Reflection on innovation and renovation: authentic assessment and subject matter expertise in physical education

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I am deeply honored by this invitation to deliver the Cagigal lecture of this congress. As some of you know, my colleagues Bouchard and Brunelle and myself were awarded in 1978 the first AIESEP Samaranch Prize and it was decided that I would be the one to travel to Switzerland to receive the prize at the time of the AIESEP Congress held in Macolin. It was my first AIESEP Congress and I received the prize from the very hands of the AIESEP president of the time, Professor Jose Maria Cagigal. So, you may understand that standing here, 23 years later, to deliver the Cagigal lecture, bears a special significance for me.

I suppose it is fair to assume that an invitation to deliver a Cagigal lecture is the recognition of someone's scholar achievements in one or several of the areas covered by AIESEP. In that respect I salute all distinguished colleagues who have delivered such a lecture in previous years. I would like however to point out the fact that over the last 20 years, that is roughly throughout the entire period of my academic career devoted to Sport Pedagogy, a good deal of my research has been conducted and a majority of my publications have been written in collaboration with colleagues. In the late 70s, I started my work in sport pedagogy with Professors Jean Brunelle and Marielle Tousignant. A few years later, always under the umbrella of our research group at Laval University, I started a long term partnership with another hard working colleague, Professor Pauline Desrosiers. Together, we explored students' active participation to the formative assessment process. Finally, in January 1991, at the Atlanta AIESEP meeting, I met a French colleague, Professor Jean-Francis Gréhaigne, with whom I have explored the teaching and assessment of performance in team sports under a constructivist paradigm. Since roughly 1980, I have co-authored some 32 publications with these colleagues. So, in all fairness, it seems to me that to-day they deserve a share of the honor that is bestowed on me and I salute them.

Innovative aspects of formative assessment in physical education

In the first part of this presentation, I intend to discuss innovative aspects of formative assessment in Physical Education. In the early 90s, my colleague Pauline Desrosiers and I conducted a 2-year collaborative research with nine physical education teachers. Those teachers agreed to develop and experiment, on four successive trials, innovative assessment practices. However a first hurdle we had to go over was to come up with an operational definition of formative assessment which would make sense for these experienced teachers. During our discussion on that subject, we did agree on three pedagogical principles that seemed to be of relevance; these were:

1- Before getting engaged into a given learning situation, students should know what is expected from them.

2- During practice, not only the teacher but also the students should know to what extent they are succeeding, what they are doing correctly and what they are or appear to be doing wrong.

3- Every student should be given, within reasonable limits, the opportunity to succeed.

We then proceeded to relate these principles to the following classical evaluation model that has been advocated by many authors. The model includes five successive steps.

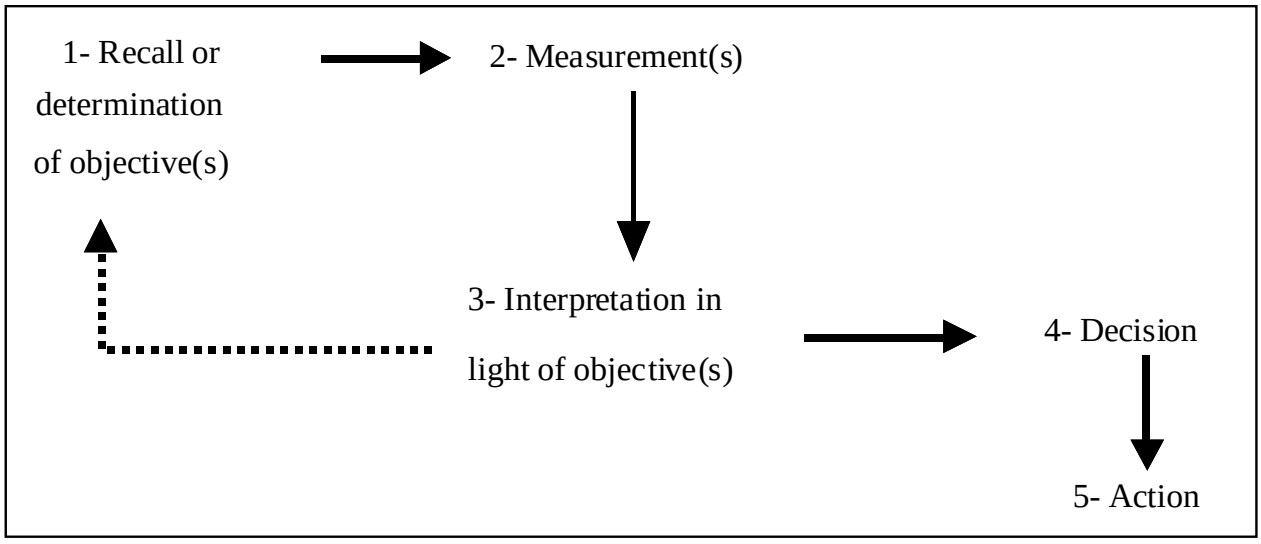

Figure 1. The five steps of any evaluation process.

Strictly speaking one might consider that steps 2 and 3 make up the evaluation per se while step 1 refers to planning and steps 4 and 5 to teaching. Such a way of looking at the evaluation process makes it disembodied, especially when one considers formative assessment. Indeed, interpreting measurements requires a reference to some form of objective. Also, collecting and interpreting information would not make sense if it did not lead to some type of decision and action.

Applying the 5-step model to formative assessment, we came up with an operational model proposing three facets for formative assessment (see figure 2).

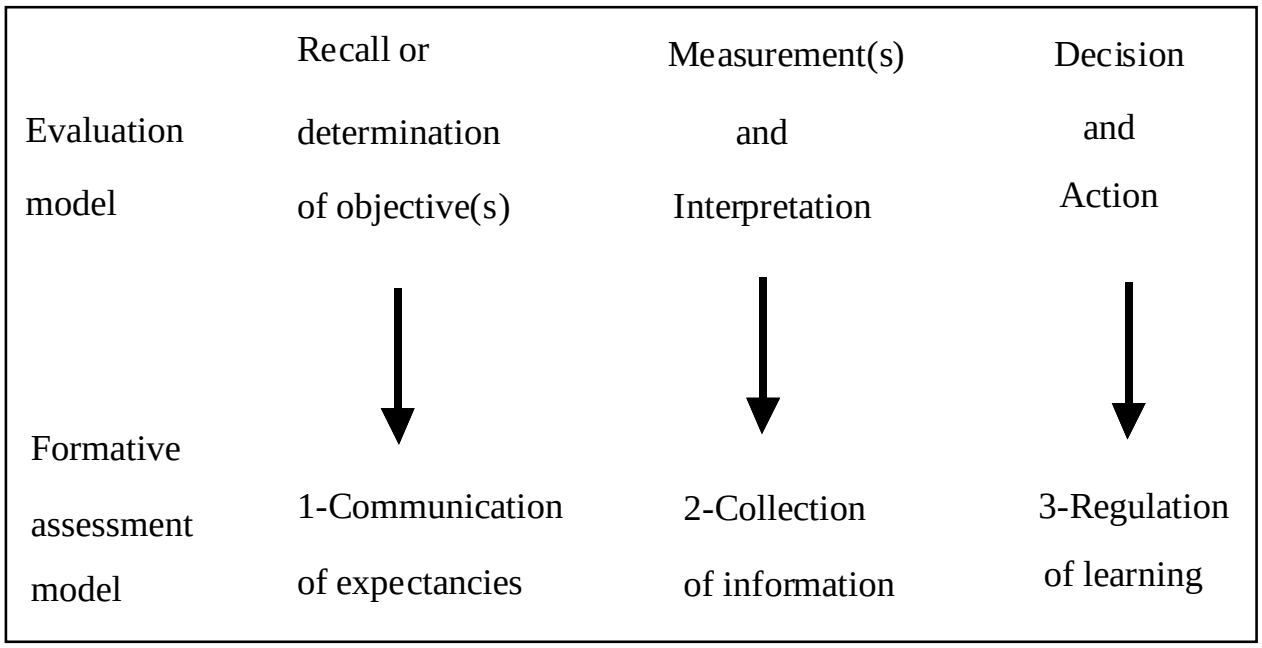

Figure 2. The three facets of formative assessment model.

1. Communication of expectancies. As stated earlier, students should know, before getting into practice, what it is they are trying to achieve. At what point, expressed in concrete terms, can they consider that they have mastered the learning objective or solved the problem at hand? This goes beyond stating the general objective and describing the learning task; unless they are given or they determine themselves some type of success criteria, students will never consciously know whether they succeed or not.

2. Collection of information. If, during practice, students are to know whether they succeed or not, information regarding their performance must be collected somehow, formally or informally. This can be done through observation by the teacher or by peers**,** through self assessment (with or without observational grids), through questionnaires, etc. The idea is to get information that can be

interpreted in light of the expectancies (success criteria) put forward by the teacher or initially selected by the students themselves.

3. Regulation of learning. Although gifted students often succeed at their first trial, many others do not. Thus, the true challenge of teaching is the management of success and failure. Indeed, what is the use of telling students they have not succeeded if one does not do anything about it ? Thus teachers must come up with learning-regulation scenarios which will provide the greatest possible number of students with an opportunity to master the learning objective.

In each of their trials with innovative formative assessment practices, we asked the participating teachers to specify, for each of the three facets, the pedagogical maneuvers or strategies that would relate to the purpose of the facet. A most interesting fact was that for many of them, stating expectancies or writing them on a blackboard, observing students during practice, providing feedback or adapting the learning task were all maneuvers related to teaching but not necessarily to assessment. In a sense, working with the 3-facet model helped them give meaning to the "formative assessment" construct and to integrate it to their daily teaching.

During the following years, through our own research, through research conducted by graduate students, and through our work with future practitioners, we had many occasions to observe that the specific pedagogical maneuvers selected in each facet by teachers and student-teachers alike were good indicators of one's particular conception of the teaching-learning process. Indeed, as an example, asking students to reproduce a throwing pattern to send the ball in the basket is quite different than asking them to find a proper way in order to achieve the same result. In a majority of the observations conducted in classrooms, we have found that teachers resort to pedagogical maneuvers related to the reproduction of motor patterns or strategies suggested, if not dictated, by the teachers themselves. This approach has been referred to as a neo-behaviorist conception of teaching. It leads to a teacher-centered classroom environment whereas authentic assessment calls for a student-centered classroom environment and, I believe, proceeds from a constructivist view of the teaching-learning process.

Three years ago, at the occasion of the Adelphi AIESEP Congress, my colleague Gréhaigne and I discussed elements of a constructivist approach to the learning process in team sports (Gréhaigne & Godbout, 1999). At the very beginning of our presentation we acknowledged that there were different constructivist perspectives in the literature (Cobb, 1986). Grossly summarized, one may identify two main constructivist teaching strategies:

1. To propose to students the discovery of the tactical or technical skill that applies in a specific situation. Such an option would be associated with an indirect teaching approach, combining both a subject-matter centered and a student centered perspective. It could be referred to as an **empiricist constructivist approach** to teaching (Cobb, 1986) which considers that knowledge is an external reality and exists independently of the student's cognitive activity.

2. To propose to students the construction of suitable personal tactical or technical skills that apply in a specific situation (there may be more than one from the student's point of view). Such an option, also referred to as indirect teaching, would be associated to a **radical constructivist approach** (Cobb, 1986) which contends that the knowledge constructed by the student is the result of the interaction between his / her cognitive activity and reality.

Although part of our coming discussion might apply to the first of those two views of teaching (that is, the empiricist constructivist approach), our considerations will be based on the second view described above, that is a radical constructivist approach. We will therefore see the construction of motor skills or of decision skills by the students as a process which requires:

(a) that students be presented with problems to solve or that they be put into situations favoring the recognition of such problems;

(b) that following the students' trials, they be presented with the result of their actions;

(c) that given these results, students be invited to appreciate them and decide whether they are satisfactory or not;

(d) that following unsatisfactory results, students be given the opportunity to experiment further and search for a better solution.(Gréhaigne & Godbout, 1999)

Given such premises, what kind of pedagogical maneuvers could a teacher use with respect to the three facets of formative assessment previously presented?

The communication of expectancies

Let us consider the first facet concerning the **communication of expectancies**. Some of you may be familiar with the following model (see Figure 3) which was developed to summarize the type of information one may seek when assessing students' performance in Physical Education. The same model applies whenever a teacher wishes to inform the students as to what the pursued objective is, or as to what is expected from them. Clearly, what is ultimately sought is some sort of product or end result, whether it be of a technical or a strategic or tactical nature. In a neo-

behaviorist approach, teachers will often choose to draw the students' attention on the process aspect of performance, meaning how to proceed in order to achieve some end result; an appropriate processing then becomes the immediate objective.

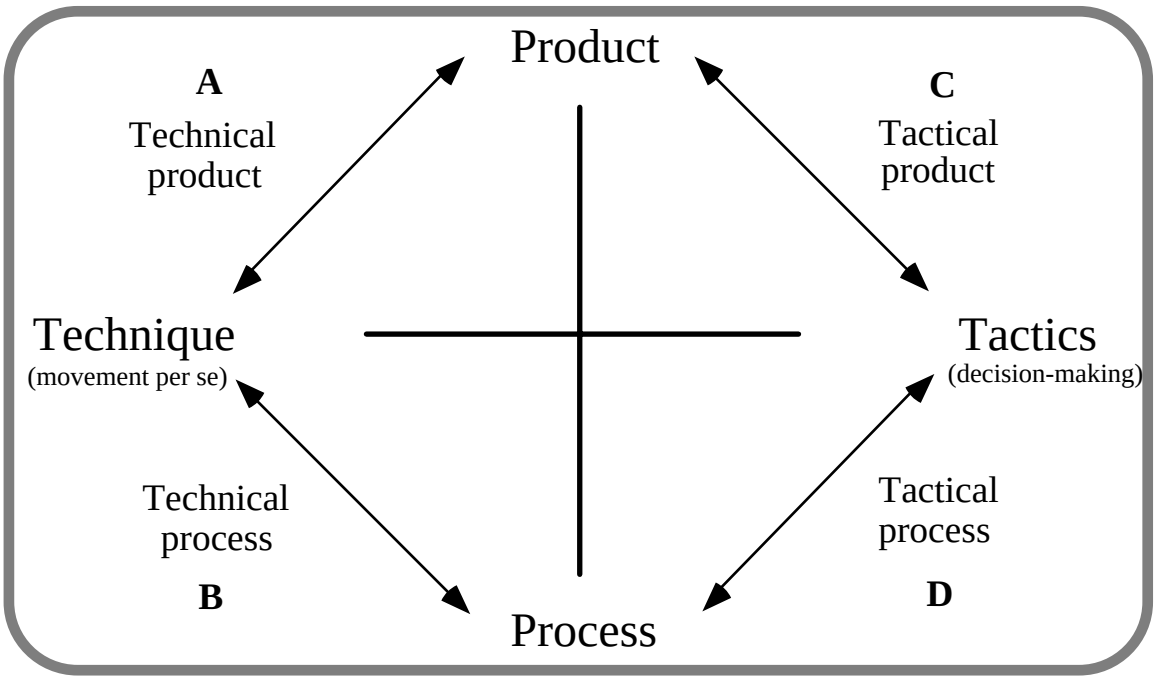

Figure 3. Elements potentially considered for the communication of expectancies (after Godbout, 1990; Gréhaigne, Godbout, & Bouthier, 1997)

In a constructivist approach, expectancies must be expressed in terms of products or end results. Objectives may be as follows:

- to reach a given target so many times (technical product);
- to increase one's jumping height by so much (technical product);
- to mark an opponent so he / she will not be able to receive a pass during an attack (tactical product);
- to increase by so many the number of shots on goal of one's team (technical/tactical product);
- etc.

Although in many if not most instances the communicated expectancies will be those of the teacher (as determined by the curriculum), the possibility of having students select themselves specific objectives and success criteria is in no way ruled out. Then, given some specific learning/practice set up, students are asked to construct an appropriate answer to the problem at hand.

Communication strategies are numerous and need to be adjusted to the specifics of the teaching environment that can be a gym, a swimming pool, a soccer pitch, etc. Among possible pedagogical maneuvers, one will find:

- verbal communication;
- written information on a blackboard;
- written information on personal sheets distributed to students;
- written information in computer accessed by students;
- written information on posters permanently displayed in the gym;
- verbal and/or written result of students' discussion concerning pursued objectives;
- teacher's questioning to check students' understanding;
- etc.

Two basic rules apply in this first facet:

1- Students are presented problems to be solved (or challenges to be met) rather then solutions to be reproduced.

2- Make sure that all students understand the objective and the success criteria.

The collection of information

As mentioned earlier, the second facet of formative assessment relates to the **collection of information** that may eventually help both the student and the teacher regulate student learning. Undoubtedly, the first kind of information to look for is product oriented. What was the student's performance? To what extent did it meet the success criteria? However, whether the trial was successful or not, knowing that result is not sufficient. In a constructivist paradigm, student's understanding is paramount. It follows that information about the process of student performance must also be sought. To collect information concerning the product and/or the process of student performance, two main strategies are likely to be used either separately or combined: observation and questioning

In Physical Education classes, three categories of observers may be available: the teacher, non participating students, and participating students. Figure 4 illustrates a situation in which the teacher has elected to stress participating-students' role as self observers. In figure, 5, all three categories of observers are involved; participating students are engaged into some type of interaction but they could as well be involved into some individual actions as in swimming, gymnastics, etc. In situations illustrated by these two figures, the teacher and/or student observers may be observing informally or may be using specific observational sheets. As for the participating

students, the awareness of their actions and their results may be unfocused. It may also be oriented by the teacher's previous suggestions or by some prior personal plan of action.

These two figures illustrate but a few of many potential observational set ups. For instance, students' performances might be video-recorded by the teacher or by peers and be reviewed later on by each performer, with or without the participation of the teacher and/or peers. This differed observation can then be made informally or with the help of some observational instrument.

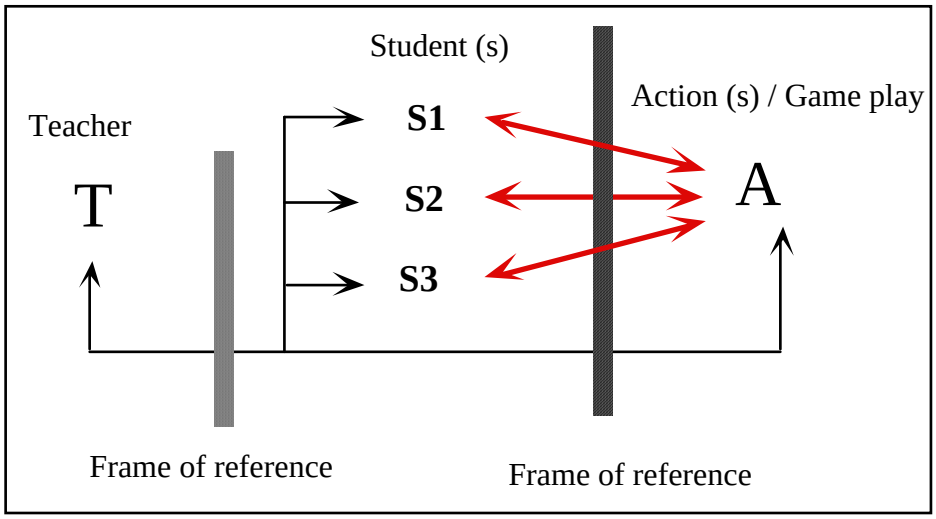

Figure 4. Pedagogical maneuver involving teacher and participating students as observers (after Gréhaigne & Godbout, 1999)

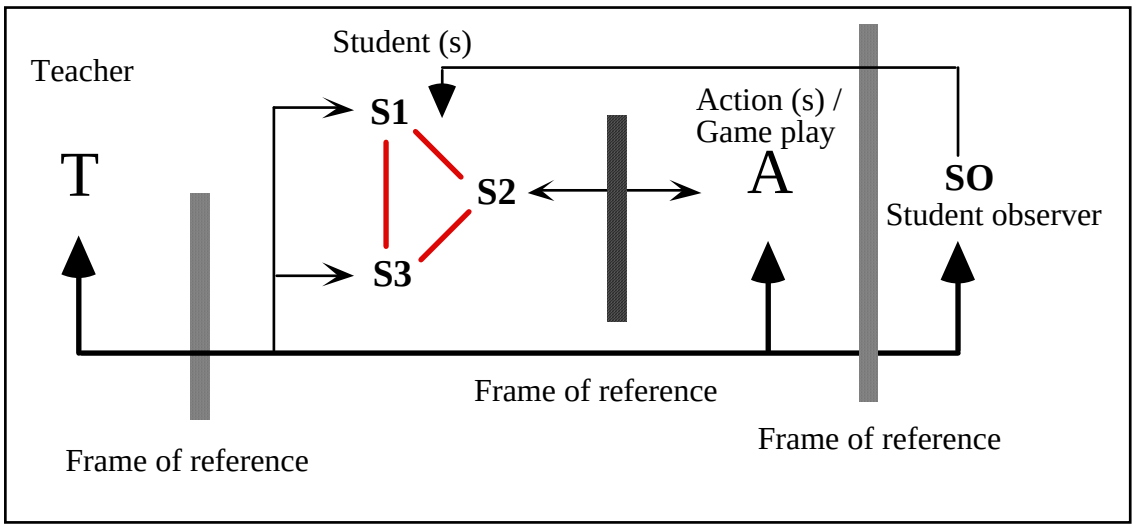

Figure 5. Pedagogical maneuver involving all three categories of observers (After Gréhaigne, Godbout, & Bouthier, 2001).

Whatever the observational set up used, its prime purpose is to provide information about the learner's achievement and/or specific actions. As illustrated in figures 4 and 5, all observers are likely to proceed according to some personal frame of reference. The key factor for the teacher is to stress, for all observers involved, the difference between the description of what happened and an interpretation or an assessment of the events observed. At this point, the learner needs to be provided **information**. Of course, product-oriented observations are more likely to lead to factual data. Observational instruments that focus on the process of student performance tend to be evaluative, judging the correctness of a movement or the appropriateness of some tactical decision. That is not to say that developing neutral descriptive observational instruments focused on the process aspect of performance is an impossible task. It simply represents a new challenge for teachers who are not used to considering this way of learning.

In many instances, outside observers (teacher and student-observers) will be helpful in providing descriptive augmented feedback to the learner, especially when the information to be collected is numerous and/or the action lasting. However, the learners' own recollection of the action and its result is also crucial for it will likely influence not only their reflection on action but also, eventually, their reflection in action. At times, the comparison of information collected from different sources may prove useful for the learners. I remember discussing with one of my graduate students who had found that after a performance, gymnasts would swear theirs legs had been straight while all judges had seen them flexed.

Learners' recollection of events may be facilitated by questioning either under the form of verbal questions from the teacher or under the form of some written questionnaire to be filled in by each learner once the action is over. At times, action can also be stopped by the teacher, performers being invited to take note of their specific conduct. Such maneuvers are all intended to induce or enhance the learner's recollection of events. The pedagogical usefulness of questioning reveals itself all the more when one considers the third facet of formative assessment.

The regulation of learning

As mentioned earlier, this third facet concerns the regulation of learning per se. Key words associated with this facet are critical thinking, understanding, concluding, hypothesizing, planning, etc. If the trial was successful, the learner needs to understand why so he or she can stabilize the appropriate answer. If the trial was unsuccessful, the learner also needs to understand why or at least make some hypothesis about reasons for failure.

At this stage, assessment, learning and instruction truly become intermingled. The whole process aims either at stabilizing success or at correcting failure. Keeping in mind the guidelines of a constructivist paradigm, teachers must then plan and use regulation scenarios that favor the construction, by the learner, of suitable answers from the learner's point of view, given the pre-determined or agreed upon success criteria. Questions and answers, verbalization, and group debate are among the main tools likely to be used by the teacher in order to achieve this result. Gréhaigne, Godbout and Bouthier (2001) have written that

> in debate-of-ideas settings, following play action, students are invited to express themselves and exchange facts and ideas, based on observations collected or on personal activity experienced. The debate may concern quantitative results cumulated during the action setting, qualitative assessments of the process involved, collective and/or individual strategic hypotheses for future action settings, and so on.(p. 69)

The importance of exchanges with peers should not be overlooked. As written by Alexander & Murphy (1998),

> Learning is as much a socially shared undertaking as it is an individually constructed enterprise. … learning is continuously and markedly shaped by the social context in which it occurs. (p. 39-40)

Whether the debate involves the learner with the teacher, the learner with peers or the learner with himself/herself, the whole purpose is to induce critical thinking, reflection on action, planning and/or verification, understanding, and learning (or should I say temporary learning). Often, the regulation scenario will call for new trials of the same task following the debate of ideas, and students will again be invited to reflect on their actions, and so on. Other scenarios may involve more complex situations or simpler ones in case of confirmed success or repeated failures.

Interaction between facets of formative assessment

The three facets previously presented in figure 2 and discussed so far are obviously not as clearly separated in real teaching situations. This is why we have chosen to label them facets instead of steps or stages in order to avoid any time-related implication. As illustrated in the following figure, the teacher can, at the time of the collection of information, recall what the success criteria are. This can also be done when time has come for teacher and students to reflect

on the action conducted and to examine other plans of action that might lead to success. Finally, until stabilized success is insured, facets 2 and 3 will be exploited back and forth through the unavoidable hypothesis/action/verification/hypothesis cycle. As expressed by several authors such as Zessoules and Gardner (1991) and Perrenoud (1991), formative assessment should in no way be treated as separate and distinct from learning and instruction. Formative assessment is part of the teaching–learning process and Perrenoud (1991) goes as far as writing that it may be viewed as a form of regulation of learning, among others. The important thing is not to determine whether the regulation of learning facet is part of formative assessment or part of didactics or pedagogy. I think the regulation of learning involves all those processes. The point that I am trying to make here is that the important thing, for teachers, from a formative assessment point of view, is to make sure that one way or the other all three facets discussed above are part of their regular teaching strategy. If all three categories of pedagogical maneuvers can be observed during a physical education class and that student-regulated learning is at work, I don't really care what the whole process is called in the end.

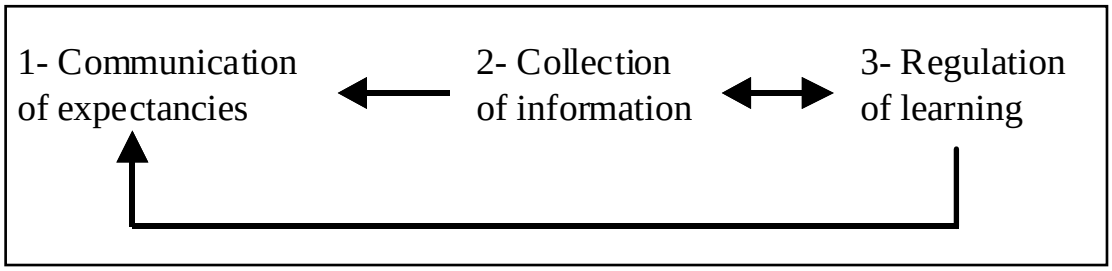

Figure 6. Interaction between the three facets of formative assessment

Making formative assessment authentic

As you know, the notion of authentic assessment has become a prominent subject in pedagogical issues during the last decade. According to Zessoules and Gardner (1991), authentic assessment meets four criteria that are not typically associated with other assessments:

3- it nurtures complex understandings;

4- it develops reflection as a habit of the mind ;

5- it documents learners' evolving understanding ;

6- and it uses assessment opportunities as a moment of learning.

Zessoules and Gardner (1991) also stress the importance for the students to become active participants in assessment.

Authentic assessment challenges students to become thoughtful judges of their own work. Theirs is the work of posing questions, making judgements, integrating

> criticisms, reconsidering problems, and investigating new possibilities. With this work comes the responsibility of assessment. Students must educate themselves to become accurate evaluators of their own efforts. They must come to recognize and build on the strengths of their work and to diagnose and treat their weaknesses. No longer the passive subjects of testing and evaluation, students are key players in the process of assessment. (p. 64)

Obviously, this shift in students' responsibilities brings about a parallel change in teachers' own roles for they must adjust to a student-centered teaching approach. As written by Zessoules and Gardner,

> …authentic assessment requires teachers to step back from their traditional role at the head of the classroom, allowing students to take center stage and teachers to become accomplished guides in the process of self-assessment. It is this act of stepping back that enables teachers to practice and infuse the habit of reflection in their own pedagogical approach. (p. 65)

Given these characteristics of authentic assessment, it is my belief that the practice of formative assessment as described earlier in this presentation with reference to its three facets offers better chances to make it effectively authentic.

In a way, the teaching learning process may then be viewed as an encounter between a reflexive teacher and reflexive learners.

Formative assessment and meta-cognition

From what has been said so far, it should be clear that in a student-centered learning approach such as constructivism, as we have defined it, each learner is expected to play a central active role in the regulation of his/her learning. Thus considerations about students' meta-cognitive knowledge and meta-cognitive skills can hardly be ignored.

> Meta-cognition refers to people's abilities to predict their performances on various tasks (…) and to monitor their current levels of mastery and understanding. Teaching practices congruent with a meta-cognitive approach to learning include those that focus on sense-making, self-assessment, and reflection on what worked and what needs to be improved. (Bransford, Brown, & Cocking, 2000, p. 12)

Although there may be some disparities among authors, it is generally agreed that meta-cognition (i. e. knowing about knowing [Metcalf & Shimamura, 1994]) is made up of two

complementary components: meta-cognitive knowledge and meta-cognitive skills (Doly, 1999; Richer, 2000).

Meta-cognitive knowledge is declarative and refers to three categories of knowledge and interactions among them:

a- knowledge about other people's learning and about one's own learning. What the learner knows about knowledge in general, about other students' learning strengths and weaknesses, about his/her own learning strengths and weaknesses.

b- knowledge about the demands of the learning task at hand. For instance, knowing from one's cumulated experience that cooperation is harder to master than opposition, that learning to handle the ball requires more practice than learning to throw it, etc.

c- knowledge about learning strategies. This refers to knowledge about one's more efficient ways of mastering motor skills or decision skills; in other words, knowing that usually, when I proceed this way or that way, I get better results.

For their part, meta-cognitive skills represent the procedural aspect of meta-cognition. They refer to processes engaged by the learner in order to control or self-regulate his or her learning actions when trying to solve a problem. " Meta-cognition helps the problem solver (1) recognize that there is a problem to be solved, (2) figure out what exactly the problem is , and (3) understand how to reach a solution" (Davidson, Deuser, & Sterberg, 1994, p. 208). More specifically, with a few variations from some authors to others, one may identify the following meta-cognitive skills (Bransford et al., 2000; Davidson et al., 1994; Doly, 1999; Lafortune, Jacob, & Hébert, 2000; Richer, 2000):

a- awareness: taking consciously note of one's cognitive actions, one's cognitive reactions, and one's learning environment;

b- planning: planning objectives and steps to be taken, selecting strategies accordingly, making hypotheses about the outcome and setting assessment criteria;

c- monitoring – regulation: checking whether or not one is progressing toward the goal, identifying errors, changing learning strategies, etc.

d- evaluation: assessing one's learning strategy on the basis of obtained results.

In an effort to better link the findings of research on the science of learning to actual practice in the classroom, two committees of the US National Research Council (the Committee on developments of the science of learning, and the Committee on learning research and educational practice) combined their findings and conclusions to produce a book entitled "How People Learn –

brain, mind, experience and school" (Bransford et al., 2000). Discussing how children learn, they wrote:

> Meta-cognition also refers to the ability to reflect on one's own performance. Whereas self-regulation may appear quite early, reflection appears to be late developing. If children lack insight to their own learning abilities, they can hardly be expected to plan or self-regulate efficiently. But meta-cognition does not emerge full-blown in late childhood in some "now you have it, now you don't manner. The evidence suggests that, like other forms of learning, meta-cognition develops gradually and is as dependent on knowledge as experience. It is difficult to engage in self-regulation and reflection in areas that one does not understand. However, on topics that children know, primitive forms of self-regulation and reflection appear early. (Bransford et al., 2000, p. 97-98)

Examining the APA's learner-centered psychological principles, Alexander and Murphy (1998) have written:

> **The ability to reflect on and regulate one's thoughts and behaviors is essential to learning and development**….it is widely accepted that effective learners not only possess a body of organized and relevant knowledge, but they also have the ability, and at times the willingness, to reflect on and to oversee their own mental functioning and to assess their own performance. Studies have demonstrated that learning is enhanced when individuals have knowledge of and apply appropriate monitoring or executive strategies during the learning process. … Those who reflect on their own thinking and learning performance and use that self-knowledge to alter their processing are more likely to show academic growth than those who do not. (Alexander & Murphy, 1998, p. 31)

According to Doly (1999), meta-cognition helps learners

a- construct knowledge and competencies with more chances of success and re-utilization;

b- learn problem-solving strategies that favor success and transfer, self-regulation being one of them;

c- become more autonomous in task management and learning (being self-regulated and knowing when to seek help).

This having been said, how should teachers proceed to induce students' meta-cognitive development? Doly (1999) and Lafortune et al. (2000) describe four successive stages: modeling; guided practice; cooperative practice; and autonomous practice. Going into details for each of these strategies is beyond the scope of this presentation. Let us rapidly consider the pedagogical set-up put forward by Romainville (2000):

- Formalize meta-cognitive pauses during learning activities. They allow students to think back about mental processes that were involved in those activities.
- Favor a meta-cognitive conflict between students, peers with close cognitive, social, and affective characteristics being the best mirror of the learner's mental functioning.
- Use mediation on the part of the teacher. Within the student's meta-cognitive "zone of proximal development", the teacher plays the role of a tutor for a progressive introspection his/her meta-cognition by the learner.

Privileged moments to insert such meta-cognitive pauses might be associated with the third facet of formative assessment discussed earlier. As students reflect on their actions within some elected learning strategy, they may also at times be invited to reflect on the learning strategy itself. Here again, verbalization remains a powerful pedagogical tool for it serves two functions, one of representation and one of communication (Doly, 1999). Grossly summarized, what is proposed here is that teachers bring students to reflect simultaneously on two different levels: the level of the actions performed with reference to success criteria, and the level of the specific learning strategy used with reference to obtained results and the same success criteria. I can almost hear some of you thinking "that's a lot of reflection"! And through all this, teachers must stay aware that, as expressed by Alexander & Murphy (1998), "motivational or affective factors, such as intrinsic motivation, attributions for learning, and personal goals, along with the motivational characteristics of learning tasks, play a significant role in the learning process" (p. 33)

To my knowledge, very little research has been done in Physical Education with regards to the development of meta-cognitive skills. According to Bransford et al. (2000), for the US National Research Council, "the teaching of meta-cognitive skills should be integrated into the curriculum in a variety of subject areas" (p. 21). Given the theme of this congress, getting teachers to apply a constructivist approach to their classes is still to be regarded as an innovation and a challenge. Thus, at this point, adding meta-cognitive considerations to their daily work may be seen more as pedagogical wishful thinking than pedagogical innovation!

But enough said on that subject, although it has not been exhausted by far.

Conception and dissemination of subject-matter content in physical education

In the remaining part of this presentation I would like to say a few words about renovation instead of innovation. More specifically, I would like to briefly discuss the matter of "The conception and dissemination of subject-matter content in physical education".

In 1998, JTPE published a paper from Schemp, Manross, Tan, and Fincher, whose title was "Subject matter expertise and teachers' knowledge". Basically, the paper contends that subject matter knowledge is essential for efficient teaching.

But then, what is meant by the expression "subject matter knowledge"? To answer that question properly, one has to determine which program (or curriculum) is at stake. As was the case for the Schemp et al.'s paper, I am referring to a school physical education curriculum. In this case, what constitutes subject matter knowledge? Is it knowledge about physiology of exercise? Knowledge about motor learning? Knowledge about psychology of sport? Knowledge about pedagogy, measurement, assessment? None of these are part of the subject matter knowledge confined in school physical education. Reporting Larry Locke's comments, Shirl Hoffman recently wrote in the NAPEHE Chronicle of physical education in higher education (May 1998):

> "Physical education is a content field, ... and its subject matter is not kinesiology [nor is for that matter pedagogy, I might add] but content in and performance of sports, games, dance, physically active play forms of all kinds, and such physical training components as are required for performance fitness".

So as it relates to school physical education, subject matter knowledge is, in great part, knowledge about physical activity and its practice in itself.

For the last 30 years, there has been a considerable amount of energy put into research concerning various aspects of the involvement of human beings into the practice of physical activity. Such aspects may relate to kinesiology, pedagogy, or teacher education. Scholarship in physical education has been particularly associated with peer reviewed publications in these areas. Like many of you, I don't get to read or even, at times, to take note of all that is published in our field. However I get the impression that what is considered scholarly work relates mostly to some sort of relationship between physical activity and people and has very rarely to do with the intrinsic nature of the activity itself.

It seems strange that in the realm of scholarship in physical education, studies on and publications about the practice of physical activity would be readily accepted while intellectual endeavors aimed at a better understanding of the characteristics and essence of any form of

physical activity would be most of the time down ranked to "professional output". In our field, such papers would be expected from school teachers or from coaches, not from scholars. By analogy, this would mean that essays on musicians or on some music form, and on writers or literature wouldn't be considered scholarly work. It may be that in our fight for campus recognition, we have forgotten, or worse dumped subject matter expertise.

Like writing, music or painting, sports and games and other similar physical activities are expression modes of the human race. Thus they will always be worth studying for what they are, and I don't think that the responsibility for such studies should systematically be left to practitioners (either teachers or coaches) and to professional organizations such as our sport federations.

Over the last decade, the notion of pedagogical content knowledge has been given more and more attention and rightly so since it is, in a way, the teachers' bread and butter in any subject matter. Of course, in saying this I am in no way suggesting that pedagogical content knowledge should be the sole objective of teacher education. There is not only a place but also a need for pedagogical and kinesiology knowledge to support the development, the selection and the use of pedagogical content knowledge. But the fact remains that planning, organizing, and conducting a meaningful and efficient rapport between students and the subject matter is a critical aspect of the teaching endeavor.

Understandably, the quality of pedagogical content knowledge relies heavily, although not entirely, on the quality of subject matter knowledge itself. It seems to me that as teacher educators and researchers in physical education, we strive to develop a body of knowledge that will enable us better understand the practice of physical activity and better educate future practitioners. We strive, as scholars, to develop at their best and organize all kinds of knowledge, except maybe the one kind sitting at the top rung of the ladder, that is subject matter knowledge.

In many of our departments, schools or colleges, there is, to say the least, some tension between kinesiology researchers and teacher educators. In such contexts, there are always debates about the definition and the extent of scholarship. In May 1996, Quest published a special feature entitled "Beyond scholarship reconsidered". I found the reading of the various papers very inspiring. As stated by Lidstone, Hacker, and Oien, I believe that scholarship comes in many shapes and forms. I therefore submit that in the coming years, one of our challenges as sport pedagogy researchers and teacher educators is to expand the umbrella of scholarship so that it includes the development of both pedagogical content knowledge and its primary source, that is subject matter knowledge.

In doing so, I don't think we would really be innovating. Instead, I submit that we would be renovating, that is giving back its letters patent of nobility to the study and analysis of sports and physical activity as a field of scholarly expertise. Our universities are made up of academic entities that vary greatly in terms of focus and methodologies of inquiry although they all share the common goal of developing knowledge. One is not perceived less a scholar because he/she professes in ethnography or in music instead of in physics, physiology or education. It is not a matter of tolerance; differences are simply acknowledged and respected as long as there is trust in the quality of the inquiry process. Not unlike university campuses, the fields of physical education and sport science offer a surprisingly large diversity of focuses and methodologies of inquiry. For more than 35 years, I have watched and even been part of the expansion of our body of knowledge. As I get closer to the exit, I can only hope that differences among ourselves will be perceived as a strength, not a weakness, and that open-mindedness and respect will prevail over distrust and rejection. I thank you for your attention and wish you all a very good and profitable congress.

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