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# ASPECTS OF THE TEACHING PROFESSION IN BRAZIL: EXPLORATORY ANALYSES OF PISA 2015

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## ABSTRACT

*This paper analyzes the association between different variables of the teaching profession: professional affective engagement, job satisfaction, interactions with peers and school management, perceptions about working conditions and the desire to become a teacher. To that end, we use the answers of Portuguese (N = 1,346) and Mathematics (N = 816) teachers to the teacher questionnaire administered by the Program for International Student Assessment (Pisa 2015). The study reveals that interactions in school and teachers' positive perception about the career are very important for job satisfaction and professional engagement. Results contribute to the discussion process about teacher recognition policies.*

**KEYWORDS** TEACHER PRACTICE • TEACHER RECOGNITION • PISA •  
LINEAR REGRESSION.

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## ASPECTOS DA PROFISSÃO DOCENTE NO BRASIL: ANÁLISES EXPLORATÓRIAS DO PISA 2015

### RESUMO

*O presente artigo analisa a associação existente entre diferentes variáveis da profissão docente: o engajamento profissional afetivo dos docentes, a satisfação no trabalho, as interações com colegas e direção da escola, a percepção sobre as condições de trabalho e o desejo de tornar-se professor. Para isso, utilizam-se as respostas dos docentes de Português (N = 1.346) e de Matemática (N = 816) ao questionário do professor aplicado pelo Programa Internacional de Avaliação de Estudantes (Pisa 2015). O estudo revela quão importantes são as interações estabelecidas na escola e a percepção positiva dos docentes em relação à carreira para a satisfação no trabalho e o engajamento profissional. Os resultados contribuem para o processo de discussão sobre as políticas de valorização do docente.*

**PALAVRAS-CHAVE** PRÁTICA DOCENTE • VALORIZAÇÃO DO PROFESSOR • PISA • REGRESSÃO LINEAR.

## ASPECTOS DE LA PROFESIÓN DOCENTE EN BRASIL: ANÁLISIS EXPLORATORIOS DEL PISA 2015

### RESUMEN

*El presente artículo analiza la asociación existente entre distintas variables de la profesión docente: el compromiso profesional afectivo de los docentes, la satisfacción en el trabajo, las interacciones con colegas y dirección de la escuela, la percepción sobre las condiciones laborales y el deseo de convertirse en profesor. Para ello, se utilizan las respuestas de los docentes de Portugués (N=1.346) y de Matemáticas (N= 816) al cuestionario del profesor aplicado por el Programa Internacional de Avaliação de Estudantes (Pisa 2015). El estudio revela cómo son importantes las interacciones establecidas en la escuela y la percepción positiva de los docentes en relación a la carrera para la satisfacción laboral y el compromiso profesional. Los resultados contribuyen para el proceso de discusión sobre las políticas de valorización del docente.*

**PALABRAS CLAVE** PRÁTICA DOCENTE • VALORIZACIÓN DEL PROFESOR • PISA • REGRESIÓN LINEAL.

## **INTRODUCTION**

In Brazil, a country of continental dimensions, data from the 2015 School Census (BRAZIL, 2016) show impressive figures: there are approximately 2.2 million teachers teaching across the country, about 500,000 of which in secondary education. To give an idea of the size of these data, the number of teachers in Brazil is greater than the population of many countries (ATLAS DES POPULATIONS ET PAYS DU MONDE, 2018). Statistics also impress with regard to teacher salary. In 2014, Brazilian teachers in the public education system with a 40-hour workweek were paid an average R\$ 3,335.06 per month (BRASIL, 2017). This salary, which represents approximately US\$ 12,000 per year, is well below the results presented by the Education at a Glance report (OECD, 2017), in which the average salary for teachers from member countries of the Organization for Economic Co-operation and Development (OECD) is approximately US\$ 32,000.

This scenario suggests that the teaching career faces numerous daily challenges that cause many teachers to leave the profession each year, whether in search of better opportunities or due to health problems related to the job. This has serious consequences for the good performance of educational

systems, such as the lack of trained teachers or the lack of well-qualified teachers in certain knowledge areas.

In a report published in 2007, the OECD highlighted the importance of teachers for the successful implementation of educational policies aimed at improving school systems. At that time, the report suggested strategies for attracting and retaining teachers in order to promote student achievement. In addition to broadening the debate about successful experiences in hiring and retaining teachers, the report also pointed to the challenges involved in recruiting good teachers, especially in countries where the profession was not well recognized. However, more than ten years after it was published, the discussions presented by the OECD report are still very relevant in the present. Nowadays, working as a teacher has become a real challenge pervaded by decisions that do little in terms of teacher recognition. Thus, fewer and fewer young people are attracted to this career (BAUER; CASSETTARI; OLIVEIRA, 2017).

Despite the fundamental role played by the teacher in the educational process, many studies have shown that, in general, the exercise of teaching is one of the most stressful occupations, especially because, as a rule, it lacks minimally adequate conditions for its regular performance (PARKER *et al.*, 2012). Insufficient funds for salaries, large classes, growing challenges related to processes of inclusion, multiple tasks covering class planning and delivery, class management and administrative tasks, among others, are features to be extensively discussed and analyzed in the planning and implementation of public policies for education (GATTI; BARRETTO, 2011; PAPI; MARTINS, 2010; NEVES; SILVA, 2006; TARDIF, 2012; MAROY; MATHOU, 2014; MAROY; VOISIN, 2014).

Without going into the discussion about the quality of initial teacher education, which is not dealt with in the present study, though highlighted in several studies about teaching (GATTI; BARRETTO, 2009; LOUZANO *et al.*, 2010), the competences deriving from initial education, as well as aspects related to working conditions, are undeniably factors that contribute to the motivation (or demotivation) of teachers to perform their activities, and may interfere with their engagement or disengagement in relation to the profession (MUKAMURERA; BALLEUX, 2013; KARSENTI; COLLIN; DUMOUCHEL, 2013).

Leaving one's profession is not a chance event. It is the final stage of a process of gradual and progressive disinterest in the career and the construction of a negative view about the professional activities that it implies. In the case of teachers, this process culminates, at first, with the loss of motivation to

perform their activities and, secondly, with the decision to change professions and also with the decline in the quality of teaching, as Masson explains (2017, p. 853, free translation):

[...] the decision to leave the profession is quite problematic as it involves a process that progressively detaches the teacher from his/her activities due to dissatisfaction that accumulates throughout his/her career. Maybe that explains the fact that the decision to leave the profession is based on more than one reason.<sup>1</sup>

However, despite the many barriers and major challenges posed by teaching, many teachers choose to stay in the profession due to affective ties that attach them to their careers and make them feel involved in teaching tasks. In this respect, several studies point to the importance of building a positive view of the job when seeking a harmonious professional experience and permanence in teaching (BRZEZINSKI, 2014; GAUTHIER; BISSONNETTE; RICHARD, 2009; MUKAMURERA; BALLEUX, 2013; KARSENTI; COLLIN; DUMOUCHEL, 2013). At the same time, research has been conducted to measure the contribution of various aspects of teaching to teachers' professional engagement, such as positive emotional experiences, a feeling of competence and satisfaction with work conditions, thus suggesting that these aspects should be taken into account in public discussions on the development and recognition of the teaching profession (KAMANZI; BARROSO DA COSTA; NDINGA, 2017).

The goal of this article is to conduct an analysis of the teaching profession in Brazil that places teachers' professional affective engagement at the center of discussions and associates it with the following factors already studied in various international surveys: job satisfaction, perception of working conditions, desire to become a teacher and interactions with peers and school management. It is worth stressing, however, that professional engagement is a complex construct and that the factors studied here do not exhaust the discussions about the phenomenon, on the contrary, they open the door for many future analyzes.

<sup>1</sup> In the original: "[...] a decisão por abandonar a profissão é bastante problemática porque envolve um processo que vai desvinculando o sujeito da atividade que desenvolve pela insatisfação que se acumula ao longo da carreira. Isso talvez explique o fato de que a decisão em abandonar a profissão aconteça baseada em mais de um motivo".

## **PROFESSIONAL AFFECTIVE ENGAGEMENT**

Originated in organizational psychology, the concept of professional engagement is related to “feelings of involvement, loyalty and attachment to the profession” (LLAPA-RODRIGUEZ; TREVIZAN; SHINYASHIKI, 2008, p. 486). The concept emerges as a counterpoint to job burnout and reflects the individual’s positive view of his work.

Several authors mention the multidimensional character of professional engagement, usually listing three dimensions that align to form this concept: the affective dimension (the result of an emotional connection with the profession, which includes feelings of pleasure and satisfaction); the normative dimension (in which the individual feels obliged to remain in the profession because he believes society expects that from him); and, finally, the calculative dimension (in which there is a feeling of being linked to the profession by the financial and emotional investment already put into it and which can be lost if one leaves one’s career). Of these three dimensions, studies have shown that affective involvement plays a major role in explaining the construct of teachers’ professional engagement, which means that relationships of affection constitute the foundation of teachers’ commitment to the teaching career (CHONG; LOW, 2009).

Regarding the factors that can contribute to professional affective engagement, the literature has indicated some which are most commonly analyzed: working conditions (salary, number of students per class, working hours per week, etc.), emotional experiences in the classroom and the feeling of competence (BARROSO DA COSTA; LOYE, 2016). In the case of this study, the factors analyzed and associated with professional affective engagement are job satisfaction, perception of working conditions, desire to become a teacher and interaction with peers and school management. These factors are presented below.

### **Job satisfaction**

Traditionally, job satisfaction is defined as a positive emotional state that results from personal esteem for the job as a whole or for one of its aspects. Recognized as the expression of the individual’s pleasure in relation to the work he performs, satisfaction is an important affective bond between the worker and his work as it is a source of recognition, accomplishment and well-being (ANDRADE; KILIMNIK; PARDINI, 2011; LENT; BROWN, 2006). Thus, job satisfaction is a concept influenced by intrinsic and extrinsic aspects and it comes from a personal perception, i.e., from an individual appreciation of

the professional activities performed (LENT; BROWN, 2008), a perception that varies according to the work circumstances experienced over time.

Despite being a complex phenomenon, numerous studies seek to measure the degree of job satisfaction, as well as its relationship with various other aspects related to professional activities. These studies present results that converge with a similar conclusion: job satisfaction is an essential factor for the efficient performance of work activities, and it drives positive attitudes in facing the challenges posed by the profession (GAZZOTTI; CODO, 2002; MARQUEZE; MORENO, 2005). Relationships between job satisfaction and the individual's engagement to his career are already well documented and disseminated in national and international contexts (ANDRADE; KILIMNIK; PARDINI, 2011; COOPER-HAKIN; VISWESVARAN, 2005; MAYNARD; JOSEPH, 2008; RHOADES; EISENBERGER, 2002).

### **Perception of working conditions**

With regard to teachers' work activities, working conditions are understood as the circumstances under which teachers' physical, cognitive and affective capacities are mobilized to achieve school production goals (GASPARINI; BARRETO; ASSUNÇÃO, 2005).

The emergence of a new knowledge economy is known to have brought about major changes in teachers' working conditions. New forms of employment, different from the so-called "traditional" ones, have emerged and seem irreversible: temporary contracts and occasional and often part-time jobs are part of the reality that education professionals now have to deal with (BARROSO DA COSTA, 2014). In addition to this are factors which are discussed whenever education quality is debated, such as precariousness and increasing workload, inadequate infrastructure, lack of teaching material, decreased human resources in schools, and teacher development requirements increasingly dependent on teachers' own salaries (CRUZ; LEMOS, 2005).

All these factors indicate the need to understand how they are associated with teachers' interest in staying in or leaving the profession. Research has indicated that factors associated with working conditions contribute to professional engagement or disengagement (ANARI, 2012; MCCARTHY *et al.*, 2011). Results of such research point to the fact that situational adaptation to certain working circumstances drives the desire to persist in or abandon the teacher career.

### **Interpersonal relationships in the school environment**

It is undeniable that interpersonal relationships are important in the exercise of teaching. Teaching requires human contact and the ability to interact with various agents in the school community. An element of the construct known as “social competence,” interaction is the ability to act in accordance with a group’s ideals, the ability to cooperate and respect the positions of others, as well as the ability to be sensitive to what people experience and feel in the workplace (DROZDA-SENKOWSKA *et al.*, 2003).

Human relations at work became the focus of discussions and began to be systematically studied in the 1930’s, when job satisfaction surveys began to be widely disseminated. Numerous studies point to the fact that job satisfaction is strongly influenced by the interpersonal relationships occurring in the school environment (BARROSO DA COSTA, 2014; PORTELANCE; MARTINEAU; MUKAMURERA, 2014). Other studies also indicate that interpersonal relationships are an important predictor of teachers’ professional affective engagement (DUCHESNE; SAVOYE-ZJAC, 2005; KLASSEN; SÜNDÜS; DURKSEN, 2013).

With regard to the relationship between teachers and school management, research suggests that where school principals enable dialogue with teachers, both regarding pedagogical and administrative decisions, teachers’ sense of participation in school life increases and, as a consequence, so do their job satisfaction and professional engagement (MAROY, 2006; MUKAMURERA; BALLEUX, 2013).

As for teachers’ relationship with their peers, it is noteworthy that good peer relationships are conducive to building bonds of trust (RAPOSO; MACIEL, 2005). Such ties are an important factor in driving the teacher to develop a positive view of his profession, especially those who have recently entered the career and thus feel welcomed by more experienced professionals. As argued by Portelance, Martineau and Mukamurera (2014), the professional development and solidification of the teacher career is formed by different periods, among which is the career entry phase, in which the relationship with peers is, as said earlier, a factor of major relevance.

### **Desire to become a teacher**

The choice for a profession results from a subjective decision, which stems from one’s vocation and/or aptitude to dedicate to a certain knowledge area, but also from the socially constructed image of a particular career (FEIJOO; MAGNAN, 2012). In the specific case of teaching, studies indicate that career choice is closely related to affective aspects and that many teachers see the



profession as a kind of priesthood (MASSON, 2017; GATTI; BARRETTO, 2009). In this regard, the professional choice is attributed to intrinsic factors such as a taste for the profession, which is related to the interest in sharing knowledge and teaching (RABELO, 2010). In this direction, Sales and Chamon (2011) present data from a study which sought to map the motivations for choosing the teaching profession by surveying 964 students enrolled in the first to fifth semester of an undergraduate Pedagogy program. According to the authors (SALES; CHAMON, 2011), most of the interviewees (45-58%) reported that the reasons for choosing the profession were the desire to improve education and the pleasure of exercising the teacher role.

Although teaching is a career whose entry reasons are still related to altruistic values, strongly attached to the idea of possibility of social change, as well as the intention to quickly achieve some financial autonomy, attracting young people to it is progressively becoming one of the main challenges to be faced in the field of education in Brazil (OCDE, 2006; VALLE, 2006). The interest in a teaching career is very peculiar with regard the profile of students who finish high school and enter university. Louzano et al. (2010) published a detailed study on the attractiveness of the teaching career in Brazil. Their conclusions indicate that students from public schools were the majority of new entrants into teacher education programs. They found, moreover, that students in those programs had lower academic performance and socioeconomic profile. In the study of Tartuce, Nunes and Almeida (2010), only 31 (2%) of the 1,501 high school students reported that they intended to enter a Pedagogy program or another licensure program as their first college option.

## **METHODOLOGY**

### **Sample**

The present study uses public data from the questionnaire administered to teachers by the Pisa 2015 international survey. The questionnaire has three main sections: the first is directed to teachers of all subjects and covers sociodemographic data and general information; the second is directed to science teachers; and the third is intended for teachers of all other subjects.

In Brazil, the questionnaire was answered by 11,822 teachers from the 27 Brazilian states. For the present study, we analyzed the answers of Portuguese (N = 1,346) and Mathematics (N = 816) teachers, thus totaling a

sample of approximately 2,000 teachers ( $N = 2,162$ ). We chose Portuguese and Mathematics teachers due to students' performance in these two important subjects when compared to the OECD average. According to the report published by the National Institute for Educational Studies and Research (BRASIL, 2016), Brazil showed average scores in Reading ( $\bar{x} = 407$ ) and Mathematics ( $\bar{x} = 377$ ) statistically inferior to OECD average scores in these two areas, based on Pisa 2015 data:  $\bar{x}_{\text{leituraOCDE}} = 493$  e  $\bar{x}_{\text{matemáticaOCDE}} = 490$ .

### Analysis of data

Initially, descriptive analyzes were performed in order to draw a profile of the sample. In order to reduce the number of variables under study, exploratory factor analyzes were conducted using the principal axis factoring extraction method, which ensures, through linear combinations, the reduction of data in order to make information more representative. To interpret the composite variables, we used the varimax rotation technique, which simplifies the factors while maximizing the variance of the saturation coefficients in the factors themselves and between the variables (FIGUEIREDO FILHO; SILVA JUNIOR, 2010). In all, six factors were identified. Table 1 shows in detail the general characteristics of these factors, as well items' internal consistency, indicated by Cronbach's alpha ( $\alpha$ ).

The study used two-step clusters analysis to identify homogeneous groups in the sample which are related to two factors: (1) teachers' perceptions of faculty-related conditions – quality and quantity of teachers in the school (corresponding to letter *e* in Table 1); and (2) the conditions related to physical and material infrastructure (corresponding to letter *f* in Table 1). For the present study, we chose the two-step method because of our large database, which contains more than 1,000 respondents (NORUŠIS, 2010).

Results of this analysis indicated the presence of two groups of teachers: those with a more positive view of working conditions (57%) and those with a less positive view of working conditions (43%). Thus, a dichotomous variable was created, with group 1 consisting of teachers who have a more negative perception of working conditions, while group 2 is composed of teachers who have a more positive view of working conditions.

Finally, in addition to the factors presented in Table 1 and the dichotomous variable on teachers' view of working conditions, the analyzes also include a second dichotomous variable, namely "desire to become a teacher", presenting the following groups: group 1 – teachers who wanted to pursue a teaching career by the end of high school; and group 2 – teachers who did not want to

teach by the end of high school. This variable was taken directly from the Pisa 2015 teachers' questionnaire (variable TC013: After completing secondary education, was your goal to pursue a career in the teaching profession?).

**TABELA 1 - Characteristics of Factors Identified in the Study**

FACTOR	ITEM MEASUREMENT SCALE	EXAMPLES OF QUESTIONNAIRE ITEMS	NUMBER OF ITEMS	MEAN (STANDARD DEVIATION)	CRONBACH'S $\alpha$
<b>(a)</b> Professional Engagement	Totally disagree (1) to Totally agree (4)	"If I could choose again, I would still choose to work as a teacher" "The advantages of being a teacher are greater than the disadvantages"	4 items	2.84 (0.69)	0.782
<b>(b)</b> Job Satisfaction	Totally disagree (1) to Totally agree (4)	"I like to work at this school" "I recommend this school as a good place to work"	3 items	3.32 (0,54)	0.805
<b>(c)</b> Interaction with Peers	Never (1) to At least once a week (6)	"You observe other teachers' classes and give feedback" "You exchange teaching material with your peers"	8 items	3.50 (1.10)	0.850
<b>(d)</b> Interaction with School Management	Totally disagree (1) to Totally agree (4)	"The school management treats teachers in a professional way" "The school management ensures that teachers are involved in the school's decision-making process"	5 items	3.13 (0.67)	0.911
<b>(e)</b> Faculty-related Conditions	Not at all (1) to A lot (4)	"Teacher shortage" "Poorly qualified teachers"	4 items	1.99 (0.79)	0.811
<b>(f)</b> Conditions Related to Physical and Material Infrastructure	Not at all (1) to A lot (4)	"Lack of teaching material" "Poor quality of physical infrastructure"	4 items	2.35 (0.94)	0.896

Source: Prepared by the authors.

Group comparison tests (Student's t-test for independent samples) were performed, as well as two linear regression analyzes, with job satisfaction and professional engagement as dependent variables. All analyzes were performed using SPSS software – version 24 (IBM-CORPORATION, 2016).

## RESULTS AND DISCUSSION

Teachers' mean age in the studied sample is 40 years, and women are the majority (63.8%). The average length of service as a teacher was 15 years, with 7.6 years dedicated to the school they taught at when they answered the Pisa

questionnaire. They also have a history of organizational mobility with an average of six different schools throughout their careers. With regard to the type of contract and working hours at their school, most teachers report they have a permanent contract (76.3%). With regard to training, most teachers who answered the questionnaire have a degree – i.e., a licensure or a bachelor’s degree (88,9%).

Of the Portuguese and Mathematics teachers, 63% reported they wanted to pursue a teaching career by the end of high school. This result is in line with the study of Gatti and Barretto (2009) which indicates the interest by 65% of teachers in pursuing a teaching career in Brazil. Based on cross-reference data and on comparison of means (t-test), we can see that the intention (or lack thereof) to pursue a teaching career by the end of high school is statistically associated with the four factors under analysis presented in Table 2. Table 2 shows that the teachers who wanted to enter the profession by the end of high school are the ones who present, on average, greater professional engagement, greater job satisfaction, a more harmonious relationship with the school management and greater interaction with peers compared to those who said they had no intention to pursue the career by the end of high school.

**TABLE 2 – Mean (and standard error) for some of the factors identified in the study for both groups of teachers defined by prior intention to pursue a teaching career**

FACTOR	INTENTION TO PURSUE TEACHING CAREER BY THE END OF HIGH SCHOOL?		
	YES	NO	COMPARISON BETWEEN GROUPS
<b>(a)</b> Professional Engagement	2.99 (0.02)	2.58 (0.02)	p < 0.01
<b>(b)</b> Job Satisfaction	3.38 (0.01)	3.24 (0.02)	p < 0.01
<b>(c)</b> Interaction with Peers	3.64 (0.03)	3.29 (0.04)	p < 0.01
<b>(d)</b> Interaction with School Management	3.18 (0.02)	3.05 (0.03)	p < 0.01

Source: Prepared by the authors.

Studies indicate that choosing the teaching profession is often due to reasons not associated with an interest in the career, but rather due to ease of entering programs with less competitive selection processes (GATTI; BARRETTO, 2009). For the group of teachers who did not want the teaching career at the beginning of the training process, their experiences throughout the profession can be related to less harmonious work trajectories compared

to the group of teachers who report having entered the profession because they were interested in pursuing this career.

With regard to teachers' perceptions of working conditions, 57% of them presented a view that tends to be positive in relation to working conditions, including the quality of teaching materials, physical infrastructure, as well as the quality and quantity of human resources in schools (teachers, support staff, etc.). Table 3 shows that interactions between peers and school management, as well as job satisfaction and professional engagement, tend to be higher on average for the group of teachers who have a more positive view of working conditions.

As for interpersonal relationships, we resume Mukamurera and Balleux (2013), who point to teachers' ties with the school management as one of the features related to permanence in the teaching career. Relationships with peers also emerge in the study conducted by Maroy (2008) on teaching in Belgium as an important feature when considering job satisfaction and a harmonious career path.

**TABLE 3 - Mean (and standard error) for some of the factors identified in the study for the two groups of teachers defined by their perception of working conditions**

FACTOR	PERCEPTION OF WORKING CONDITIONS		
	POSITIVE	NEGATIVE	COMPARISON BETWEEN GROUPS
(a) Professional Engagement	2.99 (0.02)	2.72 (0.02)	p < 0.01
(b) Job Satisfaction	3.48 (0.02)	3.20 (0.02)	p < 0.01
(c) Interaction with Peers	3.67 (0.04)	3.36 (0.03)	p < 0.01
(d) Interaction with School Management	3.34 (0.02)	2.96 (0.02)	p < 0.01

Source: Prepared by the authors

Two linear regression analyzes were performed. The first had professional engagement as the dependent variable (Table 4). Initially, in this analysis that generated model 1, the result revealed desire to become a teacher ( $B = -0.39$ ,  $p < 0.01$ ) and perception of work conditions ( $B = 0.23$ ,  $p < 0.01$ ) as predictors of professional engagement. Thus, teachers who report a desire to pursue a teaching career by the end of high school, as well as those who have a more positive view of working conditions, are the ones who tend to be more engaged in the career.

At a second stage (model 2), by introducing job satisfaction ( $B = 0.49$ ,  $p < 0.01$ ), the explanatory power of the professional engagement prediction model increased, as shown in Table 4. Thus, teachers who express satisfaction with their job are also more likely to feel engaged in the teaching career.

However, at a third stage (model 3), when the variables *interaction with peers* ( $B = 0.09$ ,  $p < 0.05$ ) and *interaction with school management* ( $B = 0.01$ ,  $p = n.s.$ ) are included, it seems that the latter has no power to influence professional engagement. Thus, greater interaction with peers tends to generate greater career engagement, but interaction with the principal is not a factor that can influence teachers' professional engagement.

These results indicate that job satisfaction, desire to become a teacher, perception of working conditions and interaction with peers are the variables that contribute to the variation in teachers' professional affective engagement. This finding corroborates results of previous research which highlight these relationships. For example, the studies of Barroso da Costa (2014, 2018) and Barroso da Costa and Loye (2016), conducted with Canadian teachers, indicate the importance of job satisfaction as a predictor of teachers' professional engagement. Our findings also agree with several Brazilian studies which point out that the greater the teachers' satisfaction about their job and their positive perception of working conditions, the greater the likelihood of identification, involvement and engagement with the profession (GATTI; BARRETTO, 2011; NUNES; OLIVEIRA, 2017; MASSON, 2017).

Previous research shows that interactions in the workplace are linked to feelings of pleasure and, consequently, to the interest in staying in the profession due to affective bonds created in the workplace (JONES; YOUNGS, 2012). However, interaction with the school management was not a predictor of the teachers' professional affective engagement.

Our results do not corroborate those found by Mukamurera and Balleux (2013), which indicated the importance of management support for retaining teachers in the career and highlighted the lack of support from principals as one of the factors related to teacher drop-out.

**TABLE 4 – Estimates (and standard errors) of parameters of the adjusted Linear Regression Model for *professional engagement***

VARIABLES	MODEL 1		MODEL 2		MODEL 3	
	ESTIMATES (S.E.)	P-VALUE	ESTIMATES (S.E.)	P-VALUE	ESTIMATES (S.E.)	P-VALUE
Desire to become a teacher	-0.39 (0.03)	< 0.01	-0.33 (0.03)	< 0.01	-0.32 (0.03)	< 0.01
Perception of working conditions	0.23 (0.03)	< 0.01	0.09 (0.03)	< 0.01	0.09 (0.03)	< 0.01
Job satisfaction	–	–	0.49 (0.03)	< 0.01	0.47 (0.03)	< 0.01
Interaction with peers	–	–	–	–	0.04 (0.01)	< 0.05
Interaction with school management	–	–	–	–	0.01 (0.02)	n.s.
MODEL ADJUSTMENT STATISTICS						
<b>F statistic</b>	118.30		344.52		4.15	
<b>R<sup>2</sup></b>	0.11		0.24		0.24	
<b>Adjusted R<sup>2</sup></b>	0.11		0.24		0.24	

Source: Prepared by the authors.  
n.s. = not significant.

The second regression analysis was performed with job satisfaction as the dependent variable (see Table 5). In the first stage of this analysis (model 1), desire to become a teacher ( $B = -0.11$ ,  $p < 0.01$ ) and perception of working conditions ( $B = 0.28$ ,  $p < 0.01$ ) were found to be predictors of job satisfaction. This means that teachers who reported being interested in pursuing a teaching career by the end of high school, as well as those who have a more positive view of working conditions, tend to feel more satisfied with their work routine.

**TABLE 5 –Estimates (and standard errors) of parameters of the Linear Regression Model adjusted for *job satisfaction***

VARIABLES	MODEL 1		MODEL 2	
	ESTIMATES (S.E.)	P-VALUE	ESTIMATES (S.E.)	P-VALUE
Desire to become a teacher	-0.11 (0.02)	< 0.01	-0.06 (0.02)	< 0.05
Perception of working conditions	0.28 (0.02)	< 0.01	0.13 (0.02)	< 0.01
Interaction with peers	–	–	0.07 (0.01)	< 0.01
Interaction with school management	–	–	0.35 (0.01)	< 0.01
MODEL ADJUSTMENT STATISTICS				
<b>F Statistics</b>	85.97		206.02	
<b>R<sup>2</sup></b>	0.08		0.30	
<b>Adjusted R<sup>2</sup></b>	0.08		0.29	

Source: Prepared by the authors.

In a second stage, there is an increase in the explanatory power of model 2 for job satisfaction with the inclusion of the variables interaction with peers ( $B = 0.07$ ,  $p < 0.01$ ) and with school management ( $B = 0.35$ ,  $p < 0.01$ ). This means that an increase in interactions at school is associated with teachers' increased satisfaction with their work. Iório and Lelis (2015) point out that the progressive precariousness of teaching is often due to management demands, which leads us to consider that this may explain the relationship with management as a factor associated with job satisfaction, which concerns contextual issues the individual is situated in.

Likewise, Taylor and Tashakkori (1995) emphasize the importance of professional relationships for building a positive organizational climate, which contributes to greater job satisfaction and a greater feeling of effectiveness by teachers. Finally, a study conducted by Maroy (2008) points out the relationship of teachers with their peers and with the school management as an important factor associated with job satisfaction.

## CONCLUSION

The teaching profession is pervaded by numerous challenges, which increasingly require new skills from teachers in terms of task organization or class management (MAROY, 2006, 2008; GATTI; BARRETTO, 2009). Such challenges translate into the current work reality which, being discouraging for some teachers, can lead to a high teacher dropout rate (ENS *et al.*, 2014). However, given the contemporary context of the teaching work, often considered painful – low salaries, a permanent decline in the profession's prestige and a heavy workload (extracurricular activities, class planning, learning assessment, interaction with parents, educational and administrative meetings) –, we also saw that there are factors which can contribute for teachers to remain engaged in their profession (job satisfaction, desire to become a teacher, a more positive career perception and interaction with peers).

According to Masson (2017) and Gatti and Barretto (2009), the factors that can positively influence teachers' permanence in the career are related to affective aspects, such as the feeling of playing an important social role, love for the profession, interactions in the work environment or simply the well-being from fulfilling teaching tasks. Similarly to these studies, our results, based on data from Pisa 2015, show that those who would like to pursue the career are more affectively engaged in the profession and more resilient.

As highlighted by Ens *et al.* (2014, p. 518-519, free translation):



[...] teachers who express their intention stay in the profession show representations strongly related to their affective bond with students and with the purpose of their work, which is viewed as a mission. In this respect, teachers' representations are marked by a romanticized view without a critical analysis of the political aspects and of the lack of objective working conditions, which is still a reality in the country.<sup>2</sup>

Moreover, we emphasize that, in line with several studies which demonstrate the importance of interpersonal relationships between teachers, as well as between teachers and school management (MAROY, 2008; MUKAMURERA; BALLEUX, 2013; BARROSO DA COSTA, 2018), the present study revealed that interactions in the school environment are associated with job satisfaction and professional engagement. Teaching requires establishing human contact, as well as the ability to interact, to be sensitive of what others experience and feel, in a process that involves constantly adjusting to the work environment. Professional engagement as a dynamic process is therefore influenced by organizational and emotional aspects.

This study has some limitations. Firstly, it does not delve into aspects related with initial and continuing teacher education, which, it is worth stressing, are often associated with the construction of a solid and successful career (BARBOSA, 2014; VIDAL; VIEIRA, 2017). Good teachers have a solid, practice-focused education, and their teaching is also connected to theory, which gives them confidence to exercise the profession and allows developing a positive professional experience. Teacher education characteristics are commonly associated with professional and affective engagement, as well as with the emotions experienced in the classroom and the ties established with students (DA-COSTA LASNE, 2012; BASQUE, 2014). All these aspects found in the literature are important for teachers to establish their attitude towards teaching (LIZZIO; WILSON; SIMONS, 2002).

In addition, the Pisa 2015 questionnaire does not cover issues regarding

**2** In the original: "[...] os professores que se manifestam a favor da permanência na profissão evidenciam representações fortemente atreladas ao vínculo afetivo com os alunos e com a finalidade de seu trabalho, assumido como uma missão. Nesse sentido, as representações dos professores são marcadas por uma visão romantizada sem uma análise crítica dos aspectos políticos e da falta de condições objetivas de trabalho, que ainda é uma realidade no país".

teachers' perceptions of their interaction with their students, an aspect that has been studied in previous research and is also associated with job satisfaction and professional affective engagement (BARROSO DA COSTA, 2014). It is worth noting that the factors studied in the present research do not fully encompass the complexity of the phenomenon of professional affective engagement, but they bring up issues that deserve extensive discussion regarding teacher recognition, such as teachers' relationship with peers, with school management and how they perceive their professional choice and working conditions.

Finally, student success is not the responsibility of teachers alone, however, it is a consensus that teachers' satisfaction with and engagement in their work play a fundamental role in improving the quality of education.

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