

## Teaching self-efficacy in inclusive education and characteristics of the teaching context

### Autoeficácia docente na educação inclusiva e características do contexto de ensino

### Autoeficacia docente en educación inclusiva y características del contexto docente

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#### Abstract

The objective of this study was to describe the association of teachers' self-efficacy in inclusive educational practices with variables of the teaching context and teachers' characteristics. There were 193 teachers in basic education, 77.72 % female and 22.28 % male from private, confessionnal and public state schools located in the municipalities of Belém and Castanhal, Pará, Brazil. The instruments of characterization and the scale of effectiveness of teachers in inclusive educational practices were applied. The data analysis techniques were factorial analysis and correspondence analysis. Among the results found, associations between the investigated variables were verified, which suggests that when judging one's own capacity in inclusive educational practices, the teacher considers some factors present in the context and in his or her teaching path. It is hoped that this study can contribute to the stimulation of continued teacher education in the inclusive context.

**Keywords:** self-efficacy; school inclusion; teacher

#### Resumo

O objetivo deste estudo foi descrever a associação da autoeficácia de professores em práticas educacionais inclusivas com variáveis do contexto de ensino e características dos docentes. Participaram 193 professores da educação básica, sendo 77,72 % do sexo feminino e 22,28 % do sexo masculino de escolas particulares, confessionais e públicas estaduais localizadas nos municípios de Belém e Castanhal, Pará, Brasil. Foram aplicados os instrumentos de caracterização e a escala de eficácia de professores em práticas educacionais inclusivas. As técnicas de análise de dados foram a análise fatorial e a análise de correspondência. Dentre os resultados encontrados, verificaram-se as associações entre as variáveis investigadas, o que sugere que ao julgar a própria capacidade em práticas educacionais inclusivas, o professor considera alguns fatores presentes no contexto e em sua trajetória docente. Espera-se que este estudo possa contribuir com o estímulo a formação continuada de professores no contexto inclusivo.

**Palavras-chave:** autoeficácia; inclusão escolar; docente



### Resumen

El objetivo de este estudio fue describir la asociación de la autoeficacia de los docentes en las prácticas educativas inclusivas con las variables del contexto de enseñanza y las características de los docentes. Participaron 193 docentes de educación básica, 77.72 % mujeres y 22.28 % hombres de escuelas privadas, confesionales y públicas estatales ubicadas en los municipios de Belém y Castanhal, Pará, Brasil. Se aplicaron instrumentos de caracterización y la escala de efectividad de los docentes en prácticas educativas inclusivas. Las técnicas de análisis de datos fueron análisis factorial y análisis de correspondencia. Entre los resultados encontrados, se verificaron asociaciones entre las variables investigadas lo que sugiere que, al juzgar su propia capacidad en prácticas educativas inclusivas, el docente considera algunos factores presentes en el contexto y en su trayectoria docente. Se espera que este estudio pueda contribuir a estimular la formación continua de los docentes en un contexto inclusivo.

**Palabras clave:** autoeficacia; educación inclusiva; docente

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The basic premise of inclusive education is that schools should educate all students, regardless of their differences of skills, culture, gender, language, class, and ethnicity. Thus, classrooms are becoming more heterogeneous as a result of a worldwide movement toward the inclusion of students with special educational needs within regular schools (Sharma et al., 2012; Yada et al., 2018). As schools become more inclusive, teachers need to adjust behaviors and teaching methodologies to better accommodate children with different abilities (Nina et al., 2020; Yada et al., 2018).

From this perspective, it is essential that teachers feel prepared and committed to building the inclusive school, since they have a central role in identifying, monitoring students, and creating feelings of belonging and incentives for participation and motivation for all (Bzuneck, 2017). To this end, it is important that teachers exhibit robust self-efficacy to feel confident in the inclusive context.

Teacher self-efficacy is defined as the belief in one's own ability to organize and execute courses of action necessary to successfully accomplish a specific teaching task in a particular context (Tschannen-Moran et al., 1998). For Bandura (1997) self-efficacy is formed from four sources, namely: (a) mastery experiences, considered the source of greatest influence on behavior, refers to the perception of competence in performing a task based on an authentic success experience; (b) vicarious experiences refers to the alteration of self-efficacy beliefs through observation of peers. This allows the subject to make comparisons in light of the achievements of others, so that the greater the similarity assumed with the model, the more persuasive are the successes and failures; (c) social persuasion occurs through feedback and verbal encouragement from other people who contribute to strengthening or not the belief; (d) affective and physiological states, such as stress, anxiety, tension, mood states, fatigue level, pain, among others are manifestations that can alter the perception of self-efficacy.

Empirical evidence attests that a high sense of efficacy can encourage teachers to make substantial efforts to organize, plan, and deliver their lessons, as well as exhibit different and more complex educational practices than teachers with low levels of efficacy (Tümkeya & Miller, 2020). Teachers with high levels of self-efficacy are also more willing to use a variety of teaching approaches to support and include students with

special educational needs in inclusive classrooms (Kiel et al., 2019). In contrast, teachers with low self-efficacy tend to persist with low-performing students without adapting teaching strategies to meet their needs (Sharma et al., 2012).

In addition to the issue related to teachers' continuing education, several studies have faced the challenge of identifying the relationship between self-efficacy and different factors, such as aspects related to the teaching context, teachers' characteristics, etc. Studies have been dedicated to verifying the relationship between teacher self-efficacy and some variables of the teaching context, such as length of time in teaching, experience with working with students targeted for special education (Özokcu, 2018; Yada et al., 2019) and teacher characteristics such as academic background, degrees, and continuing education (Dimitrios et al., 2020; Özokcu, 2018). These variables should be considered as aspects that can directly interfere with the performance of the teacher's work, especially when it comes to education in the inclusive context (Dimitrios et al., 2020; Tümkaya & Miller, 2020).

Therefore, revealing the relationship between teacher self-efficacy and the variables of the teaching context and teacher characteristics will help professionals build actions that develop positive beliefs in teachers regarding the challenges posed by inclusion. Considering the theoretical relevance and especially the absence of this topic in the northern region of Brazil, this study aims to investigate the association of teachers' self-efficacy in inclusive educational practices with variables of the teaching context and teacher characteristics.

## Materials and method

### Type of study

This is an empirical, quantitative, descriptive and inferential study.

### Participants

This study was carried out with 193 basic education teachers, working in regular basic education classes in the cities of Belém and Castanhal, both located in the state of Pará, northern region of Brazil. This is a non-random, convenience sample. Table 1 shows the distribution of teachers per school and per municipality.

**Table 1**

*Distribution of participating teachers per school and per municipality*

Belém		Castanhal	
SAS	Quant. teachers	SAS	Quant. teachers
Private	30	Private	33
Private and confessional	30	Private and confessional	30
Statewide	39	Statewide	31
Total	99	Total	94

*Note.* SAS: School administrative sphere; Quant. teachers: Quantity of teachers.

Regarding the characteristics of the teachers, there was a predominance of female participants (77.72 %), and the most frequent age group was 20-29 years old. Most of the teachers, 23.49 % ( $n = 39$ ), had been teaching for 10 to 14 years. Regarding the provision of continuing education, 57.51 % ( $n = 111$ ) of the teachers reported that they receive training in inclusive education. Regarding the experience with students of the target public of special education, 75.13 % ( $n = 154$ ) said they had experience with this public. As for academic background, 48.19 % had a degree in pedagogy, and 53.37 % ( $n = 103$ ) of the teachers had a specialization course.

## Environment

The data collection took place in private, private confessional, and state public schools in the cities of Belém and Castanhal (table 1).

## Data collection instruments

For data collection two instruments were used, namely (1) questionnaire of characterization of the participant, with the objective of outlining a profile of the study population, applied to basic education teachers; (2) Escala de Eficácia Docente para Práticas Inclusivas (EEDPI), which is an instrument translated, adapted and validated for the Brazilian context by Martins and Chacon (2020) from The Teacher Efficacy for Inclusive Practices Scale (TEIP) by Sharma et al. (2012). Its validated version is composed of 16 items with Likert responses distributed from 1 (*strongly disagree*) to 6 (*strongly agree*).

## Data collection procedures and ethical considerations

This research was approved by the Ethics Committee of the Federal University of Pará, under number 2.051.363, and duly authorized by the respective administrative spheres of the educational institutions (managers of each school).

## Data analysis

The statistical techniques involved in this study were factor analysis (FA) and correspondence analysis (CA). For the proposed analyses, the following variables were considered: Index of teacher self-efficacy in inclusive practices, teaching context variable, and teacher characteristics.

Through the FA, indices were constructed (factors per variable) referring to the investigated elements and an overall index of teacher self-efficacy for inclusive practices. However, for the application of the technique the following assumptions were met: (a) testing and identification of normalities and discrepancies (discrepant values in the data set); (b) analysis of the correlation matrix: correlations should be equal or greater than 0.30; (c) Kaiser-Meyer-Olkin (KMO) statistic to verify the adjustment of the factor analysis; (d) Bartlett's test of sphericity; (e) Sample Adequacy Measure (SAM) to verify if the variable under study is appropriate for the use of FA; (f) Kaiser's criterion to determine the amount of equations needed to construct the indices; (g) calculating the factorial scores (indices) for each teacher by multiplying the individual values assigned to each question by teacher by the factorial weights; (h) standardizing the values obtained so that they could be evaluated on a scale of 0 to 1 or 0 to 100 % (Fávero et al., 2009). In all phases, the variables proved adequate for FA, and it was possible to calculate all indices (table 2). The software Statistical Package for the Social Sciences (SPSS), version 25.0.0.0 was used to perform the FA.

Correspondence analysis was used to find and characterize groups (clusters) according to the factorial scores in relation to the investigated variables. This is an interdependence technique that aims to optimally represent the structure of the observed data (Ramos et al., 2018). Its main feature is the reduction of the data to be analyzed by the researcher with minimal loss of information, transforming the rows and columns of the tables into corresponding units, facilitating the joint representation of the data (Morettin & Bussab, 2017).

**Table 2**

*Statistics resulting from the application of factor analysis technique to the variables necessary for the construction of the teacher self-efficacy index in inclusive practices*

Variable	KMO	Bartlett Sphericity	% Var.	SAM	Commun.	Correlation ( <i>r</i> )	Factorial Scores
I can make clear to students what my expectations are regarding their behaviors.	0.908	$\chi^2 = 1677.02$ $p = 0.000$	63.16	0.942 <sup>a</sup>	0.54	0.59	1.130
I am able to calm down a disruptive/noisy student.				0.921 <sup>a</sup>	0.64	0.61	1.253
I can make parents feel comfortable coming to school.				0.884 <sup>a</sup>	0.62	0.66	1.287
I can help families to help their children do well in school.				0.886 <sup>a</sup>	0.64	0.63	1.270
I can accurately assess the student's understanding of what I have taught.				0.929 <sup>a</sup>	0.59	0.76	1.350
I can propose appropriate challenges for very capable students.				0.895 <sup>a</sup>	0.58	0.73	1.314
I am confident in my ability to prevent disruptive behavior from occurring in the classroom.				0.897 <sup>a</sup>	0.78	0.65	1.430
I can control disruptive behavior in the classroom.				0.882 <sup>a</sup>	0.75	0.69	1.439
I am confident in my ability to involve parents in the school activities of their children with disabilities.				0.931 <sup>a</sup>	0.56	0.73	1.293
I am confident in planning educational activities so that the individual needs of students with disabilities are adequately met.				0.891 <sup>a</sup>	0.64	0.72	1.355
I am able to get the children to follow the classroom rules.				0.920 <sup>a</sup>	0.59	0.73	1.320
I can work collaboratively with other professionals in developing educational plans for students with disabilities.				0.895 <sup>a</sup>	0.59	0.65	1.238
I am able to work together with other professionals and staff to teach students with disabilities in the classroom.				0.919 <sup>a</sup>	0.60	0.74	1.342
I am confident in my ability to get students to work together in pairs or small groups.				0.910 <sup>a</sup>	0.48	0.68	1.154
I am capable of a variety of assessment strategies.				0.914 <sup>a</sup>	0.64	0.74	1.382
I am confident in providing information about the laws and policies related to the inclusion of students with disabilities to people who don't know too much about this subject.	0.923 <sup>a</sup>	0.75	0.61	1.365			

*Note.* KMO: Kaiser-Meyer-Olkin Statistics;  $\chi^2$ : Chi-square value;  $p$ : Descriptive Level; % Var.: % Factor Explained Variance; SAM: Sample Adequacy Measure; Commun.: Communality.

<sup>a</sup> SAM greater than 0.5 are the appropriate variables to remain in the index construction process.

In the correspondence analysis, associations between categories were considered significant when the confidence coefficient ( $\gamma$ ) was 70 % or more (Morettin & Bussab, 2017). Correspondence analysis was performed with the help of the statistical application, version 6.0. In all tests,  $\alpha = 5\%$  ( $p \leq 0.05$ ) was set for rejection of the null hypothesis. The following steps were necessary to validate the correspondence analysis technique: (a) chi-square test ( $\chi^2$ ) to verify the existence of dependence between the variables under study. The hypotheses tested are H0: the variables are independent and H1: the variables are dependent. The null hypothesis (H0) must be rejected for the correspondence analysis to proceed; (b) calculation of the  $\beta$  criterion, to verify the dependence between the categories of the variables; (c) calculation of the inertia percentage, referring to the variation explained by each dimension; (d) calculation of the confidence coefficient ( $\gamma$ ) to know what the probability is that a variable category is associated, using a procedure based on residuals in which it is defined by the difference between the expected and observed frequencies, for this we used a procedure based on residuals that considers the difference between the expected and observed frequencies (Ramos et al., 2018).

Participants were classified in the variable Teacher self-efficacy for inclusive practices from the value of sample quartiles (Morettin & Bussab, 2017), into one of three groups/categories: low (0 %-53.22 %) when the participant's score value is less than the first quartile value (Q1); moderate (53.23 %-76.73 %) when the participant's score value is greater than or equal to the first quartile value (Q1) and less than the third quartile value (Q3); and high (76.74 %-100 %) when the participant's score value is greater than the third quartile value (Q3).

The other variables were categorized as follows: a) characteristics of the teaching context (administrative sphere of the educational institution: state public school; private school and private and confessional school) and b) characteristics of the teacher: (b.1) academic training (degree in Pedagogy; degree in pedagogy and another degree magisterial superior level; another degree or graduation); (b.2) degree (specialist, master's and doctorate); (b.3) time of acting (<5; 5 to 9; 10 to 14; 15 to 19; 20 to 24 and  $\geq 25$ ); (b.4) experience with special education student (yes and no). It was not necessary to construct indexes for these variables.

## Results

The results of the correspondence analysis indicated associations and similarities among the research participants based on characteristics established through the associations of the index of teacher self-efficacy in inclusive education practices, the characteristics of the teaching context, and the characteristics of the teachers. Table 3 shows the statistics resulting from the application of the correspondence analysis technique to the teacher self-efficacy in inclusive practices (TSEIP), characteristics of the teaching context, and teacher characteristics.

**Table 3**

*Statistics resulting from the application of the correspondence analysis technique to the variables: TSEIP, the variables of teaching context and teacher characteristics*

Variables	$\chi^2$	R	C	$\beta$	% Inertia	p
TSEIP versus administrative sphere	274.09	3	3	135.04	100.00	.000
TSEIP versus academic training	150.84	3	3	73.42	100.00	.000
TSEIP versus titling	65.53	3	3	30.77	100.00	.000
TSEIP versus time of acting	79.83	6	3	22.08	100.00	.000
TSEIP versus experience with special education student	42.00	2	3	28.28	100.00	.000

*Note.*  $\chi^2$ : Chi-square value; R: Number of Categories of Variable Row; C: Number of Categories of the Variable Column;  $\beta$ : Beta Criterion Value; p: Descriptive Level.

The values of the descriptive level (p) less than the significance level of .05 (5 %) and the Beta Criterion ( $\beta$ ) greater than or equal to 3, indicate that both the variables and their categories are dependent (table 3). Furthermore, it can be observed that the sum of the inertia percentages indicates that more than 70 % of the information was returned by CA. Thus all the assumptions for using the correspondence analysis technique were satisfied.

#### **Associations based on the teacher self-efficacy index in inclusive education practices and the characteristics of the teaching context**

Table 4 presents the probabilities of association of the TSEIP index and the characteristics of the teaching context in the investigated sample of teachers, from the residuals and confidence levels achieved through CA.

**Table 4**

*Residuals and confidence levels (in parentheses), resulting from the application of the correspondence analysis technique to the variables: TSEIP and the teaching context variable*

	TSEIP					
	Belém			Castanhal		
School	Low	Moderate	High	Low	Moderate	
administrative sphere						
Private	-0.48(0.00)	-0.68(0.00)	1.42( <b>84.38</b> )*	-7.12(0.00)	4.60( <b>100.00</b> )*	
Private and confessional	-2.55(0.00)	0.06(4.54)	2.44( <b>98.54</b> )*	-5.65(0.00)	-0.68(0.00)	
Statewide	4.81( <b>100.00</b> )*	0.26(0.00)	-4.41(0.00)	10.48( <b>100.00</b> )*	-3.18(0.00)	

*Note.* \*\* Moderately significant probabilities, as  $50\% \leq \gamma \times 100 \leq 70\%$ .

\* Strongly significant probabilities, as  $\gamma \times 100 \geq 70\%$ .

Considering that the CA aims to group sample elements, situating their similar characteristics, it was identified from the residuals and confidence levels achieved through CA (Ramos et al., 2018), and based on the variable teacher self-efficacy for inclusive practices and the variable of teaching context, three groups of teachers, namely: (1) low scores; (2) moderate scores; (3) high scores.

Table 4 shows that teachers with high self-efficacy scores are those who work in the confessional schools in Belém and Castanhal. It was also noted that teachers who work in state public schools in the cities of Belém and Castanhal have low scores of teacher self-efficacy for inclusive practices. On the other hand, teachers who showed moderate scores of self-efficacy for inclusive practices are the private school of Castanhal.

### Associations based on the Index of teacher self-efficacy for inclusive practices and teacher characteristics

As in the previous analysis all assumptions for using the correspondence analysis technique were satisfied, namely: The values of the descriptive level ( $p$ ) less than the significance level of .05 (5 %) and of the Beta Criterion ( $\beta$ ) greater than 3. The sum of the percentages of inertia indicated that 100 % of the information was returned by the CA. Thus, we proceeded to study the probability of occurrence of these factors in the sample of teachers investigated, which can be seen in table 5.

**Table 5**

*Residuals and confidence levels (in parentheses), resulting from the application of the correspondence analysis the variables: TSEIP index and those of teaching activity*

Variable	Category	TSEIP		
		Low	Moderate	High
Academic training	Pedagogy	-5.31(0.00)	-0.62(0.00)	6.13( <b>100.00</b> )*
	Pedagogy and another degree	0.05(4.13)	-1.15(0.00)	1.57( <b>88.43</b> )*
	Another degree	5.54( <b>100.00</b> )*	1.08( <b>72.19</b> )*	-7.00(0.00)
Titling	Specialist	1.57( <b>88.35</b> )*	-0.99(0.00)	-0.16(0.00)
	Master's	-1.19(0.00)	-0.60(0.00)	2.01(95.59)
Time of acting	< 5	0.83( <b>59.32</b> )**	0.43(33.16)	-1.42(0.00)
	5 a 9	-2.97(0.00)	1.48( <b>86.02</b> )*	0.87( <b>61.51</b> )**
	10 a 14	3.91( <b>99.99</b> )*	-1.54(0.00)	-1.71(0.00)
	15 a 19	3.51( <b>99.96</b> )*	-3.22(0.00)	1.04( <b>70.12</b> )*
	20 a 24	-0.57(0.00)	0.05(3.89)	0.50(38.02)
	≥ 25	-3.88(0.00)	2.12( <b>96.59</b> )*	0.87( <b>61.79</b> )**
Experience with special education student	Yes	2.33( <b>98.00</b> )*	-0.04(0.00)	-2.24(0.00)
	No	-4.04(0.00)	0.07(5.74)	3.90( <b>99.99</b> )*

Note. \*\* Moderately significant probabilities, as  $50 \% \leq \gamma \times 100 \leq 70 \%$ .

\* Strongly significant probabilities, as  $\gamma \times 100 \geq 70 \%$ .

Taking the index of teacher self-efficacy in inclusive practices as the central axis, it was possible to delineate three groups of teachers: (1) low efficacy scores for inclusive practices; (2) moderate efficacy scores for inclusive practices; (3) high self-efficacy scores for inclusive practices. These groups were analyzed considering the variables academic background, degree, time in the teaching profession, and experience with target students in special education.

It was noted that teachers with high self-efficacy scores had an academic background in pedagogy and another degree. It was noticed that teachers with specialist degrees had low scores of teacher self-efficacy in inclusive practices. Low self-efficacy scores were also



associated with teachers who had been working with students targeted for special education for less than 5 years; moderate and high self-efficacy were associated with participants who had been working between 5 and 9 years. Teachers with tenure between 15 to 19 years and  $\geq 25$  years had high self-efficacy scores. Finally, teachers who had no experience with special education students had high self-efficacy scores for inclusive practices.

## Discussion

### **Associations of teacher self-efficacy index in inclusive education practices with the characteristics of the teaching context**

The results indicated that the self-efficacy scores in inclusive education practices of public school teachers in the cities of Belém and Castanhal were low in relation to the data found in private schools, and the confessional private schools in the same cities. This result may be related to the possibility that teachers from public schools participate less frequently in continuing education programs, especially those specific to inclusive education, than teachers from private schools, and for this reason they have low self-efficacy beliefs.

Teachers, who are the main agents of inclusion, do not always possess or complete their training with the necessary competence, motivation, and attitudes to meet the challenges posed by an inclusive education system (Cardona-Molto et al., 2020). It has been found in previous research that most teachers lack knowledge about inclusive practices and do not receive this type of training both initial and continuing (Özokcu, 2018; Yada & Savolainen, 2017). Thus, the lack or deficient training of these teachers or even the lack of perspective regarding professional growth may justify the results presented here.

The financial rewards and characteristics of the schools' administrative spheres may also help to understand in part the discrepancies found between public and private schools. The main benefits for those teachers who work in the public sector are stability and starting salary, in addition to receiving career progression. With this, the workers are guaranteed the possibility of increasing their salary reference and of moving up in level/class. The salary floor for professionals in the public network of basic education at the beginning of their careers, with a workload of 40 hours, was readjusted according to State Law 1.036/2019 according to the percentage established by the Ministry of Education, of 12.84 % in 2020, going from R\$ 2,557.74 to R\$ 2,886.24. However, the government of the State of Pará did not make the payment of the salary floor with the justification related to the budgetary, financial, and legal impediments, which prevent the government from granting an increase in the remuneration of these employees. In addition to being very close to the limit established by the Fiscal Responsibility Law, with 47.59 % of spending commitment with personnel, another legal provision, the Electoral Law also makes a higher percentage of readjustment unfeasible.<sup>1</sup>

In the context of private and religious private schools, the results indicated high levels of teacher self-efficacy in inclusive practices for teachers in the Belém private school, and moderate teacher self-efficacy in inclusive practices for teachers in the Castanhal private school. According to the collective bargaining agreement 2019/2020 of the private network teachers' union in the state of Pará (SINPRO/PA),<sup>2</sup> the salary floor for private school teachers

<sup>1</sup> <https://www.portaldoservidor.pa.gov.br/>

<sup>2</sup> <http://www.sinpro-pa.org.br/sinpro2020/>

with a 20-hour workload who work in kindergarten through 5th grade is R\$ 1,219.05; in elementary school from 6th to 9th grade is R\$ 1,241.10; and in high school is R\$ 1,258.95.

Although the salaries of the two school spheres do not have many discrepancies in the salary base, teachers in the private network, both confessional or not, showed much better self-efficacy scores. From the perspective of Social Cognitive Theory, which adopts a model of reciprocal causation, in which the individual partially determines his environment and receives influence from it, self-efficacy beliefs favor motivation (Bandura, 1997). According to the results found here, the teacher seems to place himself in the position of an agent who intentionally influences not only his own functioning, but also the circumstances in which he is inserted, as postulated by Bandura (2008). The results presented by private and private confessional schools in both municipalities may indicate that teachers with higher levels of self-efficacy may also feel more motivated and more able to intervene in their own environment, in the direction of promoting the development of action strategies and teaching methodologies that favor inclusive education.

Besides issues related to salary, it should be noted that teachers are not always supported by favorable conditions in terms of physical structure, number of students per class, human resources and didactic and pedagogical materials available, in addition to cultural issues of each school, elements that may also have contributed to justify the results presented here. Bandura (1997) points out that the environment is part of a dynamic and reciprocal relationship between personal factors and behavior, so that the forces involved in each of these factors are not equal and are not always present at the same time. State public schools, private schools, and private and confessional schools function in different ways, as teachers attribute to the environment the possible difficulties they face in making quality inclusive pedagogical interventions.

It is also important to note that the schools studied belong to the municipalities of Belém, which is considered the capital of the state of Pará, and Castanhal, which is 68 kilometers from the state capital. Although the schools are located in different municipalities, with different context characteristics, it was observed that the administrative sphere had more influence on teacher self-efficacy than the characteristics of the municipalities where the schools were located. The characteristics of the municipalities did not lead to differences in self-efficacy, with similarity predominating among the data, it seems that the administrative sphere of education was a more important variable than the characteristics of the municipalities. In this sense, the low scores now found for public school teachers in this research should be a matter of concern, given the repercussions of teachers' self-efficacy beliefs on students' academic results (Tschannen-Moran & Hoy, 2001).

### **Associations of the index of teacher self-efficacy in inclusive practices and teacher characteristics**

Findings regarding teachers' educational background showed that teachers with a degree in pedagogy showed high self-efficacy scores while teachers with other degrees showed low and moderate self-efficacy scores. Research shows that when the quality of teacher education is low, teachers may not be able to meet expectations for inclusion in the classroom (Carew et al., 2019; Song, 2016).

In the reality of northern Brazil, a large portion of teachers attribute knowledge about educational inclusion to pedagogues alone. This division perpetuates the idea that teaching students with disabilities and learning difficulties requires knowledge and experience that are not up to the standard of regular teachers. This perspective compromises the role of schools,

and consequently of teachers, which becomes a space of divisions, where it separates, fragments, what should unite, merge, to become stronger and become fair and democratic, aware of their duties and of the constitutional precepts. It is worth mentioning that the Law of Directives and Bases of National Education - LDB 9394/91, in its article 59, recognizes the importance of training specialized teachers to assist people with special needs, under any kind of education, as well as teachers trained to include students in common classes.

Regarding teachers' degrees, those with specialization and/or master's degrees showed low self-efficacy scores for inclusive practices. This finding is contradicted by some research (Nuri et al., 2017; Özokcu, 2018). Teachers with Postgraduate level degrees demonstrated stronger perceptions of teaching self-efficacy than teachers who hold only undergraduate or graduate degrees (Tschannen-Moran & Johnson, 2011). Some factors may be related to the result discussed here, such as the quality of the graduate program in which the participants of this research were trained or even the lack of professional perspective on inclusive education.

Regarding the length of time in the profession, teachers with less time in the profession showed low self-efficacy scores, while teachers with more time in the profession ranged from moderate to high scores. This result is consistent with studies reporting that experienced teachers' self-efficacy beliefs are higher (Özokcu, 2018; Tschannen-Moran & Hoy, 2001). However, some studies reveal that self-efficacy does not vary according to teachers' length of experience (Tschannen-Moran & Hoy, 2007; Tümkaya & Miller, 2020). This result can also be attributed to the fact that teachers with longer teaching experience may master better teaching strategies for inclusion as a result of their mastery experience.

As for teachers who have experience with students targeted for special education, they showed low self-efficacy scores. In contrast, teachers who have no experience with this public had high self-efficacy scores for inclusive educational practices. It is important to consider as a hypothesis that only direct experience with students targeted for special education may have negatively impacted their self-efficacy because of lack of adequate training to work with the heterogeneity present in the classroom posed by educational inclusion. Bzuneck (2017) states that knowledge and skills developed in training courses and continuing education have the potential, alongside other conditions, to ensure good results in teaching, when self-efficacy beliefs are also present.

This finding is in stark contrast to most previous research (Özokcu, 2017; Yada et al., 2018). It is noteworthy that in this research, only 24.87 % ( $n = 48$ ) of the participants have never worked with the target audience of special education. Thus, the result presented here can be justified by the absence of incentive programs and implementation of inclusive educational practices within the institution, which may compromise the construction of teacher self-efficacy in inclusive practices. This corroborates with Yada and Savolainen (2017) who reinforce the idea that opening up opportunities to gain successful experience in working with students who have diverse educational needs will likely affect teacher efficacy and change their attitudes towards inclusive education in a more positive way.

### **Final considerations**

The results described here contribute to the existing literature by revealing the association of teacher self-efficacy in inclusive educational practices with the characteristics of the teaching context and with the teachers' characteristics, which may favor the

development of planning strategies, continuing education, and pedagogical intervention, which will have implications in the teaching-learning process.

The limitations of this study are the absence of data regarding the number of students per class, the number of students with disabilities per class, the religion of the teachers, and their salaries, considering the time they have been teaching and their degrees, not only their salaries. Such more specific information should have been collected and analyzed to show in detail the context and characteristics of the school and teachers, thus contributing to a better understanding of teachers' perceptions of self-efficacy.

It is important to emphasize the need for future studies to verify the relationship between the variables investigated here, in other school contexts and regions of Brazil with different characteristics than those presented here. Furthermore, it would be interesting if future research explored the relationship between self-efficacy for inclusive educational practices and other variables that are also part of the teacher's universe, such as religion, type of disability of the student, number of students per class with disabilities, salary, among others.

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