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Comparative study of the impact of teacher's thinking and learning styles upon their teaching style

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Abstract
Argument: To teach for a successful intelligence, according to Sternberg, means to integrate and to valorise the creative and practical skills of the students, alongside with their analytical and memorizing skills, allowing them to valorise their intellectual qualities, by offering them a variety of ways to encode information (analytical, creative and practical activities) which facilitates memorizing the proposed materials.
Objectives: The way the teacher prefers to use his cognitive abilities (thinking style) influences his preference for certain learning situations (learning style), with impact upon his personal style to organize and to use teaching methods (teaching style). In this sense, we proposed to build a questionnaire to identify the teaching style used by the teacher in the classroom, according to the theory of Sternberg and to surprise the relationship between "thinking style-learning styles" of the teachers.

Keywords: thinking style, learning style, teaching style, questionnaire and performance

Introduction

There have been many tries to define intelligence because this kind of construct is seen differently among different cultures. The most important aspect, that all researchers have been emphasizing, refers to the individual's abilities to adapt to his context. Sternberg (1996, apud Sternberg and Kaufman) suggests that, rather than to pay attention to the classical notion of intelligence, we have to concentrate on the expression "successful intelligence", which is defined as "one's ability to obtain success in life by comparing with personal standards, within the frame of the socio-cultural context". Although this type of intelligence is individually determined, depending on what the person considers a success, it always appears in a socio-cultural context (shaped by values and social norms).

To have a successful intelligence, according to Sternberg, means to have the ability to adapt, to shape and to select those contexts that can offer you the possibility to achieve your personal, social and cultural goals. This thing implies the capacity of individual to identify his strong and weak points and to find out ways to valorise them, to compensate or to correct them, depending on the situation (Sternberg and Kaufman, 1998) [13].

The theory of a successful intelligence proposed by Sternberg is based on four key elements, namely (Sternberg, 1997):

1. Defining the intelligence as the ability to obtain success in life, retrospect to personal standards established according to socio-cultural context in which the individual lives;
2. This ability to obtain success depends on the person's manner to capitalize his potential and on his capacity to correct or to compensate his weak points;
3. The success is achieved by the equalisation between analytical, creative and practical abilities of the person;
4. The balance of these abilities is realized due to the necessity to adapt, to shape and to select favourable contexts in order to valorise them.

These three types of abilities or intelligences – as the author name them, very important in intellectual functioning, are (Sternberg and Kaufman, 1998) [13]:

- *Analytical abilities* – which are necessary to analyze and to evaluate the options that a person has in his life; the process implies four stages: identifying the existence of a problem, defining the problem's nature, establishing the necessary strategies to solve it and monitoring the solutions of the process.
- *Creative abilities* – are useful, in the first place, in generating solutions to solve the problems the person confronts with;
- *Practical abilities* – are obvious in options' implementation in a very well defined context and in changing them in functional options.

Unfortunately, in educational context, there is a strong tendency to valorise more the analytical abilities and memorized information, to the prejudice of creative and practical abilities. The *theory for a successful intelligence* proposes us to develop the expertise of students, teaching in a manner in which creative and practical skills are integrated and valorised with analytical and memorize skills, allowing students to valorise intellectual qualities, giving them multiple ways to encode information (analytical, creative and practical activities) which facilitate the retain of proposed materials (Sternberg, 2003) [14, 15].

Teaching for the development of an *analytical intelligence* of the student means to encourage him to analyze the offered information, to evaluate the value of what he has to learn, to explain the way things work, to compare many situations or problems.

When you are interested to stimulate the development of a *creative thinking*, you have to use words plays and role-playing games, to create situations that may offer the possibility to invent and to explore new ways of solving different problems, to imagine scripts within which you can use acquired knowledge or find out new utilities.

Everything is learnt in the classroom becomes important when is contextualized in practical activities. To stimulate a *practical thinking* the pupils have to be encouraged to apply in their daily activity information they got in class, to verify theoretical strategies, to experiment what they know from theory. Practical situations can be used as starting point or as final point, offering the students the possibility to manage abstract concepts.

When we talk about a theory, we refer to all those more or less systematic organized ideas connected to a certain subject. Starting from this generic definition, we can take as an example the cognitive theories of learning. In case of emphasizing the aspect of *memorizing* in the learning process, we are interested to hear from the student, which those theories are (their classification), how they explain the learning, which are the key concepts they use. If we intend to develop an *analytical thinking*, we ask student to compare Piaget' s theory with Vygotsky's theory, to find out differences and similarities between the two perspectives on cognitive development and functioning offered by the authors. Based on what the student already knows about cognitive theories, we encourage him to think a personal theory through which he can try to explain learning from this point of view, trying, in the same time, to valorise his *imaginative potential*. Moreover, because the value of knowledge is determined by her utility, the student has to be stimulated to think and to apply in practice these theories, in order to improve learning in the classroom, to organize learning context, to use teaching methods and means according to what theory says.

Consequently, the teacher's role is not only to give information which his students have to assimilate and then reproduce it in the assessment process, but he has to stimulate them to generate ideas, to evaluate its and to work hard to make these ideas work in practice, convincing everybody of their value.

The way the teacher prefers to use his cognitive abilities (*thinking style*) influences his preference for certain learning situations (*learning style*), with impact upon his personal style to organize and to use teaching methods (*teaching style*). In his teaching activity, the teacher does not transmit only a certain informational content, but also something from his manner of solving cognitive conflicts or approaching problems, which his students will take subconsciously. His teaching style emphasizes his learning and thinking styles, which influence the students he works with (a certain teaching method determines a certain subsequent learning style) and they become obvious in his way of measuring the performances. A high level of compatibility between teachers' thinking and learning styles and his pupils' styles will conduct to better academic performances.

Research Objectives

In order to reach the objectives of this research – to identify the relationships established between thinking style – learning style - teaching style of the teachers and thinking style - learning style - academic performances of the students - we organized this pilot study in three distinct stages:

1. The Identification of the relationship between thinking style-learning style - teaching style of the teachers
   The elaboration of a questionnaire in order to identify the teaching style of the teacher, based on Sternberg's theory of successful intelligence;
2. The Identification of the relationship between "thinking style - learning style - academic performances" of the students (is there a preference of thinking style - learning style in the case of performing students?);
3. The Identification of the relationship between "thinking style – learning style - teaching style" and "thinking style - learning style - academic performances" in the classroom.

Material & Methods

Used tests portfolio consisted of three questionnaires, by its application we focused on

1. The evaluation of cognitive style using "*thinking style inventory*", the short version of Sternberg and Wagner (1994) proposed test. The inventory represents a Likert scale type with 6 steps, from 1–*very strong disagreement* to 6–*very strong agreement*, made up by 65 items, equally distributed for each cognitive style that evaluates thirteen styles (legislative, executive, judicial, monarchic, hierarchical, oligarchic, anarchic, local, global, intern, extern, conservator and liberal). It is a self-evaluation questionnaire; every subject answers these questions taking into account the agreement or disagreement to their content;
2. The evaluation of learning style using "*learning style inventory*", proposed by Honey and Mumford (1986), which is based on Kolb's model of experiential learning. The questionnaire has 40 items which evaluate 4 learning styles – active, reflective, theoretic and pragmatic. It is a self-evaluation questionnaire; every subject answers these questions taking into account the agreement or disagreement to their content;
3. The evaluation of "*teaching style for a successful intelligence*" using a questionnaire constructed by us (Paloș, 2006) and based on Sternberg's theory of successful intelligence. The inventory represents a Likert scale type with 6 steps, from 1–*very strong disagreement* to 6–*very strong agreement*, made up by 23 items which surprised thinking type that teacher encourages to his students in teaching activity, distributed for each ability (5-reproductive, 5-analytical, 7-creative and 6-practical abilities). It is a self-evaluation questionnaire; every subject answers these questions taking into account the agreement or disagreement to their content.

Result and Discussion

The *style* is considered to be a preferred manner to do something, which remain stable in time and within the variety of the activities. *Thinking style* reflects rather an attitude toward the things then an ability, what somebody prefers and how prefers to do that thing (Sternberg, 1994) [11]. Alternatively, thinking style refers to the person's preference

to think upon the materials which he learnt or he learns, for instance to approach it global, to evaluate, to get over the appearance, and so on.

Cognitive style identifies the manners through which individual reacts to different situations and includes in his structure stabile attitudes, preferences and habitual strategies that define individual style in perceiving, rehearsing, thinking and solving problems. That means cognitive style emphasizes general manners and structural properties of cognitive system, aspects that do not depend on the personal preference. It develops in tight relation with personality traits and includes typical manners of thinking, too (Messick, 1984) [8].

The way in which a person uses different senses (visual, kinestesic and so on) to comprehend, to organize and to retain experience, defines his learning style. *Learning style* includes individual learning strategies repertoire (behaviours, stages, operations, techniques which students use to facilitate their acquisition, retain, rehearsal and utilization of information) combined with cognitive style (the way in which information is organized and represented). Learning strategies could change, but style's dimensions stay constant (holistic-analytic, verbal-visual, and so on) (Wiiteman, 1997).

We constructed a questionnaire in order to identify the teacher's teaching style that facilitates the development of reproductive, analytical, creative or pragmatic thinking of pupils, based on Sternberg's theory of successful intelligence. A first statistical analysis upon the questionnaire consisted in an exploratory factorial analysis using *principal axis factoring method*, with oblique rotation.

Educational Implications

Identifying the relationships between the fourth variables: thinking style – learning style – teaching style – academic performances seems to be very important and useful in educational practice, at least from three perspectives:

- **Teacher's point of view** – referring to his preference for certain teaching methods influenced by his thinking and learning styles, as well as his training for educational activity according to his personal characteristics;
- **Student's point of view** – referring to the combination of teaching methods which can offer a big variety of alternatives to encode information and, in the same time, conduct to an efficient learning, as well as choosing the best methods of assessment which can stimulate thinking style of students and valorise their potential (essays, projects, oral exams, and so on);
- **Educational relation's point of view** – the compatibility between thinking and learning styles of teacher and his students conduces to better academic performances of the students.

Cognitive and learning styles give us information more about how the information is processed and less about "how well". Considered to be a result of the interaction between cognitive styles and personal variables (such as motivation, attitudes, locus of control - Schmeck, 1988, apud Witteman, 1997) [16], learning style is very important in building knowledge. If the teacher identifies and knows the style of his students, he has the possibility to organize a large variety of learning groups and every student could benefit from the advantages of one or other learning style and, in the same time, he could compensate the disadvantages of the others styles (Wiiteman, 1997). The educator could also structure learning context in a manner that helps the student to assimilate the proposed materials and to build his knowledge.

Limits of this study

The results we have obtained after developing this pilot study do not pretend to be representative or generalizing, but we think that they cannot be neglected either. The first step was to construct a questionnaire that identifies the teaching style that teacher uses in his/her class activities, according to Sternberg theory of successful intelligence. In the same time, we want to achieve the other two objectives, too. Due to this reason, we intend to increase and to diversify the structure of the sample, in order to see the degree of validation of our conclusions by the results.

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