Student-Centred Teaching Strategies by Gender, Grade Level, and Teacher's Self-Concept in Mexico

PEDRO SÁNCHEZ-ESCOBEDO[1] AND ANA KAREN CAMELO LAVADORES [2]

Abstract

This study examined the student-centred teaching strategies of Mexican teachers by gender, grade level, and self-concept as an instructor. A conventional sample of 573 teachers from diverse school settings in the state of Yucatan in Mexico responded to a paper and pencil questionnaire. Results indicated, in general, that teachers prioritized classroom management and independent learning activites, in contrast with teaching strategies emphasized by policies and teacher´s training programs in the country, such as cooperative learning, differentiation, or promoting critical thinking. There were some gender and grade level differences. In general, female teachers promoted more independent activities than males. As expected, primary school teachers were more concerned with using differentiation teaching strategies than secondary education teachers, considering the greatest variance in younger students. Teachers self-concept had differential effects. Whilst self-efficacy feelings had no influence in the use of specific student-centred teaching strategies, high self-steem teachers used more student-centred teaching strategies. The importance of asking teachers what they did, and how they felt as teachers was argued in light of results. Future research avenues regarding self-concept and teaching strategies are posited.

1   College of Education, University of Yucatan, Mexico; psanchez@correo.uady.mx
2   College of Education, University of Yucatan, Mexico; annykaren1@gmail.com

Introduction

A robust international body of literature leads investigators to analyze the outcomes of student-centered teaching strategies that promote high-level thinking and the achievement of meaningful relationships and positive psychological well-being (Gillies, Ashman, & Terwel, 2008; Johnson & Johnson, 1989; Tomlinson, 2003). Yet, there are relatively few empirical studies on the use of these kinds of teaching strategies in Mexico. Educational researchers in Mexico rarely ask teachers directly what they do in their classrooms and how they feel as teachers. Thus, this study seeks to understand the relationship between student-centered teaching strategies and the teachers´ s self-concept, across different levels within the educational system in Mexico. We aim to explore the differential effects of teacher's self-esteem and self-efficacy in relation to their teaching activities. There are relatively few studies in Mexico exploring the use of student-centered teaching strategies by grade level. Studying the use of specific teaching strategies across educational levels is important since some teaching techniques may be effective in some levels, but inappropriate in others, that is perhaps because the literature on teaching strategies is full of "effective teaching techniques" but they rarely prescribe uses and limitations. Even the opposite may be true; sometimes using lower grade level techniques out of Classroom may be an important remediation strategy, without taking away Classroom-time focus on grade-level standard (Dataworks Educational Reseach, 2014).

In general, research on teaching has confirmed the lack of a clear relationship between student outcomes and teacher inputs. Apparently, either performance depends upon student's characteristics and potentials or investigators have failed to identify new variables within the classroom that may help to explain learning and motivation to achieve. Few studies focus on the dynamics of the teachers' self-concept and how this is culturally shaped and instrumental to create a learning environment. Wenglinsky (2002) published an outstanding review of teacher classroom practices and their impact on student performance. He asserts that three main classroom practices: individualization, collaboration, and authentic assessment. Individualization means that teachers instruct each student by drawing upon the knowledge and experience that each student already possesses and authentic assessment occurs in an on-going basis rather than at a single point in time (Golub, 1988; Graves & Sunstein, 1992; McLaughlin & Talbert, 1993). Teacher strategies in this study are student-centred, that is, they are based in instructional activities in the classroom that aim to foster learning and positive outcomes for students. We have chosen five most frequently used actions in Mexican classrooms including critical thinking promotion, fostering independent study, differentiation of instruction, cooperative learning and classroom management. Critical thinking aims to make students think and reflect upon specific problems or curriculum contexts. Independent study aims to foster learning by self-initiated activities beyond the classroom. Differentiation in teaching refers to the adaptation of instructions considering individual differences. Cooperative learning means that teachers allow students to work together in groups and classroom management is closed linked to an atmosphere of discipline and the creation of a positive learning environment.

On the other hand, we explored the relationship in the uses of these five specific strategies and the teacher's self-concept. Teacher´s self-concept for this work refers to a broad construct that include teachers' feelings of self-efficacy and their general perception of

how good of a teacher they feel they are. The purposes of this study were to identify the use of five student-centred teaching strategies frequently used in Mexico and to explore differences by gender, grade level, and their association to self-concept as a teacher. More specifically, this study was to describe the most often student-centred teaching strategies used by Mexican teachers, to explore differences by grade level, to explore differences by gender, to explore the relationship between teaching strategies and two main dimensions of teacher´s self-concept: self-efficacy feelings and their self-esteem as teachers. To achieve the purposes of the study, two central research questions guided this study: (1) How are these teaching strategies used in Mexico? and (2) How Mexican teachers feel about their use?

Literature Review

Student-centered teaching strategies

A robust international body of literature leads investigators to analyze the outcomes of student-centered teaching such as high-level thinking and achievement, meaningful relationships, and positive psychological well-being (Gillies, Ashman, & Terwel, 2008; Johnson & Johnson, 1989; Tomlinson, 2003). Additional literature demonstrates the widespread adoption of student-centered teaching practices, from Cyprus (Hursen & Soykara, 2012) to Vietnam (Nguyen Thanh, Dekker, & Goedhart, 2008). Yet, there are relatively few empirical studies of teaching strategies in Mexico. Student-centered teaching fosters a host of positive outcomes for students. For example, in a meta-analysis of research about cooperative learning compared with competitive or individualistic learning, Johnson and Johnson (1989) found that cooperative learning fosters considerably greater efforts to achieve among students. These scholars also found cooperative learning promotes supportive social and peer relationships, as well as maturity in cognitive and moral decision making (Johnson & Johnson, 1989). In another example, studies of differentiation strategies demonstrate the effectiveness of differentiation as responsive to individual student needs, especially in schools where programs for special education or gifted education do not exist (Emanuelsson, 2003; Tomlinson, 2003). Similarly, research shows that effective class management strategies are the "art" of establishing environments that foster student cooperation (Cangelosi, 2014).

Additionally, students experience positive outcomes from teaching practices that promote independent or autonomous work (Stefanou, Perencevich, DiCintio, & Turner, 2004) and critical thinking (Abrami et al., 2008; Hooks, 2010). How are these student-centered teaching strategies, which are known to promote positive outcomes for students, used in Mexico? There are literally hundreds of teaching strategies depicted in the literature, some of them traditional and frequently used such as various types of lectures, some others are more sophisticated and innovative with the use of technologies, problem-solving activities or learning projects with different learning conditions. However, in this study we focused in 5 of the most popular teaching strategies referred by our teachers in training at our teacher training program, at the college of education in the University of Yucatan in Mexico. We explored specifically strategies to promote critical thinking, activities that instill on independent study, differentiation techniques, and strategies of classroom

management. Focusing on five specific teaching strategies has allowed us to compare its differential use across grades and to explore for gender differences.

Critical thinking

Logically, because of developmental reasons, teaching strategies that promote critical thinking tend to be more popular in higher grades than in young children. In fact, some authors believe that critical thinking is not a teaching strategy -per se-; rather they see it as a procedure based on strategies that increase cognitive abilities and the probability of a desirable outcome. Hence, promoting critical thinking is "teleological in nature: it concerns the attainment of goals, desirable outcomes…to obtain the desired outcome, we have at our disposal (to some degree, with proficiency) a set of cognitive skills" (Sohroy, 2005, p. 163). Perhaps, as a teaching technique, it was born with Socrates along with the famous *maieutic* method that through incisive questioning the teacher asked to instill the discipline of analysis and seeing the connections between ideas and critical thinking (Abrami et al., 2008; Hooks, 2010). Critical thinking is more than thinking clearly or rationally; it is about thinking independently and be able to formulate one's own opinions and conclusions.

Teaching higher-order thinking skills involves not so much conveying information as conveying understanding. Students learn concepts and then attempt to apply them to various problems, or they solve problems and then learn the concepts that underlie the solutions. These skills tend to be conveyed in one of two ways: through applying concepts to problems (applications) or by providing examples or concrete versions of the concept (simulations). In either case, students learn to understand the concept by putting it in another context. In the case of an application, this might mean solving a unique problem with which the student is unfamiliar. In the case of a simulation this might mean examining a physical representation of a theorem from geometry or engaging in a laboratory exercise that exemplifies a law from chemistry. While both lower-order and higher-order thinking skills undoubtedly have a role to play in any classroom, much of the qualitative research asserts that the students of teachers who can convey higher-order thinking skills as well as lower-order thinking skills outperform students whose teachers are only capable of conveying lower-order thinking skills (Langer & Applebee, 1987; Phelan 1989).

Classroom management

Classroom management refers to the wide variety of skills and techniques that teachers use to keep students organized, orderly, focused, attentive, on task, and academically productive during a classroom. When classroom-management strategies are executed effectively, teachers minimize the behaviors that impede learning whilst facilitating learning. Effective teachers tend to display strong classroom-management skills. Watkins and Wagner (1991) assert that role of the teacher is undervalued in terms of the role she plays in promoting (or discouraging) certain types of behaviors. While a limited or more traditional interpretation of effective classroom management may focus largely on obedience and discipline such as following directions, listening attentively, etc.—a more encompassing or updated view of classroom management extends to everything that teachers may do to facilitate or improve student learning, which would include such factors as attitudes

(respectful and fair treatment of students), physical environment (learning materials) and expectations. Classroom management techniques aim to instill a positive learning environment that facilitates learning and turn the classroom into a fertile thinking and learning ground.

Cooperative learning and independent work

Cooperative learning is a systematic pedagogical strategy that encourages small groups of students to work together for the achievement of a common goal. The term 'Collaborative Learning' is often used as a synonym for cooperative learning when, in fact, it is a separate strategy that encompasses a broader range of group interactions such as developing learning communities, stimulating student/faculty discussions, and encouraging electronic exchanges (Bruffee, 1993). Cooperative learning as a teaching strategy requires careful planning and preparation. Understanding how to form groups, ensure positive interdependence, maintain individual accountability, resolve group conflict, develop appropriate assignments and grading criteria, and manage active learning environments is critical to the achievement of a successful cooperative learning experience. For example, in a meta-analysis of research about cooperative learning, compared with competitive or individualistic learning, Johnson and Johnson (1989) found that cooperative learning fosters considerably greater efforts to achieve among students. These scholars also found that cooperative learning promotes supportive social and peer relationships, as well as maturity in cognitive and moral decision making (Johnson & Johnson, 1989). Similarly, research shows effective classroom management strategies are the "art" of establishing environments that foster student cooperation (Cangelosi, 2014).

Cooperative learning gives students the opportunity to work with others and see different points of view. Research shows that students learn more effectively when working together rather than apart, and it is also known to improve self-confidence in students. The jigsaw technique is especially effective because each student is responsible for one another's learning, and students find out really quick that each group member has something equally important to contribute to the group in order to make the task a successful one. Students are exposed to and use many skills throughout this strategy: communication, problem-solving skills, cognition, and critical thinking -- all of which are essential for a successful academic career. Teaching strategies based upon collaborative learning had mixed results in Mexico. In our culture, team work does not necessarily involve every student in the actual academic work; some of them provide emotional support, drinks and snacks or compensate their absence or lack of work in other ways.

Self -learning or independent learning is a process of self-regulation. As such, student approach curricular contents on their own, and teaching activities can direct and foster this kind of effort. For this, teachers must plan, monitor, and establish the pace and direction of the homework. Self-motivation is a key element for successful independent learning. 'External' elements which support independent learning include the development of a strong relationship between teachers and students, and the establishment of an 'enabling environment'. Independent work refers to the work of the student outside the classroom with the help or supervision of a teacher. This is also known as independent learning. Additionally, students experience positive outcomes from teaching practices that promote

independent or autonomous work (Stefanou, Perencevich, DiCintio, & Turner, 2004). Independent learning is often linked to other approaches to learning such as 'personalization', 'student-centred learning' and 'ownership' of learning. Discussion of independent learning frequently arises in the context of important issues such as student-teacher roles and relationships, and the role of information and communications technology (ICT) in learning (Meyer, Haywood, & Faraday, 2008). Not every student benefits from teaching strategies that promote independent work, younger students, dependent pupils and students with few or non-existent resources at home may not develop their academic work competently. In addition, some basic cognitive skills such as focusing of memory and attention and problem-solving, metacognitive skills associated with an understanding of how learning occurs are necessary. There might be also some cultural factors to consider in approaching cooperative learning in gregarious societies such as Mexico.

Gender and teachers' self-concept

There are various research reports regarding differences by gender and instructional strategies. For example, Zhukov (2012) reported that in music education, male teachers gave general directions, whereas female teachers offered more time to practice. Also, male and female teachers offered different kinds of reinforcement and feedback (Klassen & Chiu 2010). In fact, gender differences in teaching styles and student perception have been thoroughly investigated. For example, Mullola et al. (2012) reported that student's temperament played a significant role in teacher's perception of the student's learning style, educational competence and teachability.

Self-concept is a general term used to refer to how someone thinks about, evaluates or perceives themselves. To be aware of oneself is to have a concept of oneself. Self-concept includes two broad dimensions of one`s self-perception. The first has to do with accomplishment of task and it is called self-efficacy, and the second has to do with the value ascribed to one's self, it is also known as self-esteem. However, self-concept could simply have defined as what a person thinks of oneself. In the literature of educational psychology, Self-concept is an integral construct that incorporates all the experience of individual self and it is especially important to consider when explaining somebody´s performance. Teacher self- concept has been a topic rarely investigated in Mexico with relation to the use of specific instructional strategies, when in fact these are import indicator of how teachers see themselves in their job and situation. Self-efficacy of teachers refers to feelings about their work in the school's belief other couple because to carry out a course of function successfully (Bandura, 1977). In this study, with the purpose of further understand how teaching strategies impact the teacher; teacher's self-concept was explored with two questions related to the two major dimensions of self-concept: self-perception (How good of a teacher you are?) and self-efficacy (How efficient is your teaching?). Teacher self-concept was thus defined as the evaluation teachers make about themselves regarding how good and effective they are as teachers.

Methodology

Participants

A paper and pencil anonymous questionnaire was voluntarily responded by 573 teachers from the different educational levels in the state of Yucatan, Mexico. From these, 185 (32%) were males and 388 (68%) females. Teachers were on the average 32 (SD = 3.2) years old, with a modal seniority of 13 years in the school system. Almost half of them worked full time, a quarter of them worked half time, and the remaining quarter were teachers hired on an hourly basis. Teachers showed, in general, similar characteristics to teachers in other states in Mexico. Special fields of teaching were: Spanish language (23%), social sciences (32%), STEM subjects (20 %), Arts and Physical Education (5%), and others (20%). Table 1 depicts participants by gender and grade level taught.

Table 1. *Participant characteristics*

Primary		Junior High		High school		College		Total	
m	f	m	f	m	f	m	f	m	f
39	141	34	141	47	74	23	34	185 (32)	388 (68)
180 (31)		215 (38)		121 (21)		57 (10)		73 (100)	

Legend: m = males; f = females; (%)

Data collection and analysis

A questionnaire was designed asking for general demographic and labor information. In addition, teachers were presented a list of 15 teaching activities (Table 2). They were asked to rate the frequency of use in a six-point Likert scale. Cronbach Reliability coefficient was .766. Table 2 presents the table of specifications depicting the dimensions and items in each.

Table 2. *Dimensions of instructional strategies and corresponding survey items*

Dimension	Items
Critical Thinking	Students reflect upon their own work
Instructional activities that foster intellectually disciplined processes as the basis of learn	I posit questions to check if they had understood
	I make them express their thoughts
Classroom management	I present the Classroom objectives
Activities to create and maintain a structured and intentional learning environment	I promote order and discipline
	I administer tests to assess their learning
Differentiation	I assign tasks according to the student capacity
Instructional activities that mean to account for variation in students' abilities, styles, and preferences.	I check on individual differences
	I make groups according to abilities
Cooperative learning	I promote group-work
Classroom activities that attend to increasing social interaction and fostering academic and social learning experiences	They develop products to be used by others
	I promote group tasks
Independent work	I check the homework
Instructional strategies that promote individual learning activities under control of the student	I ask the students to work/use their textbook
	I assign long term projects

A confirmatory factor analysis allowed the establishment post-hoc of five factors/dimensions. These activities were clustered into 5 groups according to their factorial loads. Each dimension represented a categorical teaching strategy as described in Table 2, including the items clustered by this method. Finally, teachers were asked to self-assess in a six-point Likert scale: (1) how good they were as teachers and (2) how efficient their instruction was. Data were fed into SPSS version 20 for statistical analysis. Parametric testes were sued to explore for statistical significant differences.

Findings

Gender differences

Gender differences were explored using simple t–tests. Scores in each category of teaching strategy were pondered in a scale from 1 to 6 by dividing the mean score by the

number of items in each dimension, so everyone had the same directly comparable scale. Table 3 depicts the results of this analysis by gender.

Table 3. *Differences in teaching strategies by gender*

	Men (n = 165)	Women (n = 388)	t	p
Classroom management	4.23 (.56)	4.26 (.56)	.64	.69
Independent study	4.17 (1.2)	4.22 (.89)	3.19	.001*
Cognitive skills	3.91 (.61)	3.94 (.58)	.249	.265
Cooperation	3.74(.99)	3.75(1.03)	.126	.11
Differentiation	3.29 (.97)	3.27 (.88)	1.3	.62

Legend: M, (SD).

In general, classroom management seemed to be the major concern of these teachers.   The only statistically significant difference in teaching strategies by gender was found in the analysis of independent study. Female teachers promoted more independent activities than males. No other statistically significant differences were found. In general, women showed higher scores than men across most teaching strategies. And when asked how good of a teacher they were, women tended to consider themselves better teachers than men (t = 2.33; p = .027).

Grade level differences

One-way ANOVAS were carried out to explore differences in the use of teaching strategies by grade level.   Table 4 summarizes the results.

Table 4. *ANOVA: Teaching strategies by level of teaching*

Level Grade/years	Primary 1 -6	Secondary 7-9	High School 10-12	College ≥ 13		
n	181	214	121	54	F	p
Classroom management	4.32 (.56)	4.21 (.58)	4.22 (.52)	4.15 (.57)	1.68	.151
Independent study	4.35 (1.14)	4.13 (1.21)	4.17 (.53)	4.0 (.90)	1.76	.134
Cognitive skills	3.99 (.55)	3.85 (.61)	3.93 (.61)	4.04 (.58)	2.33	.055
Cooperation	3.89 (.99)	3.62 (1.04)	3.69 (.95)	3.76 (3.7)	1.79	.129
Differentiation	3.46 (.88)	3.23 (.86)	3.04 (.92)	3.4 (.93)	3.67	.001

Frequency of teaching strategies ranked similarly in every level.   The only significant difference was in differentiated instruction that logically was more frequently used by primary school teachers.   No statistically significant differences were found in college teachers that primarily work with graduate students with those who worked with undergraduates.

Teachers´ self-concept was the sum of two dimensions of perception: self-esteem and self-efficacy. The distribution of both measures, as expected, was skewed to the right, having 78% of teachers with a high self-perception and 22% with low self-perception. No differences in self-efficacy were found by either level taught (primary, secondary, high school, and college) or in the use of a teaching strategy. Regarding general self-concept as a teacher (how good of a teacher are you), there were significant differences in 3 of the 5 categories of teaching strategies, as depicted in Table 5.

Table 5. *Teaching strategies by level of self-concept*

	Low (n = 165)	High (n = 388)	t	p
Classroom management	3.96 (.60)	4.33 (.52)	6.75	.001
Independent study	3.95 (.69)	4.28 (1.06)	3.29	.001
Critical Thinking	3.73 (.59)	3.98 (.57)	4.32	.001
Cooperation	3.75 (.92)	3.72 (1.02)	.281	.779
Differentiation	3.20 (.97)	3.30 (.88)	1.08	.278

Legend: M; (SD); t = Student's t; p = alpha probability level.

This analysis showed that teachers with high self-esteem as teachers (that consider themselves good teachers) tended to carry out more student-centred teaching activities than teachers with high self-concept in three of the five dimensions under analysis: classroom management, independent study, and critical thinking. No other significant differences were found in these teachers when contrasted by training, experience, field of study, or type of school.

Discussion

The analysis of demographic information indicated that results data from this study could be extended to the average Mexican teacher/student. In general, few gender differences were found. The only teaching strategy that seemed to be different by gender was promoting independent study, with women teachers promoting independent study more frequently than men. This may be associated to women reporting interest in paying attention to students' homework, checking their homework, and the management of textbook and learning materials. Traditional gender roles in Mexico align with this finding reporting that women, in this case teachers, sometimes also mothers, tend to pay more attention to autonomous activities, such as homework, while men pay more attention to summative assessment, or grades (Sánchez & Martínez, 2016). However, this difference needs to be better studied by observational and other research strategies. The preference for Mexican female teachers to promote independent deserves further investigation.

Asking teachers to assess their own performance as teachers is not common practice in educational research in Mexico. Yet, we asked teachers about their feelings under the frame of self-concept, a traditional construct in school psychology, divided in two dimensions: their self-esteem and their self-efficacy. In both dimensions, we observed bi-modal presentation of results; nearly 80% of participants had a high self-perception and 20% a low self-perception. Overall, there seemed to be no differences in feelings of self-efficacy of teachers and the strategies they use. However, when analyzing the self-steam (how good of a teacher are you?) there were significant differences in the relationships with three of the five strategies. High self-esteem teachers reported more frequent classroom management, independent study, and the promotion of critical thinking skills than low self-esteem teachers. This is an interesting finding, because regardless of perception of effectiveness, those Mexican teachers considering themselves good were more like to use student-centred teaching strategies that desire to promote a positive learning environment. This suggests that low self-esteem teachers may have an external locus of control that imputes effectiveness to things other than teaching. This hypothesis, of course, deserves further empirical research.

Asking teachers what they do and how they feel in educational research is useful to collect empirical data about teachers themselves. Although this study approach is simple with direct variables, it generates important information to understand the teaching situation and teacher training in Mexico. Results, for example, indicated that teachers were most concerned with classroom management and promoting independent study, which goes against common teacher training programs in the country that that emphasizes cooperative learning and differentiation. Most importantly, the promotion of critical thinking skills – an aspect salient to many educational reforms and pedagogies – does not seem to be as a frequentist used strategy by teachers in Mexico. These results encourage a further study of critical thinking pedagogies in Mexico. Although we might anticipate more critical thinking pedagogies in high school and higher education, the data showed no differences in grade level. This needs to be further analyzed because of the developmental nature of high school and college-age students who are preparing for adult life.

Generally, teachers in Mexico were concerned with classroom management. This finding makes sense because teachers are concerned with facilitating their classrooms, viewing creating a positive learning environment as their primary responsibility. This permeated across gender and all levels of instruction. Interestingly, cooperation and differentiation seemed to be the least of teachers' concerns even though these topics are highly recommended in the literature and teacher preparation and training programs. Also, promoting critical thinking seemed to be in the middle, despite making students think or reflect is a challenge in current education.

When we examined teaching practices by grade level, the only difference was that primary school teachers focused more on differentiation than other teachers. This is logical given the developmental nature of young children. Educational challenges must be addressed among primary age students such that the students persist in school. In the absence of differentiation, students may drop out of school altogether. Differentiation in lower grades seems to be a logical finding considering development issues and the prevalence of learning problems in lower grades.

The fact that teacher´s self-esteem seems to be a better predictor of the use of student-centred teaching activities is ant interested one for two reasons. The first, relays on the fact that no significant differences were found by their feelings of self-efficacy, related to their perception of how efficient or effective these strategies are. However, teachers reporting higher sense of being a good teacher tend to use these strategies more often that those with lower feelings of teachers´ self-esteem.

Conclusion

In general, three major findings can be derived from the study. First, it can be concluded that female teacher tended to promote more independent study than their male colleagues. Second, differentiation of instruction seemed to be preferred by teachers of lower grade levels. The third finding was that teacher's self-esteem seemed to be a better predictor of student-centred teaching strategies which were used more often by teachers in lower grades. Research focusing in teachers' practices in developing countries continues to be a need, information yielded in this study may be important for improving teachers 'training programs and must be considered to implement educational policies that respond to both students and teachers concerns. Teaching is a profession in continues change, technological advancements, globalization, social equity movements and many other factors should promote educational researchers to focus their efforts in documenting how these external influences impact teacher perceptions and actions in the classroom.

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Biographical notes

PEDRO SÁNCHEZ-ESCOBEDO is a former Fulbright scholar. Currently he is a Senior Lecturer at the University of Yucatan, in the College of Education. He has contributed significantly to both educational and psychological fields in Mexico. He was in charge of the standardization processes of the three major intelligence scales widely used in Mexico in both clinical and educational settings and he has published so far 7 books an more than 100 original research articles.

ANA KAREN CAMELO-LAVADORES is a doctoral student at the multidisciplinary social sciences degree at the Universidad Autónoma de Yucatán. Merida, Yucatan Mexico. She has a master's in educational innovation and she focuses on research of gifted and high achieving students.