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Artigo Original

THE RELATION OF THE SOURCES OF EXPERIENCE AND THE PERCEPTION OF TEACHING SELF-EFFICACY OF UNIVERSITY STUDENTS OF THE LICENCIATURA COURSE IN PHYSICAL EDUCATION

A RELAÇÃO DAS FONTES DE EXPERIÊNCIA E A PERCEPÇÃO DA AUTO-EFICÁCIA DOCENTE DE ESTUDANTES UNIVERSITÁRIAS DO CURSO DE LICENCIATURA EM EDUCAÇÃO FÍSICA

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RESUMO
O objetivo do estudo foi analisar as implicações das fontes para a construção da percepção de Autoeficácia Docente. Participaram da investigação 274 universitários de dois cursos de licenciatura em Educação Física no sul do Brasil. Aplicou-se as escalas de autoeficácia docente e fontes de autoeficácia docente. Modelos de regressão multinível foram utilizados para verificar a contribuição das fontes de autoeficácia docente na percepção de universitários. Os resultados mostraram que os universitários apresentaram nível de autoeficácia docente elevado. Sobre as fontes de autoeficácia, revelaram que a experiência vicária teve correlação moderada com o nível de percepção apresentado. Também evidenciaram que as experiências diretas contribuíram no nível de percepção dos universitários com experiência docente, com maior progressão no curso e que realizaram estágio obrigatório. Da mesma maneira, a fonte vicária contribuiu para aqueles com experiência docente. De forma semelhante, a fonte de persuasão social, afetando os universitários com experiência esportiva e ou docente. Por fim, a fonte de estados fisiológicos afetou os universitários nas variáveis estágios obrigatórios, experiência docente e progressão no curso. Conclui-se que os universitários percebem-se autoeficazes, que as fontes de experiência vicária proporcionaram uma percepção elevada e que as demais fontes contribuíram para a autoeficácia docente.
Palavras-chave: Autoeficácia. Educação Física. Universitários.

ABSTRACT
The objective of the study was to analyze the implications of the sources that construct the perception of self-efficacy in teaching. A total of 274 university students from two undergraduate courses in Physical Education in Southern Brazil participated in the research.The scales of teacher self-efficacy and the self-efficacy sources were applied. Multilevel regression models were used to verify the contribution of the sources of teacher self-efficacy to the perception of the university students. The results showed that the university students had high levels of self-efficacy. The sources of self-efficacy revealed that vicarious experiences had a moderate correlation with level of perception. They also showed that direct experiences contributed to the level of perception of university students with teaching experience, in upper levels of the course, and who underwent mandatory internships. This was similar to the vicarious source for those with teaching experience, as well as the source of social persuasion, which affects university students with sports and/or teaching experience. Lastly, the source of physiological states contributed to mandatory internships, teaching experience, and progression in the course. In conlcusion, the students perceive themselves as self-efficacious, the source of vicarious experience had a high perception, and other sources contributed to the teachers' self-efficacy.
Key-words: Self-efficacy. Physical Education. University Students.

Introduction

As understood by Tschannen-Moran, Woolfolk-Hoy and Hoy[1], teacher effectiveness is a personal belief in their own ability to organize courses of action to succeed in one or more specific tasks in the teaching process. In an educational context, teacher self-efficacy (TSE) is already a specific field of research[2], and may be denominated as the beliefs of teachers and/or university students about their abilities to teach, engage, and influence students' learning[3]. For Pajares and Olaz[4] the AED are formed by four sources, namely: direct experience, either in the context of teaching or motor practice; vicarious experience, observing different situations

(videos, teachers, subjects); social persuasion through feedback; and physiological and affective states, which relates to the evaluation made by the individual to perform certain tasks, through the perceived emotional state and emotional reactions.

In the context of initial teacher training, evidence regarding TSE may contribute to the understanding and expansion of the construct itself. Furthermore, it provides theoretical and empirical data for the development of skills, capabilities, and knowledge that support those procedures that future teachers do not feel capable of accomplishing[2]. Regarding the composition of TSE, the investigations can provide guidelines for the implementation of effective teaching strategies in the initial training courses of Physical Education. Moreover, they may contribute to the reflection of future teachers on their own abilities, skills, and strategies that need to be developed for teaching, as well as identifying new situations and circumstances that favor TSE[5].

The relationship between TSE beliefs and career satisfaction and engagement[6], the development of a professional identity[7], and the enjoyment of the profession[8], have driven scientific production in the area of professional teacher training. The current challenges have been to identify relationships between TSE and elements that can influence and/or be influenced by TSE beliefs, such as personal characteristics, previous experiences, and contextual variables in which students are incorporated.

In Physical Education, research shows that teachers are prone to high levels of TSE[9], and that the perception of TSE may present variations when considering the variables teacher age, number of years in career, and their repertoire and experiences in various teaching situations[10]. Studies with university students show moderate levels of TSE[11], as well as differences in the perception of TSE among university students, specifically in relation to gender and the institution of higher education in which they study[12].

In Brazil, the TSE levels of university students and teachers has varied from moderate to high[6,13,14], and were mainly evaluated with the use of the TSE Perception Scale developed by Polydoro et al.[15]. Moreover, the TSE sources scale developed by Iaochite and Azzi[16], highlights the contribution of practical classes during initial teacher training, due to the impact of the direct teaching experiences[14], as well as the contribution of the social persuasion source in university students[17]. It is important to note that there is a need to use the TSE source scale in other contexts to verify its applicability in different realities[16].

Considering, therefore, the trends found in studies with TSE, particularly in university students of Physical Education, as well as the possible implications for the initial training classes in this area, this study has as its objective to analyze the perception of TSE in university students studying Physical Education from two distinct higher education institutions, as well as to verify the implications of different sources in the construction of the TSE perception in these individuals.

Methods

Participants

The target population consisted of 471 (four hundred and seventy-one) university students enrolled last graduation phase in the teaching degree in Physical Education, attending the course regularly at two public universities (state and federal) in Southern Brazil. The study included university students with regular enrollment and attendance in the classes of the Physical Education degree. Students who were absent when the questionnaires were applied or those that did not adequately fill out the survey were not included in the research. Considering the adopted criteria, the study sample was composed of 274 (two hundred and seventy-four) university students. A total of 138 (one hundred and thirty-eight) students belonged to University 1 (UN1) and 136 (one hundred and thirty-six) to University 2 (UN2).

University students were both male (n = 167) and female (n = 107), with a mean age of 22.7 ± 4.8.

Instruments

Regarding data collection, the subjects responded to three different questionnaires. The university students completed a questionnaire composed of 12 (twelve) closed questions. The objective was to obtain information about the personal and academic characteristics of the university students, as well as experiences of sports practice and teaching, as a teacher or a coach.

The Teaching Self-Efficacy Scale (TSE), adapted and validated by Polydoro et al.[15], was applied with the objective of verifying the students' perception of TSE. The TSE scale consists of a *Likert* type attitude scale, with a six-point interval, in which the number 1 corresponds to "little self-efficacy" and the number 6 corresponds to "very self-efficacious". The overall TSE score can range from 24 points (lowest TSE belief) to 144 (highest TSE belief).

The TSE Sources Scale (TSESS)[18] was used, which consists of a *Likert* scale, covering a numerical range from 1 (totally false) to 6 (totally true). The TSESS had 16 items associated to four sources of self-efficacy: direct experiences, vicarious experiences, social persuasion, physiological and emotional states. The score associated with sources of direct and vicarious experiences range from 3 (low influence on TSE) to 18 (high influences on TSE). For the sources of social persuasion and physiological and emotional states, the variation is between 5 (little influence on TSE) and 30 (high influence on TSE).

Procedures

Direct contact was made with the coordinators of the Physical Education departments of both universities in order to identify students regularly enrolled and with enough attendance in classes from the second semester of 2016. During the next stage, the researchers presented themselves to the professors of the classes that the university students attended regularly, in order to verify the viability of applying the questionnaires during class time. Upon acceptance from the professors, the classes and timetables were selected for the application of the questionnaires.

In the classroom we presented the objectives and procedures for data collection to the university students, emphasizing the volunteer aspect of the study and the confidentiality of the information obtained. After clarifying questions about the study, all the university students present signed the term of Free and Informed Consent. We explained the objectives, structure, contents, and how to fill out the form for each questionnaire to help the students understand how to fill them out. The students used 15 to 30 minutes to answer each questionnaire in an individualized manner and without sharing information with the other subjects. The study was approved by the Ethics Committee in Research with Human Beings from a public university in Southern Brazil, registration no. 718.173/2014.

Statistical analysis

The variables were described by mean and standard deviation. The assumption of normality was inspected through the visualization of distribution normality graphs. Using hierarchical/multilevel models[19], we inspected intra- and inter- group variation, i.e. groups (variation between universities). Thus, unconditioned models were used, considering only random coefficients to measure the proportion of total variance among grouped individuals, i.e. variance partition coefficient or intraclass correlation coefficient[20]. This analysis allows us to determine if the variables were distinguished between groups (UN1 *vs*. UN2).

Subsequently, we explored the association between the perception of teacher self-efficacy and the sources of self-efficacy. The variables of perception of teacher self-efficacy and the sources of self-efficacy were transformed into *z-scores* and included in simple linear regression models estimated through maximum likelihood. The coefficients of variables in bivariate simple linear regressions with z-score transformed variables yield estimates similar to a Pearson correlation[21].

A binomial categorization was performed on independent variables in order to explore the influence of gender (female = 0, male = 1), sports experience (with experience = 0, without experience = 1), experience with teaching (with experience = 0, without experience = 1), progression in degree (50% of degree complete = 0, more than 50% of degree complete = 1), and if the mandatory internship was completed (completed internship = 0, incomplete internship = 1) on the inter-individual variation in the perception of TSE and sources of TSE. Therefore, also using simple linear models with dependent variables transformed into z-scores, we interpreted the regression coefficients as the magnitude of effect. The interpretation of the magnitude of the effect given by the correlation was: 0.0 – 0.1 trivial, 0.1 – 0.3 small, 0.3-0.5 moderate, 0.5-0.7 high, 0.7-0.9 very high, 0.9-1.0 almost perfect[22].

The validation of the hierarchical/multilevel models was conducted through residue analysis vs. predicted values for each model. The models were obtained through the maximum likelihood method, using the "*nlme*" package[23], in the statistical language R[24].

Results

The descriptive statistics for the sample are presented in Table 1. In general, the predominance of individuals with a mean age of 23 years was observed. Considering the reference score for each of the sources, the high values in the general average of the TSE variable suggests that the university students perceive themselves as "very" self-efficacious to perform activities related to teaching.

Moreover, in Table 1 the basic model extracted from hierarchical/multilevel modeling was initially used to measure the proportion of total variance between universities (UN1 *vs*. UN2). Values of variance partition coefficients greater than 0.05 indicate that variability tends to aggregate substantially, and this influence must be modeled[20]. The results yielded values equal to zero for all analyzed variables, indicating that there is no contribution of exposure to different universities in the inter-individual variability of the studied variables. Thus, it was not necessary to consider the aggregation of participants per university.

Table 1. Total variance between universities for age, TSE, direct experience, vicarious experience, social persuasion, and physiological and emotional states

Variables	UN1	UN2	ICC
Age	22.7 (5.0)	22.8 (4.6)	0.00
Teaching Self-Efficacy	111.8 (15.0)	107.5 (19.1)	0.01
Direct experience	14.1 (2.6)	14.6 (2.3)	0.00
Vicarious experience	14.6 (2.2)	14.1 (2.9)	0.00
Social persuasion	25.0 (3.5)	25.6 (3.7)	0.00
Physiological and emotional states	17.8 (5.1)	19.0 (5.2)	0.01

Note: UN1 = University 1, UN2 = University 2, ICC = Intraclass correlation coefficient
Source: Authors

In Table 2, simple linear regression models were used to verify the association of the sources of self-efficacy with the perception of self-efficacy of university students. Small

associations were found between the perception of TSE and direct experiences (βij=0.19), social persuasion (βij=0.24), and physiological and emotional states (βij=0.17). We also found a positive and moderate association between the perception of teacher self-efficacy and vicarious experiences (βij=0.38).

Table 2. Correlation between TSE and TSE sources.

Variables	**Teaching Self-Efficacy** (Estimation error)
Direct Experience	0.19 (0.06)**
Vicarious Experience	0.38 (0.06)**
Social Persuasion	0.24 (0.06)**
Physiological and Emotional States	0.17 (0.06)**

Note: **p < .01
Source: Authors

Table 3 presents the simple linear regression models used to assess the magnitude of effect of the perception of teaching self-efficacy and the sources of teacher self-efficacy, when considering students by age, gender, sports experience, teaching experience, progression in degree, and completion of mandatory internship. We observed moderate magnitude of effect values in the relationship between direct experiences and university students with experience in teaching (βij=-0.35) and with more than 50% of degree completed (βij=0.32). A relatively small magnitude of effect was found in the relationship between direct experiences and university students who completed compulsory internship (βij=-0.28). The vicarious experiences showed a slight relationship to students with a greater chronological age (βij=0.08), and had moderate magnitude of effect in relation to the university students with teaching experience (βij=-0.30). Moderate values of magnitude of effect were found in the relationship between social persuasion and university students with sports experience (βij=-0.36), and a small magnitude of effect was found between social persuasion and university students with teaching experience (βij=-0.27). Furthermore, we observed a moderate magnitude of effect between physiological and emotional states with women (βij=-0.36), university students with more than 50% of the degree completed (βij=0.42), and university students who completed mandatory internship (βij=-0.41). The magnitude of effect was small between physiological and emotional states and university students with teaching experience (βij=-0.26).

Table 3. Magnitude of effect between TSE and Sources of TSE considering the experiences of university students grouped by gender, experiences, course completion, and participation in an internship

Variables	General teaching Self-efficacy	Direct experience	Vicarious experience	Social persuasion	Physiological and emotional states
Gender	-0.08 (0.12)	-0.15 (0.12)	-0.03 (0.12)	-0.16 (0.12)	-0.36 (0.12)*
Sports experience	0.03 (0.14)	-0.14 (0.14)	-0.24 (0.13)	-0.36 (0.13)*	0.12 (0.14)
Teaching experience	-0.17 (0.13)	-0.35 (0.12)*	-0.30 (0.12)*	-0.27 (0.12)**	-0.26 (0.12)**
Course completion	-0.18 (0.13)	0.32 (0.13)*	-0.08 (0.13)	0.18 (0.13)	0.42 (0.12)*
Completion of mandatory internship	-0.11 (0.14)	-0.28 (0.14)**	0.10 (0.13)	-0.17 (0.14)	-0.41 (0.14)*

Note: **p < .01. *p < .05. #p <.10
Source: Authors

Discussion

The use of attitude or *Likert* type scales can be a limiting factor in this study, influencing the data comparison between the investigated universities (UN1 and UN2), as well as the interindividual variability of the variables studied. Due to the small amplitude (six points), the scales may present some inaccuracy regarding the perception of the university students.

According to Table 1, university students had a high level of TSE, corroborating a study by Silva, Iaochite and Azzi[14] with 159 university students completing their third and fourth year of a Physical Education degree at a private university. The students in the study had values higher than the midpoint established by the TSE scale. Similarly, Iaochite and Souza Neto[13] found that 114 university students from three private institutions in the State of São Paulo, Brazil, had moderate levels of TSE beliefs about teaching. A study by Ramos et al.[17] on the perception of TSE of 78 university students in their third and fourth years of a Physical Education degree at a public university in Santa Catarina state, similarly found elevated levels of TSE. Using the same scale as the cited studies, Iaochite et al.[6] found similar results with 220 postgraduate teachers. The results obtained with the use of this scale in different Brazilian universities and regions point to similar results, regardless of the type of institution surveyed (public or private). The increase in the number of studies using TSE in the various regions, and in various stages of teacher training could measure the trend of higher levels of TSE among university students. Studies with support of qualitative procedures, could verify the contributions or interferences of the teaching experiences during the completion of the undergraduate degree in relation to the level of TSE perception.

Table 2 shows a moderate correlation between the vicarious source and the perceived TSE level. A study by Iaochite and Costa Filho[25] with reflective portfolios applied to 18 university students during the mandatory internship period of a public university in São Paulo, Brazil, showed that the observation of teaching situations in different contexts, as well as the observation of their peers teaching in internships, allowed the university students to find support to solve problems and deal with adverse situations in teaching.

A study conducted by Martins, Onofre and Costa[26], found that students studying Physical Education were more susceptible to new possibilities of pedagogical intervention when observing experienced teachers in teaching situations. Moreover, observing classmates in situations of simulated practice favors the identification and reflection of aspects that should be avoided in class. The study took a quantitative research approach, applying a TSE questionnaire to 67 undergraduate students in Physical Education from a public university in Portugal, and later, a qualitative intensive phase, in which three cases (with a greater evolution of TSE) were selected for interviews. Additionally, similar results for vicarious sources were found in the study by Ramos et al.[27], through a semistructured interview with seven undergraduates in their last year of a Physical Education degree at a public university in Santa Catarina state, Brazil.

According to Siwatu[28], the lower the exposure to direct teaching or university teaching experiences, the greater the influence from vicarious experiences, social persuasion, and physiological and emotional states. However, even experienced teachers can increase their TSE by observing effective strategies for delivering instruction. The source of vicarious experience usually affects the TSE of undergraduates during initial training, and also teachers with little experience in teaching, due to doubt or incipient knowledge about the specific task to be performed[4].

For Pajares[29], obtaining knowledge from observing the performance of others is important during initial training because of the frequent comparison that people make between each other regarding circumstances and successes. Throughout initial training,

professors need to increase the influence of modeling during class. By observing professors and colleagues in action or through videos, undergraduates have the opportunity to gain insight into teaching assignments, as well as perceive successful or unsuccessful initiatives. For Morris, Usher and Chen[30], the influences from vicarious sources through resources, such as videos, the internet, films, and self-modeling, are positive. According to Usher and Pajares[31], it is essential to study and explore the limits and potential of this source, as well as the ability of individual observation.

Table 3 shows that the source of direct experience correlates with the variables teacher experience, progression in the degree, and mandatory internships. A review of 82 empirical articles published in English on TSE sources for teachers between 1977 and 2015, found that in most journals direct experience is the main source of TSE for teachers since it provides an authentic environment to test knowledge, and consequently, builds the confidence necessary for effective intervention[30].

The experiences obtained from practice teaching have been related to a higher level of TSE. A study by Wolters and Daugherty[32], with 1024 elementary school teachers from Texas, USA from different subject areas, found that there is a relationship between the years of experience and perception of TSE. When comparing early-career teachers with experienced teachers, the results showed that direct experiences were the determining factor for the development of a high perception of TSE.

Furthermore, a study conducted by Palmer[33] with 55 university students in their third year of a science degree in an Australian university, showed that the teacher training program, especially during the mandatory internship period (the source of direct experience), provided an increase in the subjects' TSE.

According to Pajares and Olaz[4], the main source of TSE is direct experience, which occurs through the interpretation of the results of behaviors and experiences carried out by the individual, especially if the results are interpreted as successful. Thus, the experiences that emphasize the teaching practice during the initial training favor the expansion and memorization of repertoires of success, contributing to the development and strengthening of the perceptions of TSE[34].

In the initial teacher training for Physical Education, studies have also indicated that the main source of TSE for university students is direct experience, especially during the mandatory internship[5,14,27,34]. For Iaochite and Costa Filho[25], it is through direct interventions related to teaching during the mandatory internship that the university students studying Physical Education can acquire significant experiences for their training, stimulating the reflection of their capacities to teach and mobilize knowledge originating from their initial training.

Martins, Costa and Onofre[35], found that students studying PE tend to perceive themselves to be more effective when they are closer to the end of the course due to new experiences in teaching. Studies conducted by Zach, Harari and Harari[34], found this trend in the evolution of TSE with 203 university students studying Physical Education.

When individuals have repeated successes, this enables them to construct consistent beliefs about how to act appropriately in future situations, thereby generating high expectations of success in solving problems, especially when success is achieved in early learning experiences. Experiences that require a controlled level of effort should be fostered, since situations with easy resolutions can be disappointing, and on the other hand, systematic failures can generate anxiety and discouragement[29].

According to Table 3, the vicarious experience source contributed only to the TSE perception of university students with teaching experience. The observation of colleagues in action can give the observer sufficient confidence to create new possibilities, since all are in similar circumstances of pedagogical intervention, regarding the level of difficulties and

teaching knowledge. The imitation of behavioral patterns of professors training teachers can also provide useful resources for college students or teachers in their early career teaching situations[1].

During the teaching experiences in the mandatory internship, university students have the opportunity to experience teaching, observing reference models and different events that serve as a support to build their TSE, according to Iaochite and Costa Filho[25].

A study by Tschannen-Moran and Woolfolk-Hoy[36] compared the beliefs of 255 primary school teachers from two Ohio universities and one Virginia university, USA, during graduate school. In the study, teachers considered experienced used direct experiences more often, while the inexperienced use vicarious experiences as a way to improve their pedagogical intervention.

Regarding the source of social persuasion (Table 3), we found that university students with sports experience and/or teaching experience were influenced by the power of persuasion. This source alone tends to have limited effect in creating a strong and permanent sense of TSE, but it instantly has positive effects if applied realistically[37]. A high level of teacher satisfaction suggests some influence from the source of social persuasion, although as individuals acquire direct experiences in teaching the effect tends to diminish[17].

A study conducted by Kuhn[38], using a semistructured interview with 11 undergraduates majoring in Physical Education of a public university in Santa Catarina, showed that university students with sports experience tend to develop TSE. This is especially true in relation to teaching instruction and organization because of memories of feedbacks received from their coaches and training peers. For Saville et al.[39], athletes that receive positive feedbacks improve their motivation to perform activities, increasing their perception of TSE. The feedbacks, such as “you can do it”, or “you are able to do that”, are examples of instructions that have the power to persuade individuals in a sporting context[40]. The persuasion source, therefore, may affect the judgment of the undergraduates, because it reinforces their TSE beliefs, especially when the feedback is positive, properly structured, and understandable[31].

In the course of initial training, university students with little direct experience in teaching tend to manifest fragile TSE beliefs when compared to experienced teachers, thus, suffering more influence from persuasion sources and vicarious experience[36]. Consequently, throughout initial training in Physical Education, university students should have the opportunity to experience real teaching situations within university classes, as well as in the mandatory internship, in order to provide a diversity of sources to foster more enduring TSE beliefs.

According to Morris, Usher and Chen[30], the potential of social persuasion to affect teachers’ TSE is widened when information is provided shortly after the occurrence of an educational experience. Additionally, for Martins, Onofre and Costa[26], social persuasion must be conscious and adjusted to the needs and characteristics of the receiver of information. Moreover, feedbacks must be provided according to the level of motivation and should be centered on what was noticed during interventions with university students. Thus, persuasion must refer more to the abilities of the subjects rather than to offer some personal support[30].

According to Martins, Onofre and Costa[27], university students studying Physical Education need direct and immediate TSE sources, through feedback from their university professors and classmates. Both professors and peers serve as a parameter to increase TSE perception in university students. Nevertheless, Costa Filho and Iaochite[5], state that Physical Education students evaluate their perception of TSE by taking into account conversations, praise, or criticism received from their students or classmates about the difficulties and obstacles encountered during intervention.

The results from Table 3 showed that the source of physiological and emotional states contributed to female university students, as well as to university students of both sexes, for the variables mandatory internship, teaching experience, and progression in the degree. Thus, the source, physiological and emotional states, exerts its greatest influence insofar as subjects come in contact with the direct experience source. Iaochite and Costa Filho[24], found that fear, lack of security, shyness, uncertainty, and embarrassment are often frequent among university students at the beginning of the mandatory internship. Successful experiences will develop confidence and positive feelings for teaching.

For Pajares[29] this source can directly affect the decrease in TSE perception, since the excessive activation state of subjects can interfere in the way they interpret situations. In addition, according to Pajares and Olaz[4], subjects can assess their confidence through their perceived emotional state and strong emotional reactions, which can have an impact on predictions of success and failure. All negative thinking and fears about their abilities tend to affect the perception of TSE, further damaging the judgment of information.

Conclusions

The results revealed that the undergraduate students in Physical Education were perceived as having a high level of TSE, regardless of their teaching institutions. The use of TSE scale has presented similar indexes in the variety of contexts where it was applied.

We found a correlation between the source of vicarious experience with the level of TSE perception of university students. In general, as the level of TSE perception increased, the higher the contribution of the vicarious experience source.

The source, direct experience, mainly affected those university students who already had teaching experience, those who had undergone mandatory internship, and those who were towards the end of the course.

The social persuasion source mainly affected university students with previous sports experience and/or teaching experience.

The physiological and emotional states source affected the university students during their first contact with teaching, either in the mandatory internship, previous experiences as a teacher, or through the progression of the degree. Fear, anxiety, and worries are common to university students when they begin teaching.

The study presents an overview of the TSE perception of university students. Future studies should evaluate the perception of TSE in relation to the specific pedagogical abilities of university students: instruction, organization, social climate, assessment, and planning. Thus, it is recommended that undergraduate courses in physical education provide diverse sources of teaching self-efficacy to university students. It is suggested realization reserachs of a qualitative nature, in the mandatory internship, to investigate how the sources of teacher self-efficacy are created during the initial training period.

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