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Original Article

CONTRIBUTION OF A PHYSICAL EDUCATION UNDERGRADUATE PROGRAM IN THE TEACHING SELF-EFFICACY BELIEFS

CONTRIBUIÇÃO DE UM CURSO DE GRADUAÇÃO EM EDUCAÇÃO FÍSICA NAS CRENÇAS DE AUTO-EFICÁCIA DOCENTE

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RESUMO
O objetivo deste estudo foi analisar a contribuição de um curso de graduação em Educação Física para a construção de crenças de autoeficácia docente, levando em consideração as dimensões de ensino de instrução, organização e clima social. Realizou-se uma pesquisa qualitativa, através de entrevista semiestruturada com 11 universitários do último ano do curso de Licenciatura em Educação Física. Os dados foram obtidos através de entrevista semiestruturada. Os resultados evidenciaram que o principal contexto de aprendizagem foi o estágio obrigatório e, que as principais fontes ocorreram mediante as experiências diretas de ensino e feedbacks nos estágios, seguidas das observações de professores no contexto das disciplinas. Conclui-se que os universitários atribuíram a origem da autoeficácia docente às experiências de ensino e aprendizagem nos estágios obrigatórios e de observação nas disciplinas.
Palavras-chave: Autoeficácia. Universitários. Educação Física.

ABSTRACT
The objective of this study was to analyze the contribution of a Physical Education program on constructing beliefs in teacher self-efficacy, taking into account the teaching dimensions of instruction, organization, and social environment. A qualitative research was conducted through a semistructured interview with 11 college students in their last year of a Physical Education Degree at a public University in Santa Catarina, Brazil. The data were obtained through semi-structured interviews. The results showed that the mandatory internship was the main learning context, and the main sources of learning were direct teaching experiences and feedbacks during the internship, followed by professor observations within the required classes for the degree. Therefore, we concluded that college students attributed teaching self-efficacy to the teaching and learning experiences in the mandatory internship and the observations made during regular classes.
Keywords: Self-efficacy. Undergraduate students. Physical Education.

Introduction

In the context of undergraduate program, there is a predisposition of universities to value experiences of a theoretical and practical nature. It is understood that significant experiences tend to promote resilient beliefs[1]. Thus, teachers' beliefs can be defined as unquestionable truths, that is, as an implicit understanding of teaching, students, subject and content[2]. In this understanding, some beliefs can be defined from the construct of self-efficacy[3]. Regarding teacher self-efficacy (TSE), it can be defined as a cognitive process in which individuals construct beliefs about their performance of teaching abilities under a specific level of effect[4].

According to Tschannen-Moran, Woolfolk-Hoy and Hoy[5], TSE beliefs allow the teacher to organize courses of action to successfully carry out a particular teaching task. TSE beliefs are formed through the personal interpretation that individuals make of each of the four main sources of information, namely: domain or direct experience, which may correspond to practice (teaching) as teachers and/or undergraduate student; vicarious experience or observation, which consists in observing a teaching model; social persuasion,

that is, guidelines received from third parties; and physiological and affective states or somatic states, which represents the influence of physiological and emotional actions on the confidence shown[6].

Physical Education studies demonstrate that the university provides a favorable environment for the development of the TSE of undergraduate students[7-9]. Studies also point out that the sources of TSE come from experiences of persuasion within the environment of mandatory internships, and the main and most powerful sources for TSE include feedback from supervising professors[10,11], observations made by undergraduate students, especially when watching their professors teach during theoretical-practical classes in the university course[12,13], and direct experiences during the mandatory internship[14,15].

In addition, the undergraduate students of the physical education course, usually have a high perception of TSE, because they possess previous motor experiences in the sports field[16-18]. In this sense, it is through the sport that the students use the knowledge related to the organization, rules and promotion of activities, especially during the first contacts with teaching, through the memories of past episodes.

Although there is an increase in studies on TSE sources for undergraduate students, Morris, Usher and Chen[19], when conducting a review on the subject, advise researchers in this field to use qualitative research in order to understand how TSE beliefs emerge. Similarly, Iaochite[20] indicates that the use of qualitative research methods in studies about TSE can enable a more detailed analysis of undergraduate students' tasks, especially classroom instruction and management procedures. In this regard, it is believed that the accomplishment of studies that adopt procedures of qualitative research, of inductive character, can contribute to the obtaining of more detailed and in-depth information about the perception of the subjects, helping to identify sources of self-efficacy.

Taking into account the role that TSE plays in the professional learning of the undergraduate student, as well as the research directions in the specialized literature on Physical Education, more specifically, the use of research methods that allow a more detailed analysis of the teaching tasks, emerges the research problem: What are the experiences and sources obtained in the undergraduate course that influence the development of the TSE of undergraduate students in Physical Education? Therefore, the objective of this study is to analyze the contribution of the experiences and sources obtained in a Physical Education undergraduate program in TSE beliefs, taking into account the dimensions of teaching instruction, organization and social climate, of 11 undergraduate students.

Methods

Research Design

For the present study, we adopted descriptive and interpretive qualitative research methods. In the descriptive research we seek to describe the particular phenomena, focusing on the lived experience and the intellectual processes of which we are introspectively conscious[21,22]. Therefore, the purpose was to emphasize the description and interpretation of the information provided by the undergraduate students, considering the context and sociocultural processes of data construction[23]. Multiple case study procedures were also used to favor the detailed and deep insight and understanding of individuals' personal perceptions of their experiences on the theme[24].

Participants and Ethical Aspects

For the selection of subjects, the following inclusion criteria were adopted: a) to be a senior enrolled in the eighth semester, that is, the last period of Physical Education undergraduate program, during the data collection; b) to have fully completed the course at

the university investigated; and c) to be available and motivated to participate in the study. According to the criteria mentioned above, 11 undergraduate students, 7 male and 4 female, from a public university in southern Brazil participated in the study. The mean age of the undergraduate students was 28.55 years, with age varying from 22 to 42 years.

The Ethics Committee on Research with Human Beings approved the study (registration no. 718.173/2014). To preserve the anonymity of the undergraduate students, they were identified within the text as letters and numbers, respectively (U1 to U11).

Instruments

We used a semi-structured interview script to obtain the maximum information about the sources and origins of the TSE beliefs of undergraduate students. The script was divided into two parts: the first part was composed of 11 questions related to the characterization of the participants and their sport experiences in the professional and academic scope; the second part was composed of 19 questions regarding the sources and origins of the TSE of the participants.

During the interviews, all the information was recorded using two digital recorders, then stored in an institutional microcomputer for later use by the researchers. The interviews were transcribed with the help of the software *Express Scribe* for the audio reproduction of the interviews, Microsoft Word for the registration of the text, and *Nvivo* version 10 for treatment and analysis of qualitative data.

The questions were organized in three dimensions based on Siedentop's[25] ecological model of the classroom for the pedagogical intervention of the teacher, specifically: *instruction*, *organization*, and *social climate*.

The dimension *instruction* consists of measures that contribute to the improvement of student relations with the class content and relates to the quality of the introduction, general assessment of activities, learning, and monitoring of learning activities. The dimension *organization* consists of measures that contribute to improving the quality of relationships of resources available for conducting the lesson, specifically, the management of students' time, spaces, materials, and organization. Lastly, the *social climate* dimension refers to the activities that promote a positive relationship between the students themselves, between the teacher and the students, and between the students and the learning activities.

Data Analysis

To analyze multiple cases, we adopted the procedures suggested by Yin[24], which consists of transcribing and describing each case individually, and afterwards in crossing and examining the information of all the cases. The content analysis technique was used in order to analyze the text material from the interviews, in order to allow for organized and systemized inferences of the content obtained from the undergraduate students[26]. Thus, content analysis was conducted in three stages: 1) material was reduced and the most relevant parts from interviews were selected; 2) there was a further reduction of highlighted sections; and 3) all the material that deserved attention was synthesized[27]. The analysis of the data, the experiences mentioned by the undergraduate students and the categorization of the content units (data) were established *a priori* according to the Cognitive Social Theory[4], which determines four sources of self-efficacy: direct experience, vicarious experience, social persuasion and Physiological and affective states.

In order to guarantee the reliability and clarity of the information, a recurrence and a conference were carried out with the research participants, who analyzed the transcripts of interviews and descriptions of the data, confirming their veracity[28]. Two researchers with experience in qualitative research conducted a review; they analyzed the same data set and compared their interpretations as suggested by Maxwell[29].

Results

The results are presented by means of a figure, based on the data analysis performed. In the central part of the figure are located the dimensions of teaching (instruction, organization, social climate) and, at the extremities, the contexts and sources of TSE, accompanied by the frequency of citation of each undergraduate students.

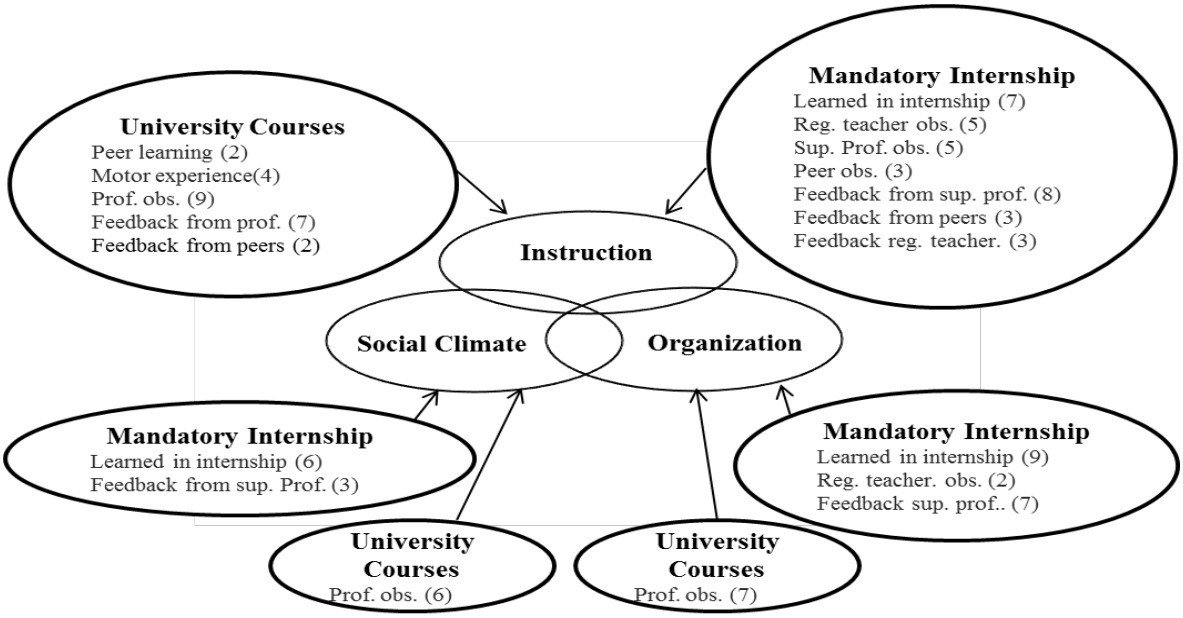

Figure 1. Contributions of the contexts and sources of TSE to dimensions: Instruction, Organization, and Social Climate

Note: Obs. = observations; Prof. = Professor; Sup. Prof. = supervising professors of university; Reg. Teacher = Regent teacher of school

Source: Authors

Teaching Dimension: Instruction

Within the instructional dimension, almost all undergraduate students specified the experiences of persuasion (feedback) obtained during the mandatory internship, except U3. Specifically, the situations cited were: feedback from supervising professors of university (U1, U2, U4, U6, U7, U9, U10, and U11); feedback from peers or classmates (U1, U5, and U6); and feedback from the regent teacher of school (U1, U8, and U10). Regarding the first situation, an example is given as to how U2 adjusted to the end of their classes: "[...] But it was there in the middle school internship that the supervising professor of university said: You have such a goal, you can spend a lot of time or not, but make sure it has an ending so that they understand that it has a beginning, a middle, and an end" (U2).

The feedback from peers or classmates provided new ways to accomplish learning activities, as exemplified by U2: "[...] my classmates used to say, when we gathered, they would tell me: ah, I applied it such and such way" (U1). Regarding the feedback of the regent teacher of school, U8 emphasized how they started to reflect on how to develop the activities for their classes, as shown in the following passage: "[...] The regent teacher of school told me: you could have done this activity like this, split it up, I think they would have done it better. With this feedback I stopped to think and noticed that it was true, that if I had done it that way they would have better understood the activity" (U8).

In regards to the vicarious experience obtained through the mandatory internship, the participants U1, U2, U4, U5, U7, U8, U9, U10, and U11 considered observation an important

source of TSE. The vicarious experiences occurred by observing the supervising professor of university (U1, U4, U9, U10, and U11), regent teacher of school (U1, U2, U8, U10, and U11), and their peers (U1, U5, and U7). Regarding supervisors, U9 speaks about how she believes they learned how to assess learning: "[...] it was observing the supervising professor of university during our mandatory internship. During the internship they were very good at assessing and it was because of them that I learned how to assess and give something for the class to do and/or some test*"* (U9).

Moreover, regarding the observation of the regent teacher of school, the U1 believes that he/she has learned how to finish Physical Education classes, according to the following passage: "[...] Observing the classes of the regent teacher of school, we had a period of observation during our mandatory internship before we start [to teach], and I watched them doing" (U1). In relation to observing their peers, U7 emphasizes how he believes he learned to give instruction for activities: "[...] I watched the classes of students who studied with me. And by observing my peers, I realized that sometimes they had a lot of insecurities, lacked mastery, and I started learning from that" (U7).

In regards to direct practical experiences, the undergraduate students U2, U5, U6, U7, U8, U10, and U11 pointed out direct experiences as sources of TSE during the mandatory internship, which is shown in a statement from U2, when assessing learning: "[...] Actually, it was while I was teaching during the internship that I learned to assess my students' learning because if they cannot learn, they do not want to do it anymore. So, that is not learned with anyone, you perceive that" (U2).

In the context of the university courses, in the instructional dimension, most students (U1, U3, U4, U5, U7, U8, U9, U10, and U11) indicated the vicarious experiences as sources of TSE. The experiences occurred by observing the professors while demonstrating teaching actions within the university courses. U3 emphasizes, for example, that they learned to respond well to students' questions from observing how their professors responded to questions in university courses, as explained in the following statement: "At the university, I was able to verify this situation happen, you observe and realize that your professor is a reference model for answering questions" (U3).

The results also show that in the context of university courses, the experience of persuasion was important for many subjects (U1, U3, U5, U7, U8, U10 and U11), in what corresponds to the dimension instruction. The situations that persuaded the undergraduate students happened more often through the feedback of the professors in university courses (U1, U3, U5, U7, U8, U10, and U11), as well as through feedbacks from peers and classmates (U1 and U5). As for feedback from professors in the university course, U8 speech stand out as to how he believes he has developed effectiveness to make his students understand the content: "In the courses for Physical Education in Schools I and II, the professor gave a practical activity, explained, and said: let's do it this way, this activity can be done with this type of child, but you have to explain in this manner. And it was due to this feedback and guidance that I learned how to make my students understand the content "(U8).

Feedback from classmates and peers provided an interesting exchange of experiences, as well as a moment of reflection on their lessons, as seen in the following section from U5: "Classmates, they always talked after classes, sat down, gave tips, asked how it went and everything. I found it interesting too, especially for you to rebuild or rethink lessons" (U5).

Direct experiences were pointed out by undergraduate students U1, U5, U6 and U11 in the context of university courses as their source of TSE. The situations occurred (experiences as undergraduate students) through the motor experiences obtained in university course (U1, U5, U6, and U11), and also through interventions for their peers in university courses (teachers' classes), in which undergraduate students exercised the role of teacher in practical activities (U1 and U11). Regarding direct experiences, U6 stated that they learned to conduct

the progression of activities by motor experiences during practical courses at the university: "It was during the undergraduate program, for example, that we would get the basketball course. We began learning from the most basic, so that they understand the context of the game, and afterwards it starts getting more specific" (U6).

Considering direct interventions with peers, after being asked how to respond well to students' questions, U11 stated that they learned how to respond to student questions by teaching their classmates as preparation: "Look, I think the biggest example comes from the university. If I had to teach a practical class, I would have to prepare myself beforehand, put together a plan, to get in front of the professor and respond to most of the questions and doubts with quality, since I was going to be evaluated" (U11).

Teaching Dimension: Organization

About the organizational dimension, which consists of class management, that is, the organization of activities, materials, students and time, the participants U1, U2, U5, U6, U7, U8, U9, U10, and U11 indicated direct experiences from the mandatory internship as a source of TSE. The situations occurred within the context of schools where the undergraduate students did their mandatory internship. Particularly for U6, the direct experiences contributed mainly for time management in the classroom, as we can see on the following section: "[...] The more experience the teacher has, the better they can manage time. [...] Only with practice, even during the internship, that I could learn how to manage time" (U6).

In relation to persuasion experiences, the participants U1, U2, U3, U5, U6, U10, and U11 indicated situations resulting in feedbacks issued by supervising professor of university. A typical learning situation about classroom management and spaces is demonstrated below in an excerpt taken from an interview with U1: [...] I learned in the mandatory internship how to organize the materials, spaces and the class. The supervising professor of university always said: you have the whole gym to use and you are only using half the gym for lining up. You can make your line for the activity, but use the whole gym, make more lines" (U1).

Regarding vicarious experiences, the participants U1 and U11 indicated that they learned to organize class resources by observing their regent teacher of school during activities. The situations occurred in the initial period of the internship, a period designated for observation in schools, as stated by U1: "Observing the regent teacher of school actions in the games. Only by observing. This was not even a matter of feedback; it was more by observations. Then, through the observations, I saw different manners that were better" (U1).

Finally, the U2, U3, U5, U7, U8, U9 and U10 students considered the sources of vicarious experience as an important learning process in the organization of the class. This is demonstrated in an excerpt from the interview with U10: "I observed in the university course, how the professor managed his students. And I learned new strategies for managing students effectively" (U10). The learning situations referred happened by observing university professors teaching the students in practical activities in the university courses.

Teaching Dimension: Social Climate

In the social climate dimension, the participants U2, U5, U6, U7, U10, and U11 pointed out the direct practice experiences as the most important for the undergraduate student learning process. A typical learning situation is found in the excerpt from the interview with U6 about how he believes he has learned to mediate a conflict among students in his classes: "I think you experience and learn this by experiencing. Then, through these experiences, I was realizing how I should proceed in these cases of conflict" (U6).

For the undergraduate students U1, U2, U6, and U10 the persuasion experiences were specified as a source of TSE. Particularly for U2, U6, and U10, learning situations about social climate arose from feedbacks given by the supervising professor of university during

internship activities. According to U2, the situations of learning by persuasion occurred due to the "guidelines of supervising professor of university during the internship" (U2), after having succeeded in establishing a harmonious social climate in their classroom activities.

Participants U1, U2, U7, U8, U9, and U10 indicated vicarious experiences as their source of TSE for the social climate dimension. The experiences happened by the observation of the professors in the university while they participated in practical activities in the university courses. In regards to this experience, U8 specifies that the observations provided the necessary experiences to motivate their students in relation to the subject and/or content, as is shown in the following section: "With the experience that I acquired in the university courses, over time I was observing things and realizing how professors did things" (U8).

Discussion

In general, it is possible to deduce that the TSE beliefs, for the three dimensions studied, came from the combination of different sources and learning situations. Likewise, it is possible to infer that the context of the mandatory internships has enabled a greater variety of learning experiences for undergraduate students. According to Pajares and Olaz[6], the variety of TSE sources is important to meet the learning characteristics and differences of each individual. The previous beliefs and the interaction of environmental, personal and behavioral contexts tend to promote a very particular, unprecedented interpretation of the individual around the sources necessary to solve the problems and dilemmas of teaching practice. Therefore, it affects the judgment undergraduate students make of their TSE. In the case of the investigated participants, what we found is the combination between the source of direct experience and teaching supervisor feedback in the context of the mandatory internship for all the investigated dimensions.

The context of structured practice based on the presence of supervising professors and teachers with knowledge about students and the school, as well as other undergraduate students in similar situations, allows experimentation, reflection, self-evaluation, and testing, but also controls risks, mistakes, and failures[30]. Studies on the bases of teaching knowledge, with undergraduate students of Physical Education, have pointed out that by the sum of extra experiences about the teaching, reflection, observation and learning process that it is possible to support the necessary structure of knowledge that the future teachers must know to be able to teach[31]. Similarly, the mandatory internship provides both a real and controlled teaching environment, in which class dilemmas, problems that arise, and the responsibilities of interventions are shared between undergraduate students and teachers[32,33]. These elements reinforce the understanding and the results of studies that identify internships as legitimate and important spaces for professional learning, and increase the TSE of the teacher[15].

Another emphasized point is that undergraduate students indicated a greater variety of situations and sources of TSE for the instructional dimensions compared to the organizational and social climate dimensions. In this sense, it is believed that the conduction of a process of engagement by the students to the activities and the learning of the class contents (instruction dimension), is a role that implies some responsibility. It represents the central point of a process of teaching and learning and, therefore, needs a greater number of TSE sources and learning situations[13].

Moreover, the central task of the teacher is to establish a relationship between the student and the new knowledge or content, and it is common to attribute greater value to the knowledge dimension of teaching. Therefore, the undergraduate course in Physical Education should emphasize tasks or dimensions of education, aiming to achieve an ecological balance between all dimensions (education, organization and social climate), converging towards the learning of undergraduate students[28,34].

It is also believed that there is a need for a more detailed and systematized approach regarding the tasks related to the management and social climate dimensions during university disciplines throughout the Physical Education undergraduate program, in order to provide TSE sources that promote meaningful learning. There is also the need of more detail about a systematic way of how the teachers' tasks regarding management of student, content, time and social relations during the undergraduate program; especially, due to the challenges teachers encounter in public school settings, often with little resources and materials. Moreover, the pedagogical currents advocate some balance in prominence between teacher and student, in relation to decision-making. This demands the teacher's knowledge to mediate cognitive, social, and political dilemmas, in addition to creating more meaningful learning environments for students.

Teaching during the internship and direct experiences was identified as a source of TSE in all the investigated dimensions. Recent studies in the area of Physical Education evidence that the direct experience of teaching in the mandatory internship are pointed out as the main source of TSE for the instruction dimension[8,11,14], and the same is true for the organization dimension[15,35] as well as the social climate dimension[18]. Particularly, that is due because the direct experiences of teaching in the mandatory internship are configured as authentic or concrete opportunities to test and reflect on teaching, favoring the confirmation of beliefs about the nature of knowledge (epistemological beliefs) and the creation of TSE beliefs[4], which makes them more resistant to more appropriate forms of teaching[19,36-38].

It is possible to infer for the organization dimension that the undergraduate students had beliefs about how to carry out organizational tasks, and for this reason, predominantly attributed direct teaching experiences as a source of TSE[13]. Thus, undergraduate students may have developed their beliefs for organizational tasks from a diversity of situations throughout their lives, which may have contributed to the development of TSE, reducing the "reality shock" found when students first come in contact with teaching[4,6].

The persuasion issued by the teaching supervisors in the context of the internship and university was considered as an important source of TSE for the instruction and organization, and, to a lesser extent, social climate dimension. Similar results were found by Ramos et al.[13] (2017) when analyzing the sources of TSE of seven undergraduate students obtaining a degree in Physical Education, for the dimension of teacher intentionality and classroom management. For the social climate tasks, social persuasion given in particular by supervising professors was cited by some undergraduate students as a source of TSE, however, with less emphasis compared to the dimensions of instruction and organization. Woolfolk-Hoy and Spero[37] found similar results in a longitudinal study with 53 graduate students (master's degree) at the beginning of their preparation for teaching and after a year of work as a teacher. In the study, the authors found that the TSE of these teachers had a positive impact through the support received from teachers, students, and peers.

According to Tschannen-Moran and Woolfolk-Hoy[38], undergraduate students with little experience in teaching tend to be more influenced by contextual factors, primarily through the source of social persuasion and interpersonal support. It is necessary to consider that subjects with doubts about their abilities tend to be influenced by the source of social persuasion[15]. In the same manner as individuals with little direct teaching experience[12,13]. Segundo Schunk[39] and Labone[40], the orientations or feedback received, especially from teachers considered reference models with remarkable academic credibility, tend to contribute to the development of the TSE beliefs of undergraduate students.

The observations the participants made of their supervising professor of university, regent teacher of school, course professors, and classmates in teaching situations were specified as important sources of TSE for all the dimensions studied. Studies in Physical

Education with undergraduate students indicate that the vicarious source favors the TSE development for instructional tasks[10], as well as organizational and social climate tasks[11].

Vicarious and persuasive experiences tend to provide a limited level of TSE compared to direct experiences, for failing to provide the subjects with real and authentic proof of their mastery of the capabilities they hold[19]. Through observation, individuals obtain a mental representation of the environment and develop a level of confidence from that perception, however, without having objective or actual confirmation of their abilities[3]. From observations of teaching models carrying out successful tasks, the students idealize situations, which they believe they have the capacity to carry out[41].

Conclusion

The objective of this study was to analyze the contribution of the experiences and sources obtained in a Physical Education undergraduate program in TSE beliefs, taking into account the dimensions of teaching instruction, organization and social climate. Thus, the mandatory internship was considered the main learning context for the undergraduate students in this study. However, it´s important to consider that most cited sources of TSE in this study may have been influenced by the place/environment where the research was conducted. The investigated undergraduate students have a total of 414 hours of mandatory internship, divided by 5 different internships (courses). With that, as the research was conducted only with seniors from the last semester, it is believed that they can only recall recent memories, and due to that, it is understood that other experiences acquired during all the courses may have not been mentioned/remembered.

When using longitudinal studies, we suggest the use of methodologies of systematic observation to investigate in a more detailed manner how the educators of teachers approach the tasks of organization and social climate during teaching activities in their courses. The use of memory-stimulation procedures, using a qualitative approach in a longitudinal type study, can allow us to identify how TSE beliefs are constructed throughout the Physical Education undergraduate program, minimizing possible limitations, corresponding to recent memory of undergraduate students.

Through a combination of direct teaching experiences and feedback from teaching supervisors, undergraduate students built their TSE beliefs for all dimensions. The direct experience allows testing and reflection and the feedbacks may help on reflection about the actions of teaching. This way, it permits that the undergraduate students develop and strengthen their beliefs about their teaching abilities.

For the undergraduate students in this study, the university courses offered possibilities of similar experiences to the mandatory internship, regarding the instructional dimension. However, only one source was indicated for organizational and social climate dimensions, particularly the experience of observing supervising professors in the courses.

The vicarious experiences were indicated as sources of TSE for all the dimensions and contexts studied, except for the context of the mandatory internship stage for the social climate dimension. Thus, for the undergraduate students the experiences of observing teachers and professors during the internship (supervising professor of university, regent teacher of school), peers in teaching situations, and the professors during university courses contributed to the building of TSE. For the training professors, the vicarious source of TSE must be strengthened. In the case of university courses, it would be important for educators of teachers to promote classroom situations in which they act as a reference model themselves for undergraduate students.

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