

# Structuring of a spectrum of teaching strategies for instruction in Physical Education

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## Περίληψη

Διερευνάται η προσωπική διδακτική θεωρία των γυμναστών στην Ελλάδα με καταφυγή στη διδακτική πράξη. Χρησιμοποιούνται δύο συστήματα παρατήρησης και μια ημικατευθυνόμενη συνέντευξη. Με τη χρήση τους διαπιστώνεται τι γίνεται στη διδασκαλία, πώς γίνεται, ποια είναι τα γνωρίσματα του γίγνεσθαι, τι επιδιώκει, ποια είναι η συμβολή του στην ανάπτυξη των μαθητών κτλ., με βάση τη συστημική θεωρία. Από την επεξεργασία των δεδομένων κατασκευάζεται ένα φάσμα δέκα στρατηγικών διδασκαλίας, με τη μορφή «πολυπαραδείγματος», συγκεντρωμένο γύρω από τις βασικές ανθρώπινες ικανότητες: την αναπαγωγή του προτύπου εκτέλεσης, τη διερεύνηση/ανακάλυψη κινήσεων και τη δημιουργία/παραγωγή κινήσεων. Επίσης σχολιάζεται η χρήση του φάσματος αυτού.

## Abstract

This article examines personal teaching theory about Greek Physical Education Teachers by using the teaching act.

There are in use two observation systems and one semi-directed interview from which we identify what takes place in the teaching act, what it aims at, which are its characteristics and its contribution to the students' development according to the systemic theory.

A spectrum of ten teaching strategies derives from data analysis with a 'multi-exemplar' form, focused on basic human abilities: the reproduction of the performance model, the examination/exploration of the movements and the production of the actions. Furthermore, the use of this spectrum is commented upon.

## Introduction

Physical Education Teachers have, in the course of time, developed their own personal teaching theories<sup>1</sup> and compiled their own repertoires of teaching strategies which they prefer to use.

The questions are: which is this repertoire and whether this repertoire can satisfy the learners and the Physical Education study programme.

The students present *heterogeneity*<sup>2</sup>, which means that each student learns different things, in a different manner and for different purposes; moreover, the students are subject to *cultural differences*, which, in turn, reveals that the students are activated in their own ways, because they have different thinking patterns and evaluative orientations<sup>3</sup>.

Any Physical Education study programme aims at achieving the teaching objectives, i.e., psychomotor, cognitive, emotional and participative ones, if it is meant to contribute to the students' development.

There is a need for reviewing, by resorting to the teaching act and examining whether the teaching strategies repertoire in Physical Education forms a comprehensive framework, in the form of a spectrum, and, moreover, the extent of its contribution to the development of the students.

## The purpose of researching the teaching act

By conducting this research, the intention is to demonstrate the teaching strategies' spectrum used by Physical Education Teachers in Physical Education classes, which of the teaching strategies are the most popular, which are involved in the personal teaching theory, at which point of the spectrum the Physical Education Teachers have arrived, which of the teaching strategies present improved interaction, how much

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1. By the term 'personal instruction theory' we mean the P.E. teachers' 'personal cognitive schemes' of didactic action, which have among them several similarities as to their structure. See Bromme, R. (1984) 'On the limitations of the theory metaphor for the study of teachers' expert knowledge', in R. Halkes and J. Olson (eds.), 'Teaching Thinking', Lisse; Swets and Zeitlinger and P. Marland (1994). *Teaching: Implicit theories*, in T. Husen (ed.), *International Encyclopedia of Education*, Oxford, Elsevier, p. 178.

2. By the term 'heterogeneity' we mean that the students present a different learning style, therefore they cannot be developed by being taught in the same way. See M. Willis and V. Hodson (eds) (1999). *Discover your child's learning style*, p. 75.

3. Pyrgiotakis, I. (1988). *Socializations and Educational Unequalities*. Athens, Grigori, p. 123-135.

each teaching strategy contributes to the achievement of psychomotor, cognitive, emotional and participative objectives, etc.

### Review of the literature

The largest part of research into Physical Education concerns its teaching and is aimed at establishing its results as a proper foundation on which to build its improvement. Research into Physical Education instruction deals with ‘what’ the teachers and the learners ‘are doing’, ‘how they are doing it’ and ‘which are the characteristic features’ of what they are doing.<sup>4</sup>

Research studies in Physical Education instruction have many inherent difficulties, given the complexity of teaching situations. Physical Education teachers need to make decisions in a continuously changing situation, to comprehend the associated elements of the situation in question and to make decisions in relation to the appropriate teaching strategies and the kind of behaviour that these strategies implement in order to meet the objectives of the curriculum. The analysis of the teaching process requires the addressing of a multifaceted phenomenon. According to A. Lawson (1990) “the need for multiple research in Physical Education instruction is still present”.

The efforts to research into the field of Physical Education instruction were based on observation systems, on ethnological methods, the ecological model, on qualitative methods with triangulation elements, etc.

Ever since the '70s, research studies have been focused on the interaction between teachers and students. Initially, use was made of Flander's Interaction Analysis System (FIAS) in an adjusted form, but because it did not record the interaction stemming from non-verbal behaviour, and from group, individual, reciprocal, etc. working manner, it was enriched and modified and the CAFIAS was brought about. Currently, the analysis of interaction has lost the greatest part of its attraction, but continues to be in use as a means of checking the teaching processes in multi-dimensional research studies.<sup>5</sup>

Research studies in Physical Education instruction are oriented towards the examination of instructional and learning behaviour. Investigation is carried out into

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4. The issues refer to Charlier, B. (1988), *Apprendre et changer sa pratique d'enseignement*. Paris-Bruxelles De Boeck & Larcier, p. 121-147. See also Silverman, S. (1991). ‘Research on teaching in physical education’, *Research Quarterly for Exercise and Sport*, 62, 352-6.

5. Pieron, M. (1994). Studying the instruction process in teaching physical education, *Sport Science Review*, 3(1), 73-82.

the decision structures<sup>6</sup> made by both teachers and learners, the variety of the teaching strategies in relation to the teaching objectives, the kind of motor learning, the learning styles of students, their ability levels, etc., the role of teaching functions, such as the feedback in motor learning<sup>7</sup>, the observation and imitation of the pattern, the practice of students in a variety of ways, such as in a uniform manner, individual manner, reciprocal manner, self-control manner, selection of the difficulty level<sup>8</sup>, etc., the students' ways of thinking<sup>9</sup>, the effectiveness of teaching by focusing on the relationship of the variants, the use of teaching time and learner's results, intensity level along with cardiovascular and muscular strength<sup>10</sup>, etc.

The study is conducted with the use of observation systems, interviews, questionnaires, etc. All these methods and research techniques have contributed to the collection of data for the improvement of Physical Education teaching.

In this research, we shall use two observation systems and one semi-directed interview. The first observation system is organised at three levels: that of *grouping* (what happens during teaching, how it is carried out), that of *substance* (which are its characteristic features, what it aims at), that of *weighing interests* (which is the contribution to the learners' development) based on the system theory<sup>11</sup>, intended to reveal the spectrum of teaching strategies used in Physical Education classes. With the interview, following the observation system, the teaching act's orientation becomes apparent. The second observation system is based on a widely spread interaction analysis system, the CAFIAS, modified and supplemented to meet the needs of our research.

### The epistemological framework of researching the teaching act

By adopting the epistemological framework, we agree that in the act of teaching, Physical Education teachers and learners are in a constant interaction development

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6. Mosston, M. and Ashworth, S. (1994), *Teaching physical education* (4<sup>th</sup> ed.), New York, Macmillan Publishing Company, p. 5.

7. Rose, D. (1998), *Motor Learning and Motor Control*, transl. Gesis, G. et al., Thessaloniki, University Studio Press, p. 323-349.

8. Byra, M. and Marks, M. (1993), The effect of two pairing techniques on specific feedback and comfort levels of learners in the reciprocal style of teaching, *Journal of Teaching in Physical Education*, 12(3), 286-300.

9. Lee, M. (1997), Contributions of research on student thinking in physical education, *Journal of Teaching in Physical Education*, 16(3), 262-277.

10. Armstrong, N., Balding, J., Bray, S., Gentle, P., Kirby, B. (1990), *The physical activity patterns of 10 to 13 year old children*, in G. Beunem, T. Ghesquiere, A. Reybrouck & A. Claessens (eds), *Children and exercise*, Stuttgart, Enke Verlag, p. 152-157.

11. Papadimitriou, Z. (1992), *Systemic Theory in Paedagogic and Psychological Encyclopaedia / Dictionary*, Athens, Hellenica Grammata, vol. 8, p. 4,606.

of ways of communication<sup>12</sup> and work with intention, plan and achievement orientations.

The ways of communication and work occur repeatedly during the teaching process, in a competitive and complementary way, creating networks and kinds of relations<sup>13</sup>, thus forming a system of teaching interactions between Physical Education teacher and students.

The concept of the teaching process as a ‘multi-exemplary’ and unifying system<sup>14</sup> of interactions functioning in a complementary and competitive way leads towards a definition of the decision-making process, which forms a spectrum of teaching strategies, which differentiates the objectives, the teaching and learning behaviours, the conditions of realisation and the evaluation criteria.

The above structural elements of teaching work are organised in a variety of uniform developing teaching practices meaning unclear, during the preparation, the teaching process and the teaching evaluation. This depends on the teaching objectives (psychomotor, cognitive, emotional and participative), the kind of knowledge (significative, procedural, genetic), the learners’ age, their cognitive level, their learning style (listening, visual, haptic - motorsensual), etc.

The teaching process of the Physical Education subject possesses its own distinctive characteristics; it is intentionally organised through preliminary arrangements, stemming from unquestioned acceptances; it is teleological, that means oriented towards teaching objectives, and self-regulated through the feedback process, preparatory in the course of time, and asymmetrical as to the relations between teachers and learners.

The above characteristics mediate in such a manner that the interaction during the teaching act of the Physical Education subject is subjected to regulations establishing unified ways of communication and work. Moreover, instead of the teacher setting the limits of the arrangements, he more often than not realises that these limits have already been set and possibly leave him out of the process. The challenge lies in the exploration of the teaching act structures.

#### Research method of the teaching act

We resorted to the teaching act and recorded the categories of *teaching behaviour* (what the P.E. teacher says and does) and *learning behaviour* (what the student says

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12. Dimitriou, S. (1987), *Cybernetics, Structuralism and Theory of Systems Dictionary*, Athens, Kastaniotis, p. 264.

13. Antonopoulou, M. (1996), *Theory and Deontology in Classic Sociologists’ Thought*, Athens, Papazisis, p. 264.

14. Dimaki, I. (1991), *Sociology and its Methodology*, Athens, p. 52-56. The author underlines that the most of the sciences are determined as ‘multi-exemplar’.

and does) which recur constantly in a P.E. class<sup>15</sup>. These teaching and learning behaviour categories are:

Learners' thinking orientation	Reciprocal work
Questioning situation	Work with self-control
Demonstration with explanations	Work with selection of the difficulty level
Observation and imitation of the pattern	Check intended to confirm or reject an invention
Discovery of a solution	Evaluation of the reproduction pattern
Uniform work	
Individual work	

The above categories have a conspicuous position in the various teaching methods and serve as conclusions from empirical research seeking to convert teaching into 'apprenticeship'.<sup>16</sup>

e.g., *The teaching and learning behaviour category*:

The students' thinking orientation consists of the following analysis units:

*The students' thinking orientation*

We announce to the learners the topic, which will become the subject of *observation and imitation* and which will be given to the learners for individual work.

We agree on *the decisions they will be called upon to make*, such as on the sequence of exercises, the number of repetitions, duration, etc. and state that we are at their disposal for personal *feedback*.

The relationships between the analysis units are classified into act groups with their sequence made clear, so as to make up the teaching and learning behaviour categories.

The categories in question are *totalities*<sup>17</sup> and appear at the highest level, where the interconnection of the analysis units take place and constitute characteristic features of a teaching act, properties with particular importance. These categories are not presented statically; they develop a great number of 'independence grades', because they function as agencies of a unified action which creates motion. That motion makes up an *action series*, so that each subsequent analysis unit is determined by the one preceding it within the limits of each category (see the example which follows, p. 132).

15. Morrison, A. and McIntyre, D. (1997), *Teachers and Teaching*, transl. T. Dalakas, Athens, Diptycho, p. 44.

16. The concept of Teaching as 'apprenticeship' establishes forms of working among all students, in pairs with self-control, etc. See Salvaras, G. (2000), *Teaching for Students*, Athens, p. 32-33.

17. Piaget, J. (1972), *Structuralism*, transl. P. Papadelis. Athens, Kastaniotis, p. 33-36.

*Example: Key to the construction of the spectrum of the Teaching Strategies in Physical Education*

Categories of Teaching and Learning Behaviours	Time in Minutes											
	1	2	3	4	5	6	7	8	9	10	11	12
1. Thinking Orientation	x	x	x	x	x	x						
2. Questioning Situation												
3. Observation and limitation of the pattern							x	x	x	x	x	x
4. Discovery under the instructor's guidance												
5. Discovery of the solution through learner's work												
6. Multiple Solution Creation												
7. Planning of Individual Programme												
8. Uniform Exercise												
9. Individual Exercise												
10. Reciprocal Exercise												
11. Exercise with self-control												
12. Exercise with a selected difficulty level												
13. Validation or Rejection of the discovery or of the multiple solutions												
14. Implementation of the individual programme												
15. Evaluation												

On the other hand, the relationships between the analysis categories are included in groups and form *sub-systems* of the teaching act. Each sub-system is at the same time a different teaching strategy. Teaching strategies, as sub-systems, are not static, but flexible and function in a 'speculative manner'<sup>18</sup>; they have a great number of 'independence grades', and are complementary to each other but opposed to each other at the same time.

Each category consists of more than one individual teaching and learning behaviour. Each of the individual teaching and learning behaviours constitutes at the same time an *analysis unit*, because it is something active and, therefore, capable of functioning even independently and, as a result, may be isolated.

Teaching strategies, as teaching action sub-systems, show some degree of *centralising tendency* among themselves around the mother-concepts: *reproduction, exploration/discovery, production* which form the overall pursuits of teaching strategies.

To construct the spectrum of teaching strategies we videotaped the Physical Education classes of 72 instructors. With the use of an observation key we recorded the categories of teaching and learning behaviours and their sequence, with the intention of identifying 'what happens' during classes and 'how this happens'.

The key readings revealed that the categories of teaching and learning behaviour used were in order of appearance:

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
<i>Learners' thinking orientation</i>	<i>Observation and Imitation of the Pattern</i>	<i>Reciprocal Exercise</i>	<i>Evaluation</i>
(Announcement of the subject and explanation of the instructor's and learners' roles)	(Presentation of the exercise and configuration of performance criteria card; example with role alternation and feedback)	(Distribution of observers' and performers' roles, implementation of the performance)	(Evaluation as to adherence to the role and the execution pattern)
5' min	9' min	20' min	6' min
Condition	Condition	Activity	Criterion

18. Blauberger, I., Santofsky, B., Judin, E. (1976), *Systemic Theory*, transl. D. Kostelenou, Athens, Planitised, 179.



With the use of the semi-directed interview at the end of instruction, we derived information on the aim of teaching:

“It aims at learners’ assimilation to an observation and imitation model, through *mutual* effort which involves distributing the roles among themselves, that of the *performer* who decides about the sequence of the exercises, the number of repetitions, breaks, etc., and that of the *observer* who compares the performance based on the criteria card and provides feedback, and *changing* roles upon completion of the exercise”.

*Strategy Denomination:* I make children perform through their joint effort.

Additionally, with the use of the interview procedure we obtained information as to which of the categories of teaching and learning behaviours are aimed at learners’ *activation*, which ones ensured *the right conditions* for their realisation and which ones formed the *criterion* whereby to check target achievement, with a view to identifying ‘what it aims at’, what takes place and ‘which are its characteristic features’.

Moreover, by the CAFIAS<sup>19</sup> system, enhanced and modified, the verbal and non-verbal behaviour of teachers and learners was recorded, as well as the varieties in interaction, the varied organisational structures of teaching work, the communication direction, the forms in which teaching products appeared, etc.

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19. Cheffers, J., Mancini, V., Martinek, T. (1981), *Observation Systems, interaction analysis*, (transl. G. Zervas), Athens, 40-120.

## Interaction Analysis

Categories of Verbal and Non-verbal behaviours	Allocation of Teaching Time
1. <i>The Instructor praises</i> (acknowledges success, approves, rewards, thanks, nods, strikes gently with his hand as a sign of congratulation, applauds, etc.)	5%
2. <i>The instructor accepts ideas and feelings of learners</i> (agrees, repeats, helps with the exercises, accepts help, takes part in the game, inclines his head forward, smiles without a nod, etc.)	6%
3. <i>The Instructor asks questions</i> (closed, open, wrinkled face, raises eyebrows, opens mouth, touches chin, looks learners in the eyes)	6%
4. <i>The Instructor informs, recommends, describes</i> (verbally, through rhetorical questions, by demonstration, by sketching, looks in the eyes, etc.)	
5. <i>Instructor guides</i> the students (gives commands, instructions, explains roles, configures performance designs, criteria, sets problems, gives feedback, shakes head, points out with the finger, whistles, etc.	10%
6. <i>Instructor disapproves</i> (tells off, criticises, threatens, deplores, rejects, raises pitch of voice, scowls, smiles mockingly, assigns response to another learner, ignores, etc.)	4%
7. <i>Learners respond mechanically</i> (reproduce the performance model exercises all of them together, one by one separately, answer closed questions, move heads expressionlessly, laugh convulsively, etc.)	7%
8. <i>Learners respond thoughtfully</i> (apply the observation model in an individual manner, reciprocal, uniform, by choosing difficulty level, with self-review, answer open questions, discover, touch chin, tap with fingertips, thoughtful look on their face, etc.)	29%
9. <i>Learners develop initiative</i> (ask unsolicited questions, make decisions, provide back-feeding to each other, create, design individual programme, puff and blow, sigh, etc.)	15%
10. <i>Learners are in a state of confusion</i> (are naughty, noisy, sit down doing nothing, keep silent, etc.)	3%

## Relationships between Interaction Categories

Verbal and non-verbal behaviour expressions of PE teacher and students is 46% as against 51%.

Direct verbal and non-verbal behaviour expressions of the PE teacher as against indirect ones are 21% as against 25%.

Oral and non-oral questions put by the PE teacher as against oral and non-oral responses given by students are 6% as against 36%.

Verbal and non-verbal reprimands, threats, rejections as against verbal and non-verbal praise, approval, acceptance of ideas/feelings, etc. is 4% as against 11%.

Verbal and non-verbal guidance of the students given by their PE teacher as against verbal and non-verbal development of initiatives on the part of students is 10% as against 15%.

#### Discussion of Interaction Results

The processing of the results showed that the teaching strategy 'I make children perform through reciprocal effort' created a learning-favouring environment.

The students, during the lesson, provided and received feedback, kept analysing the movements that were to be made by them, comparing their performance with the criteria, and drew conclusions as to the precision of the performance, thus getting a better understanding of 'what they were to perform' and 'how they were expected to perform it'. Naturally, there was no lack of conflicts between learners, talking, inadequate feedback and some decrease in the time taken for the exercise performance was noted.

The teaching strategy with the co-operation of students' pairs appeared for the first time early last century (D. Salmon, 1932)<sup>20</sup> and has become popular among P.E. teachers and supported by teaching research<sup>21</sup> (J. Anania, 1983; D. Siedentop, 1991, M. Mosston and S. Ashworth, 1994; M. Ernst and M. Byra, 1998 et al.), as it helps students' psychomotor, cognitive and social development.

#### Research results

The elaboration of the data research through the use of the observation systems and the use of the interview led to:

##### *A. The Structuring of the spectrum of teaching strategies*

The P.E. teachers are using a spectrum of ten teaching strategies:

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20. Salmon, D. (1932), *The Practical of Lancaster's Improvements and Bell's Experiment*. Cambridge-England, Cambridge University Press.

21. Anania, J. (1983), The influence of instructional conditions on student learning and achievement, *Review of Educational Research*, 46, 355-385. See also Siedentop, D. (1991), *Developing Teaching Skills in Physical Education* (3<sup>rd</sup> ed.). Mountain View, C.A., Mayfield, and Ernst, M. and Byra, M. (1998), Pairing learners in the reciprocal style of teaching: influence on student skill, knowledge, and socialization, *The Physical Educator*, 55(1), 24-37.

*1st Teaching Strategy:*

Making the learners *perform* as a body

*AIM*

The aim is to get the learners to move through organised movement phases in a *uniform and co-ordinated fashion*, reproducing the performance pattern of the teacher: ‘Do what I do’, responding to all of his/her decisions (teaching subject-matter, the sequence of exercises, start-up time, speed and rhythm of exercises, points at which the lesson stops, breaks, re-feeding, etc.) following a course which includes:

	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>
<i>Phases:</i>	Notification of the subject and explanation of the teacher’s and learners’ roles.	→ Presentation of the exercise and notification of the forewarning and final signals.	→ Reproduction of the performance pattern following the signals and the re-feeding.	→ Evaluation of the response to the role and to the reproduction of the pattern.

*2nd Teaching Strategy:*

Making the learners *perform* working individually

*AIM*

The aim is to get the learners to follow an *observation pattern* working *individually* and make for themselves a series of decisions about the sequence of the exercises, their duration, the number of repetitions, their progress control, etc., following a *work pattern* which includes:

	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>
<i>Phases:</i>	Notification of the subject and explanation of the teacher and learners’ roles.	→ Presentation of the exercise and configuration of the exercise execution plan.	→ Application by the learners of the execution plan with individual work and re-feeding from the teacher.	→ Evaluation as to the response to the role and as to assimilation with the execution pattern.

*3rd Teaching Strategy:*

Making the learners *perform* working in co-operation

*AIM*

The aim is to get the learners to follow an *observation pattern* working reciprocally,

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distributing among themselves the *performer's role*, who makes the decisions on the sequence of the exercises, the repetitions, the breaks, etc. and that of the *observer*, who compares/contrasts the performance with the criteria card and provides re-feeding, alternating roles upon the completion of the exercise, following a course which includes:

	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>
<i>Phases:</i>	Notification of the subject and explanation of the teacher's and learners' roles.	Presentation of the exercise and configuration of the exercise performance/ execution plan.	Distribution of the performer and observer roles, application of the execution pattern with alternative roles.	Evaluation as to the response to the role and as to assimilation with the pattern.

### 4th Teaching Strategy:

Making the learners *perform* working with self-control

#### AIM

The aim is to get the learners to follow an *observation pattern* working by *self-control*, using efficiently *the criteria card*, aimed at a *formative evaluation*, and making decisions on the sequence of the exercises, the duration, the repetitions, etc. following a course which includes:

	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>
<i>Phases:</i>	Notification of the subject-matter and explanation of the teacher's and learners' roles.	Presentation of the exercise and configuration of the exercise execution criteria card.	Application of the execution pattern with self-control using the criteria card.	Evaluation as to the response to the role and as to assimilation with the pattern.

### 5th Teaching Strategy:

Making the learners *perform* by choosing the level of difficulty

#### AIM

The aim is to get the learners to follow an *observation pattern*, designed at *multiple difficulty levels*, selecting the level and working individually, to perform and evaluate with the use of the criteria card, make decisions on whether they are to remain

at the same level or move to the previous level or to the next one, on the duration, the repetitions, etc., following a course which includes:

	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>
<i>Phases:</i>	Notification of the subject-matter and explanation of the teacher's and learners' roles. →	Presentation of the exercise and configuration of the exercise execution criteria card. →	Selection of the difficulty level, individual performance of the exercise and evaluation using the criteria card. →	Evaluation as to the response to the role and as to assimilation with the pattern.

#### 6th Teaching Strategy:

Making the learners discover, working under the teacher's step-by-step guidance

##### AIM

The aim is to make the learners discover the 'how' and the 'why' of the movements, answering questions in a hierarchical order, designed *step-by-step* by the teacher, and following a course of *guided inventiveness* from the general to the specific which includes:

	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>
<i>Phases:</i>	Notification of the first question and explanation of the teacher's and learners' roles. →	Learners' intellectual concern. →	Steps: – quest for 1st answer, re-feeding – presentation of the 2nd question and quest for its answer, re-feeding – presentation of the 3rd question and so on until the discovery.	Performance of the movement activity which was discovered.

#### 7th Teaching Strategy:

Making the learners *discover* through individual work

##### AIM

The aim is to make the learners discover the *unique solution* to a specific problem,

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using *cognitive processes*, such as comparison, classification into categories, drawing conclusions, etc. following a course of *converging inventiveness*, which includes:

	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>
<i>Phases:</i>	Notification of the problem and explanation of the teacher's and learners' roles.	Learners' intellectual concern.	Quest for and discovery of the unique solution.	Verification of the correctness of the solution through movement.

### 8th Teaching Strategy:

Making the learners *create* multiple solutions either individually or in a body

#### AIM

The aim is to make the learners create *multiple solutions* to a specific problem, using *cognitive processes*, such as comparison, contrast, classification into categories, problem solving, configuration of assumptions, drawing conclusion, etc., making decisions on the planning of the solutions, their sequence, their duration, etc., following a course of *diverging inventiveness*, which includes:

	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>
<i>Phases:</i>	Notification of the problem and explanation of the teacher's and learners' roles.	Learners' intellectual concern.	Quest for and discovery of multiple solutions.	Verification of the correctness of the solutions through movement.

### 9th Teaching Strategy:

Making the learners plan their individual programme of exercises in co-operation with the teacher

#### AIM

The aim is to make the learners plan and perform a series of exercises organised in an individual programme, aimed at the *exploration of a problem*: identification of the parts, their mutual relationship, arrangement in their right *order*, etc. *making* a series of decisions, such as the selection of the *teaching subject-matter* from within the *overall field* defined by the teacher, *the conversion of the subject-matter into a problem* (identification of questions), *collection of data* by means of performance,

their *experimental processing* with a view to *discovering solutions* (establishment of answers), *configuration of criteria verifying the solutions*, etc., following a course, which includes:

	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>
Phases:	Notification of the general working area and explanation of the teacher's and learners' roles.	→ Selection of subject and its conversion into a problem in the form of questions.	→ Collection of data by means of exercise execution, experimental processing, discovering of solutions (establishment of answers).	→ Verification of the reliability of the solution through movement.

#### 10th Teaching Strategy:

Making the learners shape their own teaching programme, perform it and evaluate it

#### AIM

The aim is to make the learners design a series of exercises, organised into an *individual programme*, in order to *explore a problem* and discover solutions by selecting the *teaching strategy* and *making all the decisions* regarding its preparation, conduct and evaluation with *the teacher in an auxiliary role*: watching the solutions that are expressed through the movements, pointing out deviations from the planning, etc. following a course, which includes:

	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>
Phases:	The learners are informed that they can assume their own teaching, each one of them on his/her own, while teacher's and learners' roles are explained.	→ Decision on the general area and selection of the teaching subject-matter, made into a problem in the form of questions.	→ Planning a series of exercises, their experimental, implementation, readjustment and classification in categories with a view to discover multiple solutions in the form of answers.	→ Implementation of the solutions to verify their reliability with a written essay and illustrations (sketches) or with a performance programme in front of a teacher or a group of learners.



*B. The characteristics of the teaching strategies spectrum*

The intervention of the teaching objectives of Physical Education's study programme, as *an priori* condition, mediates in such a way that in the decision making of a, b, c and d phases (stages), an asymmetrical relation<sup>22</sup> between teacher and students is presented.

Depending on who is taking the decisions in the different stages of the Physical Education teaching act, as well as the developing tasks, the limits of ten alternative teaching strategies in the form of a 'multiple-example' are set by distinctive teaching and learning behaviours which are centralised in three groups involving basic human skills: reproduction of the performance pattern, exploration/discovery of movements and creation/production of new movements.

The teaching strategies, which expand from a close to an open teaching act, produce different kinds of interactions, contributing to the learner's development in a different manner.

The teaching strategies spectrum emerging from the exploration of the teaching act process has a lot of common features with as well as essential differences from the taxonomies of the Physical Education teaching strategies which have also been developed by several researchers.<sup>23</sup>

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22. Gotovos, A. (1986) *The Logic (or the Reasoning) of the Real School*, Athens, Contemporary Education, 59-66.

23. Kirchmer, G., Cunningham, J. and Warrel, E. (1978), *Movement Education*, Dubuque, Wm. C. Brown Company Publishers, classified teaching strategies into *direct* and *indirect*. Miller, A., Cheffers, J. and Whitcomb, V. (1974), *Physical Education: Teaching Human Movement in the Elementary Schools* (4<sup>th</sup> ed.), Englewood Cliffs, New Jersey, Prentice Hall, Inc, classified teaching strategies into *vertical* and *horizontal*. Mancini, O. (1974), A comparison of two decision-making models in an elementary human movement program based on attitudes and interaction patterns, unpublished doctoral dissertation, Boston University, classified teaching strategies on a decision making basis in teacher centred and student centred. Strzyzewski, S. (1982), *Zarys metodyki wychowania w Kulturze fizycznej*, Katowice, AWF, classified teaching strategies on a motor tasks basis, into accurately determined *partial* and *open*. Mosston, M. and Ashworth, S. (1994), *Teaching Physical Education* (4<sup>th</sup> ed.), New York, Macmillan Publishing Company, classified teaching strategies a decision making basis into *reproductive* and *productive*.

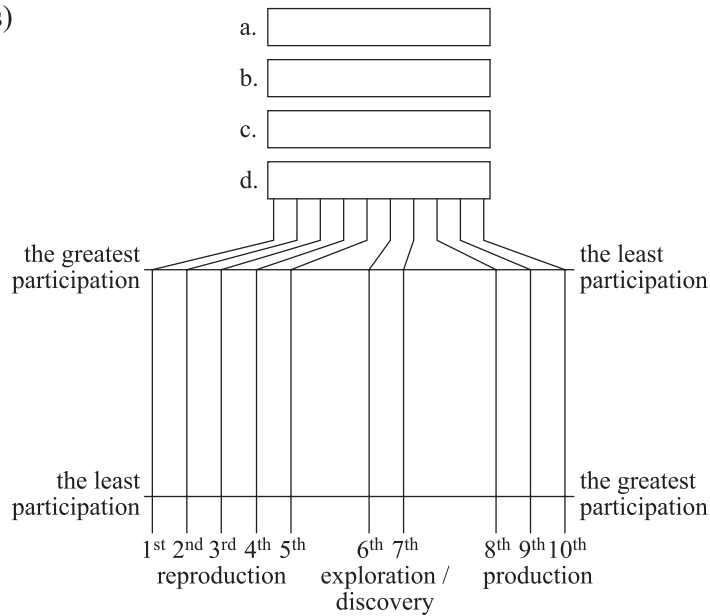
The above classifications compared to the teaching strategies spectrum which came to light through 'in situ' teaching and examination show that P.E. Teachers in both countries act according to the norms formed by the Teaching Methodology of Physical Education.

The structure of the spectrum of teaching strategies  
(According to *who* is taking the decision, *which* the decisions are,  
*what* kind of decisions and *when*)

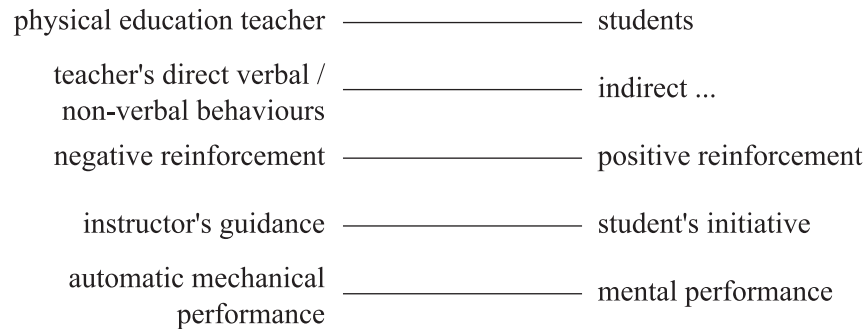
phases (stages)  
of teaching:

physical  
education  
teacher:

student:



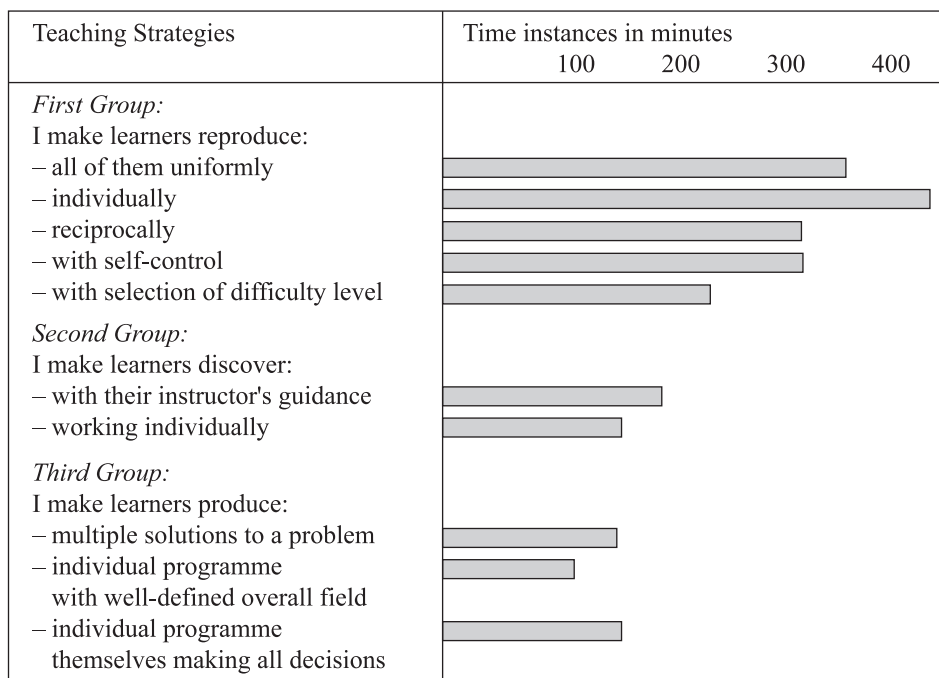
interaction (verbal and non-verbal behaviours):



### Conclusions

Teaching and learning behaviour presents a kind of *uniformity*, which, in our opinion, is due to the dominant views of neo-positivism in teaching organisation<sup>24</sup>.

24. Alberti, A. (1986). *Teaching Issues, Dictionary of Basic Terms in Modern Teaching*, (transl. M. Kondili), Athens, Gutenberg, 54.



The most popular teaching strategies in Physical Education in Greece and Hungary are those falling into the First Group. The teaching strategies falling into the Second and Third Groups, requiring learners to go beyond what they already know, are virtually absent from the Physical Education teaching repertoire, even though they show improved interaction.

The strategies falling into the Second and Third Groups have been characterised as “virgin fields”<sup>25</sup> by research studies in the field of teaching. The spectrum produced marks out the omission areas. In motor learning negotiation the teaching strategies of ‘imposed consensus’ at the cost of ‘conflict’ strategies, which is what is sought for in our times, are dominant.

25. Goldberger, M. (1992), The spectrum of teaching styles: A perspective for research on teaching physical education, *Journal of Research on Teaching Physical Education*, 63(1), 42-46. See also Strzyzewski, S. (1991), *Modele metod realizacji zadan ruchowych w obszarze Kultury fizycznej*, 1<sup>st</sup> Symposium For Physical Education at School, Athens, and Gniewkowi, W. and Wlawnik, K. (1991), *Proces wychowania fizycznego w Klasach poczatkowych*, Warsaw, WsiP.