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THE ROLE OF COMMUNICATION IN TEACHING SWIMMING

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ABSTRACT. The present research study includes, in the first part, the synthesis of the literature regarding the theoretical framework of meaning construction, from information theory to the semiotics of reception and the concept of "horizon of expectation" in the reception of the teacher's linguistic productions, and in the second part, it includes the research methodology. The results of the research identify the average frequency of responses for all situations. After the study took place resulted 6 important findings like a direct and unambiguous reading strategy for the teacher (P), a considerable loss of meaning between the teacher's language production and the student's reception, higher reading fluency in the GE group, reading difficulties in GT group, recognition of meaning is earlier and more relevant in GE, and the fact that verbal productions make it possible to complete sequence, a misunderstanding for GT. The conclusions reveal that the messages transmitted through verbal and non-verbal teacher-student communication are received rather by connotation than by denotation.

Keywords *(in English): teaching swimming, learning and teaching of swimming, communication, semiotics, linguistic productions.*

REZUMAT. ***Rolul comunicării în predarea înotului.*** Prezentul studiu de cercetare cuprinde, în prima parte, sinteza literaturii de specialitate privind cadrul teoretic al construcției sensului, de la teoria informației la semiotica receptării și conceptul de „orizont de așteptare" în receptarea producțiilor lingvistice ale profesorului, iar în partea a doua, include metodologia cercetării. Rezultatele cercetării identifică frecvența medie a răspunsurilor pentru toate situațiile. După interpretarea studiului au rezultat 6 constatări importante, precum o strategie de lectură

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directă și neechivocă pentru profesor (P), o pierdere considerabilă a sensului între producţia de limbaj a profesorului şi recepţia elevului, fluenţă mai mare în citire la grupul GE, dificultăţi de citire în grupul GT, recunoaşterea semnificaţiei este mai devreme și mai relevantă în grupul GE și faptul că producţiile verbale fac posibilă completarea secvenţei, o neînţelegere pentru grupul GT. Concluziile relevă faptul că mesajele transmise prin comunicare verbală și nonverbală profesor-elev sunt primite mai degrabă prin conotaţie decât prin denotaţie.

***Cuvinte cheie**: predarea înotului, învăţarea şi predarea înotului, comunicarea, semiotică, producţii lingvistice.*

INTRODUCTION

Introduction / Statement of problem

Intervention research in physical education essentially aims to study motor acquisition methods in the teaching/learning system (Siedentop, 1986; Argyris, 1983, 1985; Durand, 1996). In North American research, the teacher's point of view is considered essential. It is a question of describing the system of tasks that he puts in place so that the student learns (Dunkin & Biddle, 1974; Doyle, 1986).

In Europe, in educational research, studies centred on the student's activity postulate that he is an autonomous and active actor in the construction of his motor behaviours (Meirieu 1990, Perrenoud 1995). The learning process is part of a constructivist and reflective approach through and in action (George, 1983). To learn, the student deploys an activity of construction of meaning that involves the interpretation of contextualized data (Doyle, 1986; Suchman, 1987; Kirschner & Whitson, 1997).

This semiotic activity of reading the system of constraints of the learning situation goes beyond the simple processing of information, and requires significant cognitive activity (Piaget, 1976; Vygotski, 1997; Weil Barrais, 1999).

Communication is defined as a production/reading/interpretation activity. The quality of the message transmitted (meaningful knowledge conveyed) depends on the learning of the student. In the didactic relationship, communication between teacher and student is a phenomenon of both verbal and non-verbal interaction (De Landsheere & Delchambre, 1979; Pujade-Renaud & Zimmermann, 1983). The teacher's system of production of meaning meets the student's system of interpretation, in the sense that, in the teaching-learning process, one cannot dissociate the language production activity of the teacher and the activity student's interpretation of this same production. This process constantly

interacts with the knowledge to be acquired. The discourse of the teacher is not a spontaneous and hazardous phenomenon: it is the subject of real expertise in the ability to produce a message that can be interpreted by the student. As such, it is fully part of the professional culture of the teacher (Vermersch, 1978). Didactic communication should therefore be a process during which student and teacher are two partners co-constructing the message around the sharing of a "common horizon of expectations".

The challenge of this study is to better understand how the semiotic activity of the student and the teacher works, and to describe the process of interpretation-attribution of meaning that links them. It is a question of clarifying the interpretation by the pupil of the nonverbal elements of the message emitted by the teacher, by formulating the following research questions: What is the nature of the relationship between this language production of the teacher and the reception /interpretation of the student? What differences in meaning can we identify between the two, and conversely how do their "horizons of expectations" meet? How is this common implicit code constructed in the exchange?

Theoretical foundation

Studies on human communication (Winkin, 1981; Cosnier, 1984) agree that it is multichannel. The verbal utterance shares the meaning of the message with other communication channels, in particular the visual channel which includes gestures and facial expressions, among other things. When a person speaks, he spontaneously produces gestures, and these are mainly used to indicate or represent objects and ideas (McNeill, 1992). These would have a double function of helping to encode the message (updating the thought of the speaker), and of helping the recipient to interpret it.

Kendon (1980) showed that gestures carry information for the speaker. For example, gesture plays an active role in helping verbalization for words related to the representation of space (Butterworth & Hadar, 1989). Thus, iconic gestures (having a link of resemblance with the location in space or a particular object) and indexical (link of contiguity with the space or the designated object) would have a responsibility in the encoding of spatial information in the speaker. Finally, regardless of the type of gestures encountered, studies (Krauss et al., 1996; McNeill, 1992) show that gestures facilitate access to the verbal lexicon by incorporating syntactic and semantic information. All of these results highlight the functional role of gesture in communication.

These works invite us to question the role of gesture in the pedagogical process. The production of gestures constitutes for the PE teacher an essential tool to illustrate and direct his didactic intention: it is a communication tool in

its own right. Understanding motor behavior, human movement in general and the related spatial configurations, is impossible without the help of concomitant visual information (Mahut, 1998). From the point of view of non-verbal language production, we have listed the different gestures used by PE teachers (Mahut, 1998). We observed a strong use of illustrative gestures (70% of the total gesture), which is much higher than the current proportion of 30% in the context of a normal conversation (Cosnier, 1984). This predominance of illustrative gestures marks the communicational specificity in the teacher/student interaction in Physical Education.

This particularity also exists during instruction tasks, when the teacher gives instructions on the knowledge to be acquired. The production of instruction tasks is mainly associated with these iconic gestures (family of illustrative), that is to say gestures presenting a link of resemblance with the object of the discourse. Finally, we have shown that the presence of iconic gestures in nonverbal language production also depends strongly on the discipline taught, the type of sporting activity used, and the style of teaching chosen (Mahut, 1998).

Given the elements mentioned above, what is the role and what can be the conditions of use of the gesture for motor learning purposes? How is the non-verbal message interpreted by the interlocutor, and under what conditions?

It is allowed to think that it constitutes an element of information, in the same way as speech. Our study therefore aims, more specifically, to evaluate the contribution of the iconic gesture to students' understanding of instructions.

From information theory to the semiotics of reception

In this area, two currents of thought clash: positivism and idealism (Husserl, 1950). Positivism attributes to the material world an existence in itself from which human thought would limit itself to extracting meaning. In the context that interests us, this consists in considering that it is enough to describe the world to access reality.

Conversely, idealism holds that meaning is produced by man, that perception is semiotic and orders the world in a network of meanings. In this context, communication requires reading and involves an essential interpretative task (Gadamer, 1976). The expression "to select information" loses its relevance, because it is the semiotic activity of the subject that generates it. Information has no existence of its own, it is the product of the subject's cognitive activity. To be convinced of this, we will remember that at the level of visual percept, the neurons of the eye are in fact isolated cells which can only transmit points.

Characters such as "linearity" and "spatiality", considered at first sight as fundamental in any analysis of the image, turn out to be pure constructions of our cognitive apparatus: "forms do not exist in themselves, they are only

perceived" (Arnheim, 1966). The principle of advanced order is a property of the human mind: "We call order the coincidence, partial or total, of the perceived with a model. From which it follows that an image can be ordered for a spectator (who has a model) and not for another (who does not have it). It is the reader who does the reading" (Groupe, 1992, p 41). Ultimately, perception is semiotic, and the notion of form and object turns out to be non-objective. It is at best a compromise of reading the environment.

From a receiving individual to the interpretant/meaning constructor paradigm

Since the translation of Austin (1970) "When saying is doing", all words are considered as acts. Consequently, any language gesture is interpreted, that is to say read, decoded and put in relation with a network of meanings in a singular context, which is the object of the "semiotics of reception". The interpretative activity of the subject allows him to give meaning to the forms he perceives, according to his own frame of reference. This therefore postulates the infinitely singular and personal character of any reception (Barbier, 2000).

The perceptual and interpretative activity of the teacher's gesture, as a dynamic form, is dependent on the characteristics of the reader/student. The perceptual function is therefore a semiotic function. In either case, it is a perceiving and acting being that imposes its order on the message. The analysis of the learning activity can then be defined as an activity of construction of meaning by the subject, at the end of which he can rearrange his representations.

The constructivist theory of learning (Piaget, 1976; Vygotski, 1997) considers that it is in the interaction with the environment that the subject develops his own adaptation strategies. If we consider the student in a real situation of listening and interacting with the teacher's message, we can say that he implements a real reflective activity that mobilizes his critical thinking and his interpretative faculties. His knowledge is constructed / deconstructed / reconstructed on the basis of a confrontation with the meanings drawn from the teacher's action and language productions.

The concept of "horizon of expectation" in the reception of the language productions of the teacher

The semiotic current of Aesthetics of Reception, stemming from the German School of Constance, is based on the concept of "expectation horizon" (Iser, 1975; Gilly, 1992; Jauss, 2001).

The subject/interpreter assigns a particular meaning and expectation to the information available in the environment they are interpreting. In doing so, he structures the information according to his representations and

experiences, his knowledge, and finally his interpretative capacity. This content transmitted in the form of a multi-codic (Masselot, 1999) and multi-channel message puts the student in a reading situation that produces meaning: this attribution of meaning is only possible in the establishment of relationships with a semantic field. already present.

This common space between teacher and student represents a possible "expectation" of the reader. At the level of the PE learning situation, the teacher shares his semantic universe with the student through the various available and privileged channels that are the visual, auditory and kinaesthetic channels. The elaboration of meanings goes through the co-construction of a semic model or horizon of expectation. Taking an interest in the semiotics of non-verbal language production therefore consists in questioning the student's reading of it, with regard to the teacher's communication intention.

One of the nodes of the didactic process, and ultimately of learning, lies in the sharing of this semantic universe. It is possible to affirm that the message of the teacher in which the contents taught are packaged (McNeill, 1992) only takes on substance through the semiotic activity of the student. Success in building a common code between the teacher and his students would require a case-by-case differentiation of the content taught so that it can be appropriated. However, each teacher is confronted with a differentiated reading of his linguistic productions by the pupils. The question of the reception of the teacher's productions therefore overlaps in part with the problems linked to the notion of pedagogical differentiation.

Study objectives

To account for this co-construction of a semantic universe in the teaching/learning system, mixing both verbal and non-verbal language codes, is ultimately to be at the heart of learning as a relationship to environment on which the individual acts. The main difficulty and at the same time the limit of the present study is to account for the semiotic activity of the receiver of the didactic message. Between what the teacher produces on the linguistic level, and what the student understands, what are the possible differences? How is the reception dynamic of the student established, according to the horizon of expectation available to him? What is the weight of non-verbal productions compared to verbal productions?

This study is the first quantitative part of a survey on the co-construction of language complicity in the teaching/learning system. It is a question of developing a protocol allowing access from the student's point of view to the reading of verbal and non-verbal productions during the interpretation of the didactic message. If we postulate that there is collusion around a semantic

universe that is built during teaching, it is necessary to compare two populations of students: one having followed the support lessons of the test and another having followed the same type of training, but with another teacher.

RESEARCH METHODOLOGY

Subjects / Samples

To identify the degree of proximity of the student to the semantic universe of the teacher, two distinct groups of students are tested. The first group ("Studied Group" GE, n = 11; 3 - girls, 8 - boys) followed the swimming teaching cycle with the teacher concerned. The second group ("Control Group" GT, n = 12; 6 - girls, 6 - boys) includes students with the same level of study but who have not followed a teaching cycle with the teacher concerned during the year. The students' ages are between 10 and 12 years old and the study was conducted in Cluj-Napoca.

Procedure

A test on audio-visual support is developed from a recording of 4 hours of swimming instruction in the 2nd year of swimming. The choice of the swimming APS as a support for the test is directly linked to the results of a previous study which shows a largely majority iconic gesture (Mahut, 1998). The highest proportion of "kinetographic" gestures have the function of depicting an action or a movement. The teacher who supervises swimming is an expert in the discipline; a swimming specialist, he has more than 12 years of swimming teaching experience.

From this recording are extracted seventeen significant sequences in terms of the iconic gestures of the teacher, that is to say representing characteristic moments in a key learning of swimming. The choice of sequences is the subject of consultation with the teacher and with three swimming experts who agree on the relevance, non-redundancy, and semantic richness of these sequences. These sequences all contain, to varying degrees, similarities with gestural forms relating to swimming techniques. Thus, the movement of the teacher's hands can reproduce more or less partially a swimming technique coming to image the adjoining instructions, it may also reproduce the movement of the legs expected for the exercise. Finally, behind the technical form suggested by the gesture, there are underlying principles of efficiency sought by the teacher.

In order to assess the ability to read and interpret the gestures produced by the teacher, a specific test is used: each of the sequences includes a "kinetographic gesture" which is the subject of a successive montage without

the sound then with the sound, 20 seconds apart. The aim is to identify the difference in the impact of gestural signals according to the group to which they belong. The first sequence was chosen to be easily interpretable, and therefore serve as input in the test.

The test therefore presents a total of thirty-four sequences, interspersed with a short time, in order to put the performer under controlled time pressure. It is a question of getting as close as possible to the real conditions of reception in a teaching situation. The total duration of the test is eighteen minutes. The student swimmer is asked to "describe what he sees, then to say what swimming teaching content is referred to". The teacher (P) is himself subjected to the test in order to constitute a reference comment which will make it possible to qualify the level of recognition of the situations for each subject. Indeed, a sequence has no meaning in itself except that attributed by its different interpreters. In the context of a didactic interaction, what interests us is the level of congruence of the responses about the same sequence between the teacher and his various interlocutors, both real and virtual (in the context of the study).

The procedure for collecting verbal data consists of recording the comments made about the video support. When taking the test, the subject is alone with the experimenter who informs him of the conditions of the test and who no longer intervenes throughout the duration of the test except, if necessary, to re-specify an instruction.

These verbalizations are transcribed verbatim and are the subject of a quantitative and qualitative study (Ericsson & Simon, 1993; Chi, 1997). In addition, a questionnaire is completed individually in order to check the student's level in swimming, his physical performance and his degree of qualification. A Mann-Whitney test shows that there is no significant difference in terms of performance between the two groups ($p = .59$).

Corpus processing

Each language production is identified with respect to the sequence number (from 1 to 17) and the type of sequence (non-verbal = A; verbal = B). The verbatim is transcribed in the order of the sequences and according to the different membership groups (GE; GT; P). This verbatim being very heterogeneous and disparate, we are led to reduce the heterogeneity of the discourse. For this, it is a question of identifying the significant units about the teaching content conveyed and what needs to be done, often declined in the form of rules of action. All in order to bring out what is "intersection" in the speeches of each other about the situations viewed. These reduced forms of discourse thus allow the comparison of the various responses. The objective is to evaluate the degree of understanding of the verbal and non-verbal production of the teacher, the comparison of meaning is made from the source speech of P considered as the reference.

We use the notion of semic trait for the counting of responses, the idea being to retain only the essence of the message more than the presence of a specific vocabulary. The definition of these units of meaning or "semic traits" which determine the characteristics of the situation, is done from the general to the particular, that is to say from the recognition of the general context of the situation to the proposal of specific contents. There are therefore two levels of characterization of the sequences presented in the test.

- The first level of characterization of the situation is the prior definition of the context in which language production takes place: for the student, it is a question of situating the global motor task in which P is part. For example, this concerns a brief description of the type of swimming or exercise performed. This prerequisite makes it possible to frame the situation globally, and to check whether the student has grasped the purpose of the learning from the outset. In the event of non-recognition of the context as defined here, the response (if there is one) is counted in the "off-topic" item.
- The second level of characterization of the situation consists in defining it from the point of view of the teaching content conveyed. For example, during a situation in ventral swimming "crawl" (first level contextual definition), the teacher looks for an "increase in propulsive amplitude". Each situation can include several contents according to the definition given by the teacher. All of the specific content of the seventeen situations is grouped under the generic item "content" in order to be counted. A non-response to the presentation of a sequence is coded as "nothing to say". Finally, the "other" category corresponds to the formulation of other teaching content that is possible (defined by the experts after viewing the tape), but not issued by the teacher.

The processing of the students' verbalizations consists of entering the different semic traits in computer software, comparing them to the source discourse. This coding was performed by two independent coders with a fidelity rate of .93. In the event of a dispute, each case is placed in its context and discussed.

The counting of occurrences is based on the following variables: non-verbal situations (A)/verbal situations (B); study group (GE)/control group (GT)/teacher (P); situations 1 to 17; and the items selected (Context, Off Topic, Nothing to Say, Others).

It is a question of evaluating the different levels of reading of the situations according to the groups to which they belong. To do this, the comparisons made are as follows: namely the differences in reading between P and the students of the GE and GT groups; between the two groups GE and GT. The preferential use of sequence A or B according to the groups is evaluated in order to highlight

different reading strategies. The number of responses is counted for all situations combined (A+B), but also differentially according to sequences A or B.

RESULTS

Table 1. Average frequency of responses for all situations

Results	Situation A + B	Situations A (non - verbal)	Situations B (verbal)
Total (24)	52.5	29.6	22.9
GE (11)	54.4	31.2	23.2
GT (12)	46.8	25	21.8
P (1)	99	68	31

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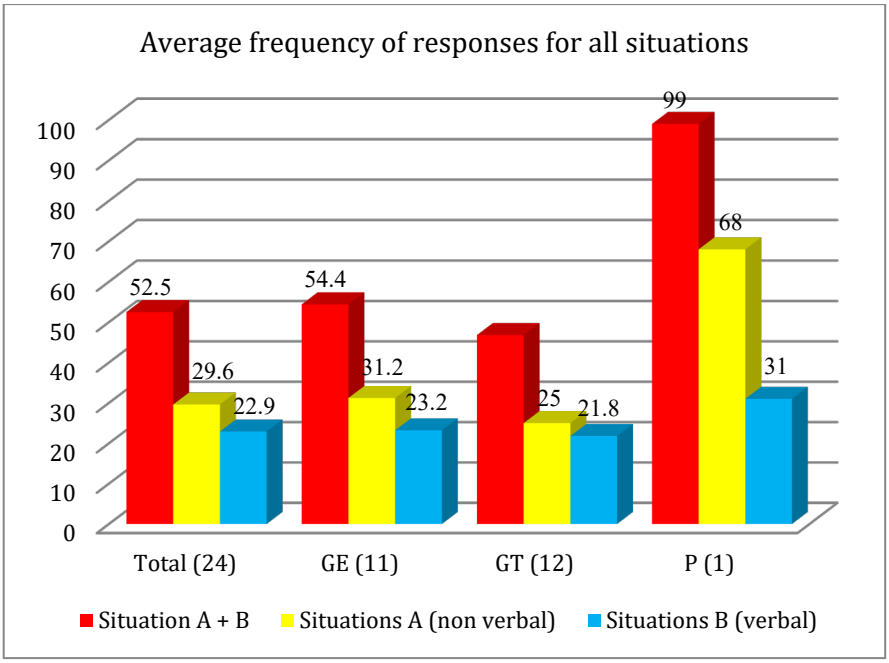

Fig. 1. Average frequency of responses for all situations (Designed by the author, 2023)

Figure 1 represents the total number of responses concerning the 17 situations A (without sound) for the entire population studied and for situations B (with sound) and for each group. The total number of responses for each item is the subject of an inter-group comparison in order to identify the different forms of response, then to establish a group portrait.

Result 1: A direct and unambiguous reading strategy for The Professor (P)

Subject to the test, the teacher is placed in a situation of deferred reception of his own production. Encouraged to decode his own language production without hesitation and to immediately give meaning to the first sequence (sequence A), his non-verbal productions are sufficient for him to recognize the context and the teaching content.

Viewing the following overall sequence (with sound and called sequence B) is an opportunity for him to justify and deepen the teaching content he is aiming for, possibly using speaking time in a complementary way. But in more than one out of two cases, he adds nothing to the preliminary comments produced in sequence A. Everything happens as if the coherence he has built in his teaching is found when viewing the gestures. At all times, he seems able to account for the gestures he uses, their function, their purpose and their link with the teaching content he aims for his students.

Ultimately, one could say that the rigor of his approach is illustrated in the precision of the gestures he uses to underline his intentions to the students. The readability for him of language productions is an indicator of the consistency and fidelity of the non-verbal code he uses, and which he co-constructs with his students.

Result 2: A considerable loss of meaning between the language production of the teacher and the reception of the student

The average quantitative data between each group (GT and GE) compared to the teacher's productions show a considerable loss of the information produced in each sequence. It can be seen that almost 50% on average of the semic features emitted in the teacher's commentary are not reproduced by the students, with variations according to the group to which the students belong. A Mann-Whitney U test shows a significant difference in the distribution of the "quantitative language production" variable for the two populations. The GE group restores an average of 55% of the strokes against only 47% for GT.

If we consider that what is not verbalized by the student covers part of the teaching content that has no relevance for him, we see that a significant part of the teacher's productions finds no resonance in the student. This gap in the semantic space between teacher and student is reduced when the latter has followed the lessons on a regular basis.

Result 3: Greater reading fluency in the GE group

Regardless of the sequence viewed with or without sound, the comments of GE students about the gestures of the teacher are immediately more numerous. As mentioned, there is a higher number of responses (equivalent to a semic trait) in GE than in GT.

It is as if GE, through the experience gained from interlocutions during the teaching sequences, mastered the non-verbal and verbal communication code used by the teacher better than GT. Participation in the course then serves as a basis for the co-construction of a common code which constitutes a foundation for subsequent learning.

Conversely, students who have not followed the lessons cannot access the common sense shared with the teacher and the loss of meaning is the manifestation of this. If reading and interpreting a communication situation requires the ability to verbally restore the meaning produced by the teacher, then there is a specific communicational complicity, linking the teacher and his students. Not immediately accessible by an outside group, this complicity is developed during the teaching sequences. The mastery of the communication code at GE would be at the origin of the best reading of the teacher's message.

Result 4: Reading difficulties in GT

Table 2. Total "nothing to say" responses and average by group and by sequence

Results	**Situation A + B**	**Mean**	**Situations A (non - verbal)**	**Mean**	**Situations B (verbal)**	**Mean**
Total (24)	217	9	53	2.2	164	6.8
GE (11)	121	11	28	2.5	93	8.5
GT (12)	88	7.3	25	2.1	63	5.2
P (1)	8	8	0	0	8	8

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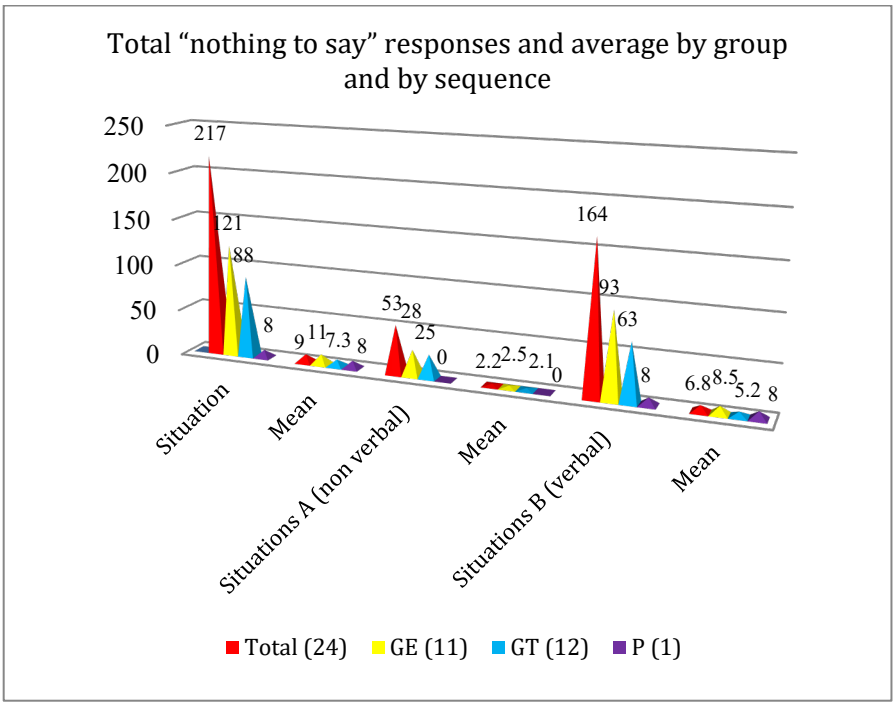

Fig. 2. Total “nothing to say” responses and average by group and by sequence (Designed by the author, 2023)

If we go into the details of the type of response pronounced, we see that the distribution of the number of “nothing to say” items is indicative of different strategies, depending on the groups, in the mode of reading the message of the teacher message. The total number of “nothing to say” items for the whole of the population studied increases from 53 to 164 for all the sequences between A and B. 93 for GE.

The ability to identify the context of language production overdetermines the ability to verbalize the meaning it conceals. While the GT group has difficulty in immediately verbalizing in the sequences without sound the meaning of the messages emitted by the teacher, they carry out a partial catch-up during the B sequences. Indeed, it seems that the more the student has difficulty in interpreting the teacher’s non-verbal production, the less likely he is to understand what is being asked of him. This split in the ability to decode the language productions of the teacher is a good illustration of the existence of a code that facilitates communication.

Result 5: Recognition of meaning is earlier and more relevant at GE

The number of "nothing to say" items (93 for GE versus 63 for GT) in sequence B is directly linked to the early recognition of situations. This recognition for the GE group occurs as soon as the teacher's non-verbal productions are visualized, unlike the GT group, which preferentially uses verbal support to understand the situation. In addition, the reading of the GE group is more relevant because it presents a higher degree of congruence to the source comment (that of Professor P).

In the end, the students of the GE group (having followed the teaching sequences) attribute most of the meanings as soon as the non-verbal sequence appears (sequences A). The GE group reads from the outset and in a relatively complete and discriminating way, all of the teacher's communication intentions.

The verbal support that comes in second place is useless or even superfluous to them to understand what the teacher means. The absence of comments in situation B for the GE therefore appears to be the product of a global strategy consisting in refraining from continuing the comments when the sequence appears with the sound, because the student considers that he has said d the essentials straight away. There is a similarity between this procedure and that of the teacher himself commenting on his teaching. The verbal production actually reinforces the previous interpretations, and therefore needs no commentary.

Everything suggests that the non-verbal elements of the communication present sufficiently relevant, exhaustive and unequivocal clues for GE.

Result 6: The verbal productions make it possible to fill in the misunderstandings of sequence A for GT

The previous results, particularly with regard to the proportion of "nothing to say" items in sequence B, illustrate a different reading strategy from one group to another. As we have seen, in the majority of cases, situation B does not provide additional information from the point of view of the GE reader. Conversely, the GT group makes more pronounced use of verbal information coming second in the test to interpret the message produced by the teacher. We can think that in the absence of a previously co-constructed non-verbal code, the verbal information, which is the subject of a broad and universal common coding, is the most relevant for a "naive reader" of the data. visual. Everything happens as if there were substitution of one code by the other (the verbal by the non-verbal) when the non-verbal code has not been previously and sufficiently elaborated during previous exchanges.

Despite this, the verbal cues do not make it possible to completely compensate for the prior recognition deficit in sequence A. This is the case of the students in the GT group who, having contextualized sequence A with error, produce comments that are off topic, and reinforce their convictions when reading sequence B, despite the obvious signs of going the wrong way.

We can think that the preliminary interpretation of the visual clues presents in the gesture, have a sufficiently important significance, to come to screen contradictory verbal information. Even though the appearance of the sound allows GE to confirm the relevance of his reading, this adds to the confusion of the GT which continues the erroneous interpretative logic resulting from sequence A.

The fact that the verbal message is more universal, more readable, does not compensate, on the contrary, the lack of interpretation of the reader. It is the connivance with the singular non-verbal code co-constructed by the teacher, which makes it possible to catch up on the ambiguities and the zones of silence of the necessarily incomplete verbal message that the teacher emits in a teaching situation. The implication of the gesture mode would have the effect of considerably reducing the cost of communication, especially in a sound context where the quality of reception is not guaranteed. The teacher would thus rely on this common code to purify his communication in favour of salient features related to learning, thus allowing the student to grasp the essence of the message.

DISCUSSIONS

Despite mastery of the variable "did or did not follow the teachings of P" in the constitution of the samples, two subjects of the control group (GT) clearly stand out from the average response of their group to which they belong. Their response profile is also closer and more congruent with P's comments than the GE group in general. They stand out from their home group by a good level of theoretical knowledge of the swimming activity. This level is assessed for one by the fact that he is engaged in professional training (1st degree), and for the other by a good level acquired in his university training (grades obtained in examinations).

It therefore seems that beyond a certain communicational complicity, the "knowledge of the activity" factor is overdetermining in the ability to decode the non-verbal message, and to decode the overall message in a relevant way. By knowledge of the activity, it is necessary to understand the existence of a certain personal physical practice linked or not to a reflexive practice relating to the teaching of this activity; the addition of these two factors seems to be an additional guarantee of identification of visual language cues.

The external factor "construction of linguistic complicity" favouring the reading of the teacher's productions is here biased by an internal factor: the experiences and knowledge acquired in swimming. This constitutes an additional argument in favour of an active reading of the subject which establishes more or less rich and relevant links between information from the environment and knowledge already available in the corpus.

This phenomenon represents a limitation of our study, insofar as a high level of knowledge in the swimming activity would correspond to a significant ability to decode the gestures produced by the teacher, and to understand what he expects from the swimmer. In return, this observation should encourage the teacher to systematize the coding of his gestures for populations who are not very advanced in learning, because this would make it possible to partially compensate for the lack of meaning they manifest.

This study also highlights the strong quantitative discrepancy in the interpretations of signs between producer and interpreter of the language conveying the teaching content. This discrepancy, which represents a loss of meaning, poses the problem of ambiguity and inequality in the access to the didactic message for the student. Three factors determining the semiotic activity of the student in a situation of attribution of meaning co-constructed with the teacher can then be highlighted:

The first factor, often neglected and rarely described, is the involvement of visual information in the understanding of the language productions of the teacher. In the teaching of swimming, the verbal activity of the PE teacher is not enough to communicate the information necessary to carry outss motor tasks. To interpret the language activity of the teacher, the student can first rely on the visual information available, and this all the more so since a common code has been constructed beforehand. This result goes in the direction of a global semiotic activity during the didactic interaction dealing with a heterogeneous information flow. This activity appears extremely singular in the sense that it makes the subject's external and internal elements interact. These external elements present a certain stability and can be the subject of a precise description (vocabulary used, gestural production). On the other hand, the internal elements specific to the subject call upon knowledge linked to the motor experience and give a particular colour to the language acts (verbal and non-verbal) of the teacher.

The hypothesis of a univocal didactic message generally qualified as "clear" is invalidated in favour of a student/reader constructing meaning, interpreting in an ambiguous and open interactional environment. A connivance, co-constructed in the interaction, constitutes the second factor that we qualify as metalinguistic: to understand each other, student and teacher develop a

common code of communication which goes beyond the general linguistic baggage. This prerequisite is particularly salient in the non-verbal domain of communication, which does not have a prior, established and universal code like the verb. This sector of production can however be the object of a powerful codification on the part of the teacher, even if it is not exempt from ambiguity.

Finally, as a third factor, a variable internal to the decoding subject is based on his degree of knowledge of the activity: this overdetermines the quality of the interpretative activity of the language production of the teacher. This tends to underline the inequality in the ability to give meaning to a verbal and non-verbal statement.

CONCLUSIONS

The interaction of the student reader and the language productions of the teacher leads to the emergence of non-verbal codes which, without being universal, nevertheless make it possible to read and understand the intentions of the teacher. We touch here on the profession of student in its most implicit part, that which relates to the hidden curriculum (Perrenoud, 1995). If interpreting the language productions of the teacher is part of the student's job, the structuring of this symbolic universe is a prerequisite, even informal, for effective interaction and the acquisition of knowledge. This phenomenon takes on particular importance due to the specific conditions of teaching swimming, in a context where verbal production is by definition inappropriate and disturbed by the sound level of swimming pools.

In conclusion, the perspectives of this study therefore concern both the training of teachers, in a field related to non-verbal communication, and the profession of student, in informal aspects little explored. A good student would therefore no longer be one who is content to be attentive and "take relevant information", it would above all be an interpreter capable of reading in the productions of the teacher. Classical conceptions of the role and activity of the student and the teacher would therefore be greatly modified.

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