

## Beliefs about teaching and learning in university teachers: Revision of some studies

### Creencias sobre enseñanza y aprendizaje en docentes universitarios: Revisión de algunos estudios

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## Summary

Research shows that the belief the teachers have about teaching, learning, and their students affect their planning, instructing and evaluation processes in the classroom, and also that they have a repercussion on the student's learning and performance in the classroom. In the case of university teachers, the beliefs about the teaching-learning process are shaped from the experience their own school and university teachers had. This leads them to repeat the same teaching schemes their old teachers had, thus perpetuating traditional pedagogical practices. For this reason, higher education teachers' beliefs are becoming a more and more relevant research subject in several countries. To know the teachers' belief scheme regarding the teaching-learning process will allow to generate teaching reflection processes about their pedagogical practice, their relation to change and their improvement.

**Keywords:** Beliefs, teachers, higher education, teaching, learning.

## Resumen

Las investigaciones demuestran que las creencias que tengan los maestros acerca de la enseñanza, del aprendizaje y de sus estudiantes afectan sus procesos de planificación, instrucción y evaluación en el aula y, además, tienen una repercusión en el desempeño y aprendizaje del alumno en el salón de clases. En el caso de los docentes universitarios, las creencias sobre el proceso de enseñanza-aprendizaje se forman de la experiencia que tuvieron con sus propios maestros en la escuela y en la universidad. Esto los lleva a repetir los esquemas de enseñanza de sus antiguos profesores y perpetuar prácticas pedagógicas tradicionales. Por esta razón, las creencias que poseen los docentes de educación superior han empezado a ser un tema de investigación que viene cobrando gran relevancia en varios países. Conocer el esquema de creencias de los maestros respecto al proceso de enseñanza-aprendizaje permitirá generar procesos de reflexión docente sobre su práctica pedagógica, su relación con el cambio y mejora de la misma.

**Palabras clave:** Creencias, docentes, educación superior, enseñanza, aprendizaje.

## **Introduction**

The principles on which the research about teachers' beliefs moves are based on the conceptions they have about teaching and learning. These factors are considered to influence their decisions and the didactic practices they use in their class sessions (Clark & Peterson, 1990; Pérez, Mateos, Scheuer & Martín, 2006; Estévez-Nenninger et al., 2014).

Today, it's becoming clearer and clearer that the teachers' beliefs about teaching, learning and their students affect their planning, instructing and evaluation processes in the classroom (McCombs & Whisler, 1997; Ferreyra, 2012). But this is not the only important element in this matter; it is also stated that, among the beliefs the teachers' have about teaching, learning and their students, there is also a close relation with the repercussion they have on the students' learning (Trigwell & Prosser, 1991). That is to say, the students' academic performance would be influenced by their teachers' beliefs.

Studying a person's beliefs about different topics is one of the ways to try to understand their behavior and their attitudes regarding those topics. An individual, as a social being, shares beliefs, attitudes and common values in their interaction. In the educational field, to go deeper into the teachers' beliefs is quite important, for they will have an influence on the teachers' perceptions and judgments and they will determine the teachers' behavior in the classroom. In other words, what the teachers do will be a consequence of what they think (Clark & Peterson, 1990; Estévez-Nenninger et al., 2014), which will have an influence on the students' academic success or failure.

This article presents a theoretical revision of what beliefs are, as well as their main characteristics. This will allow us to understand the importance of knowing the teachers' beliefs in order to present out findings of the researches in the context of a university teacher. Finally, some conclusions and recommendations for future works are presented.

### **What are beliefs?**

Beliefs are defined as theories or basis that people generate in order to adapt to their environment, interpret facts, explain situations and guide their

behavior (Rodrigo, Rodríguez & Marrero, 1993; Pajares, 1992; Savasci-Acikalin, 2009). Beliefs are part of knowledge, subjective and not very elaborated, not founded on rationality but on feelings and experiences, which makes them consistent and long-lasting (Linares, 1991, as quoted by Serrano, 2010). Solar and Díaz (2009) talk about incomplete, simplified versions of reality with an internal organizational level, structuration and sistematicity. Beliefs, in general, have an influence on a person, mainly on the generation of thought, opinions, aptitudes and attitudes.

Regarding this, it is important to point out the difference between belief and knowledge. The first would have a much stronger affective component than knowledge and would exist prior to the latter (Pajares, 1992). The author claims that beliefs are based on evaluations and judgments; opposite to this, knowledge would be founded on objective facts. Beliefs do not require any kind of proof, although proof would be useful to reinforce beliefs. Knowledge irrefutably indicates what is true or false and requires a learning process in order to obtain this information. Even though knowledge does not originate a belief, it may generate the birth of new beliefs by posing new questions. Finally, beliefs play a much bigger role in decision making than acquired knowledge does.

Beliefs are personal truths derived from experience or fantasy, with a strong affectionate and evaluative component. They manifest in verbal and written declarations or in actions, and therefore, they condition the decision processes (Pajares, 1992). Likewise, the creation of a belief and everything it entails is mainly determined by the subject's general cultural environment, which will, in a certain way, determine the generation of thoughts, attitudes, aptitudes and opinions (Díaz, Jansson & Neira, 2012).

For Gómez-Chacón (2003), beliefs:

constitute a conceptual scheme which filters new informations basing on the previously processed information, fulfilling the function of organizing an individual's social identity and allowing them to make anticipations and reality judgments (p. 227).

Beliefs are part of subjective knowledge; they belong to the cognitive domain and are formed by affective, evaluative and social elements. From the psychological point of view, beliefs have been indistinctly approached as attitudes, values, judgments, axioms, opinions, ideologies, perceptions, conceptions, prejudgments, dispositions, implicit and explicit theories, personal theories, inner mental processes, action strategies, practice rules or practical principles, depending on the author (Prieto & Contreras, 2008; Steel, 2009; Martínez, 2013).

Even though beliefs can change through time, there are two characteristics that make them hard to modify: on one hand, they tend to be universal, that is to say, they are conceived as a product of a thought that is considered to be true (Catalán, 2011). On the other hand, beliefs are usually implicit, meaning that a person is not permanently aware of them (Rodrigo et al., 1993). Likewise, they tend to be constructed based on the interaction with the environment and other people, which is why people who belong to the same group usually have similar beliefs (Rodrigo et al., 1993), which increases their validity, veracity and reinforces their suitability perception to explain the environment and adapt oneself to it (Ferreya, 2012). However, beliefs do not need to be agreed upon in order to be considered as valid, and they do not need logical rules in order to determine their correspondence to real situations (Carr & Kemmis, 1998). Therefore, beliefs form in real idiosyncratic truths that do not need a contrasted truth condition, given that they represent data, suppositions and opinions which may be personal, transmitted by others or born in from common sense (Martínez, 2013).

To sum up, there are some characteristics of beliefs mentioned by Pajares (1992):

- Beliefs are formed early and they tend to self-perpetuate in spite of the contradictions caused by time, reason, education or experience.
- Knowledge and beliefs are related, but they are not the same. The strong affective, evaluative, episodic nature of beliefs makes them a filter through which new knowledge is interpreted.
- Due to their own nature and origin, some beliefs are more irrefutable and harder to change than others.

- People with a belief that is based on incorrect knowledge tend to maintain said belief even after they have been proved wrong.
- People's beliefs have great influence on their behavior.

### **Teaching beliefs.**

So far, it is clear that everybody uses beliefs to remember, interpret, predict and control what happens, and base on beliefs to make decisions (Hashweh, 2005). Thus, we understand that the beliefs teachers have regarding how they should act are decisive when organizing the activities that will take place in the classroom. Their decisions will greatly depend on what they believe is more convenient to do.

Teaching beliefs cover toe postures or positioning they have regarding their educational practice (Ponte, 1999). For Kagan (1992), beliefs and conceptions help teachers control uncertainty and ambiguity that could exist in their practice. This way, teachers build beliefs according to three factors: (1) according to the students, considering the group's characteristics and their context; (2) according to the fundamental factors they must teach, the content and discipline to which they belong; and (3) according to their previous experiences as students (Ferreya, 2009). However, when teachers approach evaluation with these beliefs there can be a problem, because the belief teachers have about their students do not always correspond to the environment in which the student's learn (López and Basto, 2010).

Salazar (2005) points out that the teachers' beliefs are particularly important if we consider that they are part of the base allowing to make pedagogical decisions, both in and out of the classroom. At the same time, they have an influence on the student's motivation to learn. Thus, beliefs are closely related to didactic strategies implemented in each session and have an influence on the quality of the learning (Mansilla & Beltrán, 2013). Their importance is such that it is suggested that, in order to encourage changes in pedagogical practices, it is important for both teachers and students to make explicit their beliefs and to manage to integrate new knowledge to their previous ideas and notions (Rosales, 2009).

Therefore, beliefs play an important role when there are educational reforms. Teachers make their own proposal reading of educational reforms, according to their beliefs, which are built based on their experiences as students and teachers. To ignore the way teachers think could make it difficult to understand the change proposals and could limit their application (Gregorie, 2003, as cited in Rosales, 2009), turning into the self-sabotage of any educational reform. On the contrary, deepening into the teachers' beliefs will allow them to generate reflection processes about their own pedagogical practice, their relation to change and its subsequent improvement.

As we have seen, beliefs act like filters to new information and operate, usually, on a tactical level; they are difficult to articulate and explore. This would explain the perpetuation of traditional pedagogical practices in school, in spite of the many trainings in pedagogical innovations there could be (Pajares, 1992; Blázquez & Tagle, 2010). This is why the teachers' beliefs have become a research subject in many countries. Most of the studies have focused on basic education teachers and have approached topics such as the teachers' beliefs regarding what the school should teach, its role and the teachers' role in society (Macotela, Flores & Seda, 2001), on infancy (Caldo, Graziano, Martinchuk & Ramos, 2012), on students with special educational needs (Mares, Martínez & Rojo, 2009), on the evaluation of their practice (Valdés, Castillo & Sánchez, 2009), on learning and teaching Natural Sciences (Fernández, Tuset, Pérez & Leyva, 2009); the teachers' beliefs about the sense and meaning of ICT in the classroom (Tirado & Aguaded, 2014), technology's role in teaching English as a second language (Díaz, Jansson & Neira, 2012) and the factor affecting the students' academic performance (Valdés, Urías & Montoya, 2010), among others.

In Chile, the beliefs that would be the base of new teachers' pedagogical practices were analyzed. Even though this study has a very limited sample, the results allowed to know the main beliefs the teachers have, their similitudes, differences, as well as the presence of concordance between their speech and their teaching practice. Beliefs regarding the teachers' professional identity, the teaching and the students' characteristics were found (Cortez, Fuentes, Villablanca & Guzmán, 2013).

This subject has also been studied in Peru, and there have been studies about the teaching beliefs about success and failure in the integral communication field (Rosales, 2009), about the democratic school (Ginocchio, 2014), about citizenship and citizen education (Guerra, 2014) and about aggressive behavior on pre-school children (Loza de los Santos, 2011). All this researches point out the importance of knowing more about the world of the teachers' beliefs in order to obtain a better advantage from the training programs and to improve the teaching-learning processes.

### **University context.**

It very common to find professors who are experts on their subject in university; in many cases, these professionals are very famous in their field, but they didn't necessarily learn teaching strategies to teach (Montenegro & Fuentealba, 2010). In the particular case of higher education teachers, the belief of what they should do in the classroom is formed from the experience they had with their own teachers in school and the university, when they were students. Small introduction courses or continuous training they took (many times on their own initiative) also contribute to the acquisition of this belief.

This fact leads them to repeat, especially at the beginning of their teaching careers, their old teachers' teaching schemes (Tovar & García, 2012). Teachers face their professional activity through an idiosyncratic knowledge system which is the result of the personal elaboration they make of their own ideas in an institutional and social context. Said knowledge is the one the teacher actually uses, and there are many factors needed to form it: subjective, biographical and experiential, as well as objective contextual aspects (Kansanen, Tirri, Meri, Krokfors, Huso & Jyrhämä, 2000; Libedinsky, 2001; Menin, 2001; Muchmore, 2004; Solar & Díaz, 2009).

Shulman (2005) states that the study of professional knowledge in teaching is founded on the mastery of a set of knowledge (pedagogical, curricular, of the students, of the context where teaching takes place, the content that is taught, among others), which is why it is not enough to know a specific content to be able to teach it. The absence of politics and practices which focus on training university teachers has had as a consequence the



prevalence of traditional educational methods which encourage learning contents by heart, individual learning and the reproduction of content in evaluations (Montenegro & Fuentealba, 2010).

Regarding the studies about higher education teachers' beliefs, Serrano (2010) found a positive attitude towards the majority of the dimensions of the applied beliefs questionnaire in his research on higher education teachers in Spain. However, among the results there are high levels of conservatism in the dimension referring to the class sessions programs. This is very similar to what other authors found in Latin America. The latter state that the processes of teaching and learning focus on the teacher and that the students have a more receptive role (Cruz, 2008; De Vincenzi, 2009; Estévez-Nenninger et al., 2014). Regarding this, Estévez-Nenninger et al. (2014) validated an instrument in Mexico about the beliefs on learning and teaching, and they found that the teachers considered in their study had beliefs which focused, partially, on the students learning needs. Even though some beliefs expression something different to the traditional elements appear in this research, the teachers are not yet concerned enough about keeping a suitable climate which will encourage and motivate the students to learn.

Also in Mexico, there was a research which goal was to analyze university teachers' pedagogical beliefs regarding their teaching role and their students' teaching-learning. The results allowed to point out that some pedagogical beliefs show disagreements between what they say and what they do in the classroom (Cruz, 2008). The author shows that it is possible that there is confusion between some of the tools used in everyday practice and, in addition, teachers cannot establish a clear boundary between teaching and learning.

On the other hand, there was a research in an Argentinian private university with the objective of studying the practices and conception regarding teaching in a group of medical university teachers. In order to collect information, they used a semi-structured class observation card and an attributional inventory of the teachers' implicit theories on teaching, and it was found that there was no continuity relation between what the author defines as performing and perception (De Vincenzi, 2009).

This subject has also been developed in Chile, presenting a Teaching Style Questionnaire to a group of university teachers, designed to know teaching styles. This instrument identifies the teaching type a professor has based on their speech, classifying it into open, formal, structured and functional. Each of the teaching styles has special characteristics and relate to the students' learning style. The results of this test show that in the *high* category there is a predominance of the open and functional styles, and in the *low* category we can find the structured and formal style (Chiang, Díaz & Rivas, 2013).

In Peru, Ferreyra (2012) works on the belief subject by evaluating a group of psychology teachers' beliefs about the learning evaluation process. The author uses a qualitative approach and deeply interviews a sample of teachers from a private university. The results show that the beliefs and conceptions mediate their postures and practices regarding the evaluation of learning. It was evidenced that the evaluation process lacks accuracy when planned according to the beliefs and not according to learning goals. Consequently, the author states that a dissociation between the learning goals, the tasks according to which they are evaluated and the valuation of the results is generated, affecting the validity, reliability and justice of the process. Likewise, they favor the result of learning before a competence execution or process, thus approaching a traditional evaluation tendency.

There are two elements that stand out from all the studies that were revised regarding the topic of university teachers' beliefs about teaching-learning: on one hand, there is still a predominance of traditional teaching beliefs, with the use of tools focusing on the teacher and where the student is perceived as the receptor of knowledge. On the other, there is not a complete concordance between what the teachers claim to be their pedagogical belief and their behavior in the classroom. This could be due to the fact that many instruments used during the revised researches are personal interviews. Therefore, social desirability regarding what they should answer could be altering the results. Researchers should study this subject more deeply.

## Conclusions

The teachers' beliefs form a framework in which they elaborate their teaching Project and obtain results which may or may not be positive. This is why beliefs have a very important role when making decisions in the classroom, for they can weigh more that formally acquired knowledge. Since the beginning, teachers form beliefs about their students in their heads, about how they should teach, how they should evaluate, what their role in the classroom must be, etc., and these beliefs have a big influence on the way they behave in class.

By understanding the relevance of the teachers' beliefs in the teaching-learning process, the necessity for them to make fundamental changes about the way they conceive teaching in order for them to improve the way they teach is understood. This is the only way the quality of teaching training could be improved and, subsequently, the teaching practices (Prieto, 2007; Blázquez & Tagle, 2010), which would obviously mean the improvement of educational quality. Therefore, before investing in training a teacher in avant-garde methodology or in teaching-learning strategies focusing on the students we must be sure the teacher believes these changes are meaningful and necessary. How to do that? This field still needs to be explored in future research.

It is necessary to know that an educational reform process needs much more than a change in pedagogical practices and training. In order for teaching development and training processes to be successful, they need to consider the teachers' belief system. Not to do so would lead those beliefs, based on traditional teaching-learning styles, to become an impediment to the implementation of new strategies or didactic tools. This must be understood by people in charge of making decisions on a macro level.

But it is not just that. If we intend to improve the teaching-learning processes, it is also fundamental for the teachers to reflect about the beliefs their practice are based upon. This way, they could carry out reconstruction actions aiming towards perfecting their own teaching performance, as a way of meta-reflection and self-instruction. Let us remember that beliefs have certain permeability degree, so, under certain circumstances, they are

susceptible to modifications and, therefore, they open the possibility for the teachers to use other strategies that will lead them to the improvement of their teaching practices (Cruz, 2008).

According to what has been stated in previous paragraphs, it is clear that it's important to continue to investigate this subject in order to find out about the teachers' belief system on a pre-school, primary, secondary and higher education level, because, according to the bibliography, these may vary in all levels. This subject has not been studied enough in Latin America.

Even though the qualitative approach and deep interviews are rich and allow to choose a great range of data, it is also necessary to work on the validation of the instruments, for example, with scales, which would allow to obtain quantitative data regarding teaching beliefs. These would allow to collect information in a massive way and do deepen into other variables such as the coexistence of contradictory beliefs, the relation between beliefs and teaching practice in the classroom, curriculum characteristics, how to evaluate learning, the students' beliefs, the directive staff's beliefs, etc. This would not only make it possible to confirm the results of previous investigations, but it would also open the possibility of finding new beliefs and positive elements to be encouraged among the teachers during their training.

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