

## The thinking styles of the university teacher

### Los estilos de pensamiento del profesor universitario

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**Linoel De Jesús Leal Ordóñez**

Universidade Federal de Mato Grosso do Sul (Brasil)  
linoel31@gmail.com

**Antonio Carlos Do Nascimento Osorio** 

Universidade Federal de Mato Grosso do Sul (Brasil)  
ac-osorio@hotmail.com

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#### Abstract

This article is related to the ways of thinking of the teacher; his goal was to understand the thinking styles of the university teacher from two out of the five cognitive and behavioral expressions in Sternberg's thinking styles theory: the function inside the classroom and the level of classroom performance. The epistemological approach was the empirical-inductive, framed in the logic positivism tradition, with the case study as methodology. A 24-item likert-based scale was applied to 40 teachers of the Education career from Universidad Francisco de Miranda (UNEFM) - Venezuela. The results evidenced a mediational thinking style, based on cognitive and constructivism-based teaching procedures, democratic patterns for classroom organization, as well as a permanent process of reflection that informs teachers about what and how to improve while teaching. These results can help to optimize teaching performance, as well as to design pedagogical training processes more focused and based on mediational pedagogies that lead to better learning.

**Keywords:** Thinking styles, university teachers, pedagogy, mediational pedagogies, university education.

#### Resumen

Este artículo está relacionado con las formas de pensamiento del profesor; su objetivo fue comprender los estilos de pensamiento del profesor universitario desde dos expresiones cognitivas y comportamentales presentes en la teoría de los estilos de pensamiento de Sternberg (1988): la función en el aula y el nivel de desempeño. El enfoque epistemológico fue el empirista inductivo, con la tradición positivista lógica, y el estudio de caso como metodología. Se aplicó una escala Likert de 24 reactivos a 40 profesores de la carrera Educación en la Universidad Francisco de Miranda - Venezuela (UNEFM). Los resultados evidenciaron un estilo de pensamiento mediacional, con procedimientos de enseñanza cognitivos y constructivistas, patrones democráticos de organización de la actividad áulica, así como también un proceso simultáneo de reflexión que informaría a los profesores qué y cómo mejorar mientras van enseñando. Estos resultados pueden ayudar a optimizar la práctica de enseñanza, así como también a promover procesos de formación pedagógica más focalizados y basados en pedagogías mediacionales que promuevan mejores aprendizajes.

**Palabras clave:** Estilos de pensamiento, profesores universitarios, pedagogía, pedagogías mediacionales, educación universitaria

## INTRODUCTION

The latest research in Education highlights a vast road of work in several areas of knowledge, leading to explication and comprehension of what happens in the classroom. The assumption of this topic implies necessarily the recognition of two fundamental actors in the teaching process: the teacher and the student. It is the teacher, particularly the one from the university level, who has sparked interest, motivated by multiple problems, and orientated both from the researcher's interests and the need expressed by educative institutions and research groups. This research was centered in understanding the thinking styles in a case of 40 university teachers, from the School of Education at Universidad Francisco de Miranda, in Santa Ana de Coro, Venezuela.

In this sense, since Robert Sternberg formulated the mental self-government theory in 1988, the thinking styles have stimulated diverse research explaining both students' and teachers' affairs. In the teachers' affairs, it has been considered fundamental to investigate on their thinking and behavior (Teachers' thinking paradigm). These affairs would lead to teaching, learning and evaluation in the university context, due to the amount of available information that could be generated both to stimulate better learning in students and to make the teachers' behavior more effective.

The thinking styles in the university teacher represents a source of knowledge that could promote a better comprehension of what happens when teaching in the university level which, by possessing a superior condition, has received a popular recognition of "no problem teaching" because of its historical autonomy. However, recent research indicates the need for understanding core processes like didactics and peda-

gogy, with an important implication in the goals both for learning and for teaching.

This article presents the findings of a research in which emerged a thinking style, the mediational one, as a result of a comprehensive perspective applied, in the development of the teaching practices in the university teacher. This finding is nuclear, because stimulates understanding of what happens in the university classrooms, mainly in those for the training of new teachers (or bachelors of Education).

### *The problem and the theoretical corpus*

- *The teaching practices in the university level*

The dynamics or the teacher-student interaction, but above all the role of the teacher over the educative labor, keeps on being within the most iconic areas of the teaching and learning processes. An important idea in this respect:

es el profesor, en tanto que mediador cultural, el encargado más directo e inmediato de apoyar y promover el aprendizaje de los alumnos, tratando de ofrecerles, en cada momento, la ayuda educativa más ajustada posible para ir elaborando, a partir de sus conocimientos y representaciones de partida, significados más ricos y complejos, y más adecuados en términos de los significados culturales a que hace referencia el currículo escolar (Bueno, 1998, p. 515).

That's why the affairs or research line in the teacher-student relation has such a privileged place in educative research, since it might be the melting point for affairs like motivation, self-esteem, self-efficacy and particularly teaching as a transcendental phenomenon with all the behaviors, of success or failure in teachers. These behaviors would be oriented –in theory- to fulfilling the best learning for their students, with context-based planning, and adjusted to the

most important student needs, as well as to the requirements of the discipline taught. Nevertheless, the general problems and the teaching affairs, specifically the ones associated to the teacher, with the particular expressions in which their behaviors take material manifestation, still keep on representing a big concern both for academic-scientific circles and for those within the most popular and naive imaginary. This concern can be exposed in two questions of general interest: what makes a teacher good, and how training and continuous reflection-insight on them could contribute to fulfilling the project in the first question.

The motivational thesis, primarily on the Julian Rotter locus of control theory, for example, would highlight issues over the need to consider both internal and external aspects, which could be associated as generators of good or bad performances. That is, the successful or messy teaching behaviors could have a cause on the very teachers, such as a high goal oriented personality or a positive mind when teaching; or to external causes, such as the possessions of the most advanced devices to conduct teaching both inside and outside the classroom.

But, there is another much more specific thesis, framed in how teachers process information, how they prefer to do things, and how they do them, once the acts are selected. All this oriented to the solutions of teaching and classroom problems, that would primarily be constituted by the teacher thinking (a superior cognitive process, even the most important), which would be a descriptive and predictive mark for good teaching, with special accent on the university classroom.

In this sense, university education is presented as a problematic and complex area by being characterized by whole learning and teaching dynamics, but mainly for the existence of two critical factors, that give

the reason to be what it is: the student and the teacher. On the student, the popular imaginary could assume that, because of their autonomy, they know what and how to do, to overcome all the exigencies that this system puts on them; this is quite distant from reality. This aprioristic supposition would take them apart from being assumed as a complexity to be researched (Leal, 2013; 2016a), derived from teaching, in many cases not suitable, and characterized by one or more of the following affairs (for the author, teaching pathologies):

- a. A not planned teaching;
- b. Excessive content-based teaching, with few practical applications;
- c. Teaching with non-defined purpose, nor exposed to the students either;
- d. A non-contextualized and antipedagogical teaching;
- e. A discipline and control-based teaching, with little reflexive action;
- f. Teaching based on little action freedom,
- g. A teaching not tuned with monitoring and learning evaluation;
- h. An exclusive transmissive teacher-centered teaching;
- i. An exclusive student-centered teaching;

The previous horizon exposes the idea that where there teaching and learning, there can also be special educative needs, no matter the educative level. Nevertheless, what is seen in reality or in the popular imaginary is that research can do little to overcome these teaching pathologies. Furthermore, they can be seen as objects to be solved with esoteric recipes, with the promise to improve the teaching climate and the academic student performance; a situation quite far from reality. This context claims a change in the thinking paradigm to solve teaching and learning problems, but also claims for attention on the teacher training models. All this with a

base on the systematic scientific knowledge, in which teacher's reflection-insight could also be considered, exposing the intimacy of the teaching and learning affairs, related to a quality agenda.

That's why the quality affair in teaching has been for years one of the most important occupations for governments, teaching associations and student leaderships, and being related to thinking as a nuclear process of cognition, quality in teaching gains a more important tone. That is why:

las cogniciones de los docentes y sus prácticas se entrelazan mutuamente y ambas aportan información relevante sobre las creencias de los docentes en conjunto con los factores contextuales, los que tienen un rol importante al momento de determinar la congruencia entre las cogniciones del docente y en sus prácticas. En el campo de la investigación de la cognición del docente ha existido una ambigüedad terminológica significativa que demuestra el carácter personal de la cognición docente y el rol de la experiencia en su desarrollo (Solar and Díaz, 2007, p. 4).

In that way, informational, preferential and procedural affairs, related to the university teacher's thinking, at the teaching moment form a complex and controversial triad, constituted by:

...cuerpos informacionales (las ideas, creencias, opiniones que se tiene respecto a ciertos problemas); los cuerpos preferenciales (los gustos, inclinaciones, preferencias por ciertos tipos de problemas) y los cuerpos procedimentales (las diversas o restringidas maneras, normas, de proceder en el abordaje de un problema) (Leal, 2016b, p. 3).

This triad would line up a great part of the background (cognitive origins) for the efficient teacher performance, based on thinking as an ability to solve problems

successfully by using memory-stored information, or even external new information when possible. This problem-solving manner is not necessarily referred to the most elemental "problem" signification with negative manifestation. The notion of the problem here would be associated to challenge, a situation that implies the management of strategies and actions for advance, such as the planning of a class session or baking a cake. A signification of problem can be that in which "the problem or the problematic proposition is a capital proposition that establishes that something can be done, demonstrated or found" (Padrón cited in Chacín y Padrón, 1996, p. 1).

That's why the assumption about information, preferences, and procedures is itself constituted around a cognitive affair in teaching practices of the university teachers, based particularly on a case from UNEFM: its teachers assigned to the Education career. All this indicates at the same time the presence of a style for problem-solving, or more specifically a thinking style in the subject-actor, a university teacher in an Education school who would have at the same time characteristic expressions in their practice, that will evidence such a style.

On this thinking style notion:

los individuos se diferencian y se asemejan entre sí por el modo particular en que opera su función cognitiva, debido, entre otras cosas, a que la realidad circundante no es la misma para todos ni tampoco lo es el sistema de condiciones de exposición al mundo ni tampoco el historial de logros cognitivos o de realizaciones cognitivas en cada persona. Este proceso de modelación o de construcción de representaciones mentales del mundo, tal como se ha caracterizado, implica el procesamiento de información y la solución de problemas informacionales (Padrón, 2001, p. 4).

The literature on the concept of thinking style is not homogeneous; the thinking style notion is associated with cognitive or intellectual style. By talking in terms of cognitive or intellectual style in teachers, there could be practical and conceptual confusions around the concept of teaching style; this latest conceptualization is wider, taking not only cognitive variables, but also social, instrumental, affective and behavioral ones in the teaching performance. The focused problem is the university teacher's messy performance because of cognitive-based impossibility, specifically with their thinking. It is remarkable when tension poses on the university teachers in charge of teaching students in training to be teachers as well. These teachers mistakenly can argue things like a lack of goal-centered behavior or a presence of teaching practices with lazy students.

This context sets a controversial panorama drawn in two ideas, which have motivated this research. One: Is there any difference between the thinking style of teachers from the Education careers/sciences and others from Medicine or Engineering? And two: The thinking style in teachers from Education careers stimulates more leaning than others from Medicine and Engineering careers? Teaching training demands teachers from Education careers/sciences to develop and exhibit specific behaviors and cognitions, not necessarily demanded from those in other careers, such as Medicine or Engineering. This suggests a strong expectation in topics like the manifested experience and the didactic and pedagogical expertise in university teachers from the Education.

This context presents the intention in this research which is centered in the understanding of the thinking of the university teachers, specifically the teachers

from the School of Education at UNEFM. This research forms a part of a wider comparative project in development as well, oriented to understand the thinking styles of teachers from Education, Medicine and Engineering careers from UNEFM. In such an intention, the cognition of the teacher is central for comprehending not only phenomena like these but also the ability to adapt to many other situation and contexts. A reason to this pretension is that in great measure most of the success or the failure in the students records, not only in evaluations but in the whole pedagogical, didactic and instructional process, can be linked to the content and thinking style of the university teacher, letting us suggest a significant difference between thinking styles and disciplines and careers taught by these three groups of teachers. This takes us to a third idea, constituted in how the thinking style (cognitive and behavioral expressions) of the university teacher would allow a good teaching performance, that impact on a good academic performance in the students from this university.

The previous statement does not imply to determine which group of teachers is more effective in terms of a thinking style, but it is truly important to know and understand how these teachers set a whole teaching world as a representation in/of thinking. These teachers from this school of Education are demanded to train students in the road to be teachers in a context of high expectations and social cognition that upon them is set, besides teaching is an occupation and strategic profession for many countries' development. A thesis would be linked to an ideological perspective, on which some teachers might possess more effectiveness by thinking and organize better teaching worlds.

Above all this expressed, this is necessary to clarify the signification in thinking style, to then difference it from intellectual and teaching style for theoretical uniformity criteria. In this sense, «intellectual» might be linked to intelligence, another significant variable of cognition, with particular orientations, and «teaching» might be oriented to much more variables, beyond the cognitive thesis correspondent in this research. An interesting proposal presents a semantic separation between these three adjectives or concepts:

los estilos de enseñanza podrían definirse, de forma global, como las posibilidades precisas, relativamente unitarias por su contenido, del comportamiento pedagógico propio de la práctica educativa; los estilos cognitivos del profesor pueden verse como las formas de captar la información y de enfrentarse a las tareas («el saber hacer»), mientras que los estilos de pensamiento hacen referencia a la forma que tiene las personas de utilizar la inteligencia. Se definen como el autogobierno mental que las personas hacen de sus mecanismos intelectuales para adaptarse al medio (Bueno, 1998, pp. 520-526). It was basic for this research.

the conceptual organization of the university teachers' thinking styles, in cognitive-behavioral expressions, following the thinking style proposal of Bueno (1998), assuming them into two expressions: Teacher function: legislate-normalize (Legislative function), execute-apply (Executive function) or monitor-punish (Judicative function), and Level in classroom performance: global (Macro attention) or local (Micro attention). This proposal was taken because these two would be the two nuclear manifestations in daily teaching performance of many university teachers. For this reason, it turned out necessary to set a focused research

process that leads to the comprehension of the teaching performance of the university teachers from UNEFM, taking their thinking styles, in the cases within the School of Education.

### *Why research on the teacher's thinking?*

Based on the teacher and their teaching development, the research line in educational affairs has stimulated great initiatives, miscues, tensions, concerns and complexities throughout modernity, and still continuing to nowadays contemporaneity, towards the understanding what makes the teacher performance be good, and the explication of how their practice can stimulate learning headed to quality in the university educational level. For that reason, quality in education and teacher's thinking style would be exposed in a cause-effect relation, by assuming a premise: as long as teachers encourage quality learning, they contribute to an education every time more qualified. For instance, it is important to highlight one statement as follows:

como elemento relevante relacionado con esta importante discusión sobre el problema de la calidad en la educación, podemos apuntar que se ha convertido en un tema prioritario asociado a la producción del aprendizaje como nuevo paradigma en educación, hasta el extremo de que las actuales reformas y evaluación educativas orientadas por la calidad mantienen un lazo indisoluble entre calidad y equidad, entendiéndose esta última como aumento de la eficacia (Toro, 2007, p. 4).

That's why the need to think the university education level in terms of an intimacy horizon between those who teach and those educated under such teaching, besides the multidimensional context surrounding them, also a conditioning base of their development and performance:

social, political, ideological and institutional, for example. In such a way, what teachers can produce in their classrooms would transcend from that romantic thesis of nobleness of a beautiful occupation that produces great transformations on students; from the manners in which every teacher teaches, great transformations should be produced at a cognitive level, taking as manifestation the manner in which learning is managed, since “se parte de entender que la educación es una acción social que enseña y produce transformaciones informacionales en los sujetos que la reciben” (Toro, 2007, p. 2).

These transformations come from the recognition of the affairs produced, in which the teacher-student relation is produced as well. Some ideas draw the teacher-student relation, which

... puede considerarse, desde una concepción social y socializadora de las actividades educativas escolares, como el tipo de relación que articula y sirve de eje central a los procesos de construcción de conocimientos que realizan los alumnos en esas actividades (Bueno, 1998, p. 516).

For example, topics like planning and learning evaluation are some of the affairs implied in both the teachers and the students, getting in several opportunities a core weight, or at least this seems to be in the collective imaginary. Secondly and truly related to the previous ideas, the personal-affective factors of the teacher are also considered. The result from this relation between teachers and students has a strong influence which implies handling emotions and attitudes, making possible or impossible quality learning: level of implication in the educative activity, discipline and authority styles, and even the grade of intimacy between the actors involved in the relation. On this issue, “...el principal de ellos [personalidad

del profesor] estribaría en su grado de compromiso o de participación del yo en el desarrollo intelectual de sus alumnos y en su capacidad de generar excitación intelectual y motivación intrínseca para aprender”(Sears cited in Ausubel, Novak y Hanesian, 2009, p. 430).

For that reason, this research on the university teacher’s thinking styles was initiated under two premises: what the teacher does in the classroom and the manner in how their activities are performed. In the first case, aspects related to planning, management, negotiation and evaluation are considered a number of facts that end up a line by taking discipline and organization elements as a whole core of all the teaching process, to fulfill quality leaning as a final goal. Then, this places the teacher’s affairs as cores for the quality learning management on the students. A dynamism is needed to make possible the understanding of what happens in the intimacy of the classrooms, besides the implication of the thinking style in the development of a general pedagogy for a better teaching and more learning successful goals in students.

For instance, the teacher’s thinking style emerges as that implicit variable in the interaction between the students and them, and whose possession would be oriented to the development of effective behaviors. On this, it is convenient to highlight:

la necesidad e importantes consecuencias de estilo interactivo de profesor en el aula, materializado en comportamientos y rutinas, ha dado lugar a investigaciones encaminadas a descubrir no sólo qué es lo que hacen los profesores eficaces, sino qué hay que hacer para rentabilizar la enseñanza, para resultar un profesor eficaz (Bueno, 1998, p. 522).

### *The concept of thinking style*

A style presents a bunch of distinctive features on the behavior of a living or unanimated form. In such a way, it represents manners and tendencies with which individuals behave in social or intimate contexts. For the intention of this research, in the conception of the thinking styles two macro aspects should be assumed: the content of thinking and the subject who thinks. In this context:

uno de los principales motivos de atracción sobre el concepto de estilo en el ámbito educativo es que permite ir más allá del concepto de inteligencia, al incluir otros factores que influyen en el aprendizaje como el contexto, la percepción de logro, la motivación o el desempeño, entre otros y, sobre todo, la consideración de las características individuales para extender la comprensión sobre las diferencias de la percepción y explicación de la realidad (Valadéz, 2009, p. 2).

However, according to the intention of this research, it was suitable to take this concept from thinking. In this sense, a thinking style “es una especie de personalidad intelectual o de idiosincrasia cognitiva, que se va forjando desde la cuna y que, una vez consolidado, filtra todas las experiencias de descubrimiento e invención” (Padrón, 2001, pp. 38-39). So, the thinking style comes to be a variable or aspect derived from the individual’s mind, making possible this process of filtering the own lived experiences; a thinking style is eventually a guiding macro variable of all actions executed by the individual, once that receives the outer input (by senses) or when recovering memory-stored information (by reasoning).

A more precise point of view of the thinking style concept initiates in Sternberg, since he was the precursor of the con-

cept in 1988 for his triarchic intelligence theory, based of mental self-government forms. These thinking styles

... hacen referencia a la forma que tienen las personas de utilizar su inteligencia triárquica, y se definen como el autogobierno mental que las personas hacen de sus mecanismos intelectuales para adaptarse al medio, mecanismos útiles que la gente, al igual que las sociedades, emplea para sobrevivir. En la interacción profesor-alumno sirven para explicar el autogobierno mental o el modo que tienen el profesor y el alumno de «aprovechar» sus recursos intelectuales o capacidad mental durante el proceso instruccional [...] (Prieto and Serrano, cited in Bueno, 1998).

There are two implicit aspects in the previous quotation, the content of thinking and the subject who thinks:

supóngase que pienso en un dragón. Parece haber dos cosas que hacen de ese pensamiento lo que es: primero, que es el pensamiento de un dragón y no de un caballo o un águila; segundo, que es mi pensamiento, y no el tuyo o el de la Reina Isabel. Éstas parecen ser las dos propiedades esenciales de cualquier pensamiento: tener un contenido y un portador (Kenny, 2000, p. 127).

That’s why the point of view respecting the thinking style should be considered, specifically according to these properties or classifying aspects expressed by Kenny. Besides, according to this point of view, the central issue of the thinking style is highlighted. A subject –a university teacher- is going to represent and explain how and why they tend to set the teaching world in the way they do.

The thinking style, or thinking itself, can be linked to aptitudes derived from the teacher, and intellect is privileged. For example, we might initiate a deductive

process between concepts, though they are not the same because of the important and distinctive function they have, develop a strong and significant relation. With *mind* we found presupposed the ability to get other abilities, like the one to learn French, Spanish or more specifically to teach any subject. For it,

la mente... es la aptitud para adquirir habilidades intelectuales, es decir, habilidades para las actividades intelectuales. Tales actividades son las que involucran la creación y utilización de símbolos [de allí que el pensamiento nos provea –dotados del intelecto- de la capacidad de representar al mundo desde los símbolos, por ejemplo]... El intelecto se define como la aptitud para el pensamiento. Esta definición es esencialmente correcta, pero para no ser desorientadora requiere investigación y calificación. ¿Cuáles son los rasgos esenciales del pensamiento?(Kenny, 2000, pp. 171-172).

This relation of subordination between mind-intellect-thinking will stand some epistemological precisions that will highlight the directive role in thinking –from the style the subject presents – on the teaching performances of the university teacher. For a teacher, the thinking style will be situated in the forms and tendencies manifested for teaching and learning. In teaching processes, besides, and by taking a concept like this, it's necessary to consider the cognitive psychology as the covering theoretical frame. For that -a research oriented through these seeking intentions on the thinking styles- would assume the cognitive psychology, since this is the “rama de la psicología que se enfoca en el estudio de los procesos mentales superiores: pensamiento, lenguaje, memoria, resolución de problemas, conocimiento, razonamiento, juicio y toma de decisiones” (Feldman, 2005, p. 250).

From this perspective, to research on the style of thought, and assuming it as the main cognitive process, it is necessary to take not only its essential characteristics but also, to highlight what are the cognitive processes and what and how they are associated. with the teacher's thinking, that is, with their cognitive-behavioral expressions and performances. Coincide authors such as Gravini (2010) and Steffens et al. (2017) when reflecting on the cognitive and metacognitive processes that the teacher develops as he realizes his pedagogical practice as a way to strengthen particular forms of thought.

### *The Sternberg's self-government forms*

- *Two cognitive-behavioral expressions of the university teacher performance*

According to the Sternberg's thinking style theory proposed in 1988, these styles are constituted by mental self-government forms, or for this research *macro cognitive-behavioral expressions*; at the same time constituted by micro characteristic expressions, which would come to be the attributes of the university teacher performance. These statements come together as the following idea:

La teoría de los estilos de pensamiento pretende dar cuenta tanto de los aspectos cognitivos como los rasgos de personalidad y del aprendizaje, los cuales representan los tres enfoques con los que hasta el momento se organiza el estudio de los estilos. Una característica distintiva de esta teoría es que emerge de los estudios de la inteligencia. A través de los estilos, Sternberg (1988) pretende indagar los procedimientos para accionar la inteligencia, los observa como métodos para organizar la cognición, modos de pensar que utiliza el individuo para resolver problemas de su contexto y el objetivo de la tarea; además plantea que son socializados (Valadez, 2009, p. 26).

Also, it is important to expose the most representative five forms of mental self-government in this theory, which have stimulated research manifested through the university teacher's thinking style, and that have been assumed as conjunct or just some of them. For Sternberg's theory, there has been a traditional classification: functions in the classroom (legislative, executive or judicial); manifestations of the classroom performance (monarchy, hierarchy, oligarchy or anarchy); level of classroom performance (global or local); performance orientation (internal or external) and relative tendencies to the performance orientation (progressive or conservative). In Frame 1 there is a theoretical synthesis of the concept of thinking style for this research.

### *The mediational thinking style*

Because of the advances in the educative contemporary research and the need of better results, the century 21 research has driven new configurations in the analysis and explanation of the teacher's thinking and behavior. This new configurations include for example external aspects like the teaching and training of themselves, as well as their affect and cognition affairs, traditionally assumed. The tendency leads to more diverse models, combining different perspectives from varied theory and epistemological approaches. On this respect:

para entender lo que hace eficaces a los profesores, es necesario ver más que solo sus características y examinar la interacción complicada entre las creencias, las competencias internas y el escenario educativo externo. Todas estas condiciones se ubican dentro del paradigma ecológico de la enseñanza (Tuckman y Monetti, 2011, p. 15).

This ecological paradigm shares some practices and characteristics of the teachers with thinking styles based on the ecological paradigm, highlighting the important relation *personality-cognition-behavior*, as it follows:

1. Concern on the student's learning;
2. The ability for a neat communication;
3. The ability to create a positive learning environment;
4. Knowledge of content;
5. The abilities to teach;
6. The ability to organize and plan effectively, and
7. High expectations for oneself and for the students.

This paradigm would seek for the comprehension of the entire teacher's architecture, assuming it from a more contextualized and flexible planning, implying the inclusion of the best features to the performance style of every teacher. At least one category has grouped the conjunct of cognitive and behavioral expressions, which would turn up as an ideal prototype of a teacher. In such a context, we would be facing a mediational thinking style. The mediational teaching, as a result of this style, would be an interactive process through which teachers practice insight through the psychological process of thinking, among other operations. It could bein some way funded on Vygotsky's ideas and has its application on Feuerstein's intelligence improving programs (Bueno, 1998). In this sense, according to this paradigm, the mediational thinking style would be identified because there is:

1. Active student implication in the training process;
2. Mediation that overcomes the teaching contents;

3. Stimulation of meaningful learning;
4. Planning of the educative goals according to the student's performance and developmental level;
5. Scholar activities planned as challenges;
6. Development of cognitive competence;
7. Stimulation of the cognitive self-regulation;
8. Organization of the hybrid (teacher-student) teaching activity;
9. Respect for the psychological diversity;
10. Change and improvement of the cognitive function by including students in the process;
11. Respect to the value and attitude.

These eleven mediational keys can be compared with the aspects considered by Feuerstein, Klein and Tannerbaum cited by Bueno (1998, p. 531), getting essentially the same ideal mediational prototype of teacher, based on cognitive, behavioral, humanistic and constructivist processes, to have:

1. A classroom environment to help the student face more complex problems, highlighting success rather than mistakes;
2. Challenge-based solving problem procedures for the students;
3. Construction of knowledge for the students, under their own procedures, giving them the most proper feedback, without giving them the solution,
4. A work frame in which discussion, thinking and interchange of ideas are stimulated, from the students' very experiences.

### *The reflection on the teaching practice*

First, it is necessary for the teacher to be conscious about what they do, according to their cognitions and behaviors (first step);

secondly, to identify the organization and forms taken by their performance or everyday practice (second step); and thirdly, to generate knowledge about those behaviors from their very professional teaching performance, from which reflection would emerge, to eventually be incorporated in the first step (third step).

That is, the emergent reflection from this performance is joint to a cognitive-behavioral context, since it is the type of context that can inform the teacher about their own performance; what they think and do at teaching, at evaluating and at learning, the responsibility, the difficulty or the complexity of their teaching. All that training implies would be set from daily practice, about a circular architecture of three steps that represent what is done by teachers. On the reflexive practice from the very action of the professional practitioner (any professional, the university teacher among them), the following idea:

La reflexión desde la acción. Si el sentido común reconoce el saber desde la acción también reconoce que algunas veces pensamos en lo que estamos haciendo. Frases como «pensar con los pies en el suelo», «tener mucho ojo», y «aprender haciendo», no solamente sugieren que podemos pensar en hacer, sino que podemos pensar en hacer algo mientras lo hacemos. Algunos de los ejemplos más interesantes de este proceso ocurren en medio de una actuación (Schön, 1998, p. 60).

As it has been pointed out, two big aspects can be involved in the organization of the professional performance of the university teacher; by the one hand, the aspect of productive step that would drive the cognitive intention, and under which they would select one or another manner of classroom performance, and by the other the context of the behavioral subject, which might make possible or impossible one or another behavior.

In this sense, Teun van Dijk's sociocognitive context approach, places us on another perspective, in the same way –and in a certain moment- in which Verón's social meaning production theory takes us to the identification of the triad production-conditions-consumption. That is, “la palabra «contexto» se puede usar como una representación de un episodio comunicativo completo, incluido el evento comunicativo mismo (texto, habla) o como una representación del ambiente social relevante de dicho evento” (Van Dijk, 2012, p. 180). This implies seeing the university teacher, not from the determined outer aspects to them, but from their very inner sociocognitive origin.

#### METHODOLOGICAL BASES

The epistemological approach of this research is the empirical-inductive, framed in the logic positivism tradition and the case study as the methodology. A 24-item likert-based *ad-hoc* scale (Escala ESTPEN) was applied to take data from 40 teachers of the Education career from UNEFM. This scale was applied through the app Google Forms, via email to all the participants of the research. The data was codified and organized so that the Alfa de Cronbach coefficient was calculated, getting from it high reliability with 0,71. The procedure for validation of the scale was based on the theoretical construct procedure. The participation in this research was voluntary, and participants were informed about the objectives of the research and the destination of the data supplied. There was no experimentation with the participants.

#### RESULTS AND DISCUSSION

Both the function and the level of classroom performance that a university teacher can exhibit are associated to infinity of ele-

ments, recognizing in a capital manner the three affairs in which this performance is involved: learning, teaching and evaluation. In that way, by assuming these three affairs or processes, the performance according to a style in which they are performed should not be neglected. In fact, by assuming that in every teacher there is a certain way to perform, because of a style or manner implied to do things in the classroom, some authors have pointed out certain power in personality, though the goal it gets were just affective, without being associated higher ability to teach (Ausubel, Novak y Hanesian, 2009).

Besides, these styles centered on thinking have significant impact both in process and product of teaching, since aspects like expectations and self-efficacy can be highlighted, when: stimulating learning (if there is teacher conscious that learning can be stimulated); performing teaching (as the most traditional manifestation of the teacher's role), and evaluating (an affair in which teachers should establish their goals: to control, develop, measure, stimulate, etc.).

In this sense, “las expectativas o previsiones que el profesor mantiene de las posibilidades de sus alumnos, influyen determinantemente en el rendimiento que pueda alcanzar, hasta tal punto que llegan a cumplirse, en el sentido del carácter que tienen (positivo o negativo)” (Bueno, 1998, p. 531) while with the affair of the self-efficacy, it turns out necessary to point out that “la autoeficacia actúa como un mediador cognitivo de la conducta. “Las expectativas de autoeficacia propias incluyen la naturaleza y alcance de la conducta; concretamente, incluyen la cantidad de esfuerzo empleado y el grado de persistencia sostenido ante la dificultad” (Bentz and others, cited in Bueno, 1998, p. 534).

These two previous concepts are important to be mentioned, since the results from this research suggest a particular thinking that places them together. Hence, it is necessary to mention that the data was transformed statistically into information in measures that places the teachers in the context of three thinking styles: the *mediational*, the *indifferenced* or the *conventional*. In this group of teachers, a mediational style was found, suggesting –among others elements and conditions- the development of an harmony climate and negotiation patterns that balance forces in the binomial relation teacher-student, in which the teacher's expectations (what they expect or desire from the group) have to be considered and the very particular feelings that will make them face situations in which those expectations are involved (feelings or thoughts about how capable will be to fulfill their goals, that is his level of self-efficacy).

This mediational style is not only characterized by a style associated to disciplinary control and directive teaching (associated to a conventional style) or a styles whose behaviors are characterized by improvisation, without evident deliberation in the selection of pedagogical actions (indifferenced style), but on the contrary it is presented as the most suitable and real alternative for the stimulation of better and most significant leanings. This style “se refiere a la forma de interaccionar del profesor con sus alumnos, actuando aquel de soporte para favorecer la competencia cognitiva a partir de la zona de desarrollo próximo” (Prieto, citado en Bueno, 1998).

For that, this style with its respective amount of cognitive-behavioral expressions will implicate necessarily the recognition of the expectations (though it is not exclusive from this explicative teaching model) and the self-efficacy of the

teacher. It means that both the classroom function and the teacher's level of classroom performance (a duo of expressions that constitute the thinking style in this research) would have important relation with these two concepts, in the particular case of the one who teaches so that others become teachers (case of the teachers of the UNEFM School of Education). These findings can be more detailed, aided in the blocks and graphics at the final pages of this paper.

In this population, 82,5% shows up as the mayor part of teachers with mediational thinking style, while the 17,5% left are framed within an indifferenced thinking style (more details in annexes, block 1). These values suggest important information about the teacher's performance, from the performance in the School of Education at UNEFM. This tendency makes us remember an important precision about the concept of style that implies the steps of Bandura's Observational Social Learning Approach, for it is convenient to consider:

Primero, la observación, después, el pensamiento sobre lo observado, posteriormente, la reacción y, por último, la actuación. Las relaciones de estas funciones con el estilo las describen de la siguiente manera: la observación y el pensamiento con la cognición (percepción y adquisición del conocimiento) y la formación de conceptos, (elaboración de ideas y pensamientos); la reacción con el afecto y los sentimientos en la valoración emocional y, finalmente, la actuación con el comportamiento que dan cuenta de las acciones. Todas estas relaciones caracterizadas en su individualidad y manifestación diferenciada (Valadez, 2009, p. 21).

This tendency can be statistically sustained under the following statements. For example, by detailing in the parametrical values, the Average of responses was 70 points, within the parameter *mediational*

style. Besides, both Median (intermediate punctuation, placed in the subject 21 of the research) of all 40 punctuations and the Mode (most repeated punctuation in the sample) were between 71,5 (Median) and 73 (Mode). The standard deviation measure was placed in 5,34. Though this value is high for a deviation, it doesn't change the tendency on the MEDIATIONAL style. Going deeper into the variable of the thinking style, two behavioral-cognitive expressions must be featured.

The function in the classroom can be assumed as the most traditional and manifested sample of what is done by teachers and can lead to a partial response to what teachers do and how they perform in the classroom. It is perhaps the most «visible» but also most subjective at the same time. In such sense, theoretically “son las funciones referidas a la manera que tiene el profesor de resolver y enfrentarse con los problemas y experiencias de aprendizaje” (Bueno, 1998, p. 526). With the university teachers of the School of Education at UNEFM, 87,5% of the cases is within the mediational thinking style, while the other part of them, 12,5%, is framed within the indifferenced thinking style (more details in annexes, block 2). It is important to highlight the mediational tendency respecting the cognitive-behavioral expressions in the function in the classroom.

An example of these cognitions and behaviors, linked to this mediational expression of the teacher thinking style, is in their role in the learning organization, in the teaching and in the evaluation. These three processes were considered in 5 of the 12 items of the survey (function in the classroom): *Learning organization, teaching and evaluation obey to the design of a flexible and socially negotiated plan between teacher and students* (Reactive 1 - Negotiation); *Learning, teaching*

*and evaluation are carried out as social and constructive processes* (Reactive 2 – Learning social construction); *Discipline and control over the classroom are key to success in learning, teaching and evaluation planning* (Reactive 5 – Discipline) and *Teacher's reflection about their practice informs what to improve in performance* (Reactive 10- Teaching reflection).

In this sense, results suggest that the function of the teacher is performed from a non-directive dimension of actions, based on democracy and negotiation, avoiding the traditional battery of autocratic behaviors proper of the control-based teaching approach. Also, the reflective character of the performance is considered an important finding in this research. So, negotiation, social construction of learning and reflection on the own practice are discovered as three important categories of the mediation construct, furthermore considered as positive by the students (though students were not considered as sample). According to the specialized theory, this approach “... implica activamente al alumno en el proceso instruccional. Supone al profesor además de seleccionar los objetivos y metas de aprendizaje, ha de comprometer al alumno en los mismos, implicándolo en las experiencias de aprendizaje” (Bueno, 1998, p. 530).

In this sense, it will be necessary to stand out that the thinking style does not indicate how capable a teacher is, but how they face (with all their abilities) the teaching affairs, putting aside even aspects of their personality, though it might stimulate a better teaching-student interaction. But, by representing personality and cognition in the set of learning, teaching, and evaluation, it can take a more interesting color; as atough binomial, both are indissoluble although each of them behaves according to different dimensions. On this respect:

Parece evidente que el profesor debe constituir una de las variables más importantes del proceso de aprendizaje. En primer lugar, desde el punto de vista cognoscitivo, lo amplio y lo persuasivo que sea su conocimiento de las materias establece, desde luego, una diferencia. En segundo lugar, independientemente de su grado de competencia en este aspecto, puede ser más o menos capaz de organizar con claridad la materia de estudio, de explicar lúcida e incisivamente las ideas y de manipular con eficacia las variables importantes que afectan al aprendizaje. En tercer lugar, al comunicarse con sus alumnos, podrá ser más o menos capaz de traducir su conocimiento a formas que implican el grado de madurez cognoscitiva y de experiencia en la materia que aquellos muestren (Ausubel, Hanesian and Novak, 2009, p. 430).

This evidences a capital situation in the function developed by the teacher in the classroom, when they are found respectful for the role of the students in the own learning, an affair that represents a positive pedagogical relation for their teaching performance. This reinforces the findings in researches like Gallardo & Reyes (2010), respect the bond between teachers and students, since “para establecer un buen contacto los estudiantes demandan reconocimiento y valoración, quieren ser invitados al aprendizaje, necesitan ser encantados por sus profesores, sentir un real interés por que ellos aprendan, no una asamblea anónima...” (p. 23).

The discipline affair is another finding in these teachers. Far from any expectation or popular imaginary, discipline is not assumed as an indispensable element; discipline is assumed as necessary, but it's not disciplinary control the key to successful teaching. In fact, as expert knowledge not necessarily turns out in good student learning, discipline, and control neither warranty success in teaching, nor stimulate learning since there would be

then confrontation between a subject with power (teacher) and another subject/object immersed in submission (a student with few or zero advantage, for instance).

Besides, with this mediational thinking style, it was also found, based on the scale punctuations, an assertive response teaching style that is a “método donde el profesor crea un ambiente de aprendizaje que permite que los estudiantes estén conscientes y bien informados acerca de sus expectativas sobre su conducta. En este tipo de ambiente, los estudiantes reconocen cuáles consecuencias ocurrirán de acuerdo con su manera de contribuir o apartarse del ambiente de aprendizaje” (Tuckman y Monetti, 2011, p.465).

One of the sources of information of the university teacher performance is without any doubt their self-evaluation ability, or more specifically their ability to reflect consciously on their very own action of the professional practitioner (any professional, for example the university teacher). So,

La reflexión desde la acción. Si el sentido común reconoce el saber desde la acción también reconoce que algunas veces pensamos en lo que estamos haciendo. Frases como «pensar con los pies en el suelo», «tener mucho ojo», y «aprender haciendo», no solamente sugieren que podemos pensar en hacer, sino que podemos pensar en hacer algo mientras lo hacemos. Algunos de los ejemplos más interesantes de este proceso ocurren en medio de una actuación (Schön, 1998, p. 60).

This supposes, therefore, a whole architecture of implicit and in-use theories in the teacher's thinking; theories-in-use, because of the training they have received and all the procedures while there have been consciousness and deliberated control by them, and implicit theories because of all the procedures put into practice by the teacher with no explicit consciously

declared theoretical base; they are part of a sort of subjectivity, rather than an objective knowledge. The reflection implies thinking on what we do while we do, a process that represents an evolving teaching opportunity, since “la reflexión, llamada reflexión en acción, es importante en particular cuando se enfrenta a algo inesperado o fuera de lo ordinario” (Tuckman y Monetti, 2011, p. 17). It turns out necessary to stick out that:

La reflexión crítica implica examinar las experiencias docentes como una base para la evaluación y la toma de decisiones y como una fuente para la innovación. Esta reflexión implica formular preguntas sobre cómo y por qué las cosas son de la forma que son, qué sistemas valóricos ellas representan, qué alternativas pueden estar disponibles y qué limitantes existen cuando las cosas se hacen de una manera y no de otra. El docente es un sujeto reflexivo que experimenta situaciones de enseñanza – aprendizaje y les otorga significado (Solar y Díaz, 2009, pp. 40-41).

All this whole explicative frame of the cognitive-behavioral expression finds base on an Average response of 35,7 points, punctuation within the *mediational* style. At the same time, this value is supported in three parametrical measures: Mode: 37; Median 36, and a standard deviation of 3,26 points. In such a case, the standard deviation suggests a low tendency, with some cases of teachers in the *indifferenced* thinking style: 12,5% of this population. For that reason, the tendency *indifferenced* is not that strong given the total of the population in the two cognitive-behavioral expressions.

The level of classroom performance is an abstract representation, associated to the perception of the teaching world and to the resolution of the problems within such a world. Seen in this way, an analogic concept associated with this teach-

ing architecture in the level of classroom performance: the heuristics. The heuristics can be seen as a key strategy in the analysis of the goals and procedures, in which:

el problema se divide en varias metas o subtemas intermedia, y luego se busca un recurso para resolver cada subtema. Por ejemplo, escribir un trabajo final de 20 páginas podrá significar un problema insuperable para muchos estudiantes. Es mejor si divide esa tarea en varias metas intermedias, como seleccionar un tema, localizar fuentes de información, leer y organizar la información, elaborar un bosquejo, etcétera (Woolfolk, 2006, p.288).

A university teacher can plan their activities considering the little details of their practice, or on the contrary perform a more active and global role in the organization of learning tasks, teaching and evaluation. That is, we will face the scenery of two teaching styles, those who are focused on the little tasks, applying a more pragmatic and expectant role on what students do step by step as these little tasks go developing themselves; this would be the experiences in a local style. On the other hand, there is another teaching style with few teaching instructions and less directivity, in which the students can go through by solving the learning tasks according to their own experiences and autonomy. In such a case, it would be assumed that tasks or works to be done can be placed more globally, similar to what people would find in the woods; the metaphor of the wood would describe how teachers perceive the teaching worlds; the wood as a compact, global, configuration of nature (rocks, soil, trees, fruits, etc.) or the wood only with tall green trees.

These two styles can be placed in the following way: “el profesor con un estilo de pensamiento global prefiere tratar

las cuestiones relativamente amplias y abstractas, mientras que el profesor con un estilo local prefiere, por el contrario, aquellas tareas que suponen problemas concretos y requieren cierto trabajo minucioso, es decir, les gusta trabajar en actividades que contengan muchos detalles” (Bueno, 1998, p. 528).

A deeper view on the statistical parameters, proportions and tendency distribution will unveil what is the teacher’s level of classroom performance. Graphically, a tendency to the mediational thinking style in 75% can be noted, while the rest turns out to be represented in an indifference thinking style (more details in annexes, block 3). Besides, these proportions reinforce themselves in punctuation of 34,3 in Average response (within the *mediational* style); Median in 35 and Mode in 38, with a standard deviation of 3,25 points.

The level of classroom performance as a cognitive-behavioral expression of the teacher suggests a will dimension of the classroom performance. Some of the actions and behaviors in which these items were based include: *Learning, teaching and evaluation must be focused from general to particular* (Reactive 13- Globality-Locality of the performance); *The students can have more success when they are exposed to practical and concrete works* (Reactive 15 – Locality); *Success in learning, teaching and evaluation is related with how teachers think and organize the teaching world* (Reactive 21 - Globality).

In this sense, leadership is an analogic concept which could help understand this notion of classroom performance. In this horizon, “el liderazgo ha sido pensado y descrito de dos maneras: 1) como un conjunto de características psicológicas de la persona que ejerce la influencia,

y 2) como un conjunto de conductas que ejercen influencia interpersonal en otras personas” (Tuckman y Monetti, 2011, p. 364). By presenting this inter-subjective hue of the teacher’s performance, without any doubt other characteristics must be recognized in them, which are content in the thinking style, and also considered a nuclear part of that style found in the teachers of the School of Education from UNEFM for its social implications, a fact that reminds the socio-cultural profile of teaching:

La perspectiva constructivista del aprendizaje que concibe al alumno como un transformador activo del conocimiento y la toma en consideración de que este conocimiento es intrínsecamente social y cultural, es un conocimiento compartido que lleva a reclamar la formación de un profesional de la enseñanza que llegue a ser autónomo, reflexivo, crítico e investigador, un profesional que incorpore nuevas competencias tales como el diagnóstico, la resolución de problemas o la toma de decisiones, es decir un experto en competencias estratégicas que le ayude a resolver problemas en el aula (Fernández citado por Bueno, 1998, p. 487).

## CONCLUSIONS

It has been broadly indicated –with base on a theory-in-use and according to the results of this research and others with similar perspectives- that the thinking style is a concept and also a condition in the university teacher within their daily performance. This style can promote two general sceneries, one in which learning, teaching and evaluation are three processes that demand an efficient performance both from teachers and students, or second scenery in which these three processes are disconnected generating hence undesirables results.

In the case of the university teachers linked to a university training program in Education, the situation gets more importance. However, it is necessary to reflect on the fact that a performing style, in this case having thinking as the guiding process, does not necessarily indicate how competent teachers are (the one with such a style), but represents a particular way in the teaching performance. It is an affair in which teachers and researchers must recognize the level of influence of this style, and how performance from a given style can stimulate better and more effective learning, teaching and evaluation.

The magnitude is found and recognized as significant in this teacher's population, having 87,5% of them with a function in the classroom between execution and legislation, what would probably predict democratic teaching, effective communication, organization and distribution of the teaching tasks according to the expectations, needs and interests of the students. In the same way, the 75% of the teachers linked to a global level of performance more than a global one, would be represented in teaching efforts, more focused on affairs with a higher importance, such as the set of centered in goal strategies and planning, in which promotion and acceptance of self-confidence and autonomy of every student is the catalyzer of learning. This, instead of assuming minor details (like the strict discipline of being silent or just following rules), makes more relevant the teaching process and creates a more positive atmosphere for learning and evaluation.

An example of these minor details can be in the attention and punctuation of the delivery format of the works, either impressed in paper or digitally impressed in PDF. In this case, the teacher would be more interested in the work process

(cognitive processes put in practice by the students) as a way to fulfill learning, rather than in how the student delivers such a work, an aspect that would be linked to the established rules (paper or digital impression). But it is not that classroom activity rules lack of importance; ruling is necessary to create a suitable classroom climate, but it should not be the primary pretension of teaching but one of multiple means.

All this can be resumed in the 82,5% of teachers with mediational thinking style (EPM), a thinking style more desirable in the context of the new tendencies of teaching, function, and role of the teacher. This contrasts with the 17,5% of teachers with indifferenced thinking style, a low tendency but at the same time notorious to be assumed. This tendency suggests that some teachers would be abusing from improvisation but also from discipline-control, employing also deliberated procedures of the mediational style or conventional but with few conscious of the purpose.

This mediational thinking style can be linked in the contemporary times with a series of cognitions and behaviors; among them there are epistemological and procedural affairs, in which get together cognitive, personal and affective dimensions in the teacher performance. For instance, this mediational style exhibits constructivist procedures by recognizing the group as a community with shared cultural and social symbolisms, and for the challenge and launch of procedures under the denominated *zone of proximate development* that Vygotsky proposed in his sociocultural learning theory, and for a whole architecture in the knowledge production, in which learner's previous and current experiences have a crucial role.

In this mediational style, multiple aspects of the cognitive theory are summed,

since the mediation implies the teaching for thinking, as well as the recognition of the process for solving-problem, that initiate essentially from opinions, schemes and significations stored in memory. This cognitive brunch is taken also like the possibility for knowledge production between learners with a whole frame of memories and potential and manifested learning, and a teacher that far from the imposition of his own schemes (judicial classroom performance), declares and recognized his, differentiating them from the students'.

However, far from the stigmata over behaviorism, not only constructivist and cognitive procedures were found in this mediational style; the mediational thinking style adopts behavioral and humanistic notions. The establishment of a community of rules and deals can be associated to behavioral procedures, for it is necessary to set a program of ideal and desired behaviors to gain better learning. In this case, no matter how mediational and free is the teacher's style, it is required a pedagogy to install useful and functional habits, especially with the self-regulation phenomenon, with a strong cognitive component but also with some necessary behavioral tasks, such as the monitoring phase, for example.

The humanist sphere in the mediational style presents itself as a possibility to recognize potential stages in the learners, and help through pedagogical procedures to fulfill this potential, assuming the three former components. But it is probably in the humanist sphere where teacher's and student's subjectivity arise. Though a cognitive statement is considered in the university teacher's performance, it is a must to make a separation of cognition from reflection, at least to set that they are connected but are not the same. Nevertheless, this does not mean that the teacher's thinking style is projected and applied im-

PLICITLY, on the contrary teachers perform both with implicit theories and explicit, such as the ones that explain how to plan and evaluate learning, or how students learn, even.

The factor personality is also an important affair in the comprehension processes of the thinking styles of the university teachers, for teaching implies letting a mark that in most sceneries is personal, despite the prerogatives exposed in the official document of the teaching's discipline. Currently, the theory proposes a form of teaching, mediated between thinking and personality of the teacher. This means that despite of the fact that teachers may develop their teaching practice under organizational and supra-individual exigencies, the way to satisfy such exigencies is going to be distinguished according to the factor personality of them, for instance, their empathy or the level of extraversion exposed.

The mediational thinking style is besides a representation of cognitions and behaviors that tend to generate a better teaching praxis in the university teacher. Assuming this style from teachers who form others to be teachers as well, we take the first stage to a macro study in which thinking styles were compared with others measures from teachers from different careers, such Engineering and Medicine, or others with similar or different characteristics. This would provide information about what teaching training processes offer and also about the feasibility of teaching training according to the professional discipline of the teacher, to know whether this fact makes any difference in the way they teach, but also in the success they could have when teaching and evaluating. These findings open a window to more research on epistemological and procedural affairs of teachers and their teaching.

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**Linoel De Jesús Leal Ordóñez** es Licenciado en Educación con Magister en Ciencias, Mención orientación de la Conducta. Doctor en Ciencias Humanas y Profesor Asociado de la Universidad Nacional Experimental “Francisco de Miranda” (Venezuela). Actualmente Becario del Postdoctorado en Educación por del programa Nacional de Postdoctorado en Educación de la CAPES Brasil – Universidad Federal de Mato Grosso del Sur (Brasil).

**Antonio Carlos Do Nascimento Osorio** es Licenciado en Pedagogía y Doctor en Educación. Profesor titular de la Universidad Federal de Matto Grosso del Sur (Brasil). Coordinador del Programa de Postgrado en Educación, con cursos de Maestría y Doctorado de la misma Universidad. Coordinador del Grupo de Estudios y de Investigación Académica Referencial en Foucaultianos. <http://orcid.org/0000-0002-4631-1985>

ANNEXES

FRAME 1.

*Synthesis of the thinking styles concept*

	Micro – Function	Prototypical figure
<p><b>FUNCTION IN THE CLASSROOM (FUCLA)</b> The teacher's cognitive orientations and behavioral manifestations to face and solve problems and students' learning experiences.</p>	<p><b>Legislative function</b> Style in classroom leading, manifested in a teacher who creates, formulates and plans activities from the problem-solving based approach. It's about professors, whose function is characterized -besides- by the pleasure in the administrations of norms and rules, allowing their students to create and solve problems in a creative manner. In this style, the social construction is more privileged than the structured classical teaching.</p>	<p>The democratic teacher (FUCLA-DeTe)</p>
	<p><b>Executive function</b> Style in classroom leading, characterized by the pleasant adoption of indications, rules and y procedures already known and proved. On the contrary of the legislative style, in this function the structuration is privileged, leaving aside fate and improvisation. The teaching orientation is based on an encyclopedic teacher who pretends to know everything.</p>	<p>The normative teacher (FUCLA-NoTe)</p>
	<p><b>Judicial function</b> Style in classroom leading, characterized by an excessive concern for strict control, supervision and evaluation of all classroom situations. These teachers are characterized for the judge and evaluation, crossed by the structuration of all the process, in which contents are already known.</p>	<p>The punish teacher (FUCLA-PuTe)</p>
<p><b>LEVEL OF CLASSROOM PERFORMANCE (LECPER)</b> Superior field of superlative cognitions and behaviors, acting as general directions of the functions put into practice in the classroom by the teacher.</p>	<p><b>Global</b> Referred to a field of heuristic, broad and abstract statements, inspired in the generality and totality, from which problems and learning goals are assumed, as well as the manners in which these problems and goals are managed.</p>	<p>The abstract teacher (LEPER-AbsTe)</p>
	<p><b>Local</b> Referred to a field of focal, reduced and concrete statements, inspired in the particularity. While the global level goes from general to particular, the local level assumes problems and learning goals, as well as the manners in which problems and goals are managed, from the particular to the general.</p>	<p>The concrete teacher (LEPER-CoTe)</p>

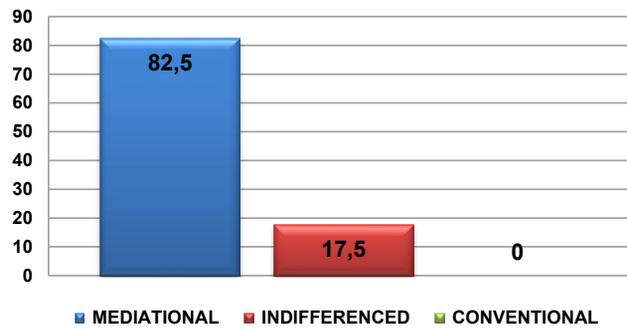
Source: Authors's own adaptation (Bueno, 1998).

BLOCK 1

*The thinking style*

Style	Rank	Fa	%	Stat. measure	
MEDIATIONAL	$\geq 64,3 - \leq 96$	33	82,5	Average	70
INDIFFERENCED	$\geq 32,1 - \leq 64,2$	7	17,5	Median	71,5
CONVENTIONAL	$\geq 0 - \leq 32$	0	0	Mode	73
TOTAL:		40	100%	Standard deviation	5,34

Source: Authors's field work.



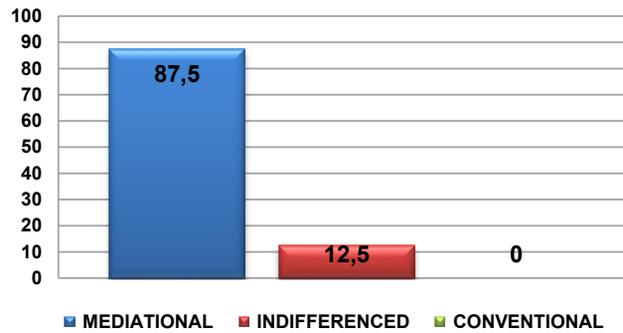
**Graphic 1:** The thinking styles  
Source: Authors' field work.

BLOCK 2

*Function in the classroom*

Style	Rank	Fa	%	Stat. measure	
MEDIATIONAL	$\geq 32,3 - \leq 48$	35	87,5	Average	35,7
INDIFFERENCED	$\geq 16,1 - \leq 32,2$	5	12,5	Median	36
CONVENTIONAL	$\geq 0 - \leq 16$	0	0	Mode	37
TOTAL:		40	100%	Standard deviation	3,26

Source: Authors's field work.



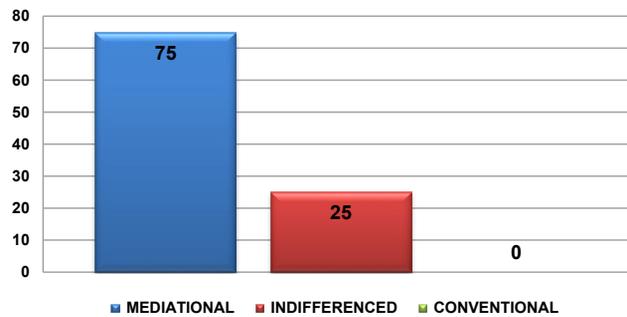
**Graphic 2:** Function in the classroom  
Source: Authors' field work.

BLOCK 3

*Level of classroom performance*

ESTILO	Rango	Fa	%	Medida estadística	
MEDIATIONAL	≥ 32,3 - ≤ 48	30	75	Average	34,3
INDIFFERENCED	≥ 16,1 - ≤ 32,2	10	25	Median	35
CONVENTIONAL	≥ 0 - ≤ 16	0	0	Mode	38
TOTAL:		40	100%	Standard deviation	3,25

Source: Authors's field work.



**Graphic 3:** Level of classroom performance  
Source: Authors' field work.