



Students' Self-Assessment, Perceived PE Teachers' Assessment and Related Students' Interpretation of Teachers' Behaviours¹

*Auto-évaluation d'élèves, leur perception de l'évaluation de leur professeur
d'éducation physique et leur interprétation des comportements de l'enseignant*

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This article discusses an examination of the relationship between Physical Education teachers' behaviours towards their students (as reported by students), the feelings experienced by these students and the way they tend to react when faced with various teacher behaviours. The purposes are (a) to examine the internal consistency of a questionnaire to collect students' perceptions, and (b) to describe the various facets of the discrepancy construct, discussing their relationship with behaviours reportedly adopted by students who feel underrated, overrated or rightly assessed by their teacher. A total of 891 students from 35 regular 5th and 6th year elementary PE classes completed the questionnaire by the end of the school year. Results indicate that there is a strong to moderate connection between reported teacher behaviours, reported student feelings, and reported student answer behaviours. The use of this student questionnaire may help teachers or researchers better understand students' behaviours during PE classes.

Cet article analyse le rapport entre des comportements d'éducateurs physiques à l'égard de leurs élèves (tels que rapportés par ces derniers), les sentiments ressentis par ces derniers et la façon dont ils tendent à réagir lorsqu'ils sont confrontés à divers comportements de l'enseignant. Les buts de l'article sont (a) d'analyser la consistance interne d'un questionnaire utilisé pour recueillir les perceptions des élèves, et (b) de décrire les diverses facettes du construit de discordance en examinant leur rapport avec des comportements que les élèves disent adopter lorsqu'ils se sentent sous-évalués, surévalués ou évalués à leur juste valeur par leur éducateur physique. Un total de 891 élèves, issus de 35 classes régulières de 5^{ième} et 6^{ième} année du primaire, ont complété le questionnaire vers la fin de l'année scolaire. Les résultats indiquent qu'il y a une

relation de forte à modérée entre les comportements d'enseignant rapportés, les sentiments ressentis rapportés et les comportements que les élèves disent adopter en réponse à ces comportements d'enseignant. L'utilisation du questionnaire pourrait aider les enseignants et les chercheurs à mieux comprendre les comportements des élèves durant les cours d'éducation physique.

Introduction

Students' perceptions represent a key information source for teachers who wish to offer them an educational environment better adapted to their needs. However, even good teachers seem to find it difficult to get to know and understand students' needs (Graham, 1995b). Moreover, although more numerous over the last 15 years, studies on students' perceptions about physical education remain insufficient for researchers to really comprehend how students' perceptions influence their behaviours during physical education (PE) classes. This article is in line with research studies focused on building knowledge about what students think of the learning conditions they are offered in PE classes. The pertinence of such studies is based on the fact that what students experience and feel has a strong impact on their conduct and performance in school (Dyson, 1995).

In 1995, a *Journal of Teaching in Physical Education (JTPE)* monograph, edited by Graham (1995a), presented a series of studies on what students think, feel and know about various aspects of their physical education program. Although Graham (1995b) alluded to the notion of "student as consumer" which would appear appropriate in a teacher-centred approach in physical education, the study of students' knowledge, perceptions, feelings and attitudes is certainly in line with a student-centred approach which has gained momentum in education in the last decades. Tjeerdsma (1997) and Sanders (1996) have provided PE practitioners with suggestions for enhancing communication with students and better interpreting students' experiences in physical education. The importance of studying students' perceptions has been well summarized recently by Lee and Solmon (2005):

Students enter instructional settings with prior knowledge, experiences, values, and beliefs that serve as lens or filter through which they perceive the instructional environment. Based on their perceptions of events that occur in physical education classes, they assign meanings to their experiences and interpret instructional stimuli. They make decisions concerning their interactions in classes, deciding whether or not to engage in learning activities, how much effort to exert, and whether or not to persist in challenging situations. From this perspective, it is important to investigate student cognitions to learn how teachers can structure the climate to encourage students to think and act in ways that will enable them to learn. (p. S-114)

Among studies focused on students' mediation of instruction, a good deal of attention has been given to teachers' expectations and their effects on students' behaviours. These studies have shown that teachers give their students differentiated treatments. The present article was inspired by the research on the Pygmalion effect conducted in physical education. It deals with students' perceptions of their teacher's conduct toward them. According to Martinek (1988), this variable is critical for the teaching-learning process inasmuch as

students' perceptions of their teacher's behaviours, and especially how they interpret those behaviours, have a great influence on their conduct and their performance. As shown in Figure 1, Martinek's model (1991) suggests that

... a) teachers form expectations of their students from perceptions gained through a number of impressions or cues related to student characteristics; b) from these perceptions certain expectations for future performance of the student are formed; c) expectations can affect the *quantity* and *quality* of the interactions between the teacher and student; and d) the student perceives and interprets the interactions and may or may not perform in a way that is consistent with expectations held by the teacher. (p. 60).

So, the expectancy transmission process is not an overt one in the sense that teachers do not specifically tell their students to what extent they believe in their chances of success (Blumenfeld, Hamilton, Bossert, Wessels, & Meece, 1983; Good, 1987). Students rather develop their own representation of their teacher's expectancies based on their interpretation of ways the teacher behaves in their presence. Thus, this research deals with students' perceptions and interpretations of their PE teacher's behaviours towards them and the way these teaching behaviours bear an influence on them.

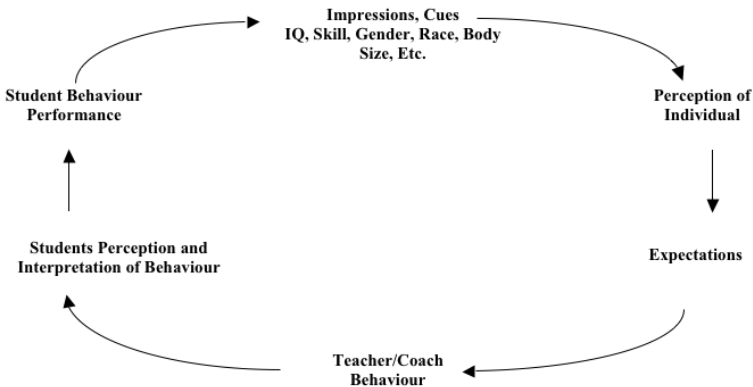


Figure 1. Teacher expectancy model for physical education and sport (Martinek, 1991)

According to Martinek's theory, the meaning attributed by students to their teacher's behaviours would act as a filter between the teacher's actions and their impact on the students (Fraser, 1994). This means that students can have different interpretations for a same teaching behaviour (Good, 1987) and react in various ways to this behaviour (Brophy, 1983). This "mediating" role attributed to learners' perceptions in the actualization of teachers' expectancies is acknowledged by several authors (Babad, 1990; Babad, Bernieri, & Rosenthal, 1991; Baron, Tom, & Cooper, 1985; Braun, 1985; Brophy, 1983; Fraser, 1986; Good, 1980; Martinek, 1981a, 1981b; Ritts, Patterson, & Tubbs, 1992; Schunk & Meece, 1992; Weinstein, 1985).

In this respect, this research focuses on an approach to examine the relationship between PE teachers' behaviours towards their students (as reported by the students), the feelings experienced by these students and the way they tend to react when faced with various teacher behaviours.

Moreover, the research deals more specifically with the analysis of perceptions reported by students who feel underrated, overrated or rightly assessed by their PE teacher. This line of research is important in the sense that the discrepancy between what students think of themselves and what they believe the teacher thinks of them may indicate the kind of influence the teacher's expectancies have on each of them (Gagnon, 1992; Martel, Gagnon, & Godbout, 2011; Martel, Pelletier-Murphy, & Gagnon, 1999). This discrepancy, or no discrepancy, makes it possible to compare the image students have of themselves and the image they think the teacher has of each of them. More specifically, no discrepancy means that the student feels he/she is assessed on the basis of his/her worth, that is his/her self-assessment is identical to his/her estimate of the teacher's assessment. In all other cases, there is discrepancy, meaning that the student's self-assessment differs from his/her estimate of the PE teacher's assessment. Positive discrepancy indicates that the student feels he/she is overrated by the PE teacher; inversely, there is negative discrepancy whenever the student feels he/she is underrated by the PE teacher.

The discrepancy construct originated from a study on the Pygmalion effect that described athletes' perceptions of the way their coach dealt with them (Gagnon, 1992). Results of this study showed that the athletes' level of satisfaction concerning their training experience was related to the nature of the discrepancy between their self assessment and their perception of the coach's assessment. This paper is in line with Gagnon's previous work and its purpose is (a) to examine the internal consistency of a procedure to collect students' perceptions relative to their self assessment, that of their PE teacher, relating teachers' behaviours to student's reactions, and (b) to describe more thoroughly the various facets of the discrepancy construct, discussing their relationship with behaviours reportedly adopted by students who feel underrated, overrated or rightly assessed by their teacher.

The link between students' perceptions, interpretations and reported behaviours

A student questionnaire

In the context of studies on students' perceptions and resulting behaviours during PE classes, a questionnaire (see Table 1) was developed to collect the following data:

- a) students' self assessment of their level of performance, discipline and involvement during PE classes;
- b) students' perceptions of their PE teacher's assessment for the same three dimensions;
- c) students' selection of teacher behaviours indicative of the perceived teacher assessment;
- d) students' feelings related to the reported teacher behaviours;
- e) students' reactions to their reported feelings.

The three dimensions (performance, discipline and involvement) were selected based on Dostie's (1996) findings that they are the most determinant for explaining teachers' expectations.

The procedure followed to complete the questionnaire has been successfully used in previous studies with 5th and 6th year elementary school students (Martel, Gagnon, Grenier, Pelletier-Murphy, & Dumont, 1999; Martel, Pelletier-Murphy et al., 1999). Once the students have identified themselves at a proper place on the questionnaire (if appropriate) and have identified their PE teacher (if appropriate), the procedure is as follows:

1. first, students are asked to indicate on a 5-point scale to what extent they think they are good in physical education;
2. then, they are asked to indicate, again on a 5-point scale, to what extent their PE teacher would rate them as good in physical education;
3. based on their perception of the teacher's rating, students are asked to select a teacher behaviour (or write one down if the provided list seems incomplete) that leads them to believe that their teacher would give them such a rating;
4. given the selected teacher's behaviour, students have to select a feeling (or write one down if the provided list seems incomplete) corresponding to what they feel whenever their teacher behaves that way;
5. given the teacher's behaviour and the corresponding feeling selected, students are asked to select a behaviour (or write one down if the provided list seems incomplete) they tend to adopt in response;
6. students are then asked to select (or write down) a second teacher behaviour indicative of their perceived rating, a corresponding feeling and an adopted response behaviour.

Having completed the part concerning their level of performance in physical education, students repeat the above 6-step process for their level of discipline and for their level of involvement. Thus, overall, students normally select six teacher behaviours, six feelings, and six response behaviours, for a total of 18 items.

When completing the questionnaire about one dimension, students have to select two different teacher behaviours. However, when time comes to select feelings and response behaviours, they can select the same answer twice. When passing from one dimension to another, students can also designate one or two teacher behaviours previously selected. Finally, students are allowed to select only one teacher behaviour for one dimension or another if they are unable to select or identify a second one.

Table 1
*Student Questionnaire on their Perception and that of their Teacher Concerning their Levels of Performance, Discipline and Involvement**

1) In physical education, you are ...					2) What do you think your teacher would say if we asked him (her) the same question about you? He or she would say that you are ...									
1	2	3	4	5	1	2	3	4	5					
Not very good					Very good									
What behaviours on your PE teacher's part make you believe that?					How does that make you feel?					How do you react when this happens?				
<i>He/She...</i>														
1- selects me to demonstrate.					1- That makes me unhappy.					1- I do not try as hard.				
2- does not give me much a break.					2- That embarrasses me.					2- I listen more closely.				
3- is more severe with me.					3- That discourages me.					3- I sulk.				
4- accepts suggestions I make.					4- I am proud of myself.					4- I work better.				
5- congratulates me often.					5- I feel rejected.					5- I pay less attention.				
6- does not choose me to be team captain.					6- I do not like that.					6- I improve.				
7- gives me good grades.					7- I am glad.					7- I take less part in the class work.				
8- does not pay much attention to me.					8- It saddens me.					8- I become more of a drag.				
9- punishes me often for no reason.					9- It frustrates me.					9- I keep doing the same efforts.				
10- lets me play more often than other students.					10- I feel that I am better.					10- I stop working.				
11- does not trust me.					11- That does not bother me.					11- I try harder.				
12- does not select me to demonstrate.					12- It encourages me.					12- I am impolite.				
13- does not encourage me a lot.					13- I like that.					13- I no longer abide by the rules.				
14- chooses me to be team captain.					14- I feel more confident.					14- I am less of a drag.				
15- does not listen to what I say.					15- That offends me.					15- My work is not so good.				
16- wrangles rarely with me.					16- That makes me happy.					16- I take better part in the class work.				
17- pays a lot of attention to me.					17- I feel bad.					17- I complain.				
18- gives me bad grades.										18- I maintain my good conduct.				
19- encourages me often.														
20- rarely punishes me.														
Other behaviour : _____					Other feeling: _____					Other response: _____				

*Authors' note: Table 1 continues with the discipline variable (Not much disciplined/Disciplined) and the involvement variable (Few efforts/Many efforts). For both variables, the lists of teacher behaviours, feelings and response behaviours are the same as the one used with the performance variable.

As indicated above, students have the opportunity to write down some other teacher behaviour, feeling or response behaviour whenever they feel that the list provided is incomplete. Few choose to do so. In a previous study (Martel et al., 2011) with over 1674 answers concerning teacher behaviours, only fifteen represented a behaviour not provided in the original list. Over the same total of answers for feelings and response behaviours, only three answers differed from the list of feelings provided and three answers differed from the list of response behaviours provided, thus confirming the saturation of the provided lists.

The internal consistency of the questionnaire

Categorizing teacher behaviours, student feelings and resulting student behaviours. The list of teacher behaviours ($N = 20$) was established in a previous study (Martel, Gagnon, Pelletier-Murphy, & Grenier, 1999) which made it possible to identify ten favourable and ten unfavourable teacher behaviours that represent, according to 5th and 6th year students, the best clues regarding a physical education teacher's expectancies. The lists of 17 students' feelings and 18 students' response behaviours, or reactions, were established at the time of a pilot study with 100 5th and 6th year elementary school students. In that pilot study, students did not have a list of feelings and a list of response behaviours to choose from and had therefore, to provide their own answers. An inductive analysis of those answers (600 statements concerning feelings and 600 more concerning response behaviours),

based on analysts' consensus, yielded saturated lists of 17 different feelings and 18 different behaviours. Through analysts' consensus, feelings and response behaviours were classified as negative and positive but there was no indication of such a classification in the questionnaire. Additional teacher behaviours, feelings and response behaviours collected during the study were also classified the same way.

Hypotheses. Part of the questionnaire is intended to establish a link between students' perceptions of their teacher's behaviours and the behaviours they report tending to adopt during PE classes as a result of these teacher behaviours. It is then hypothesized that a student's perception of a positive teacher behaviour would make him or her feel good and would motivate him or her to adopt positive behaviours in class. Inversely, a student's perception of negative teacher behaviour would make him or her feel bad and would motivate him or her to adopt negative behaviours in class.

Sample of subjects. A total of 891 students (418 girls and 473 boys) completed the questionnaire. These subjects came from 35 regular 5th and 6th year elementary school classes (21 and 14 respectively) located in two Canadian urban areas, Quebec City and Trois-Rivières. The eight physical education teachers in charge of these 35 classes (two women and six men) acted as intermediaries to facilitate contacts between researchers and students.

Completion of the questionnaire. Questionnaires were completed in June by all members of each class group, at the time of a regular class, under the guidance of two researchers; neither the regular class teacher nor the PE teacher was present at the time. Students were asked to complete the questionnaire at that time of the year because researchers felt that by the end of the school year, they would have had numerous interactions with their PE teacher and would have been, on several occasions, formally or informally assessed by him or her. Thus, students' perceptions might be based on several clues likely to help them (a) predict with more precision their teacher's assessment and (b) identify teacher behaviours on which they would base that prediction.

Before completing the questionnaire, students were asked to identify themselves (researchers explained to participants that their names were necessary to avoid confusion among the results, that they would be transformed into an identification number, and that confidentiality of their answers was insured) and to identify their PE teacher; they then proceeded to complete the questionnaire as described earlier.

Results

Figures 2, 3 and 4 present the internal consistency results for performance, discipline and involvement. If all 891 subjects had provided, for each dimension, two teacher behaviours, two related feelings and two resulting student behaviours, one would be faced with a total of 1782 answers for each of these variables. In the case of the performance dimension, 1732 teacher behaviours could be related to student feelings and resulting student behaviours. In the case of the discipline and involvement dimensions, 1744 teacher behaviours could be related to student feelings and resulting student behaviours.

In relation to the performance dimension, selected positive teacher behaviours ($n = 1244$) were related to 1116 positive students feelings, that is a strong 89.7%. Then, these reported positive feelings were related to 1106 positive

student behaviours, a huge 99.1%. Selected negative teacher behaviours ($n = 488$) were related to 373 negative students feelings, a fair proportion of 76.4%. Then these reported negative feelings were related to 206 negative student behaviours, a proportion of 55.2 %. In the case of the discipline dimension, respective percentages, on the positive side, were 89.1% and 99.2%. With respect to negative answers, respective percentages were 78.3% and 73.4%. Finally, in the case of the involvement dimension, percentages associated with positive answers were respectively 93.2% and 99.0%. As for the negative answers, respective percentages were 75.4% and 61.7%.

Obviously, in all three dimensions, students' selection of positive teacher behaviours was very strongly linked to positive feelings and resulting positive student behaviours. With respect to a selection of negative teacher behaviours, the strength of the link with negative feelings was above the 75% mark for the all three dimensions. Although less impressive, the related proportion of negative reported student behaviours, given negative reported feelings, remained above the 55% mark in all three dimensions, reaching beyond 73% in one case and above 60% in another one.

Thus, one can conclude that whenever a student selects or identifies positive teacher behaviour at the beginning of the questionnaire, the likelihood that he or she will report adopting positive behaviours in class is very high. Although less conclusive, whenever a student selects or identifies negative teacher behaviour at the beginning of the questionnaire, there is a tendency that he or she will report adopting negative behaviours in class.

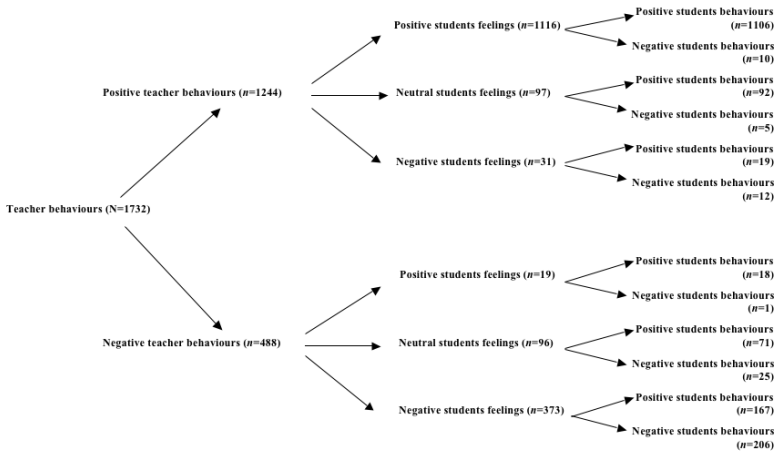


Figure 2. Student-answer sequences over teacher behaviours, student feelings and student behaviours, with respect to performance.

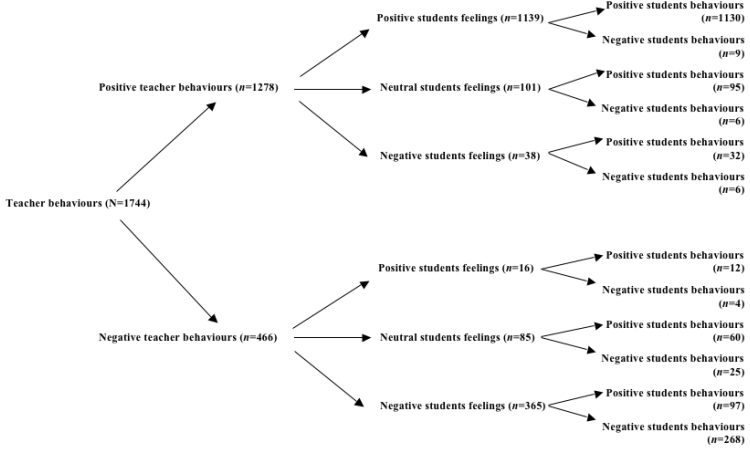


Figure 3. Student-answer sequences over teacher behaviours, student feelings and student behaviours, with respect to discipline.

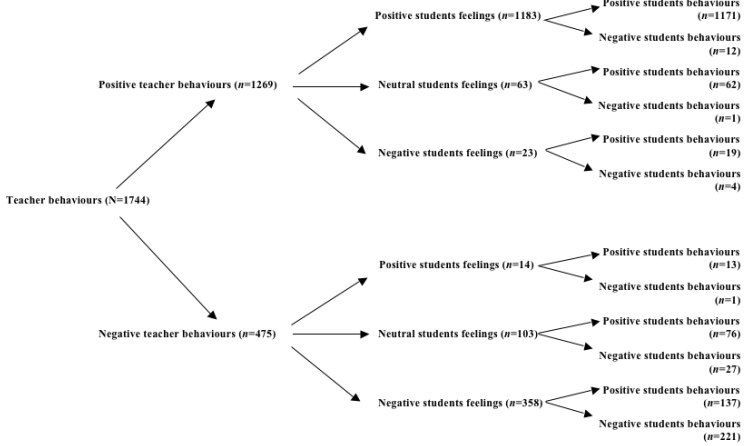


Figure 4. Student-answer sequences over teacher behaviours, student feelings and student behaviours, with respect to involvement.

The discrepancy construct and related variables

Being able to compare students' self assessment of their level of performance, discipline and involvement with their perception of the PE teacher's assessment for the same three dimensions led to the identification of several variables related to the notion of discrepancy. These are described below. In order to better illustrate

the meaning and potential distribution of each variable, we will refer to data collected with the sample described earlier in the previous section of the paper.

The types and magnitude of discrepancy

No discrepancy. As seen earlier, there is no discrepancy whenever a student's self-assessment is identical to his/her estimate of the teacher's assessment, whatever the dimension involved. This can and actually does occur at any level of each 5-point scale. Results of Table 2 show that the overall percentage of no discrepancy, whatever the sex and the selected level on the 5-point scale, varies between 60% and 72%, with the exception of a 77.5% value for girls with reference to discipline. Thus, so far, our results show that when asked to rate themselves and estimate what would be their teacher's rating on their level of performance, discipline and involvement, a fair majority of students select the same value on both scales. Moreover, these students clearly tend to locate their ratings in the upper part of the assessment scale (Table 3).

Negative and positive discrepancy. As mentioned earlier, a positive discrepancy indicates that the student feels overrated by the teacher; for instance, this would be the case if a student gives himself/herself a rating of 3 and estimates the teacher's rating at 4 (discrepancy score = 1). Inversely, if a student were to give himself/herself a rating of 5 and estimate the teacher's rating at 3, this obtained negative discrepancy score (- 2) would reveal that the student feels underrated by the teacher. In either case of discrepancy, the absolute value may vary between |1| and |4|.

Table 2

Relative Distribution of Types of Discrepancy for Boys and Girls with Respect to each of the Three Dimensions

Types	Performance						Discipline						Involvement					
	Boys		Girls		Total		Boys		Girls		Total		Boys		Girls		Total	
	<i>n</i>	%	<i>n</i>	%	<i>N</i>	%	<i>n</i>	%	<i>n</i>	%	<i>N</i>	%	<i>n</i>	%	<i>n</i>	%	<i>N</i>	%
Negative discrepancy	125	26.4	78	18.7	203	22.8	117	24.7	62	14.8	179	20.1	158	33.4	140	33.5	298	33.5
No discrepancy	317	67.0	287	68.6	604	67.8	313	66.2	324	77.5	637	71.5	282	59.6	252	60.3	534	59.9
Positive discrepancy	31	6.6	53	12.7	84	9.4	43	9.1	32	7.7	75	8.4	33	7.0	26	6.2	59	6.6
Total	473	100	418	100	891	100	473	100	418	100	891	100	473	100	418	100	891	100

Table 3

Distribution of No-Discrepancies with Respect to Assessment Levels for Boys and Girls with Respect in the Three Dimensions

Dimensions Assessment levels	Performance						Discipline						Involvement					
	Boys		Girls		Total		Boys		Girls		Total		Boys		Girls		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
1-1	2	0.6	7	2.4	9	1.5	12	3.8	3	0.9	15	2.4	5	1.8	3	1.2	8	1.5
2-2	4	1.3	8	2.8	12	2.0	9	2.9	4	1.2	13	2.0	3	1.1	2	0.8	5	0.9
3-3	39	12.3	63	22.0	102	16.9	45	14.4	33	10.2	78	12.2	25	8.9	33	13.1	58	10.9
4-4	127	40.1	158	55.1	285	47.2	157	50.2	170	52.5	327	51.3	106	37.6	98	38.9	204	38.2
5-5	145	45.7	51	17.8	196	32.5	90	28.8	114	35.2	204	32.0	143	50.7	116	46.0	259	48.5
Total	317	100	287	100	604	100	313	100	324	100	637	100	282	100	252	100	534	100

As shown in Table 2, there is a low percentage of positive discrepancies (less than 10% in each dimension). It follows that the percentage of negative discrepancies is likely to be much higher (from 20% to 33% for the three dimensions, according to our data). As can be expected, percentage values for negative discrepancy decrease markedly as the scores go from -1 to -4 (Table 4). It is also interesting to note that according to our results, boys tend to get greater negative discrepancies than girls in two dimensions, percentages being equal in involvement. In fact, only boys display maximal negative discrepancy in each of the three considered dimensions and only boys get negative discrepancy of -3 for the performance and discipline dimensions.

Publications focused on this discrepancy construct (Gagnon, Martel, Michaud, Valois, & Gagné, 2005; Martel et al., 2011) have shown that positive discrepancies are mainly associated with favourable teacher behaviours that evoke positive student feelings and behaviours. As for the negative discrepancies, they are often associated with unfavourable teacher behaviours, negative student feelings and negative student behaviours.

Table 4
Magnitude and Relative Distribution of Discrepancy Scores for Boys and Girls with Respect to each of the Three Dimensions

Dimensions Discrepancy scores	Performance						Discipline						Involvement					
	Boys		Girls		Total		Boys		Girls		Total		Boys		Girls		Total	
	n	%	n	%	N	%	n	%	n	%	N	%	n	%	n	%	N	%
-4	3	0.6	---	---	3	0.3	5	1.1	---	---	5	0.6	9	1.9	---	---	9	1.0
-3	7	1.5	---	---	7	0.8	2	0.4	---	---	2	0.2	8	1.7	4	1.0	12	1.3
-2	21	4.4	10	2.4	31	3.5	13	2.7	4	1.0	17	1.9	21	4.4	10	2.4	31	3.5
-1	94	19.9	68	16.3	162	18.2	97	20.5	58	13.8	155	17.4	120	25.4	126	30.1	246	27.6
0	317	67.0	287	68.6	604	67.8	313	66.2	324	77.5	637	71.5	282	59.6	252	60.3	534	60.0
1	28	6.0	53	12.7	81	9.1	38	8.0	29	7.0	67	7.5	28	6.0	21	5.0	49	5.5
2	3	0.6	---	---	3	0.3	4	0.9	3	0.7	7	0.8	3	0.6	3	0.8	6	0.7
3	---	---	---	---	---	---	1	0.2	---	---	1	0.1	1	0.2	1	0.2	2	0.2
4	---	---	---	---	---	---	---	---	---	---	---	---	1	0.2	1	0.2	2	0.2
Total	473	100	418	100	891	100	473	100	418	100	891	100	473	100	418	100	891	100

Discrepancy in view of the level of assessment

As mentioned before, students answer the first two items of the questionnaire on a 5-point scale (students' self assessment and students' perception of the teacher's assessment). Earlier, we have alluded to the fact that the scale level selected by a student may limit the extent of a discrepancy in one direction or another. For instance, should a student rate himself or herself at 4 on any dimension, the potential positive discrepancy is limited to 1. Inversely, a self-assessment of 2 would limit a potential negative discrepancy to a -1 value. Although they represent a small percentage of discrepancies, such cases do occur as one can see in Table 5. Over the three dimensions investigated, both sexes combined, there are 29 minus-one negative discrepancies associated with a 2-point self assessment value and 111 plus-one positive discrepancies associated with a 4-point self assessment value, representing respectively percentages of 3.25% and 12.46% of the total sample. Contrary to a positive discrepancy of 1 observed in this case, which likely bears no consequence, a negative discrepancy of -1 associated with a 2-point student self-assessment may well be predictive of behavioural problems. Not only do these students have a low image of themselves (being right or wrong), but their estimate of the teacher's rating is even lower.

Table 5
Negative and Positive Discrepancies Associated with Minimal (2) and Maximal (4) Self-Assessment Values, both Sexes Confounded

Dimension	Performance		Discipline		Involvement	
Students' self-assessment	2	4	2	4	2	4
Students' perception of teacher's assessment	1	5	1	5	1	5
Discrepancy	-1	1	-1	1	-1	1
Number of cases	6	34	12	46	11	31

Discrepancy profiles

Whenever the three dimensions are considered separately, students' difference scores for their answers to the first two questions of the questionnaire are expressed on a scale, ranging from - 4 (maximal negative discrepancy) to + 4 (maximal positive discrepancy), the value 0 representing of course no discrepancy. The combination of results over the three dimensions yields a composite score that can range from -12 to +12. However, the authors feel that the summation of the three original scores can at times have a non-desired effect, negative scores cancelling out positive ones, or vice-versa.

Also, getting one bit of information on a student is always interesting. However, the accumulation of several bits of information may reveal some tendencies. With these ideas in mind, Martel et al. (2011) and Martel, Gagnon, Godbout, Michaud and Nadeau (2006) developed the construct of *discrepancy profile*, based on students' answers on all three dimensions. The decision to name it discrepancy profile was based on the hypothesis that ultimately a discrepancy, especially a negative one, is more likely to create problems than a situation where a student feels correctly assessed by the teacher.

This discrepancy profile represents the combination of the types of discrepancy across the three dimensions for which students' perceptions have been collected. These profiles make it possible to consider students' overall discrepancy tendencies with respect to their self-assessment compared to their perceptions of their teacher's assessment. Ten profiles have thus been identified, by means of symbols, and are presented in Table 6. The symbol " - " stands for a negative discrepancy on any one of the dimensions, whereas the symbol " + " stands for a positive one and the symbol " 0 ", for no discrepancy. For instance, profile No 5 (- 0 +) means that a student felt underrated in one dimension, appropriately rated in a second one, and overrated in the third one.

Giving a specific meaning to each of these profiles remains, to say the least, somewhat speculative. Some of them, such as "- - -", "0 0 0" or "+ + +" are quite clear cut, representing overall negative discrepancy, overall no discrepancy or overall positive discrepancy. As can be seen in Table 7, the three together account for 44% of the subjects, both sexes combined. Other profiles represent a tendency toward no discrepancy ("0 0 +" and "- 0 0"), a tendency toward positive

discrepancy (0 + +), or a tendency toward negative discrepancy (- - 0). Finally, three profiles appear to be mixed ("- - +", "- + +" and "- 0 +").

Table 6
Discrepancy Profiles

Profiles #	Combination of the types of discrepancy across the three dimensions			Profiles #	Combination of the types of discrepancy across the three dimensions		
1	-	-	-	6	-	+	+
2	-	-	0	7	0	0	0
3	-	-	+	8	0	0	+
4	-	0	0	9	0	+	+
5	-	0	+	10	+	+	+

Table 7
Distribution of Boys and Girls over the Profiles

Profile		Boys		Girls		Both sexes	
#	Type	<i>n</i>	%	<i>n</i>	%	N	%
1	---	40	8.5	14	3.3	54	6.1
2	--0	71	15.0	54	12.9	125	14.0
3	--+	9	1.9	2	0.5	11	1.2
4	-00	100	21.1	102	24.4	202	22.7
5	-0+	17	3.6	21	5.0	38	4.3
6	-++	3	0.6	3	0.7	6	0.7
7	000	172	36.4	161	38.5	333	37.4
8	00+	50	10.6	44	10.5	94	10.5
9	0++	8	1.7	13	3.1	21	2.4
10	+++	3	0.6	4	1.0	7	0.8
Total		473	100	418	100	891	100

Given what has been written earlier, it is no surprise to note that, based on our results, 37% of the students present a "000" profile, that is no discrepancy on each of the three selected dimensions (Table 7). It is by far the most prevalent profile. Tendency-toward-no-discrepancy profiles are also quite prevalent, representing an additional 33% of the responders. Given the low level of positive discrepancy mentioned earlier, the "+ + +" (complete positive discrepancy) and the "0 + +" (tendency toward positive discrepancy) profiles remain scarce, representing a mere 3% of the responders. Students who seriously feel underrated, that is those presenting the "- - -" or the "- - 0" profiles, represent 20% of the responders.

Conclusion

One fundamental postulate of our research program is that the Pygmalion effect is ever present in any educational context, that it can manifest itself in different ways and that it may have a positive or negative impact on students. However, one cannot directly measure the presence of the phenomenon, that is, determine to what extent the teacher's expectancies may influence students' conduct and success. Therefore, researchers have studied the Pygmalion effect by examining different variables likely to be, according to them, valid indicators of its presence.

In physical education, most studies on Pygmalion effect have investigated the teachers' conduct toward students. Often studies have described differentiated treatments provided to students attributed with high or low expectations, but the way students perceived and interpreted their teacher's behaviours and their potential influence were not verified. According to Martinek's theory (Martinek, 1988), the meaning attributed by students to their teacher's behaviours would act as a filter between the teacher's actions and their impact on students (Fraser, 1994). This means that students can have different interpretations for a same teaching behaviour (Good, 1987) and react in various ways to this behaviour (Brophy, 1983).

The instrument discussed in this paper makes it possible to describe how the physical educator's expectancies, as students perceive them through various teacher behaviours, may influence students' behaviours. The results of the validation study presented in the paper show that there is a close relationship between the nature of teachers' behaviours, as perceived by students, student feelings brought about by these teacher behaviours and the response behaviours students report adopting in reaction. In fact, positive teacher behaviours usually generate positive feelings and favourable behaviours on the part of students. On the contrary side, negative teacher behaviours generate mainly negative feelings and students tend to display behaviours more or less favourable to learning. Thus, feelings experienced by students and their reactions to their teacher's behaviours could be seen as indicators of the nature of the Pygmalion effect they are going through.

The questionnaire also makes it possible to determine to what extent a student feels underestimated, overestimated or correctly assessed, based on the discrepancy between his or her self- assessment and his or her prediction of the teacher's assessment. The absence or presence of a discrepancy (whether positive or negative) provides another clue as to the nature of the Pygmalion effect experienced by students. Indeed, the more underrated they feel, the more they tend, reportedly, to assume negative behaviours in physical education (Martel et al., 2011).

In summary, we submit that the questionnaire discussed in this paper represents a novel and appropriate measuring instrument with respect to the detection of the presence and the nature of the Pygmalion effect in an educational context.

Research perspectives with regard to the discrepancy construct as an indicator of the Pygmalion effect

We think it is necessary to pursue the study of the Pygmalion effect with regard to the discrepancy construct described and discussed in this paper. The questionnaire could apply to students and athletes as well. For instance, one could conduct descriptive studies with children and adolescents of various ages or with athletes of various levels. It would also be interesting to investigate student perceptions in other teaching contexts and not only in physical education. Finally, it would be interesting to study perceptions of students from different countries and/or cultures. Completing a significant amount of descriptive studies with samples of varied populations would make it possible to verify whether the results of our research program are circumstantial or more universal.

This same questionnaire could be used in different ways in an action-research context. For instance, one can specifically identify students who feel particularly underrated. With such students, one could implement specific measures to help them make better use of the learning conditions they are offered. In this respect, a teacher could intervene in three different ways. First, the teacher can help these students better perceive his or her real expectancies. Indeed, among students' perceptions reported in the questionnaire, many indicate a high level of sensitivity with regard to some interventions on the part of their physical education teacher. With these students, the teacher may initiate a true individual communication process in order to help them explicate their point of view, to try to understand their perspective and, if necessary, to clarify his or her real expectancies toward them.

Secondly, in cases where several self assessments prove to be more or less erroneous, the teacher may help students better assess their level of performance and their conduct by calling specific moments of formal self assessment and putting at the students' disposal assessment instruments comparable to those he or she uses.

Finally, the teacher may revise his or her own teaching practice taking into account undesirable behaviours reported by the students in connection with some of his or her teaching practices. In this specific case, the questionnaire may be used as a pedagogical reflective tool by any teacher who wishes to identify two categories of behaviours: those who produce undesirable student behaviours, and those who appear to motivate students into getting more involved in physical education. Once such behaviours have been identified, the teacher can then work at reducing the frequency of behaviours that bring about more bad than good and at increasing the recurrence of those behaviours that produced desired effects on students.

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