and their teacher in November 2015 at the school, located in a Sensitive Urban Zone characterised by social, cultural and ethnic diversity. The epistemic structuration of dance is a complex issue (Loquet, 2016). How to define the movements that are performed in terms of technique, seen as a repertoire of codified movements brought from the outside, and expression, seen as sensitive and imaginative activity, lived from the inside? Further, dance teaching is often seen as an antinomy between imitation, through a prescriptive and modelling approach, and improvisation, rather than through an emerging and liberating approach. We consider the quality of teacher-student interaction in providing an epistemic quality of knowledge and respect for the imagination and inventiveness of the students. The approach to the study is based on the Joint Action Theory in Didactics (Sensevy, 2012; Gruson, Forest and Loquet, 2012).

1.0 INTRODUCTION

Background to the JADE project

This paper arises from the Joint Action in Didactics in Europe (JADE) project which includes three countries (UK, France and Germany) and has cross-curricular foci on mathematics, physical education and first-language teaching in school. The project was formed following discussions on the Joint Action Theory in Didactics (JATD) (Ligozat, 2011; Sensevy, 2011) in Network 27 on Didactics – Learning and Teaching of the European Educational Research Association (EERA) over several years. Our methodological approach is based upon case studies conducted in these three countries relative to the three specific subjects. The aim is to analyse different examples of *epistemic quality* (as discussed more fully) below in classroom activities and to compare findings within a shared theoretical framework based on joint action in didactics. The project was initiated in relation to the findings of a project in Scotland, UK on *Developing Mathematical Thinking in the Primary Classroom* (2010-12). It was continued in November 2015 when the research team as a whole observed a P.E. lesson with a class in a college in Rennes and was further advanced in March 2017 when the team observed a German-language lesson at a primary school in Frankfurt/Main. This paper focuses on the second case study of the P.E. lesson in Rennes.

2.0 THEORETICAL FRAMEWORK

2.1 Epistemic quality

Consideration of the concept of *epistemic quality* began at the meeting point of three approaches, English, French and German, through a common vision of education as a means of emancipation. In the discussion of epistemic quality in mathematics by Hudson et al. (2015), the distinction is made between *mathematical fallibilism* based on a heuristic view of mathematics as human activity and *mathematical fundamentalism* based on an absolutist view. The former involves an approach which presents mathematics as fallible, refutable and uncertain and which promotes critical thinking, creative reasoning, the generation of multiple solutions and of learning from errors and mistakes. In contrast, the latter is characterised by an approach that presents the subject as absolutist, infallible, authoritarian, dogmatic, irrefutable and certain and which involves rule following of strict procedures and right or wrong answers. Moreover, it is argued that this is a question of “epistemic quality” in terms of what the students are expected to know, understand and be able to do. Accordingly, the characteristics of mathematical fallibilism are associated with *high epistemic quality* whilst those characterising mathematical fundamentalism are linked with *low epistemic quality*. A further elaboration was then made in Hudson (2016b) on the particular characteristic of creative reasoning that is associated with high epistemic quality in mathematics. In particular, this draws on the work of Lithner (2006) who offers a conceptual framework that compares and contrasts creative and imitative reasoning in mathematics that fit with the distinctions (ibid.) between high and low epistemic quality. With regard to imitative reasoning in mathematics, two aspects are highlighted; first, memorised reasoning and, second, algorithmic reasoning. Memorised reasoning is seen as fulfilling two conditions. The first is the strategy choice that is founded on recalling a complete answer and the second is that the strategy implementation consists only of writing it down. Similarly, algorithmic reasoning meets two conditions. First, the strategy choice is to recall a solution algorithm concerning which the predictive argumentation may take different forms but does not necessitate the creation of a new solution. Second, the remaining reasoning parts of the strategy implementation are trivial for the reasoner and only a careless mistake can prevent an answer from being reached. In contrast, creative mathematical reasoning involves novelty, plausibility and mathematical foundation and, moreover, creativity is seen as an orientation or disposition toward mathematical activity that can be fostered broadly in school. The creative approach to mathematics seen as a human cultural activity ties in with the French didactical approach. Loquet (2009, 2016, 2017) considers the presence of a didactic form prevalent in French school practices, based on “monstration-imitation-reproduction”. In these classical

lesson forms, the teacher's demonstrations lead to the performance of tasks, to be accomplished and repeated in certain specified conditions defined by the teacher. This approach reflects a tendency for mechanical learning. In the classic school form, students do not encounter the complexity of the cultural practices that have been chosen as a reference at school, such as dancing. In this case, there is a great distance between the "epistemic capacities" developed by the students in a dance class, that make the teacher satisfied, and those attested by savants (or connoisseurs) in choreographic practices. We use the term "epistemic" synonymously with "concerning the knowledge involved" in a learning situation; the expression "epistemic capacity" is thus used to insist on the action potentialities students possess, as a system of knowledge and knowing-how. The term "savant" is used here in a generic sense to qualify the oeuvre of those who invent and produce knowledge. Accordingly, one who is savant, in the social and cultural world, knows (does) something (an oeuvre) as a "practical connoisseur" of this oeuvre. For example, Fosbury is the savant (connoisseur or expert) of the Fosbury flop, the contemporary dancer is a savant of the contemporary choreographic oeuvre etc. Students are not confronted by the challenges posed by essential problems in cultural practices. They are far from considering the situation like savants (connoisseurs) would normally do in these cultural practices. This form is associated with low epistemic quality in classroom activities.

2.2 Inclusive and equitable access to education

Our work builds on the recognition that inequality is a core challenge that must be placed at the foreground of our thinking about didactics – learning and teaching (UNICEF/UNESCO, 2013). In particular, our thinking is framed by the challenge of Goal 4 of the United Nations Sustainable Development (United Nations, 2015) to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. Yet the need to address this goal is not only a challenge at the global level but also at the national level for all modern societies and education systems in this age of mass migration and growing austerity in many countries around the world. We also recognise that many students have experiences of defiance, contempt, humiliation and even degradation (Stojanov, 2011) that hinder them in developing their self-identity and autonomy. Accordingly, we define equitable quality education as education that produces educational justice ("Bildungsgerechtigkeit"), thereby enabling students to overcome societal and familiar limits on their access to and success in education, thus fostering subject autonomy and allowing participatory competencies for life to develop in all societal fields. With regard to issues of inclusion and equitable access to high quality education, this is generally considered to be simply a question of school enrolment. However, as argued by Humphreys et al. (2015), enrolment figures are an inadequate indicator of access because being enrolled in school does not necessarily mean being in school, and being in school does not necessarily mean being engaged in productive learning. For this reason, they identify four distinct stages of access: access as enrolment; access as sustained attendance (sustained access); access to the classroom once in school; and, finally, access to the curriculum, with pupils engaged in meaningful learning. These collectively form access to "good quality education" (ibid.), namely, the ultimate goal. High epistemic quality is therefore seen as a precondition for achieving equitable access to high quality learning and education, whereas low epistemic quality represents a barrier to such.

3.0 RESEARCH DESIGN

3.1 Research Questions

In terms of ensuring inclusive and equitable access to quality education, we argue it is necessary to consider the epistemic quality of what students come to know, understand and are able to do, with our general research questions being as follows:

1. WHAT ARE THE NECESSARY CONDITIONS FOR PROMOTING EQUITABLE ACCESS TO HIGH QUALITY LEARNING AND EDUCATION?
2. WHAT ARE THE BARRIERS PREVENTING EQUITABLE ACCESS TO HIGH QUALITY LEARNING AND EDUCATION?
3. HOW CAN THESE BARRIERS BE OVERCOME?

The emphasis we place on quality education brings a focus on the didactic system, comprising the learner, the teacher and the content. Within this framework, we focus on the:

- EPISTEMIC QUALITY OF CONTENT
- QUALITY OF TEACHER-STUDENT(S) INTERACTION
- QUALITY OF EDUCATION AS A CREATIVE PROCESS
- DEMOCRATIC QUALITY OF SCHOOLING AND INSTRUCTION

3.2 Methodological Approach

The first theoretical principle of French didactics as elaborated by Sensevy, Schubauer-Leoni, Mercier, Ligozat and Perrot (2005); Sensevy and Mercier (2007); Sensevy (2011); Gruson, Forest and Loquet (2012) is that, in order to understand a didactic activity, which refers to an activity where someone teaches and someone learns, you need to understand a *system*, the *didactic system*, which is a system of three subsystems; namely, knowledge, the teacher and the student. The didactic system is seen as indivisible and one where it is impossible to grasp the meaning of the teacher's action without understanding the relations between this action, the students' action and the structure of the piece of knowledge at stake. The argument is well made by Sensevy (2011) that didactic research needs a new paradigm, a paradigmatic shift from an analytic stance to a holistic approach, in which the necessary analytic study is only part of the researcher's work. In this respect, the main purpose of the joint action theory is to grasp the dynamics and the unity of the joint action.

Case studies (Stake, 1995) have been conducted in the three countries on three specific subjects (Mathematics, P.E. and first language). A case study aims to "catch the complexity of a single case" (ibid., p. xii) by examining its particularity and singular complexity. This approach draws on naturalistic, holistic, ethnographic, phenomenological and biographic research methods. This approach is described (ibid., p. xii) as a disciplined, qualitative mode of enquiry into a single case that emphasises episodes of nuance, the sequentiality of happenings in context, and the wholeness of the individual. The overall aim is to analyse different examples of epistemic quality in classroom activities and to compare findings within a common framework of joint action in didactics. In so doing, our research approach will enable us to define, describe and evaluate the conditions for and barriers to the promotion of equitable access to high quality learning and education. According to Passeron and Revel (2005), a case analysis construct follows a clinical approach which, at the end of the 19th century, led the social sciences to rediscover "the place that the narrative rendering of sequences and of interactions could take in an attempt to explain the particularity of a case and its context" (p. 10). We consider that each of our three cases reflects a "singularity accessible to observation" (p. 9). The aim is not to "limit its analysis or to decide on a single case", but "to extract a more general argumentation, the conclusions of which may be reused to found other intelligibilities or justify other decisions" (p. 9). Our approach is based on a logic of "linking" the different cases observed and developing a "more general argumentation". Moreover, as Passeron and Revel (2005) point out, case analysis supposes that it is considered to be "the product of a history". It is thus essential to restore "the paths of the process and the establishing of 'circumstances' which qualify it" (p. 24).

The data collection, analysis and interpretation are based on a constructivist grounded theory approach (Charmaz, 2000). This approach is described by Charmaz (2008) as an "emergent method" (ibid.), meaning that it is inductive, indeterminate and open-ended. It begins with the empirical world and builds an inductive understanding of it as events unfold and knowledge accrues. Such methods are seen as particularly well suited for studying uncharted, contingent or dynamic phenomena. The approach also includes checking emergent categories that arise from successive levels of analysis through hypothetical and deductive reasoning. Fundamental tenets of the grounded theory method (ibid.) include: (1) minimising preconceived ideas about the research problem and the data; (2) using simultaneous data collection and analysis to inform each other; (3) remaining open to varied explanations and/or understandings of the data; and (4) focusing data analysis to construct middle-

range theories. This approach fits especially well with the main purpose of the joint action theory to grasp the dynamics and the unity of the joint action. Our approach is also informed by that of “comparative didactics” as discussed by Ligozat (cited in Hudson, 2016a), who presents this approach as central to JATD. Finally, more than being simply examples of “ordinary” school situations, we construct examples we consider potentially to be “exemplary” (or “emblematic examples”) of educational traditions of each country. We thus place our cases approach within an epistemology of “exemplar” as defined by Kuhn (1970/1983). In order to emphasise the pragmatic nature of the study, the *epistemic quality* concept forms part of a “didactic clinic” (Sensevy, 2011) and is used in such a way as to make it central to this comparative process.

This particular study was initiated in November 2015 when the research team as a whole observed a P.E. lesson with a class in a college in Rennes (students aged 14 to 16 years), content of which focuses on the practice of dance and the aims of citizenship education. One research team member was responsible for video recording the lesson’s main elements. During the lesson, other team members made individual notes based on their observations.

3.3 Research Ethics

Access to the school was agreed by the local co-ordinator from the Centre for Research in Education and Didactics (CREAD) at the University of Rennes 2 in liaison with the class teacher. Further, the Principal of the College provided certification that the parents of the pupils involved in the research had approved their participation in the research led by their teacher in collaboration with CREAD at the University of Rennes 2.

4.0 CONTEXT OF THE STUDY

4.1 The dance lessons

The dance lessons took place in November 2015 at the Rosa Parks College¹ which is a secondary school that is part of a Priority Education Zone located within a Sensitive Urban Zone, characterised by social, cultural and ethnic diversity. Students originate from 47 different nationalities and the class of 25 students was heterogeneous. Some were receiving special training to discover the economic and industrial sphere. Others were found in bilingual international sections or in sport sections with a specialisation in football. The lessons were conducted by a physical education teacher (T). He is an expert in teaching within a Sensitive Urban Zone, and a fervent amateur dancer, although not a specialist in choreographic activities.

According to the French Curriculum (MNE, 2013)², “artistic and cultural education” is a compulsory subject matter at school. The national purpose is to strengthen artistic culture and develop cultural democratisation through “the meeting of *oeuvres* and artists”. The dance teaching we studied comprises part of a study course entitled “Dance and Citizenship”. The teacher used different pictures of sculpture and artistic work to foster the students’ imagination. The pictures come from the work of two authors: Ndary Lo, a Senegalese artist who pays special tribute to the black woman Rosa Parks, and Rania Omani, an artist whose family is from Algeria. Using these pictures, students have to produce a personal *oeuvre* (*work*) about their idea of citizenship. More precisely, the teacher focused the lessons on the symbolisation process of dance gesture. He intended to develop relationships between: 1) making students capable of building a symbolic gesture in dance; and 2) developing citizenship practices in class.

¹ The school gets its name from the black woman who, one day in 1955, refused to give up her seat to a white passenger on a bus in Alabama. Rosa Parks is seen as an emblematic figure in the struggle against racial segregation and considered as a civil rights icon.

² In France, art education consists of “the meeting of *oeuvres*” organized throughout schooling depending on the “cultural and artistic educational path” (Ministry of National Education, 2013).

4.2 Chronology and topics of the lessons

The course consisted of ten lessons, divided into three main phases:

4.2.1 General presentation of the dance cycle and debate on citizenship

In this first phase, lessons 1 and 2 involved: participating in discussing various forms of dance and on what citizenship means. This approach is theoretical and took place in the classroom.

4.2.2 Teaching and learning dance

Lessons 3 to 8 were devoted to choreographic activities and were held in the gymnasium.

In this second phase, the successive teaching topics were as follows: exploring the factors of movement: space, rhythm, energy and weight (lesson 3); choosing a picture as the basis of the students' work (lesson 4); staging and dancing as an interpretation of a citizenship action (lesson 5); "lifting a partner" as a choreographic element and continuing the work (lesson 6); working to achieve a detached observation about performances (lesson 7); and identifying symbolic gestures in the students' choreographies (lesson 8).

4.2.3 Showing the stage performances and assessment

Lessons 9 and 10 were reserved for the exhibition and evaluation of dance performances in the gymnasium. This third phase consisted of the rehearsal of performances (lesson 9) and the final exhibition and evaluation (lesson 10).

4.3. Focus on lesson 5

We focus on lesson 5 and for several reasons consider it as the starting point of our analysis. The lesson at the mid-point of the cycle entailed significant levels of interaction between the teacher and the students about dancing. The teacher's intention is made clear. At the end of lesson 5, students completed the first choreographic performance. This performance is used as a reference to compare their final performance and analyse their progress at the end of the cycle.

We now describe what happens at the start of lesson 5.

4.3.1 Instructions of the teacher

At the beginning of lesson 5, the teacher asks the students to form small groups (figure 1).

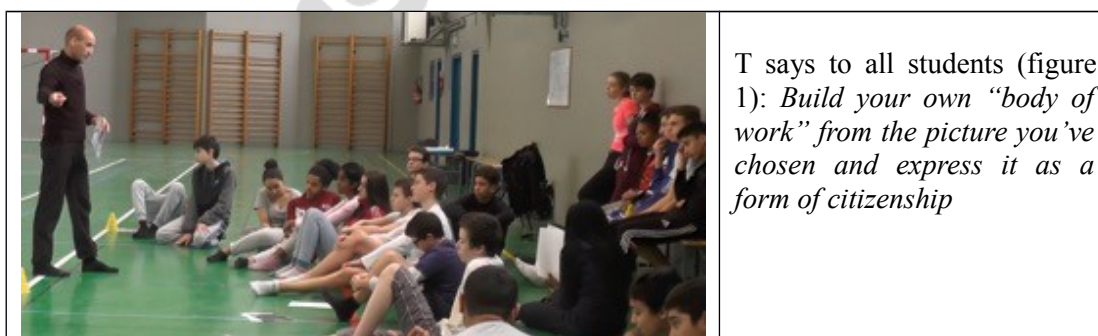





Figure 1: Start of lesson 5

Each small group had to choose one of the pictures T proposed (figures 2a, b & c), build their own "body of work" from that picture, and represent a citizenship action.

		
Ndary-Lo <i>Hope</i>	Ndary-Lo <i>L'Afrique en marche</i>	Rania Omani <i>Peinture sur bois</i>

Figures 2 a, b & c: Some pictures as support for the choreographic creation

4.3.2 A subgroup of five students

Five students chose to create a dance based on a picture of a work of art by the sculptor, Ndary Lo, using iron as the base material (figure 3). We now follow the progress of this subgroup of five students (S). They say about the picture:


	S says about the sculpture piece by Ndary Lo (figure 3): <i>They are slaves. We must give them their life back and restore their rights.</i>
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Figure 3: Picture of a sculpture by Ndary Lo

For these students, the photo represents a group of slaves. According to them, the sculpted characters the artists created are sad and melancholic silhouettes. They are walking in line, chained together, grim-faced, and look worn out. The students' choreographic intention is to free the slaves and restore their human rights. They want to show how it is possible to offer them a chance at a better life.

4.3.3 The case of Raymond

Among these students, we particularly focus on the student Raymond (a pseudonym). He is a boy from Kosovo who arrived in France 2 years earlier. He initially did not speak French and so joined a non-native speaker class. Raymond is passionate about boxing. He practises this sport at a high level in a club. For example, it can be seen at the start of the dance teaching (first lesson) that he was performing some boxing gestures with friends. We can observe him wearing long black trousers, his back is turned in the picture below (figure 4): the posture and gestures of boxing are familiar to him.



Raymond at the beginning of the first lesson (figure 4) engages in boxing with another student.

Figure 4: Raymond the boxer

In his choreographic group, Raymond plays the character of the “master of slaves”.



Raymond, at the start of lesson 5 (figure 5), says: *Slaves have to obey their master*, making movements as if he is striking the students/slaves with his feet.

Figure 5: Raymond the slavemaster

To express his character, *Raymond the slavemaster* is pretending to hit, kick, punch and slap the three *student slaves*. They simulate being attacked and fall to the ground.

In the next part of the study presented below, our attention is on Raymond’s movements and gestures as he plays the master of the slaves. Specifically, we consider the way he interprets, through movement, his character’s relationships with the three students/slaves.

4.4 From lesson 5 to lesson 10, what step forward?

In particular, we compare the students’ performance at the end of lesson 5 with that in lesson 10. Figure 6 (lesson 5) and figure 7 (lesson 10) are extracted from the same choreographic moment of their exhibition.



Figure 6: Raymond and his choreographic group in **lesson 5**



Figure 7: Raymond and his choreographic group in **lesson 10**

There is a notable difference in Raymond's gestures between lesson 5 and lesson 10. In lesson 5, his gestures simulate direct blows (slaps) against the slaves. In lesson 10, these concrete gestures have disappeared. Raymond visually represents 'something else' to make the students/slaves fall to the floor. We note these gestures satisfy both Raymond and the teacher. They are appreciated as much by the other spectators. The teacher describes them as "symbolic gestures".

This study aims to analyse the transformation that has occurred in Raymond's dance activity and to identify the conditions for this transformation.

5.0 ANALYSIS AND INTERPRETATION

As indicated earlier, the data analysis and interpretation are based on a constructivist grounded theory approach (Charmaz, 2000), also described as an 'emergent method' (Charmaz, 2008). This approach began with our empirical data based on our lesson observations in practice and aimed to build an inductive understanding of the dynamics and the unity of the joint action. The process started with each research team member making individual notes based on their observations of the lesson whilst the other member was engaged in video recording the main elements of the lesson. It continued with all team members sharing key aspects of the lesson observations in the review session immediately following the observation, and further advanced through written accounts shared in the period soon afterwards. This approach allowed for checking the emergent categories that arose from the successive levels of analysis and reasoning. In turn, it led to significant episodes in the lesson being identified for greater levels of analysis through a process of progressive focussing. Selected episodes were then transcribed and translated into English by research team members. The process of dialogue and exchange within the research team continued in the process of preparing for, participating in and providing reflections on the Round Table discussion at the ECER Conference held in Dublin in August 2016 (Hudson et al., 2016). The communication process following the lesson observation was supported with email communication and file sharing through use of Dropbox.

5.1 Emergent themes

The dialogue within the research team immediately following the lesson observations led to a special focus on Raymond's group and his performance, regarded as a particularly significant aspect of the lesson. This was partly due to the performance's dramatic impact and also to the interactions between the teacher and group members (especially Raymond) in the build up to it. The process of transcription and translation which then followed led to increasing levels of dialogue and exchange around successive levels of analysis in the period following the lesson observation and leading up to the Round Table discussion 9 months later. During this process, two particular themes emerged related to the roles of imitation and creativity in the didactical situation. Successive levels of analysis and

reasoning led to a comparative didactics perspective being taken to make cross-subject comparisons with mathematics based on the prior discussions held within the research team on epistemic quality in the mathematics classroom, as detailed in Hudson (2017). The comparison with mathematics focussed on the roles of creative and imitative reasoning associated in turn with high and low levels of epistemic quality. This then led to questions about the role of imitation and creativity in the context of the P.E. lesson with a focus on dance, which are discussed and developed in the following sections.

5.2 The problem: imitating or creating?

It is argued by Winnykamen (1990) that generally the use of imitation in teaching is strongly undervalued. At the same time, there is much criticism of the use of imitation in teaching for being a superficial process and which assumes that students are unable to develop autonomous and creative behaviour. This is also often the case in dance teaching, in which context the dance teacher is seen as the primary source of knowledge and students are perceived as learning through imitation and adherence to external instructions (Daniels, 2009). The issue of imitation in dance is further complicated by the fact the relevant knowledge to be taught is not very stabilised. Defining knowledge content in dance is generally seen as problematic.

This raises the question of what content should be transmitted within a discipline in which knowledge is difficult to identify. With regard to this, a tension usually appears between two dimensions (Loquet, 2014):

- technique, seen as a repertoire of codified movements and gestures, brought from the outside; and
- expression, seen as an activity that involves the totality of the person, sensitive and imaginative, 'lived' from the inside.

This raises another question concerning whether the impulse to dance is from the outside or whether we have a dance *per se*. This tension is coupled with an opposition between two ways of acting:

- imitation, considered as prescriptive and modelling; and
- improvisation, considered as emerging and liberating.

However, describing dance teaching through these dichotomies seems schematic to us. The creative act in dance is not a gestural reproduction. Nor is it a direct form of self-expression. If direct expression feeds into the process of creation, it is not sufficient for it. Technical inputs also enrich this work. Artistic creation requires a process of elaboration. Carrying this process forward needs technical-expression reciprocity and a balance in their relationship. The description of dance lessons leads us to connect the two terms *a priori* incompatible, namely, imitation and creation.

5.3 Our sub-questions

The next stage of this study of class practice is approached through the following sub-questions:

Considering initially that the epistemic structuration of dance is problematic, it is important to clarify its contents. What is a movement that can be considered as 'danced'? How to characterise a danced movement in terms of technical gesture and expressive gesture?

Second, considering that, in ordinary practices, dance teaching is often seen through an antinomy between imitation and improvisation, we question the way knowledge is transmitted. How are these two activities articulated: *teaching* that provides quality knowledge and *learning* that respects students' imagination and inventiveness? What is a learning activity that can be equitable for all dance students?

To answer these questions, we focus on Raymond's performance. We look at his activity at two moments in the class practice, in the middle (lesson 5) and at the end of the cycle (lesson 10).

5.4 Description of Raymond's performance

We compare the development of Raymond's performance between lesson 5 (figure 6) and lesson 10 (figure 7). The video study reveals two contrasting choreographic moments involving two different

kinds of danced gesture. These raise questions about which categories we use to describe them and how we can qualify the evolution of Raymond's activity.

To analyse these, we first consider the essential role of *signs* in artistic activity and second reflect on the role of *imitation* in this process. With regard to the role of signs, dancing is seen as a form of motor activity called *semiocinetic*³. According to Serre (1984), semiocinetic activity presides over relations between one person with their social milieu for communication purposes. In this *semiocinetic activity*, we can broadly distinguish two main categories of relationships between *sign* and *meaning*: namely, mimic gestures and symbolic gestures which are considered further in the following section.

5.5 Mimic gestures and symbolic gestures

5.5.1 Mimic gestures

Mimic gestures are signs or signals that seek to express things by equivalence in real life. They represent something in a concrete and figurative way. For the public, they make immediate sense by being linked to usual familiarities.

Such gestures attempt to represent something based on one of its already known notable features. For example, the snail is represented by the antennas (so-called in everyday language): the hands are closed and each fist is placed on the forehead, the index is unwound, pointed upward and then down, and the fists are closed again.

Raymond plays the character of the master slaves. In lesson 5, we can say he mimes the familiar repeated punching and kicking of his three slaves like in head-to-head boxing gestures.

5.5.2 Symbolic gestures

Symbolic gestures, for their part, have a 'deferred' sense. A symbolic gesture includes a double expression: an imaged action and an abstract reality the image tries to signify. They are two sides of the same representation: the first is visible and easily distinguishable (or understandable) while the second has a hidden meaning and is not directly accessible.

In his last performance, Raymond turns his back on the slaves, thereby facing the public. He is tapping his feet on the floor to a given rhythm. The image, in its spatial and temporal form, no longer means 'boxing'. It evokes another way of relating to others, which may be connected to an abstract reality. He plays the slavemaster in a dominating role that is more subtle and controlled. Hence, from lesson 5 to lesson 10, the first boxing actions that were mimicked seem to have been transformed, transposed into actions holding symbolic value.

A further comparison is made when the students face each other in lesson 5. At this point, Raymond simulates engaging in a form of boxing against them. The rhythmic character of his movement suggests a slap. We can see a narrow relationship between the sign (the slap gesture) and the thing signified, in the dual model: the gesture and the original.

In lesson 10, the students face the public. Raymond's feet are striking the floor vigorously. The rhythmic base of the movement is especially given by his feet responding in time to the music. The upper body and his arms swing and contribute to the rhythmic motif of the dance. Here, the sign (something like pounding the ground) 'says' or symbolises 'something else'. Raymond expresses the master's symbolic domination without actual or potential physical violence. The proposition of Raymond's group is more varied, labile and flexible whilst the public reception may be plural. Thus the symbolic signs allow several possible interpretations and can communicate differently to several 'publics'.

5.6 Clarifying Raymond's progression seen at the heart of the *didactic system*

³ The term *semiocinese* comes from the Greek *sema*, sign, and kinesis movement.

In order to explain Raymond's dance progression between mimic and symbolic gestures, we argue it is necessary to relate his actions to those of the teacher. In addition, we need to relate the teacher-student interactions with the knowledge circulating among them: "what is a symbolic gesture?". We therefore seek explanations within a system, the didactic system, made up of three indivisible subsystems: knowledge, the students, and the teacher.



Accordingly, after studying the video-recorded lessons, our attention returns to what happened in Lesson 5. Certain essential conditions are found in the teacher-student interactions that guided Raymond's future progress. The situation described below is an episode of exchanges between them in which we identify five successive phases. The following is a brief synopsis of these phases:

<p><i>First Phase:</i> The teacher watches Raymond's performance. He then speaks to the three slaves without being heard by Raymond (figures 8a & b).</p> <p><i>Second Phase:</i> The teacher comes to Raymond. He tells him he will play his role on one occasion. Raymond has to watch him doing the movement (figures 9a, b, c & d).</p> <p><i>Third Phase:</i> The teacher returns to Raymond. He tries to explain to him what he did to interpret the role of the slavemaster. He seeks to explain what the word "symbolic" means (figures 10a & b).</p> <p><i>Fourth Phase:</i> Raymond does his own performance with his partners (figures 11a, b & c).</p> <p><i>Fifth Phase:</i> The teacher appreciates Raymond's performance and lets the group continue.</p>
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Here is a detailed description of the teacher-students' interactions during the five successive phases:





5.6.1 First Phase:

The teacher (T) watches Raymond's (Ray's) performance and speaks to the three student/slaves without being heard by Raymond, figures 8a & b.

	<p>Figure 8a: T observes Raymond's performance Ray simulates slapping the slaves' head with his hand. T says to Ray at the end of his performance: <i>Ray, I'm just going to intervene once, ok? Please go over there</i> (pointing his finger to the wall)... <i>you are just going to look at something.</i> Ray stands against the wall at the starting point of his choreography.</p>
	<p>Figure 8b: T remains alone with the three students/slaves and says to them: <i>Stand over there... when I tap the floor with my feet... instead of giving you a slap... you are going...</i> Ju (a student/slave): <i>we are going to fall down</i> T: <i>yes good... and there, we will be in a symbolic form of gesture... because for me, he [Ray] is in a violent gesture form... come here...you're ready? Let's go.</i></p>

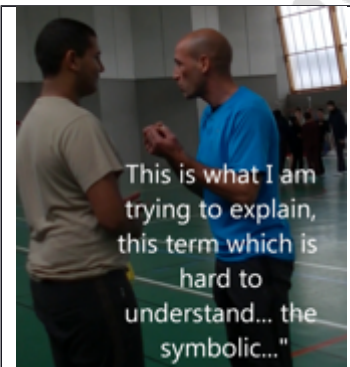
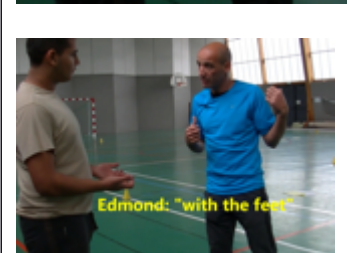
5.6.2 Second Phase:

The teacher comes to Raymond and asks him to watch what he will do as if he were Raymond, figures 9a, b, c & d.

	<p>Figure 9a: T (to Raymond): <i>just have a look at me... I am Raymond for a moment ok...</i> Ray: ok</p>
	<p>Figure 9b: T: <i>so you went there (pointing to the three partners/slaves) and (pretending to slap in a vacuum) you're a little in violence but...it's not actual violence, you don't touch them, right?</i></p>
	<p>Figure 9c: Ray (raising his arms in a sign of agreement and obviousness): <i>Bah no!</i></p>
	<p>Figure 9d: T: <i>so my name is Raymond for a while.</i> He takes on the slavemaster role as if he were Raymond. He moves to the three students/slaves and faces them, then he turns and taps his feet on the floor while they fall down one by one. T (coming back to Raymond): <i>I 'slapped' them... but I didn't really slap them...</i> Raymond: <i>Oh yeah, I like that!</i></p>




5.6.3 Third Phase:

The teacher tries to explain to Raymond what the word "symbolic" means, figures 10a & b.

	<p>Figures 10a & b: T: <i>the symbolic... it's what I am trying to explain to you... this term is hard to understand... the symbolic... the symbolic (taking time to think about it)...</i> <i>Ok, you give emotion with that gesture (making a slapping gesture)...</i> <i>But if I look at you (moving one step back into a spectator position)... well, yes you give a slap (with obvious intonation)!</i> <i>I can also slap them (pointing to the slaves) but now how did I slap them?</i> Ray: <i>with your feet</i> (tapping his feet on the ground as T had done) T: <i>yes without watching them...</i> Ray: <i>Yes that's right, that's good!</i> T: <i>Do you see what I mean?</i> Ray: <i>Yeah yeah yeah</i> T: <i>Ok, that's what I am trying to make you understand!</i></p>
	

5.6.4 Fourth Phase:

Raymond does his own performance, figures 11a, b & c.

		
<p>Ray moves towards his partners in a swinging form he has chosen. T observes them.</p>	<p>Once facing the slaves, Ray does a U-turn and stamps his feet in rhythm on the floor.</p>	<p>At the end of his movement, Ray turns round and makes sure of the result: the slaves have fallen one after the other</p>

5.6.5 Fifth Phase:

The teacher expresses appreciation for the performance of Raymond's group and lets them continue their activity.

5.7 On the role of imitation

We now study Raymond's activity in relation to the notion of *imitation*. There are two ways to define *imitation*: first, that of imitation-reproduction and, second, of imitation-creation.

5.7.1 Imitation-reproduction of a model

First, one could say that: 1) the teacher shows Raymond the solution hoping he will copy his proposition; 2) his proposition is a gestural model to be replicated; 3) Raymond takes the teacher's gesture as a model and reproduces his gesture; 4) and Raymond's response is passive and mechanical. From this point of view, imitation is seen as a simple contemplation, a reproduction of the teacher's proposition, and a formal repetition of gesture. Here the focus is on the outcome of the action.

5.7.2 Imitation-creation of a solution

Second, we can see imitation in a more open and dynamic sense. We assume that: 1) the teacher places the student in a problematic situation (*symbolic gesture? It's difficult to explain!*); 2) through his monstration, he gives some bodily signs to Raymond. However, he leaves out many other things relating to the symbolic gesture, which are almost impossible to include in the monstration; and 3) Raymond's response depends on his repertoire of already present actions and on what he already knows about symbolic compoment.

We consider that nobody imitates already familiar and well-known gestures. Imitation activity is based on an intentional selective process. The teacher's monstration thus does not lead to a student's spontaneous imitation. From this point of view, imitation is seen as being included in a creation and comprehension process. Here, the focus is on the problem-solving, and not directly on its outcome.

In our dancing case study, the monstration phase (the second phase above) and the imitation phase (fourth phase) are separated by an interval of didactic time. The discussion (*Symbolic... I am trying to explain... this term is hard to understand*) is interposed before the student performs his own movement. The teacher's monstration is integrated in an interactive sequence involving questions and reflection. Raymond at the same time imitates the gesture and a comprehension of its use. Imitation accordingly means understanding the monstration and the creation of movements. From this perspective, we consider the student is encouraged to extract certain characteristics of the model and give their own solution to the problem posed, and then to find other possible solutions. Therefore, what is imitated (the teacher's proposition) is expansive and cannot be reduced to some surface features.

In order to further grasp the dynamics and the unity of the joint action, we use the notion of *imitation game* as one of the high-level concepts to re-consider the interactions in class. In particular, we consider the interaction between the teacher and student(s) as a reciprocal imitation game. We call this notion a *model-notion* because it activates a theoretical model: that of joint action in didactics. This key notion allows us to describe Raymond's progression from another point of view, enabling us to observe it in a different way. What does *imitation game* mean and what in addition does this model-notion give us over and above the simple notion of imitation?

5.8 What is an imitation game?

The imitation game models the system of teacher-students' co-actions when these co-actions feed into one another to create knowledge. It is common to think that: 1) the monstration of a practice is based on an initiative led by the teacher, regardless of what the students are doing; and 2) students observe what the teacher does and passively imitate him. In contrast, we envisage the monstration in a dynamic and creative system with borrowings and reciprocal effects between teacher and students.

This system forms a spiral process of teacher-student interactions to solve the problem of dancing practice. The imitation game, synonymous with comprehension and creation, requires considerable interactivity between teacher and students. The teacher not only presents himself as a gestural model, but the students also provide gestural models to the teacher. They are perceived as an essential source of knowledge in class.

Returning to our case study, what does the teacher do with the body movement Raymond presents? Reciprocally, what does Raymond retain from the teacher's monstration?

The teacher looks closely at the students' behaviour and adheres to what they spontaneously perform, based on their ordinary knowledge (familiar mimic gestures). He then resumes their movements by introducing a special point to be studied (*the symbolic... it's hard to explain!*). In doing so, he 'forces' students to face the resistant properties of the *milieu*, and to build new knowledge (symbolic gestures, which is an abstraction process). Certain actions (gestures and/or words) more than any other seem to 'make sense' to the others (teacher or students) and influence them in return. Signs are exchanged, emitted and deciphered by each one.

The case study conducted throughout the dance teaching shows that teacher and students are used to sharing the responsibilities of observer/dancer. This habit has emerged early on between them based on an empathic didactical relationship. That is why, in the joint teacher-students action, we identify a reciprocal game of imitation.

6.0 DISCUSSION

The central research questions of our study concentrated on the conditions for and barriers to equitable access to high quality learning and education. In this case study, learning and education was studied in relation to dance within a framework of joint action in didactics. The resulting focus on the didactic system brought about a particular focus on the *epistemic quality of content*. Following successive levels of analysis and reasoning through a process of progressive focusing, two particular themes emerged concerning the roles of imitation and creativity in the didactical situation.

In turn, cross-subject comparisons with mathematics were made from a comparative didactics perspective related to the roles of imitation and creativity in the didactical situation. High epistemic quality in mathematics is associated with *mathematical fallibilism* based on a heuristic view of mathematics as human activity. This is seen to involve an approach which presents mathematics as fallible, refutable and uncertain and which promotes critical thinking, creative reasoning, the generation of multiple solutions and of learning from errors and mistakes. In contrast, *mathematical fundamentalism* is associated with low epistemic quality and characterised by an approach that presents the subject as absolutist, infallible, authoritarian, dogmatic, irrefutable and certain and which

involves rule following of strict procedures and right or wrong answers based on imitative memorised and algorithmic reasoning.

In comparing the roles of imitation and creativity across the two subject areas, we may observe differences in the way these play out in practice. It is argued that these differences represent particular characteristics of each subject area. In relation to mathematics, the roles of both creativity and imitation, as discussed in this study, refer to abstract thinking and reasoning processes in general. With regard to imitative reasoning in mathematics, two aspects can be identified in particular: namely, memorised reasoning and algorithmic reasoning, where each fulfils two conditions. First, in relation to memorised reasoning, the strategy choice is founded on recalling a complete answer and, second, the strategy implementation consists only of writing it down. Second, in relation to algorithmic reasoning, the strategy choice is to recall a solution algorithm and the remaining reasoning parts of the strategy implementation are trivial for the reasoner and only a careless mistake can prevent an answer from being reached. Both forms of imitative reasoning rely entirely on memory recall in response to which rote learning can all too often be seen as the pedagogical solution.

In turn, this triggered questions about the role of imitation and creativity in the context of the dance lesson in which the emphasis is more on the artistic expression of emotion and performance than on abstract reasoning. In particular, we can see how the *imitation-creation* conception links in with the social-constructivist perspective of imitation proposed by Winnykamen (1990), who notes that "Imitation activity consists in the intentional use of observed actions of others, as a source of information in order to achieve one's own goal" (1990, p. 105). We extend this approach in the theoretical framework of joint action in didactics by emphasising the importance of the epistemic quality of the contents involved in imitation. We consider that imitating is about being able to recognise in others an *essential unity of knowledge*. In other words, imitating requires one to identify the premises of an epistemic activity. The notion of imitation-creation is thus linked to the "epistemic game" defined as the process through which the teacher, in the joint action, supports the students in developing *new capacities, new possibilities in dance*. In our study, we can observe the way in which the teacher helped Raymond understand the meaning of 'symbolic' in the context of dance and to appreciate that "*I slapped them but I haven't slapped them really.*"

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