



The Impact of Practicum Experiences on Preservice Physical Education Teachers' Self-Efficacy

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Abstract: Within physical education, teachers with high levels of teaching self-efficacy demonstrate positive attitudes toward their profession, adopt innovative instructional strategies, and create engaging learning environments. Supervised practicum plays a crucial role in preparing preservice teachers for professional integration. This study aimed to examine the impact of practicum experiences on preservice physical education teachers' self-efficacy, particularly in relation to instructional strategies, classroom management, and student engagement. Participants were sixty preservice physical education teachers, from the National and Kapodistrian University of Athens, Greece. The Ohio State Teacher Efficacy Scale was used to assess self-efficacy levels, while semi-structured interviews with thirteen participants provided qualitative insights. A mixed-methods approach was used for data analysis. Quantitative findings indicated no statistically significant main effects for questionnaire factors or interactions between time and gender. However, qualitative findings highlighted practicum as a dynamic and transformative experience. Key themes included student engagement, teaching flexibility, student development, emotional intelligence, and perceived changes in teachers' self-efficacy. Participants reported that their prior coaching experience positively influenced their instructional design and organization. Beyond enhancing teaching effectiveness, practicum reshaped preservice teachers' perceptions of their professional roles, underscoring its broader impact on teacher development. Future research should explore how different practicum structures and mentoring approaches influence preservice teachers' long-term professional growth and self-efficacy development.

Keywords: Physical Education, Practicum, Preservice Teaching, Self-Efficacy

1. Introduction

Physical education (PE) differs from other academic courses because it uses movement as a tool for students' overall development. Accordingly, it makes use of teaching strategies that focus holistically on the development of social, emotional, cognitive, and physical abilities (Shoval *et al.*, 2010). As a result, creating and structuring the content of the PE curriculum is a very difficult and complicated undertaking that instructors must successfully complete. According to relevant studies, teachers in all disciplines must first acknowledge their own beliefs and expectations in order to satisfy the demands and challenges inherent in their work (Diamond *et al.*, 2004; Shankar, 2023; Teng, 2017). Additionally, in order to comprehend the elements required for organizing, preparing, and delivering successful

instruction, teachers must critically examine their beliefs and expertise (Adamakis & Zounhia, 2016; Alves *et al.*, 2019; Ferry, 2018; González *et al.*, 2019; Shoval *et al.*, 2010). However, it appears that PE teachers, particularly at the outset of their careers, encounter significant challenges in addressing the diverse demands of their teaching responsibilities within the school context (González-Calvo & Fernández-Balboa, 2018; Goroizidis & Papaioannou, 2011; Hand & Stuart, 2012).

In the broader field of education, the concept of Teachers' Self-Efficacy (TSE) is defined as the belief that a teacher has about his/her ability to bring about desired lesson outcomes in terms of students' participation and skill development (Morris *et al.*, 2017; Summers *et al.*, 2017; Tschannen-Moran *et al.*, 2001). Especially in the field of PE teaching, teachers with



high levels of TSE have a more positive attitude towards their profession (Pan, 2014), adopt new instructional strategies and student-centered methods (Gorozidis & Papaioannou, 2011; Wright *et al.*, 2021; Xiong *et al.*, 2020) and have a more enthusiastic and creative perspective during the establishment of their learning environment (Hand & Stuart, 2012; Wright *et al.*, 2021; Xiong *et al.*, 2020).

Nevertheless, research suggests that during the initial phases of PE instruction—such as practicum—teachers' SE beliefs tend to be particularly unstable and susceptible to the development of unrealistic perceptions (Giles & Kent, 2016; Morris *et al.*, 2017). At this stage, mastery experiences gained through structured coursework that integrates scaffolded learning through teaching practice (e.g., practicum and microteaching) with theoretical knowledge, including both content and pedagogical content knowledge, appear to positively influence TSE (Martins *et al.*, 2015; Morris *et al.*, 2017).

During their studies within Physical Education Teachers Education (PETE) accumulate supervised practicum experience, which provides them with the opportunity to apply their theoretical understanding in authentic classroom settings and assess the outcomes of their instructional choices and decisions on the learning environment (Morris *et al.*, 2017). This is especially significant for aspects of teaching such as classroom management and lesson delivery, which have been identified as major sources of stress for preservice teachers and can adversely affect their SE (Bandura, 1997; Morris *et al.*, 2017). Practicum is a mandatory part of undergraduate and postgraduate studies of PE teachers worldwide (Cohen *et al.*, 2013; Lawson *et al.*, 2015) and constitutes a period during which practitioners teach, observe, plan and modify teachings under the supervision of an experienced teacher-counsellor. During this period, participants acquire pedagogical content knowledge, learn to connect theory with practice in lesson planning, are confronted with real and authentic teaching conditions at school and develop personal competences and skills related to teaching (Morris *et al.*, 2017). Supervised practicum plays a key role in empowering future teachers and their smooth integration into the profession afterwards. Research confirms this claim and highlights the multiple benefits of practicum. In particular, the process contributes to the development of trainees' ability to reflect on teaching, set learning goals and pursue the expected learning outcomes. In addition, it enhances their ability to collaborate and

find solutions during teaching practice (Iaochite & Costa Filho, 2016; Feiman-Nemser, 2001; Martins *et al.*, 2015).

Based on the above, the aim of this study was to examine the impact of practicum experiences on preservice PE teachers' TSE and specifically in regard to content related with the implementation of instructional and classroom management strategies, as well as teaching practices that can promote students' engagement and motivation to participate in their classes.

2. Method

2.1. Participants and Sampling

Participants in this study were 28 male and 32 female undergraduate students (n=60) of the School of Physical Education and Sport Science of the National and Kapodistrian University of Athens in Greece (SPESS/NKUA) who, during the period of this study, were attending the third year of four-year bachelor's degree in physical education and Sport Science.

As part of their PETE curriculum, participants had already conducted practicum in elementary schools. During the period of the study, they were preparing to conduct practicum in secondary schools (spring semester of their third year of studies). Particularly, they had to work in pairs to prepare and implement lesson plans (20 teaching hours) under the supervision of cooperating schoolteachers. Along with their practicum, participants were required to complete a course on Physical Education Teaching, with lectures focusing on curriculum/teaching models, methods of instruction, and the principles of sport pedagogy, and micro-teaching assignments conducted in groups, as part of practical application of lecture content. During practicum, participants received mentoring support in the development of lesson plans based on new instructional methods and models (i.e. Teaching Games for Understanding, Personal and Social Responsibility model, Sport Education model), the evaluation of their teaching effectiveness in implementing these models the comprehension of the complexities inherent in teaching, and the interpretation of teaching practice based on lesson progress as well as management of behavioural issues.

This study was conducted in accordance with the Declaration of Helsinki and approved by the Institutional Review Board (or Ethics Committee) of School of Physical Education and Sport Science,

University of Athens, Greece, approval number 1462/11-01-2023.

Table 1. Participants criteria selection-Interview

2.2. Data Collection Process

The Ohio State Teacher Efficacy Scale-OSTES questionnaire (Ohio State Teacher Efficacy Scale-OSTES) developed by Tschannen-Moran and Woolfolk Hoy (2001) was used to collect data on TSE. The questionnaire has been adapted to the Greek language on PE preservice teachers (Tsingilis, 2005) and has demonstrated very good psychometric properties with Cronbach's reliability (Cronbach, 1951) ranging between 0.85-0.92. The OSTES consists of fifteen items assessing SE across three factors five questions per factor: (a) Instructional strategies (e.g. "...do you implement alternative teaching methods in your classroom") (b) Classroom management (e.g. "...respond to disobedient students") and (c) Student Engagement (e.g. "...motivating students who show reduced interest"). Responses follow the 9-point Likert-type scale (1 = not at all, 9 = to a very large extent) and in each factor, questions begin with the phrase "To what extent can you...". Participants were given the OSTES twice, before the start and at the completion of the school practicum.

Apart from the OSTES questionnaire, out of a total of sixty participants thirteen (N=13) participants, including seven (N=7) female and six (N=6) male, were asked to participate in semi-structure interviews focusing on their experiences during practicum. Of these, five had prior coaching experience, while eight did not (Table 1). Changes in TSE between pre- and post-practicum measurements for each participant were measured. These variations in TSE were used as a criterion for selecting participants for the interviews. Participants were chosen based on the magnitude and direction of their TSE change, which provided insight into the impact of the practicum experience on their professional development. A diverse range of TSE changes was observed, with some participants showing a significant increase, others demonstrating a decline, and a few exhibiting relatively minor changes. This selection process allowed for a comprehensive understanding of the factors influencing TSE and offered valuable perspectives on the practical and emotional aspects of their teaching experiences. The goal was to ensure representation of a broad spectrum of outcomes, thereby enriching the analysis of the study's objectives.

Participant code-name	SEX	Total TSE change	Coaching Experience
Participant_1	female	+1.60	No
Participant_2	female	+0.80	Yes
Participant_3	male	-0.67	No
Participant_4	male	-1.60	Yes
Participant_5	female	-1.20	No
Participant_6	male	+1.47	No
Participant_7	male	-2.13	No
Participant_8	male	-0.87	No
Participant_9	female	-0.20	No
Participant_10	male	-0.47	Yes
Participant_11	female	+0.33	Yes
Participant_12	famale	No measure	No
Participant_13	famale	No measure	Yes

Initially, eleven (n=11) participants were selected. Data saturation was achieved in the eleven interviews, as no new themes or information that could further enrich the analysis emerged. This outcome may have been influenced by the relative homogeneity of the sample, which consisted of third-year students from the same department and program, studying in the same academic year and semester. The focused nature of the research topic could have further contributed to phenomenon of TSE, as participants shared similar experiences, perspectives, and understandings related to the subject matter. The specific context of the participants' academic standing and the narrowly defined scope of the research topic may have limited the emergence of new data points, thereby leading to the early achievement of data saturation (Strauss & Corbin, 1998). However, interviews continued until the thirteenth (n=13) to confirm the stability of the data.

After reviewing relevant literature (Al-Awidi & Alghazo, 2012; Chong & Kong, 2012; Morris & Usher, 2011; Phan & Locke, 2015), eight key questions were compiled based on SE theory to guide the interview. The initial questions were designed to be straightforward, serving to gradually familiarize participants with the interview process. The main focus

of the interview was on the experiences gained by the participants during their practicum as well as coaching experience that may influence their TSE.

Interviews were conducted separately either face-to-face or online (based on participants' availability), each with an approximate duration of thirty minutes. All interviews were completed within a ten-day period following the completion of the practicum in schools. The semi-structured interview method was selected for its capacity to elicit rich and detailed qualitative data, capturing participants' perspectives and experiences while also allowing for the identification of emergent themes that may not have been initially anticipated. However, this approach requires an important level of interviewer proficiency to ensure that the conversation remains focused on extracting relevant information while minimizing the risk of incoherence or digression. The researcher conducting this study possessed prior experience both as an interviewee in studies employing semi-structured interviews and as a researcher in a study investigating the experiences of PE students during their practicum (Agiasotelis *et al.*, 2024).

Before the start of the interviews, there was a brief discussion between the researcher and the participant in order to develop a climate of trust, with issues related to the course of their studies, their professional occupations and their leisure or sports activities. Afterwards, participants were informed in detail about the purpose and methodology of the study, there were no expected risks, consent was sought for participation, and they were informed about the possibility of leaving the interview at any time without negative consequences. They were also informed that anonymity and personal data will be preserved as only the researcher will have access to them and each reference in the text will be replaced with a designated code. In this way, participants understood the method of the study and the interview process in order to increase their confidence in the researcher. The researcher had a non-intrusive role and sought to create an environment of trust where participants felt comfortable sharing their experiences. To minimize the investigator's impact on the results, neutrality techniques were followed, such as active listening and avoiding guiding questions (Mannan & Afni, 2020).

2.3 Data analysis

A mixed method design was used for data analysis, to achieve a deeper understanding of the

topic under investigation (Creswell *et al.*, 2011). Particularly, quantitative data, would ensure the validity, reliability, and generalizability of findings, whereas qualitative data, would probe deeper understandings concerning the underlying causes of phenomenon under investigation (Creswell *et al.*, 2011). Particularly, mixed ANOVA were used to evaluate the effect of practicum on participants' levels of TSE across the three factors of the OSTES scale (i.e., classroom management, student engagement, instructional strategies). The main idea was to assess potential changes in student's TSE after the completion of a 10-week period of school practicum, during which participants had the opportunity to implement various instructional models and classroom management strategies, under the supervision of a cooperating PE teacher. The level of statistical significance was set at 0.05.

The interviews were recorded and transcribed verbatim. Thematic analysis was employed to analyze the qualitative data, following Braun and Clarke's (2006) recommended steps. Thematic analysis was conducted through a systematic process that began with repeated readings of the transcripts to establish familiarity with the data. During this stage, initial open codes were identified based on salient and recurring patterns in participants' narratives. The coding process was inductive, allowing themes to emerge from the data rather than imposing predefined categories. The final themes were developed through iterative refinement of the codes and were grouped into conceptually coherent categories. To ensure the credibility and dependability of the analysis, a second researcher—experienced in qualitative research and thematic analysis (Dania & Griffin, 2021; Dania & Lorenz, 2024)—was actively involved throughout the coding process. This researcher independently coded a representative subset of the transcripts and critically reviewed the entire coding framework. Discussions between both coders were systematic and iterative, focusing on refining code definitions, consolidating overlapping codes, and validating the interpretative coherence of the themes. This peer debriefing process strengthened the analytical rigor and minimized potential bias by incorporating an external perspective throughout data interpretation. While no formal inter-coder reliability coefficient was calculated, consensus coding was adopted across all transcripts following joint discussions.

3. Results

The Mixed ANOVA results indicated no statistically significant main effect of repeated factor time on a) Instructional Strategies SE [$F(1,58) = 1.517$, $p = .223$, $\eta^2 = .025$], b) Classroom Management [$F(1, 58) = 0.095$, $p = .759$, $\eta^2 = .002$] and c) Student Engagement [$F(1, 58) = 0.029$, $p = .865$, $\eta^2 = .001$], suggesting that overall, SE levels did not significantly change from pretest to posttest. Additionally, the interaction effect between within-subjects and between-subjects factors, time and gender, was not statistically significant on a) Instructional Strategies SE [$F(1,58) = 0.481$, $p = .491$, $\eta^2 = .008$], b) Classroom Management [$F(1, 58) = 3.37$, $p = .72$, $\eta^2 = .055$] and c) Student Engagement [$F(1, 58) = 0.422$, $p = .518$, $\eta^2 = .007$].

Both males and females tended to experience changes in their scores across the three measures (Instructional Strategies, Classroom Management, and Student Engagement), but the patterns differed (Table 2).

In Instructional Strategies, both groups show a decrease, with males showing a more notable decrease, while females had a smaller decrease. For Classroom Management, males had a decrease, while females showed an increase. In Student Engagement, males showed a slight decrease, while females showed a more notable increase. Overall, males tended to experience decreases across the measures with slightly increasing variability, while females generally showed increases, especially in Classroom Management and Student Engagement, with relatively stable variability (Figure 1).

Furthermore, participants with prior coaching experience exhibited more stable or slightly improved scores in all three subscales, compared to those without experience, who tended to report reductions (Figure 2).

The analysis of the semi-structured interviews data began with a thorough reading of the transcripts, allowing for a deep understanding of participants' experiences. Through this process, initial codes were generated by identifying recurring patterns and meaningful segments in the narratives. These codes reflected aspects such as emotional responses, real-time decision-making during instruction, observed student behaviours, and evolving perceptions of TSE. Subsequently, the codes were organized into broader thematic categories that captured the essence of participants' reflections. These included themes related to student engagement and development, adaptability in teaching, emotional awareness, and changes in TSE. The relationship between the initial codes and the final themes is summarized in Table 3.

The analysis of the semi-structured interviews indicated that the practicum represented a complex and dynamic experience for all participants. The events that seemed to have a significant impact on the daily teaching routine were focus on six themes that emerged: (a) student engagement in lessons (4 quotes), particularly in terms of the strategies the participants used to encourage active student participation, (b) teaching flexibility (3 quotes), which involved the preservice PE students ability to adapt the daily schedule according to emerging situations, (c) students development (5 quotes), which related to how participants assessed their teaching effectiveness based on the learning outcomes of each lesson, (d) emotional intelligence and the creation of a positive teaching climate (3 quotes), which referred to the participants' ability to perceive their students' emotions and foster a climate of acceptance and emotional security during lessons, and (e) perceived change in SE (Table 4), which involved the unforeseen factors that could influence and shape the direction of instruction.

Table 2. Self-efficacy scores before and after practicum

Variable	TSE	
	Before M±SD	After M±SD
Instructional Strategies	Male: 6.70±1.05 Female: 6.99±.92	Male: 6.44±1.16 Female: 6.92±1.18
Classroom Management	Male: 6.77±1.04 Female: 6.55±1.23	Male: 6.46±1.22 Female: 6.77±1.16
Student Engagement	Male: 6.39±1.04 Female: 6.71±.99	Male: 6.26±1.08 Female: 6.79±1.07

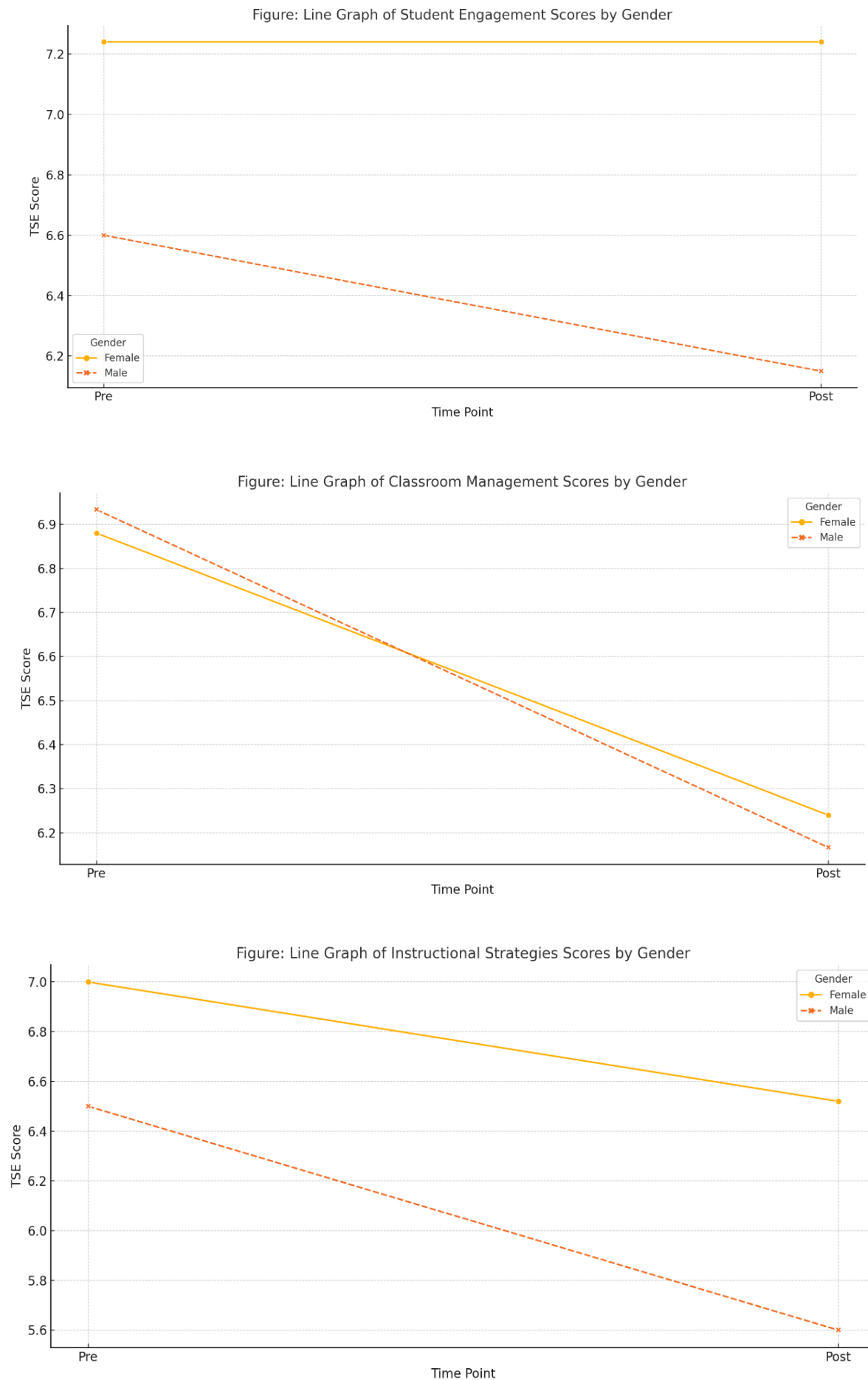


Figure 1. Line graph of pre- and post-practicum TSE scores by gender.

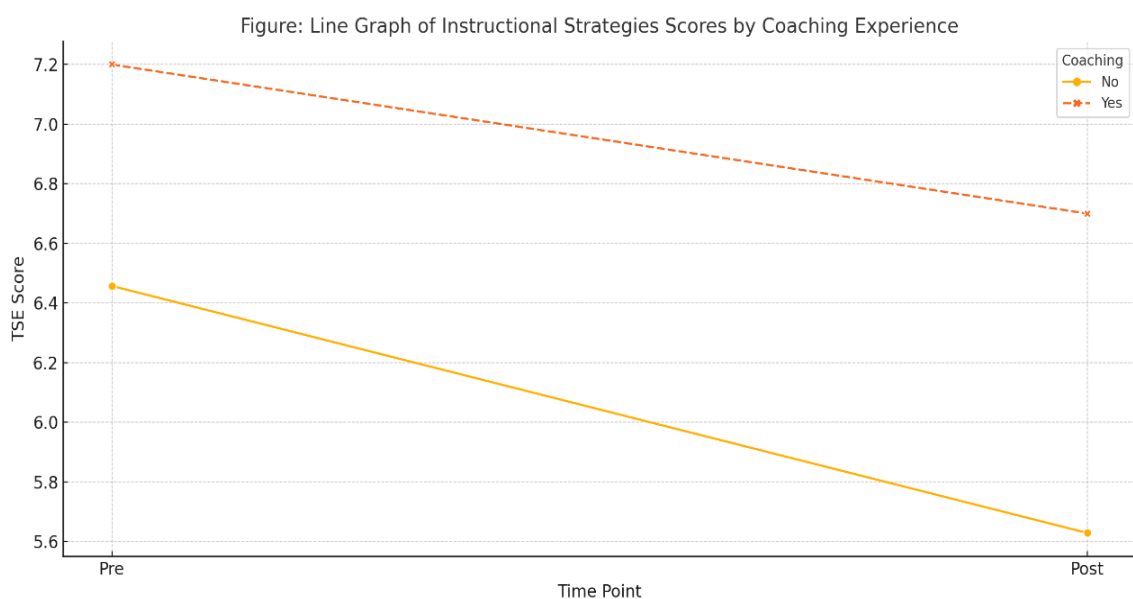
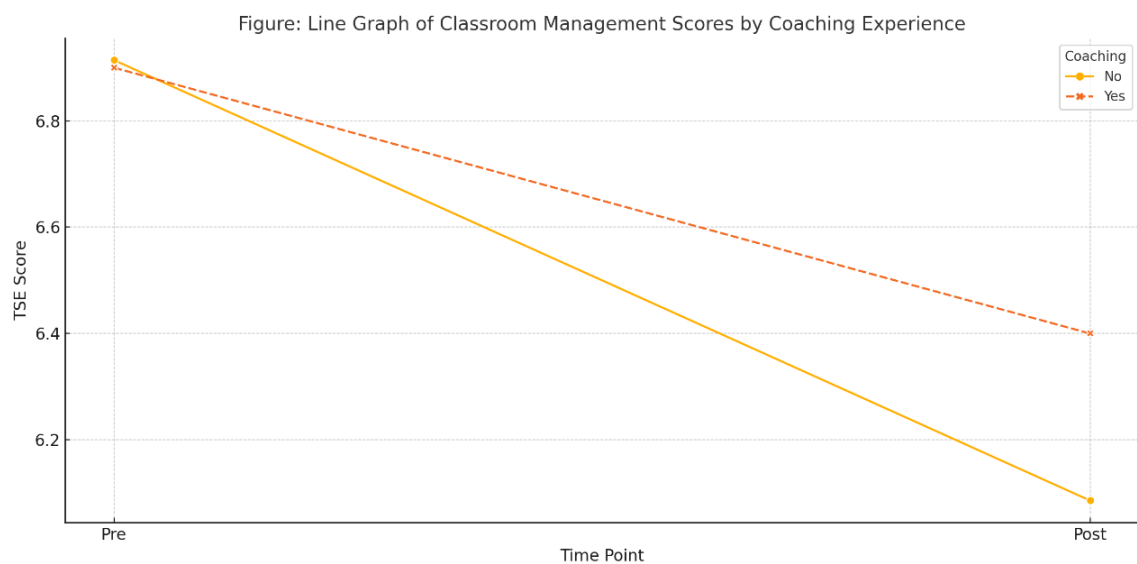
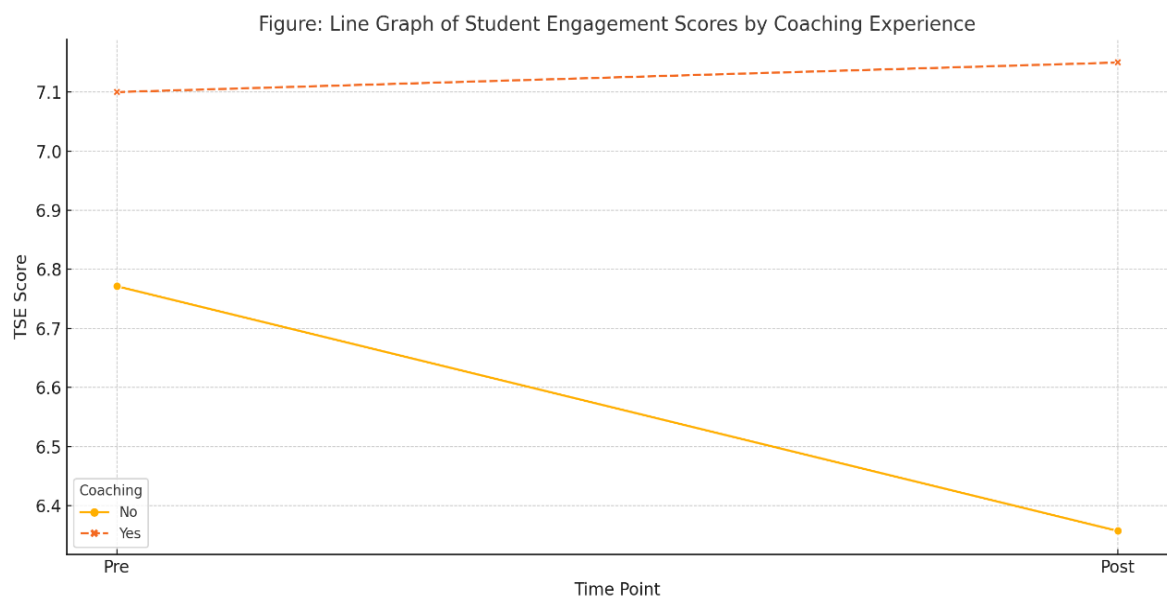


Figure 2. Line graph of pre- and post-practicum TSE scores by coaching experience

Table 3. Thematic coding framework

Theme	Initial Codes
Student Engagement	Student initiative, peer interaction, voluntary participation, active questioning
Teaching Flexibility	Real-time changes, adapting activities, handling unexpected events
Student Development	Observed learning outcomes, lesson effectiveness, student progress
Emotional Intelligence	Empathy, student emotions, trust building, supportive climate
Perceived Change in TSE	Confidence shifts, self-reflection, evolving teaching identity

Table 4. Perceived change in Self-Efficacy

Participant code-name	Pre-post results per factor	TSE	Interview-Question 3: perceived change in TSE
Participant_1	IS=6.20-760, CM=5.40-7.80, SE=6.00-7.00		"Of course, this whole process has changed me..." "I am more able to comprehend how an adult feels and perceives the world...."
Participant_2	IS=5.80-5.80, CM=4.80-5.60, SE=5.60-7.20		"It has changed (TSE) enormously..."
Participant_3	IS=9.00-9.00, CM=9.00-8.60, SE=5.80-4.20		"It's (TSE) changed..." "... In order to help someone value physical education, I realized that you must first gain their trust as a person and behave more like an educator than a trainer...."
Participant_4	IS=5.80-3.80, CM=5.80-4.60, SE=5.60-4.00		"I believe this experience has shifted my perspective, as I now recognize that I could perform certain tasks more effectively. While I feel I could have excelled more had the subject matter aligned more closely with my sport expertise, I was tasked with teaching sports—an area outside my familiarity. Nevertheless, this experience provided me with valuable insights and ideas on how to enhance my effectiveness in the future"
Participant_5	IS=7.80-7.40. CM=6.80-4.60, SE=7.00-6.00		"Yes, indeed. It has significantly improved my understanding of what I am able to, when students react to the activities we've included and when they don't."
Participant_6	IS=7.40-8.00, CM=5.20-7.20, SE=5.60-7.40		"I don't know if anything has changed in terms of effectiveness, because I think ultimately effectiveness is a multifactorial..." "...Gaining practical experience before acquiring theoretical knowledge helped me organize my understanding more effectively. Studying afterward allowed me to structure my learning, and through the practicum, I was able to identify mistakes throughout the entire process...."
Participant_7	IS=8.40-6.00, CM=8.20-6.40, SE=8.60-6.40		"I realized that I am more effective in teaching students than I initially expected before starting the practicum".
Participant_8	IS: 6.60-5.00, CM=5.60-4.20, SE=5.60-6.00		"My perspective has definitely changed. At the beginning of the semester, I felt anxious, mainly due to the students' age and whether I would be able to manage. However, as the weeks and lessons progressed, I became much more comfortable and confident. This experience significantly transformed the way I perceive myself in the classroom"

Participant_9	IS=8.00-7.40, CM=7.60-7.00, SE=7.00=7.60	"My perception has definitely changed, as real classroom experience allows you to see whether you can effectively manage the students. Based on the results, I believe I can teach effectively, as the lesson plans my classmate, and I designed were largely followed. The students engaged with the exercises, creating a positive classroom atmosphere and ensuring that the lesson was well-structured and effective".
Participant_10	IS=6.60-6.60, CM=6.60-4.80, SE=6.00-6.40	"Yes, definitely. I believe my perspective has changed significantly because I learned how to engage students more actively in the lesson. Instead of the lesson being merely a directive process, I focused on encouraging participation through questions, answers, and diverse opinions. I also learned how to guide students in shaping the lesson themselves".
Participant_11	IS=6.20-6.20, CM=5.80-6.00, SE=6.00-6.80	"Learning and enjoyment were two key elements that defined my practicum" "Naturally, both my teaching approach and overall perspective have evolved. When I first started, I was not fully prepared to handle students' psychological and physical needs. However, over time, I developed a greater awareness of their emotions in various situations, allowing me to respond more effectively"
Participant_12	-	"I think yes, to a fairly large extent, but there is always room for development."
Participant_13	-	"I believe my perspective has changed because I gained hands-on experience through practice. However, there were also moments of disappointment when things didn't go as planned."

*IS=Instructional Strategies, CM=Classroom Management, SE=Student Engagement

The participants felt that as a consequence of the practicum they experienced positive changes in TSE while teaching the PE course, which they attributed to a variety of parameters, also noting that they felt they had even more room for additional increase. At the beginning of the practice there was a feeling of insecurity:

"When I first started, I was not fully prepared to handle students' psychological and physical needs" (participant_11),

"At the beginning of the semester, I felt anxious, mainly due to the students' age and whether I would be able to manage" (participant_8).

However, the practicum experience had a crucial role in shaping participants perceptions of their teaching abilities. Many participants report significant personal and professional growth, highlighting increased confidence and adaptability.:

"... Of course, this whole process has changed me..." (participant_1),

"Yes, indeed. It has significantly improved my understanding of why I am able to, when students

react to the activities we've included and when they don't." (Participant _5),

"...This experience significantly transformed the way I perceive myself in the classroom" (Participant _8),

"I think yes, to a fairly large extent, but there is always room for development." (Participant _12).

Improvements were observed in student engagement, as participants fostered a more interactive and participatory learning environment. Collaboration among students increased demonstrating greater initiative, exhibiting responsibility and contributing more meaningfully to class activities:

"...But what pleased me the most was that the initiative to approach and correct their peers came entirely from the students themselves." (participant _3),

"...And I successfully engaged them in the lesson, which brought me great satisfaction." (participant _1),

"...It was important that the children participated willingly in every model, as it was a new and exciting experience for them." (participant _7),

"...We observed that, to a great extent, the children managed to collaborate effectively with one another, and overall, there were no extreme behaviours" (participant _1).

Also, participants highlighted the positive and educational nature of observing their students achieve the anticipated learning outcomes. This reflects the significance of student progress as a key factor in the participants' own learning experiences:

"...If they gained knowledge from the course..." (participant _7),

"...And if the goal of this course was achieved..." (participant _11),

"...And of course, if they learned something more in this course..." (participant _9),

"...To observe how students cooperate with each other, and whether they demonstrate critical TGfU abilities through questions..." (participant _1),

"...We saw that the pupils largely succeeded in cooperating with each other..." (participant _1).

Participants also recognized the value of empathy in student-teacher interactions, and the critical role emotional intelligence plays in both student motivation and classroom management. They considered how their main priority at the start of their practicum was to give the lesson according to the plan. But as time went on, they realized how important it was to attend to the emotional and social needs of the students, which improved student engagement. By developing the ability to perceive and respond to students' emotions, participants not only improved their teaching strategies but also strengthened their relationships with students, creating a more positive and engaging classroom climate:

"...Over time, I learned to be more attuned to students' emotions in various situations. I became more empathetic, understanding when they disliked something or experienced conflicts with peers. In the past, I was primarily focused on implementing my lesson plan without paying much attention to the psychological aspects of the students." (participant 11),

"...This resulted in the influence of two students who played a crucial role in shaping the behaviour of their peers." (participant 6),

"...It helped that I communicate frequently with my students, earning their trust so they are not

afraid to make mistakes. I also encourage them to take initiative." (Participant 7).

Participants in the practicum faced unforeseen difficulties that forced them to modify their teaching methods during the lesson. They underlined the value of adaptability in lesson design, changing exercises to encourage student collaboration and deal with new challenges. They also emphasized how important it is to adapt theoretical information to the unique requirements of each class by reinterpreting it in real-world contexts. By developing a more responsive teaching style, this method improved their efficacy in the classroom:

"...At times, unexpected situations arose that we had not anticipated. However, we managed to handle them and had to adjust some exercises accordingly" (participant 5),

"...We also had to modify activities to foster cooperation during the lesson, enabling students to address any challenges that emerged." (participant_8),

"...In practice, the theoretical background must be adapted when we enter the school environment. We should reinterpret it based on our knowledge and tailor it to the specific needs of each group we teach." (participant_5).

These elements further enhanced students' active participation by fostering more favourable teaching and learning conditions. As a result, participants developed positive teaching experiences, leading them to perceive the practicum as both an enjoyable and rewarding challenge. Through this process, they not only overcame difficulties but also gained valuable knowledge and a sense of accomplishment:

"Learning and enjoyment were two key elements that defined my practicum" (participant _11),

"While I feel I could have excelled more had the subject matter aligned more closely with my sport expertise, I was tasked with teaching sports—an area outside my familiarity" (participant _4).

The coaching experience in sports clubs, despite the different parameters compared to a school, (sports facilities, equipment, and quality of interpersonal relationships) influenced participants' confidence and ability to adapt teaching strategies to new settings:

"...Yes, slightly younger and slightly older students. At the swimming pool, however, the

environment is very different from a school setting." (participant_13),

"...But my experience in swimming and working with those age groups, I believe, helped make everything run more smoothly and apply these methods effectively." (participant_13),

"...I have worked with these age groups before, so I can say that my experience was similar to that in the school setting." (participant_12),

"...And the experience I gained from my training at the academy..." (participant_10).

4. Discussion

The aim of this study was to examine the impact of practicum on preservice PE teachers TSE to implement content and strategies that could promote students' engagement and motivation to participate in PE. Statistical analysis revealed no significant differences in any of the OSTES scores, a fact that suggested that participants' TSE did not change after the completion of school practicum. This was an expected finding given that in relevant studies; practicum does not seem to have a single effect on preservice PE teachers' TSE. In some studies, the effect of practicum is positive (Cohen & Zach, 2013; Simou et al., 2013; Zach et al., 2012), while in others negative (Iaochite & Costa Filho, 2020). Of course, similar results were presented in the studies of Gurvitch and Metzler (2009) and Legrain et al. (2019). It seems that such discrepancies in the results of relevant studies relate to the fact that TSE is more volatile at the beginning of career, and very often decreases during bachelor studies (Hoy & Spero, 2005).

It is a fact that in the current study, the participants' OSTES scores before the start of their practicum in secondary education school were high. Tschannen-Moran and Woolfolk Hoy (2007) consider that beginning teachers often overestimate their TSE levels when completing such questionnaires. Many even tend to think that they will be able to greatly influence the lives of their students but often face what is called a reality shock (Ferry & Westerlund, 2023; Richards et al., 2018; Simonton et al., 2021). According to relevant literature (Alves et al., 2019; Hordvik et al., 2019; Veenman, 1984), reality shock refers to the predicament that novice PE teachers may find themselves in during their transition from university classrooms to the complex reality of the

schoolyard. Among other challenges, participants in this study also had to manage the motivation and engagement of secondary school pupils, which tends to decline during adolescence. Relevant research highlights that adolescence is a period of significant change, during which motivation for participation in PE and physical activity decreases (Morgan & Parker, 2022; Nols et al., 2021).

However, an in-depth analysis of participants' experiences during practicum revealed that their professional growth extended beyond instructional strategies and student engagement, highlighting the transformative nature of practicum. As many of them noticed, school practicum not only enhanced their teaching effectiveness but also reshaped their perceptions of their role as educators. While they initially emphasized the importance of student involvement and motivation for active participation, their reflections at the end of the academic course revealed a shift in focus. They placed greater emphasis on understanding students' individual needs and creating opportunities for their holistic development. This change suggests that beyond engagement, participants recognized the broader role of teaching in fostering both academic and personal growth, highlighting the evolving nature of their pedagogical perspectives. This included learning outcomes linked to cognitive, motor, and social skills objectives of the lesson. A notable focus in the present study was on the ability of participants to recognize students' emotions and foster a positive learning climate.

The discrepancy between the lack of changes in OSTES scores and the reported gain in TSE highlights the complexity of assessing TSE solely through structured questionnaires. While the OSTES captures general aspects of teaching, such as the implementation of strategies and classroom management, it may not sufficiently reflect the dynamic and context-dependent nature of TSE as described by participants. As Tschannen-Moran et al. (1998) emphasize, teachers' sense of efficacy is shaped by specific tasks, students, and teaching contexts, and therefore can vary depending on situational factors.

In line with this, the present study found that participants' TSE was often influenced by unpredictable and emotionally charged classroom events, the unique ecology of each classroom, and the perceived significance of the subject matter being taught. These influences align with previous findings showing that TSE is affected not only by the teachers' instructional

ability but also by personal interpretations, individual goals, and emergent classroom challenges (Sas-Nowosielski & Kowalczyk, 2019; Schnitzius *et al.*, 2021; Yan *et al.*, 2021). The qualitative data revealed that TSE could fluctuate even within the same lesson, depending on students' responses, behavioural dynamics, or emotional atmosphere—elements that structured instruments like OSTES are unlikely to capture. This reinforces the value of mixed method designs in teacher education research, as they allow for a richer understanding of TSE through the integration of both measurable outcomes and lived experiences.

According to the relevant literature, teachers' capacity to perceive students' needs significantly influences both the effectiveness of the lesson and the establishment of teacher-student rapport. Additionally, teachers' individual experiences in this regard are intricately linked to the creation of a positive learning environment, more effective classroom management, and greater flexibility in implementing lesson activities. (Jennings & Greenberg, 2009; Wu *et al.*, 2019). Similar findings have emerged from relevant studies, where TSE was shown to be influenced by lesson design (Martins *et al.*, 2015) as well as unforeseen circumstances, such as students with low motivation—factors that were also identified as significant influences on the experiences of preservice PE students during their coursework (Iaochite & Costa Filho, 2016). Specifically, primary school teachers were found to exhibit higher levels of TSE concerning student engagement in the learning process when compared to secondary school teachers (Klassen & Chiu, 2010; Wolters & Daugherty, 2007), which underscores the unique characteristics of this educational level.

Although the OSTES questionnaire (Tschannen-Moran & Woolfolk-Hoy, 2001) is considered one of the most valid and reliable for assessing TSE, it focuses only on three competencies: the ability to use instructional strategies, the ability to effectively manage a classroom, and the ability to engage students. However, there may be additional competences that teachers consider when assessing their competences as e.g. emerged in this study: the ability to adapt the daily plan, the ability to perceive students' emotions and the creation of a positive learning climate. Given the multifaceted nature of competences that constitute effective PE teaching, it is reasonable to expect that TSE will be shaped by both individual beliefs and judgments, as well as by various

external factors. These include the content of the course, the teaching methods and strategies employed, and the specific conditions within the teaching context (Khanshan, & Yousefi, 2020).

Further, while the OSTES offers a solid foundation, its general structure may not fully capture the complex and embodied realities of PE teaching. Participants in the present study often interpreted questionnaire items differently—some thinking of specific content areas, others relying on more general impressions. This supports prior claims that the sources of TSE may vary based on the type of pedagogical knowledge activated (Tschannen-Moran & McMaster, 2009). Moreover, PE contexts uniquely involve spontaneous physical interaction, high emotional sensitivity, and immediate behavioural regulation in dynamic environments—dimensions not adequately represented in standard efficacy scales (Sas-Nowosielski & Kowalczyk, 2019; Schnitzius *et al.*, 2021). Future research should consider adapting OSTES or supplementing it with PE-specific tools to better account for these contextual demands.

Another issue relates to the accuracy of beliefs obtained through TSE rating questionnaires. For instance, in one of the OSTES items, "To what extent can you make good questions for your students?", PE teachers may have applied teaching models or methods that do not prioritize the use of questions. For example, in the Sports Education model (Siedentop, 1994) or the "practical teaching style" (Mosston & Ashworth, 1990), the emphasis is placed on active participation, skill development, and student autonomy, where questioning may not play as central a role as in other school subjects or PE methods. This discrepancy could result in teachers underestimating their effectiveness in question formulation if they are using teaching methods that do not rely heavily on questioning, thus potentially distorting the assessment of their TSE. This highlights the importance of considering the specific pedagogical frameworks employed by teachers when interpreting the results of TSE rating questionnaires.

The role of prior coaching experience emerged as a meaningful factor in understanding variations in the evolution of TSE during practicum. Quantitative results indicated that participants with prior coaching experience exhibited a slightly smaller reduction in overall TSE compared to those without such experience. While this difference was not statistically significant, its consistency with participants' qualitative

accounts suggests that coaching experience may exert a stabilizing effect on TSE in novice teaching contexts.

This interpretation aligns with previous findings that emphasize the importance of authentic, domain-relevant experiences in the development of TSE. Martins *et al.* (2015) highlight the contribution of practicum-based mastery experiences to the formation of robust TSE among pre-service teachers. Similarly, Temiz *et al.* (2025) found that Hungarian preservice PE students with prior experience in sport instruction reported significantly higher levels of TSE across key domains, including instructional planning, classroom management, and student engagement.

The qualitative findings of the present study reinforce this perspective. Participants with coaching backgrounds consistently attributed their confidence in managing group dynamics, adjusting instructional strategies, and maintaining composure under pressure to their earlier experiences in coaching or sport-related teaching contexts. In contrast, participants without such backgrounds more frequently described early struggles with lesson implementation, emotional regulation, and uncertainty in handling unforeseen classroom events.

These findings lend further support to Bandura's (1997) social cognitive framework, wherein mastery experiences and task-relevant exposure constitute primary sources of self-efficacy beliefs. Accordingly, prior engagement in instructional roles—even outside formal school contexts—may serve as an experiential bridge that facilitates smoother transitions into practicum teaching. From a teacher education perspective, the integration of structured coaching or peer-led teaching opportunities into initial training programs may represent a valuable avenue for strengthening preservice teachers' instructional confidence and resilience.

As noted in the results, both male and female participants experienced shifts in their TSE scores across all three OSTES dimensions, but these shifts followed distinct trajectories. Males tended to report overall decreases—particularly in Instructional Strategies and Classroom Management—whereas females showed notable increases, especially in Classroom Management and Student Engagement.

These findings resonate with previous literature suggesting that female pre-service PE teachers may demonstrate stronger growth in domains that involve interpersonal dynamics and adaptability. Eski *et al.* (2018), in a study with over 500 pre-service

PE teachers, found that although gender differences were not always statistically significant, females scored higher in Educational Strategies, while males showed higher means in Classroom Management. These tendencies may reflect underlying differences in perceived pedagogical confidence and interaction styles.

5. Limitation and Future Research

As participants in this study were preservice PE teacher who did their practicum in secondary schools, the findings might be specific to this educational level. The experiences of these preservice teacher may differ from those of qualified teachers or preservice teachers doing PE practicum in primary schools, sports teams, or in other specialized PE settings.

Given the dynamic and movement-oriented nature of PE settings, future research should consider adapting existing items to better reflect competencies such as physical engagement, moment-to-moment classroom regulation, and affective responsiveness. Alternatively, complementary instruments could be employed. For instance, the *Physical Education Teacher Efficacy Scale* (Humphries *et al.* 2012) provides PE-specific insights into instructional confidence, while emotion-related scales (e.g., Spittle *et al.* 2022) may capture the affective underpinnings of efficacy beliefs, especially during challenging or rewarding teaching moments. Incorporating such tools would allow for a more context-sensitive and multidimensional assessment of self-efficacy in PE contexts.

As interest in the sources of TSE continues to grow, there is an increasing demand for a scale that provides a more comprehensive and accurate understanding of how TSE can be supported. This scale should not only assess the teacher's perceived ability to motivate students and manage their behaviour but also include evaluations of teaching skills, such as the ability to adjust daily lesson plans, the perception of students' emotions, and the creation of a positive learning climate. A more holistic scale would be instrumental in assessing professional development programs.

The lack of significant change in TSE over time, however, may be an area to explore further, as other studies have shown more pronounced shifts. Future studies could investigate the specific factors that contribute to TSE change, such as the length of

the practicum, feedback mechanisms, and the intensity of coaching experience. Present study, also, highlights the need to specify the definition of TSE in order to tailor the definition to the specific context of PE, where motor objectives take precedence over other goals. Such a redefinition would offer valuable insights for future research endeavours. Furthermore, the use of mixed methods is crucial in this area of research, as it allows for a more nuanced and robust understanding of TSE. Combining qualitative and quantitative approaches enables researchers to capture the complexities of teaching practice, providing both in-depth insights into individual experiences and measurable data that can be generalized across larger populations. This methodological approach not only enriches the evaluation of TSE but also contributes to the development of more effective professional development frameworks.

6. Conclusion

This study underscores the complexity of preservice PE teachers' TSE development during practicum, revealing that quantitative stability in OSTES scores may obscure deeper qualitative transformations. While no significant changes in TSE were recorded through structured measurement, participants' reflections pointed to meaningful growth in pedagogical understanding, emotional awareness, and adaptability. These findings highlight the limitations of standardized instruments in fully capturing context-specific and emotionally driven aspects of PE teaching. Moreover, prior coaching experience emerged as a potentially stabilizing factor for TSE, reinforcing the value of practical, domain-relevant exposure. Overall, the results suggest that TSE is a multifaceted construct, influenced by both personal beliefs and the nuanced realities of the teaching environment. Future research should adopt mixed-method approaches and consider adapting existing tools or incorporating PE-specific measures to better reflect the embodied and interactive nature of PE teaching.

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Informed Consent

The consent form was signed before the commencement of the study.

Conflict of Interest

The authors declare that there was no conflict of interest.

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