



## Original Research Article

# How Do Education Professionals Understand Creativity? A Study of The Implicit Theories On Creativity In A Sample Of Educators

**ABSTRACT:** This study explores implicit theories on creativity in a group of educators, and some associated myths and beliefs, such as: "The school can do nothing to develop creativity", "childhood is the golden age of creativity", and "school kills creativity". The sample was composed by educators graduated from the undergraduate program of Early Chile Education and the graduated students from the Masters Education of the School of Education at the Pontificia Universidad Javeriana of Bogotá (Colombia). The analysis of the 110 answers, found that to define creativity, educators utilize the concepts of transformation, expertise, innovation, and problem solving. Most participants indicate that the most creative age is childhood, which confirms the "golden age" myth. Regarding the relation between creativity and schools, educators believe that schools can and must develop creativity, but they need specific conditions to achieve this. Based on these results it is important to stress the importance to develop pre-service and in-service teaching programs that allow educators to overcome these false beliefs and to understand how to foster creativity in educational settings.

**Key words:** Creativity, education, false beliefs, myths, implicit theories

Laura Estefanía  
CASTRO-FAJARDO,  
Pontificia Universidad  
Javeriana, COLOMBIA.  
lcastrof@javeriana.edu.co

Andrea SANTAMARÍA,  
Pontificia Universidad  
Javeriana, COLOMBIA.

a-  
santamaria@javeriana.edu  
.co

Karen L. BERNAL-  
HERNÁNDEZ,  
Pontificia Universidad  
Javeriana, COLOMBIA.  
k.bernal@javeriana.edu.c  
o

Félix Antonio GÓMEZ-  
HERNÁNDEZ MG,  
Pontificia Universidad  
Javeriana, COLOMBIA.  
gomez-  
f@javeriana.edu.co

María Caridad GARCÍA-  
CEPERO, Pontificia  
Universidad Javeriana,  
COLOMBIA.maria.carida  
d@@javeriana.edu.co

This article is the result of a research performed by the members of the Cognitive Pedagogy Interest Group, which is part of the Learning and Information Society Research Group of the Pontificia Universidad Javeriana. It was presented at the X Congreso Iberoamericano de Superdotación, Talento y Creatividad on November 14th 2014

Received: 01 Oct 2014  
Accepted: 10 Nov 2014

## INTRODUCTION

Many human activities are guided by conceptions and ideas that subjects apprehend from their experience, their interactions with others, with objects, and from knowledge and values of their socio-cultural environment (Garcia & Mateos, 2011).

Most of the time, those conceptions are unconsciously acquired and re-elaborated by individuals, which is why they are called implicit theories. Persons use implicit theories as a reference framework to interpret reality phenomena and orient their actions to organize their activities, make decisions, solve problems, etc.

The study of implicit theories has become more relevant because of their functions and the fact that are not accessible by the conscience of the subjects. To explain individuals' implicit theories in different topics facilitates the comprehension of the reasons why people act, think, and feel in certain ways. As stated by Pintrich & Schunk (2002) "Understanding people's implicit theories is important because these beliefs guide people's attitudes and behaviors. Social cognition theory suggests, that beliefs determine their attitudes and their willingness to be engaged in certain behaviors" (cited by García-Cepero & McCoach, 2009 p. 296).

There are no human actions in which implicit theories are not present: from actions performed in daily life to specialized actions, all of them are affected by complex non-conscious representational systems of the subjects.

This study focuses in examining implicit theories about creativity of a group of educators. The rational for this study are two. First, understand the belief systems of educators facilitate the comprehension of the way they implement their pedagogical practices. Second, creativity has been seldom studied in the educational aspect in Colombia and in several countries, even though the relevance and development of creativity has nowadays (Gardner, 2005).

Therefore, it is expected that the results of this study may be useful for: contrast educators' beliefs with scientific knowledge about creativity and identify which beliefs are correct and which ones aren't. With this information school practices can be reoriented to effectively develop creativity in students.

## METHODS

The research is qualitative, since it focuses on describing, comprehending, and interpreting meanings and perceptions of educators in

Bogota (Colombia) regarding creativity. It explores the way in which creativity is part of their experiences, letting data speak by themselves to address the phenomena in its entire dimension (Hernandez, Fernandez & Baptista, 2010, p. 10-30). The study uses a descriptive design without any type of manipulation over the answers of the participant. Content analysis based on inductive categories was utilized to interpret the data. In addition, some descriptive statistics were utilized to illustrate the results.

In the qualitative research, data reading and interpretation are based on the people's reference frameworks. In this regard, this study involves a descriptive-interpretative design. It is descriptive, since the content analysis requires reviewing the data from their nature, finding the voice of the participant from their narrations. It is interpretative, since collected data, theoretical elements, and readings are combined to interpret the participant conceptions (Bermúdez, 1982; Martín, 2014; Aigner, 1999).

### Participants

The sample was composed by educators graduated from the undergraduated program of Early Chile Education and the graduated students from the Masters Education of the School of Education at the Pontificia Universidad Javeriana of Bogotá (Colombia). The sample also included a group of educators of public schools in the Bogotá, who applied to the latter.

Sample selection was convenience-based. Educators were contacted electronically and were invited to voluntarily answer an online survey. From the 800 contacted educators, 110 answered the survey.

In the sample, 72.5% of the participants were female, 27.5% male. In regards of age, 23.0% were less than 32 years old, 39.0% were between 33 and 40 years, and 38.0% were older than 40 years.

In regards of professional occupation, 75.0% are teachers, 25.0% work in related areas, such as educational advisors, administrators, researchers, or consultants<sup>1</sup>. From the sample, 59.0% worked pre-scholar, elementary, or secondary educational institutions, 27.0% work in higher education institutions, 14.0% were affiliated to state organizations of works as independent professionals. In regards of work sector, 60.0%

---

<sup>1</sup> Because of the diverse functions of the sample individuals, this study categorized them as educators

work in the official sector, 33.0% work in the private sector, 7.0% are independent.

### Instrument

The instrument used was a survey of massive application, which was sent to 800 educators via Internet. The answer rate was 13%, which is the expected for a survey without incentive. The survey includes 3 open questions about 5 topics: creativity, talent, educational inclusion, relation between thinking and language, and learning. For this study, only three questions were addressed:

- What do you understand about creativity?
- Can schools develop creativity?
- Who are more creative: children or adults?

### Research phases

The study was performed in 7 phases. The first phase was data collection and rigorous reading. Then, the second phase was to generate descriptive and interpretative codes of the answers were identified, in regards to the questions about creativity. Colors were utilized to indicate those codes, which were later grouped to formulate referential codes.

Phase 3 formulated inferential codes from the ones obtained in the previous phase. Educators' answers were coded, which made it possible to regroup codes based on tendencies and patterns, to define emergent analysis subcategories in phase 4.

**Table 2. Categories used to analyze Creativity.**

Subcategories	Categories
What is? Regarding the nature of creativity	<b>Conceptions about creativity:</b> This category indicates which the notions that teachers have about creativity are and the way it is expressed, i.e., the nature and practices associated to creativity. This category is based in four interpretative codes, which define creativity as: (a) The possibility to transform something, (b) expertise, (c) novelty and innovation, and (d) problem-solving. Regarding the expression of the creative act, it indicates that occurs because of the human mind processes
How?	
Who?	
Children are the most creative	<b>The creative person:</b> This category indicates who is more creative (children or adults) and their main characteristics. It is important to note that participants of the survey consider creativity as a human-specific characteristic, inherent to human nature. Some teachers believe that adults are more creative; others believe that children are more creative; others believe that both are equally creative or that this comparison is not valid.
Adults are the most creative	
Both children and adults are similarly creative	
Disagrees in comparing children and adults	
Creativity development conditions. What is	<b>Conditions to develop creativity:</b> This category indicates the components required to develop creativity. Educators believe that a creative person should be

Phase 5 re-read emergent categories to define the final categories, resulting into 4 categories. Phase 6 utilized this information to formulate the results. The last phase contrasted myths and false beliefs indicated in the literature (Gómez-Hernández, 2013) with the answers of the participants.

## RESULTS

The analysis of the results identified several ways in which educators conceive creativity, its relation with the school, and who are the most creative people. These conceptions were connected with three myths proposed by Gómez-Hernandez (2013).

To define creativity, participants described situations in which creativity may be present, where people can be creative or develop creativity, since it was difficult for them to explain it in a concrete manner.

When asked about the relation between creativity and the school, the most common implicit theory is that the school should develop creativity, but it is not able to do it so. In regard of the most creative people, most educators indicated that children are the most creative, justifying this answer with the idea that children are in the best age to develop creativity, because of their biological characteristics. Table 2 describes the resulting subcategories and categories of this analysis.

needed?	resourceful, to adapt to the environment, to be permanently motivated, and have a disciplinary expertise in which develop his/her creative ideas.
The duty of the school to develop creativity	<b>The role of the school in creativity development.</b> There are three positions in this regard. The first one indicates that it is the duty of the school to develop creativity. The school provides many of the required ingredients to foster creativity: interactions, environment, identification of students' strengths and abilities, creative challenges and activities. Teachers should motivate and provide spaces in which students could develop novel solutions to problems.
The school does not develop creativity	The second one is the belief that the school does not develop creativity, either because it impedes students' creative participation and self-knowledge, or because the teacher's discourse hinders creativity development. The third one is that educators indicate that, although schools can develop creativity, they do not do it so, because of the lack of will of the main actors in the educational community and the lack of spaces to foster creativity. The latter idea is also associated to the need to create a new type of school to properly develop creativity in students.

### ***Conceptions about Creativity***

This category appears after checking descriptive and inferential codes. Sub-categories are as follows:

a) Transform, which means that creativity changes or transforms an object or a situation; 1.8% of the participants mentioned that creativity is a new way to perceive the environment and to transform it.

### ***Some answers from the educators***

- The ability to transform, to see things from different points of view, to propose and find the right solutions to problems (Teacher 7-Female. Between 33-40 years old).
- An original answer to a problem, a new form to perceive the environment and transform it (Teacher 29-Female. Between 41-50 years old).

b) *Expertise.* These counts for 1.8% of the participants, who indicated that the creative act is performed, based on previous experiences and this yields a novel result, which develops creativity.

### ***Some answers from the educators***

- Ability to innovate based on knowledge and experience (Teacher 30-Female. Between 41-50 years old).
- A process that requires knowledge and experience about a topic, so that these knowledge could help to develop initiatives (Teacher 53-Female. Between 33-40 years old).
- Is the constructive imagination that every individual has since their birth, based on new ideas or existing concepts to surprise with others more originals that provide an answer to a given situation (Researcher 30-Female. Between 41-50 years old).

c) Novelty and Innovation: according to 23.63% of the participants, there are two main factors to develop ideas and products 'out of the box', originals, and new.

d) Problem solving, to successfully solve a specific task, is the essence of the creative process, according to 12.72% of the participants.

### ***Some answers from the educators***

- The process that foster the development of new and innovative ways to address life and its contexts (Teacher 51-Female. Between 33-40 years old).
- The capacity to innovate and put new ideas into work (Administrator 56-Female. Between 33-40 years old).
- Creativity is a way to address challenges in an innovative way and utilizing the specific elements of each situation (Teacher 61-Female. Between 26-32 years old).

The most common trend among teachers is to define creativity from innovation and novelty. This means that creativity is a means to generate innovative ideas to solve daily problems in a novel way.

In addition, educators associate the definition of creativity with their own experiences, indicating that it is a cognitive process that is strongly related to intelligence, a resource that complements the human's rational part. People's reference frameworks derive from behaviors and

discursive appropriation of the creative act. In other words, creativity is not self-defined, but it derives from the actions performed by people and it is even associated to resourcefulness.

### The Creative Person

---

#### Some answers from the educators

- Is a characteristic of each person that makes him/her to generate ideas, select problems to solve, and generate solutions according to the given problem (Administrator 8-Male. Between 41-50 years old).
  - Is an innate force, a thinking that every human possess that is innovative, unique, and productive, starting from pre-concepts and new concepts of the individual, to create another one that is original, to solve problematic situations (Teacher 90-Female. Between 26-32 years old).
  - Is the ability of individuals to produce new ideas and solve problems in an original way. Everyone is capable to create and invent new things. However, some persons have further developed this activity, which is evidenced in the originality, adaptability, and benefit of their creations.
  - Is the ability of every human being to create and develop innovative proposals to accomplish an end. (Teacher 26-Female. Between 41-50 years old).
- 

The answers to the question "Who are more creative: children or adults?" data contradicts what authors say (Sternberg, 1999; Gómez-Hernández, 2013). 45.45% of educators consider that children are the most creative. They indicate that children are in a privileged age to develop creativity, because of their ability to wonder, lack of prejudices, and a biological quality that facilitates a wider mind development.

5.45% indicates that adults are more creative; highlighting that experience and expert knowledge in a given field enhanced their creativity.

35.45%^indicated that both are similarly creative, since they have totally different ages. Each age has its specific characteristics, situations, and contexts that can influence creativity development, which means that they

The tendency to consider creativity as something innate is a recurrent answer of the educations, who explicitly mention that creativity is something that every human being possesses to generate new ideas to solve problems.

manifest creativity in different ways throughout the lifetime.

1.81% disagreed with this comparison. They considered that every person is different and has different learning styles, which means that there should not be more creative people than others. The remaining 11.81% are missing data. These people either left the survey answer blank or the provided information not directly related to the answer. In the latter case people provided information about conditions that may influence whether adults or children would be more creative than the other.

#### Conditions to Develop Creativity

Educators mentioned that there are specific and necessary characteristics to develop creativity: motivation, use of imagination, resource optimization, adaptation ability, and to create to improve society, among others.

---

#### Some answers from the educators

- Yes, providing environments, resources, and materials to the children, to develop it (Teacher 2-Female. Between 26-32 years old).
  - Yes, by favoring spaces and processes in which children and young people would be able to explore, generate relations and alternative interactions with their context and with knowledge. (Teacher 59-Male. Between 26-32 years old).
- 

However, some teachers mentioned that it is essential to have knowledge or expertise in the field where one wants to develop creativity. To develop a solution or create something novel or innovative, it is necessary to know what already exists and to have knowledge about the topic in which creativity is going to be developed.

### The Roll in the School to Development of Creativity

In regard to the relation between school and creativity, educators indicated that there must be specific conditions in the environment and learning situations to foster creativity. Although the school has the possibilities to develop creativity in the teaching process, it does not do it so.

This is because the teachers' role and the current school structure have become an impediment to students' creativity, because of the way curricula is structured and the difficulty to adapt or

compact curricula and study plans. In addition, it is frequent to find out that schools provide no spaces or teaching-learning methodologies to foster creative development.

Surveyed teachers concur in that, although school does not develop creativity, it is necessary to transform institutions to make it

possible that all of the members of the educational community can develop their creative potential. This requires adopting a different study plan, to prepare teachers, and provide spaces in the school that could help creativity development.

### **Some answers of the educators**

- It can, as long as it allow the student to have experiences in problem-solving, hypothesis formulation, respect to personal proposals (Teacher 32-Female. Between 26-32 years old).
- Yes, totally. I believe that it can develop it through thinking processes related to daily school tasks (tasks such as academic, social actions, etc.) (Teacher 9-Male. Between 26-32 years old).
- Yes, creativity can be developed from the contextualization of the topics addressed in class with the solution of problems in the environment, among others (Teacher 11-Female. Between 26-32 years old).
- I think that the school can develop creativity, if we worked more from dance, ludicrous elements of children, the teenager, and even the adult. To achieve that we must work on those elements in each of the teachers. (Other 4-Female. Between 41-50 years old).

## **DISCUSSION**

The data obtained from the surveys have provided information to interpret the way educators conceive, understand, and relate with the 'creativity' construct.

It is common to find different myths and premises about creativity among educators. Very few theoreticians or research groups that have addressed this topic to understand the causes that make it more difficult to develop creativity in educational environments, especially in Latin-American contexts.

In regard to these myths, Gómez-Hernández (2013) indicates that most common myths are those related to the idea that the school cannot do anything to develop creativity, that the golden age of creativity is childhood, that the school can only develop creativity through artistic courses, or that the school kills creativity. The following sections contrast these myths with the results of this study.

### **The 'golden age'**

This study corroborated the existence of this myth among teachers. 45.45% of the educators agree that childhood is the 'golden age' of creativity. This contradicts with the opinion of the 5.45% of the participants, who believe that adults should be more creative, because of their greater experience and the remaining 35.45% that considers that both children and adults are similarly creative.

In addition, theoreticians, such as Robert Sternberg (1997) indicate that, even though

children utilize techniques that facilitate creativity flow, this potential is reduced as they grow, since situations, such as the educational context makes them develop a more limited thinking. "Children began to suppress their creativity when literally or figuratively, they are instructed to draw inside lines created in advance and they are rewarded for doing it"<sup>2</sup> (Sternberg, 1997, p. 198, cited by Contini, 2014).

In opposition to Sternberg's point of view, cognitive theories consider that the creative potential grows as the individual reaches higher degrees of cognitive maturity and acquires more expertise in one or more knowledge areas (Vigotsky, 2000), Gardner (1997; 2005), cited by Gómez-Hernández, 2013, p. 31-32). This implies that the more expertise, the more possibility of being creative. Although children have fewer prejudices and are open to experiment and give original solutions to problems, it is only as they grow and acquire new experiences that they are able to identify better and more novel solutions to problems.

Another aspect referenced by the majority of the participants is that creative people has specific characteristics, such as motivation, knowledge, experience, and adaptability to creatively contribute to themselves and the environment. Often individuals do not have all

<sup>2</sup> Translated by the authors, the original text is: "Los niños comienzan a suprimir su creatividad cuando, tanto en un sentido literal como en un sentido figurado, se los instruye para que dibujen dentro de líneas previamente marcadas y se les recompensa cuando lo hacen."

of these characteristics. This coincides with the ideas proposed by Sternberg & Lubart (1997), who indicate that every person have some personality attributes that makes them aware of their creative potential and facilitates their creative process.

In this regard, they indicate that perseverance, the will to assume risk, the will to grow, to be tolerant against ambiguity, and to be open to experience, make it easier for a person to develop their entire creative potential and to confront unknown situations and experiences (Sternberg & Lubart 1997). According to the participants of this research, these characteristics are very important in a teacher to open and create spaces in the school that may develop the creative potential of students.

Some teachers' answers directly relate creativity with a connatural capacity and as an ability that can be developed. Therefore, even though the creative person has specific personality traits that may facilitate creative abilities, this is no guarantee that creativity would be developed. There may be context and relation conditions that could influence positively or negatively to the creative act.

### **The school kills creativity (The school as an executioner)**

The participants of the study agree with theoreticians (Gómez-Hernández, 2013; Robinson, 2006) and non-experts, who have questioned and made explicit the concerns about the place of creativity in the school, and the way the latter influences creativity development. How classroom addresses creativity? What value has creativity in the student education? What do educators know about the importance of developing creativity? If it is clear that children may develop their creativity, are they taught how to do it? There is something worrying: teachers do not have a clear concept about creativity, which makes it harder to work on and develop it in the school.

Teachers' implicit theories are a yield a discouraging scenario in schools. Although teachers have the means to develop creativity, they do not do it or, they simply ignore any possibility of including creativity in the education programs, since they do not consider apt to be developed. "We would have to invent a new school", "It requires commitment and responsibility of the educative agents", or "I find it difficult" are some of the answers of the participants regarding this problem.

From this study, it is undisputed that, if everyone can be creative, it is essential that

schools begin to value creativity development, not only in their students, but also in their teachers. It is indispensable that educators know the strategies to develop their creative potential and design learning scenarios that foster creativity in their students.

Teachers' opinions about creativity, its development in school, and who is more creative can be categorized into three models to study creativity (Parra et al., 2004, p. 47-50).

- Pragmatic model. Some opinions indicate that creativity is developed from action, when students are allowed to build ideas, situations, and solutions to problems in a novel way.
- Socio-personal model. Some teachers indicate that a characteristic that makes somebody creative is the relation between the person and his/her environment and having some personality traits that motivate him/her to develop creativity.
- Cognitive model. Teachers define creativity as a mental process that could be developed through experience.

From these interpretations it is evident that there are still many false beliefs about the relation between education and creativity, which were exposed by Gómez-Hernández. It is concerning that these false beliefs are promoted by teachers, who should be instead the first ones to disprove them. Therefore, it is imperative to teach educators about creativity, its development, and promotion at the school.

To conclude, the following questions remain open: Which kind of in-services and pre-service training educators need in order to dispel misconceptions about the development of creativity? How to create educational policies and programs that foster creativity development, both in teachers and students?

## **REFERENCES**

- Aigeneren, M. (1999) *Análisis de contenido una introducción*. Available from: <http://aprendeonline.udea.edu.co/revistas/index.php/ceo/article/viewfile/1550/1207>.
- Bermúdez, M. (1982) El análisis de contenido procedimientos y aplicaciones. *Ciencias sociales*, 24, 71-80.
- Contini, N. (2014). *La creatividad como recurso de afrontamiento en la vida cotidiana*. Available from: <http://www.palermo.edu/cienciassociales/publicaciones/pdf/Psico1/1%20PSICO%20002.pdf>
- García Cepero, M. C., & McCoach, D. B. (2009). Educators' Implicit theories of intelligence and beliefs about the identification of gifted students. *Universitas psychologica*, 8(2), 295-310.

- García, M., Sanz, M., Vilanova, S. (2011) Contenido y naturaleza de las concepciones de profesores universitarios de biología sobre el conocimiento científico. *Revista electrónica de Enseñanza de las Ciencias*, 10 (1), 23-39.
- Gardner, H. (2005). *Las cinco mentes del futuro*. Barcelona: Paidós Asturisco.
- Gómez-Hernández, F.A. (2013) Creatividad, mentiras y educación. *Revista Javeriana*, 791 (149), 28-34.
- Hernández Sampieri, R., Fernández Collado, C., & Baptista Lucio, P. (2010). Metodología de la investigación. México: Editorial Mc Graw Hill.
- Jiménez, A., Correa, A. (2002) El modelo de teorías implícitas en el análisis de la estructura de creencias del profesorado universitario sobre la enseñanza. *Revista de Investigación Educativa*, 20 (2), 525-548.
- Martín, M. R. (2014). *Análisis de contenido. Estadística y metodología de la investigación*. Available from: [http://www.uclm.es/profesorado/raulmmartin/Estadistica\\_Comunicacion/AN%C3%81LISIS%20DE%20CONTENIDO.pdf](http://www.uclm.es/profesorado/raulmmartin/Estadistica_Comunicacion/AN%C3%81LISIS%20DE%20CONTENIDO.pdf)
- Parra, J., Marulanda, E., Gómez-Hernández, F.A. Y Espejo, V. (2005) *Tendencias de estudio en cognición, creatividad y aprendizaje*. Bogotá: Pontificia Universidad Javeriana.
- Pozo, J. (2006) *Nuevas formas de pensar la enseñanza y el aprendizaje*. Barcelona: Grao.
- Robinson, K. (2006). Do schools kill creativity? TED Conference, Monterey, California [Online] retrieved 11 October 2014 from TED.com
- Sternberg, R., & Lubart, T. (1999) *Handbook of Creativity*. Nueva York: Cambridge University Press.
- Vygotsky, L. S. (2000). A formação social da mente: o desenvolvimento dos processos psicológicos superiores. [Trad. José Cipolla Neto et al.] 6. ed., São Paulo: Martins Fontes.