The development of personal and social skills within traditional teaching and Sport Education: a study with preservice teachers in Physical Education

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Believe you can and you are halfway there.

Theodore Roosevelt

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Aos meus filhos, Maria e Francisco
Pelos sorrisos,
Pelos abraços,
Pelo Amor!
...e pelo tempo que não vos dediquei.

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RESUMO

A presente tese teve como objetivo central analisar a perceção dos alunos sobre o impacto de duas abordagens de ensino distintas (Ensino Tradicional, ET, e o Modelo de Educação Desportiva, MED), no desenvolvimento de competências pessoais e sociais consideradas, na atualidade, fundamentais na formação dos alunos, a saber: responsabilidade pessoal e social, empenhamento, empoderamento e autoconfiança. Em complemento, realizou-se uma investigação-ação (IA) de caráter colaborativo, no sentido de auxiliar três professores estagiários no desenvolvimento de estratégias para o empoderamento dos estudantes-treinadores no âmbito do MED. Nos estudos quantitativos participaram 430 alunos de 18 turmas do ensino secundário de 8 escolas, sendo que 226 participaram em 24 aulas seguindo o ET enquanto que em 204 foi aplicado o MED. Os dados foram recolhidos através de questionários, já validados, e para a sua análise foram aplicados os testes de Mann-Whitney e de Wilcoxon. No estudo qualitativo participaram três professores estagiários, 67 alunos do 10º ano de escolaridade e a facilitadora (Investigadora). A informação foi recolhida através de observação participante, entrevistas de grupo focal e notas de campo e aplicada a análise temática, para o seu tratamento de dados. Os resultados destacaram que os alunos percecionaram que o MED, quando comparado ao ET, teve maior impacto no desenvolvimento da sua responsabilidade pessoal e social, empoderamento e autoconfiança, sendo que no empenhamento não se registaram diferenças significativas. Porém, do pré para o pós-teste, os alunos que experienciaram o MED elencaram um maior empenhamento. Os resultados também destacaram a necessidade de melhor preparar os estudantes-treinadores porquanto as estratégias implementadas pelos professores estagiários durante a IA, revelaram ser cruciais para a melhoria do desenvolvimento do seu papel na implementação do MED.

PALAVRAS-CHAVE: MODELO DE EDUCAÇÃO DESPORTIVA, ENSINO TRADICIONAL, COMPETÊNCIAS PESSOAIS E SOCIAIS, EDUCAÇÃO FÍSICA, PROFESSORES ESTAGIÁRIOS.

ABSTRACT

The present thesis aimed to analyze the students' perceptions of the impact of two different teaching approaches (Traditional Teaching, TT, and Sport Education, SE), on developing personal and social skills that are considered, nowadays, central to a student's integral education, namely: engagement, empowerment, personal and social responsibility, and self-confidence. A collaborative action research intervention was also conducted to support three preservice teachers in developing strategies for the empowerment of the student-coaches within a SE.

In the quantitative studies participated 430 high-school students from 18 classes from 8 different schools, 226 of whom participated in a 24-lesson unit following the TT, while 204 students were taught using the SE. Data were collected through validated questionnaires, and the Mann-Whitney and Wilcoxon tests were applied for the analysis. In the qualitative study participated three preservice teachers, 67 tenth-grade students, and the facilitator (researcher). Data was collected through participant observation, field notes, and focus-group interviews and thematic analysis was applied to analyze data. The findings showed that students perceived that SE, when compared to TT, provided a greater impact on the development of their personal and social responsibility, empowerment and self-confidence. Concerning engagement, no significant difference was found when the two teaching approaches were compared. However, from the pre to the post-test, students in the SE context perceived greater engagement. The results also highlighted the need to better prepare student-coaches, as the strategies implemented by the preservice teachers through the action-research intervention proved to be crucial for improving the development of their role within SE.

KEYWORDS: SPORT EDUCATION, TRADITIONAL TEACHING, PERSONAL AND SOCIAL SKILLS, PHYSICAL EDUCATION, PRESERVICE TEACHER

LIST OF ABREVIATIONS AND SYMBOLS

PE – Physical Education

TCA – Teacher-centered Approach

SCA – Student-centered Approach

TT – Traditional Teaching

SE – Sport Education

PST – Preservice teacher

JCR – Journal Citation Reports

SJR – Scimago Journal & Country Rank

PETE - Physical Education Teacher Education

PreT – Pre-test

PosT – Pos-test

PEI – Psychological Empowerment Instrument

CSAI- 2 - Competitive State Anxiety Inventory-2

TGfU – Teaching Games for Understanding

SC – Student-coach

AR – Action-research

CHAPTER I – INTRODUCTION

1.1. Rationale

The educational value of Physical Education

In present society, the main purpose of the school is to facilitate the fullest possible development of all students. This implies supporting students in their education for life, according to their abilities, interests, and motivations, to meet the demands of contemporary society to educate students capable of acting autonomously, responsibly, and competently before the challenges, risks, and opportunities they face (Hastie & Mesquita, 2016). Personal and social education aims at the absolute education of citizens seeking to acquire general skills. Such education assists the individual in the different roles that they play across life (Gould & Carson, 2008), and aims to educate responsible, autonomous, and competent citizens who are capable of intervening critically and creatively in the social environment (Cronin et al., 2020).

As a central subject of school curricula, Physical Education (PE), in addition to contributing to students' physical development and adoption of healthy lifestyles (Hardman, 2008), also plays a crucial role in student emotional, personal, and social development (Lu & McLean, 2011; Whitehead, 2010). The 2015 Declaration of Berlin reiterates such position, stating that "PE…is the most effective means of providing all children and youth with the skills, attitudes, values, knowledge, and understanding for lifelong participation in society" (UNESCO, 2015, p. 3). PE curricula act as a comprehensive education project that helps eliminate social barriers, favor multiculturalism and equity (Ozoliņš & Stolz, 2013), and emphasize the development of civic and ethical education and life skills. Consequently, PE helps promote personal and social well-being, socio-affective and moral development, and interpersonal skills (Rosado & Mesquita, 2011), with robust applications outside sports and physical activity contexts (Wright, Jacobs, Ressler, & Jung, 2016).

Physical activities in general, and sport in particular, have characteristics and conditions that favor personal and social development in children and youth, thus making a vital contribution to their education as a person (Weiss, 2011). In

this regard, PE has a relevant role in developing fundamental concepts associated with personal and social education. It encompasses the internalization of values in a context of development and acquisition of life competencies (Wright & Craig, 2011) as strategies that enable the individual to be responsible and satisfactory in the community. Therefore, PE has the potential to help achieve multiple educational benefits for students across a range of domains (Bailey et al., 2009). Particularly, PE aims to promote multiple learning outcomes, covering four domains, in child and youth education: physical, cognitive, social, and affective (Bailey, 2006). The physical domain refers to benefits of the physical competency in fundamental motor skills (Sallis et al., 2012). The cognitive domain consists of knowledge about different motor skills, internalizing the logical principles common to the set of sports, understanding basic rules, and recognizing each sport's specific technical elements (Kulinna, Brusseau, Cothran, & Tudor-Locke, 2012). The affective domain refers the development of personal skill such as motivation, confidence, self-esteem and engagement (Casey & Goodyear, 2015). In the social domain, sports practice is assumed to be an educational context of excellence for fostering fundamental skills such as personal effort, self-control or perseverance. Team sports, on the other hand, seek to promote social skills such as leadership, communication, friendship or cooperation (Bailey, 2006; Rosado & Mesquita, 2011). However, it is necessary to provide a set of contextual and pedagogical conditions that favor the development these four PE learning outcomes.

From teacher-centered to student-centered approaches for teaching and learning in PE

To obtain positive learning outcomes, it is essential to create deliberate pedagogical environments and conditions that promote students' active and engaged participation (Bailey et al., 2009). Hence, a prominent topic in the PE research agenda is related to teaching approaches, and more specifically, with teaching models.

The way students learn is not independent of the way teachers teach (Entwistle & Entwistle, 1991). As such, teachers' teaching approaches are expected to influence the development of students' personal and social skills. For much of the 20th century, PE instruction was dominated by teacher-centered approaches (TCA) in which the teacher assumes an instructional leadership of the teaching-learning process, prescribing all processes and making all learning-process decisions (Mosston & Ashworth, 2008). In TCA, students have a passive role connoted by reproduction. As a consequence, students are required to be attentive, well-behaved and disciplined, while directing their attention to predominantly motor-oriented, rather than cognitive-oriented, tasks (Metzler, 2017; Rosenshine, 1979). For the purpose of this dissertation, that approach has been given the label of Traditional Teaching (TT), largely because it has been the predominant form of instruction over the past 50 years (Kirk, 2013; Moy, Renshaw, & Davids, 2016).

TT is associated with an explicit, prescriptive, and formal teaching style (Mosston & Ashworth, 2008). All decisions concerning planning, instruction, and assessment are made by the teacher with little or no student input. It is also the teacher who explicitly defines the rules and routines for student management and action, thus ensuring greater efficiency in students' activities. Tasks are organized in well-defined periods and require the student's commitment and responsibility to achieve high levels of motor practice. The teacher also presents and demonstrates the new tasks in order to clarify the meaning and importance of the content to be learned, the goals to be achieved, and the organization of the practice itself for students (Mosston & Ashworth, 2008). Therefore, TT is based on the conviction that the prescription of processes and solutions is the key to a successful teaching-learning process, thus assigning the student a role connected with reproduction (rather than discovery).

Research on the impact of TT suggests it can be effective in improving students' skill performance (mostly in less complex skills and in early ages) (Brady, 1998; Rink, 1993) through the provision of high rates of positive and corrective feedback (Metzler, 2017), especially in low contextual interference contexts (that is, in analytical situations of technical learning).

In contrast, the weakness frequently attributed to TT is that students' abilities to build their own learning is compromised, therefore decreasing their autonomy, decision-making, and cognitive and social processes (Ennis, 2014; Metzler, 2017; Siedentop, Hastie, & van der Mars, 2020).

The prescription of processes and solutions in TT is not effective for supporting students' autonomy, cognitive involvement, responsibility or commitment. Consequently, it reduces the opportunities for success and tends to be associated with lower levels of students' personal and social development (Siedentop et al., 2020).

Influenced by constructivist and social learning theories (Vygotsky, 1978), and addressing the demands of contemporary society to develop autonomous and critical thinkers in the social and cultural world (Kirk, 2010), the educational reform of the 1990s introduced a new teaching paradigm that situates the student as the protagonist of the teaching-learning process: the student-centered approach (SCA) (Tannehill, Van der Mars, & MacPhail, 2013). This approach differs from the TCA, because SCA puts a firm focus on student decision-making as a guiding force in the teaching-learning process (Jones, 2007).

In this new perspective, the teacher is presented as a facilitator, assigned the role of eliciting and supporting students' own thinking and meaning-making abilities, and students develop an active role in their own learning to promote their personal, social and sportive development (Lynch, 2019). Learning in SCA is understood as an active, cognitive, and social construction of knowledge that is self-regulated by students (Zhu, Ennis, & Chen, 2011). In SCA, conditions and contexts are created to promote students' abilities to act autonomously, responsibly, and competently, to develop their capacity to identify and solve problems, ability to communicate and work effectively in heterogeneous small groups, and a capacity to undertake life-long learning through authentic and meaningful experiences (Dyson, Griffin, & Hastie, 2004; Hastie & Mesquita, 2016).

Within SCA, teachers emphasize the collaborative work within groups of students (students can co-construct their learning experience through

instructional and social interaction with their peers), stimulate active learning from their cognitive engagement (integrating new ideas with their own thinking, past experiences and understandings), and ask students for greater responsibility for their learning and to support each other's progress (Dyson, Linehan, & Hastie, 2010; Perkins, 1999). Accordingly, SCA plays a key role in developing personal and social skills in students because it recognizes their effectiveness in developing skills such as cooperation, empathy, respect for others, responsibility, motivation, self-confidence, and self-esteem (Bailey et al., 2009; Dyson et al., 2010; Goodyear, Casey, & Kirk, 2014; Opstoel et al., 2019).

Sport Education as a student-centered approach

A number of prominent scholars in PE have presented alternatives by introducing what Ennis (2014, p. 63) referred to as a "second generation of models that build on strong statements of democratic, student-centered practice".

In PE, one of the most prominent and widely researched "second generation" model is Sport Education (SE) (Siedentop et al., 2020). Proposed by Daryl Siedentop (1987), SE is a pedagogical model that incorporates the tenets of socio-constructivist learning theories, and which is recognized by its valences for being "learning focused, provide measurable student outcomes, and assist students to become engaged in positive, learning-oriented sport environments" (Ennis, 2014, p. 67). SE structure and pedagogies focus on transferable skills, knowledge, behaviors and values, providing richer and more complete experiences than typical PE approaches. SE gives students a central role in the learning process, with the teacher assuming the role of facilitator, thus changing from a control position to a management position. Teacher intervention is characterized by prioritizing more implicit and informal teaching strategies (particularly questioning) and stimulating cooperative small-group work and peer teaching, thus allowing students to build their learning. However, whenever appropriate, it is possible to resort to more explicit strategies for solving specific learning problems (Siedentop et al., 2020).

Designed to provide authentic sport experiences in PE, SE aims to meet Siedentop's (2002, p. 17) goal "to educate students to be athletes in the fullest sense and to help them develop as competent, literate and enthusiastic sportspersons". Competence implies allowing students to have an appropriate and satisfactory participation in the game (technical and tactical skills); knowledgeable implies understanding the values, rules, and traditions of sport, distinguishing the pedagogical value of good and bad practices; and enthusiastic implies an attraction for sports practice, promoting the quality of the sport, and defending its authenticity (Siedentop, 1994). In this sense, SE allows students to engage in a variety of roles, beyond simply that of player, such as coach, referee, scorekeeper, statistician, member of the sports organizing board, or sports director (Kirk & Macdonald, 1998; Mesquita, Farias, & Hastie, 2012). Within these roles, students have the chance to make decisions and are encouraged to learn committedly, autonomously and responsibly (Mesquita et al., 2012).

To guarantee the features that typically characterize institutional forms of sport participation, Siedentop (1994) included in the model six characteristics: seasons, affiliation, formal competition, record keeping, festivity, and culminating event. Specifically, units are replaced by seasons of at least 20 class sessions (Jones & Ward, 1998), meaning they are long enough to promote more lasting and significant learning experiences in students.

To develop affiliation, students are placed in teams that remain the same throughout the season, with names, symbols, colors, and an area to train, thus encouraging a common identity and authentic sport socialization. The formation of groups aims at the teams' competitive balance, benefiting cooperative relationships and mutual assistance in learning. As mentioned above, each team has different roles that students must assume responsibly throughout the year. Moreover, all students must experience all roles (Siedentop, 1996), except the role of student-coach that should only be performed by those whom their peers recognize (in sports performance and assuming leadership), under penalty of dysfunctional situations, or even rupture, concerning the established purposes.

A formal competitive schedule is organized at the beginning of the season and designed to allow equitable and successful participation. Student

participation in support and management tasks complements the assessment of motor skills. Winning is not the only goal, and therefore fair play is a highly valued aspect throughout the season. Indeed, fair play is an influencing factor on the team's score (Siedentop et al., 2020).

To control the competitive performance and the evolution of students and teams, individual and collective records and statistics are made and released publicly to motivate students, instill the spirit of overcoming and emancipation, enhance competition, and assist them in self-assessment.

A culminating event occurs at the end of each season. In this event, students celebrate success in a festive environment to mark the end of the season with public recognition of students' achievements and performances in previously designated roles. Prizes are awarded to teams, and these are not limited to competitive performance, indeed extending to fair play, commitment, or other aspects that the teacher considers essential to highlight.

SE shows the relevant role of students in the teaching-learning process by requiring them to make decisions and solve problems, thus transforming passive students into active learners (Farias, Mesquita, & Hastie, 2016). This autonomy requires student responsibility in all tasks developed, meaning there is a risk of deviating behaviors, either at the disciplinary level or changing values, in an excessive valuation of the competition results (Metzler, 2017).

Research on the Sport Education Model

Numerous studies have empirically tested the benefits of SE. Systematic reviews aiming to summarize key research findings have emphasized the positive and significant benefits of SE in different domains, particularly for the achievement of the “big 5” aims of PE (fitness, skill development, game play and tactical awareness, personal and social development, student attitudes, and values) (Hastie, Martinez de Ojeda, & Calderón, 2011; Wallhead & O'Sullivan, 2005), on students’ learning outcomes (Araújo, Mesquita, & Hastie, 2014), on students’ competence, literacy and enthusiasm (Hastie & Wallhead, 2016), and

more recently on students' cognitive, social, affective and physical development (Evangelio, Sierra-Díaz, Gonzalez-Víllora, & Fernández-Rio, 2018).

Past research has shown that SE influences students' personal and social development, namely by fulfilling students' basic psychological needs (autonomy, competence and relatedness) (Fernandez-Rio, Mendez-Gimenez, & Mendez-Alonso, 2017; MacPhail & Kinchin, 2004), developing students' positive personal and social values (such as assertiveness, cooperation or empathy) (García-López & Gutiérrez, 2015; Martinez de Ojeda, Mendez-Gimenez, & Valvarde Perez, 2016; Romar, Sarén, & Hastie, 2016), and increasing students' enjoyment, satisfaction and motivation (Calderón, Martínez de Ojeda, & Hastie, 2013; Cuevas, García-López, & Serra-Olivares, 2016; Gutierrez, García López, Chaparro Jilete, & Fernández Sánchez, 2014).

Despite the increasing number of investigations dedicated to analyzing and reporting the benefits of SE, there is still a need for further empirical evidence on students' personal and social development, particularly for comparing and showing the impact of different teaching models (Farias et al., 2016; Hastie & Mesquita, 2016; Wallhead & O'Sullivan, 2005). By recording the benefits and weaknesses of different teaching models, it is possible to extend knowledge of their effects on students' learning domains. This may prove to be a powerful catalyst in motivating students and teachers to understand and perform different teaching models and promote understanding of how different teaching models might be used and combined to optimize learning processes.

Developing personal and social skills in Physical Education

PE programs have been challenged by the needs of children and youth in a changing environment (Chin & Edginton, 2014; Ennis, 2014; O'Sullivan, 2013), and the development of personal and social skills has become particularly valued. Indeed, there is an increasing interest in PE's role in preparing children and youth for the demands and challenges of everyday life.

More recently, the promotion of personal and social development through PE has received increased attention from policy-makers, researchers and

practitioners (Dudley, Cairney, Wainwright, Kriellaars, & Mitchell, 2017) trying to highlight the relevance of developing students' personal and social skills (Opstoel et al., 2019). Among others, students' empowerment, personal and social responsibility, self-confidence, and engagement are considered crucial skills for students' global development, and as such will be part of the focus of the research in this dissertation. In addition, these skills are recognized as structural vectors of learning, being mainly promoted within SCA, in which the SE stands out.

Research has highlighted the critical role of engagement in student performance and learning (Trowler & Trowler, 2010), independent of the teaching approach. Student engagement is a key skill for achieving PE goals, and is frequently referred to in all curriculum documents that describe physically literate/educated individuals (UNESCO, 2015). Therefore, it is expected that to achieve high levels of motor competence, improvements in physical activity levels, and knowledge related to fitness and movement performance, the student must present a certain level of engagement in class activities, thus emphasizing its great relevance in the context of *second-generation models*, given the central role of the student.

Personal and Social Responsibility is a fundamental life skill associated with various aspects of school and sports performance insofar as tends to create an environment that promotes learning and cognitive development (Amushigamo, 2017). In student-centered models, students have more responsibility over their learning and develop a high level of comfort that allows them to ask questions and work autonomously with others (Pozo, Grao-Cruces, & Pérez-Ordás, 2016). Granting students autonomy and the opportunity to make decisions requires a high level of responsibility and poses a high risk that the practice tasks slip into something meaningless, absent from the purposes that support them (Hastie & Mesquita, 2016).

Empowerment has been described as an iterative process whereby students apply their knowledge and competence to attain personally meaningful, powerful goals. Therefore, understanding what these personally meaningful goals are is essential for success. In the context of PE, and specifically a student-centered learning environment, there are favorable conditions for strengthening

personality to stimulate and inspire the student to be proactive, communicate, and make decisions (LaVoi, 2007). Moreover, the greater the student's empowerment, the greater their perception of control, competence, and likelihood to act as their own facilitator to attain personal goals (Blinde, Taub, & Han, 1993). By feeling empowered, students are more willing be proactive in overcoming barriers to achieving their personal goals, which means their sense of autonomy and ability to influence their own lives increases due to their improved empowerment (Lindgren, Baigi, Apitzsch, & Bergh, 2011). Student-centered environments, and SE in particular, have potential to make students take responsibility for their own learning by empowering them to be a partner in their education.

Schools, and PE in particular, are privileged contexts for intervention in self-confidence as they create ideal conditions for fostering feelings of competency, increasing skills surrounding teamwork, and a feeling of trust in their own's abilities and qualities (Feltz & Magyar, 2005). The conviction that students are able to achieve their own goals is a success ingredient (Bandura, 1991), and a predictor of success (Robazza & Bortoli, 2007), which leads to feelings of empowerment and good performance. Allowing students to believe that they have the skills to reach their full potential, regardless of the talent and physical capacity demonstrated, is fundamental for students' learning and education, not only within the classroom but also to active life in general (Woodman, Akehurst, Hardy, & Beattie, 2010). Positive reinforcement, praise, empathy, understanding, and group work are characteristics of an SE season for promoting conditions to increase students' self-confidence.

Because responsibility and engagement are considered as two competencies fundamental for PE learning, they have, consequently, often been studied independently of the teaching approach (Opstoel et al., 2019). On the contrary, empowerment and self-confidence are more specific competencies strongly foregrounded with SE due to its own structure and pedagogical principles, and therefore, have been the focus of few studies.

Although research on personal and social skills within PE is developing (Dudley et al., 2017), the body of evidence on this topic mostly comes from qualitative research (Opstoel et al., 2019). Therefore, further quantitative evidence is needed on the development of personal and social skills within PE and, specifically, comparing and showing the impact of different teaching models such as a TT model and SE.

Preservice teachers delivering SE

Although SE is one of the most commonly applied "second generation" models, research has reported that teachers have difficulty applying it (Deenihan & MacPhail, 2013; Hordvik, MacPhail, & Ronglan, 2017). Most research on SE has provided findings from SE seasons delivered by teachers with considerable expertise in SE (Hastie, Sinelnikov, Wallhead, & Layne, 2014). However, research with preservice teachers as instructors has revealed that they have encountered some challenges using SE (Curtner-Smith, Hastie, & Kinchin, 2008; Silva, Farias, & Mesquita, 2021; Stran & Curtner-Smith, 2010).

This whole problem assumes even more relevance for study in the scope of the professional internship for preservice teachers as this is a moment of education par excellence, of confrontation with the practice and in which they will be exposed, for the first time, to the application of several demanding models (Sutherland, Howard, & Markauskaite, 2010). The professional internship is a fundamental formative experience in teacher education that aims to prepare the teacher to promote quality education. It is also a moment for experimentation, innovation, for testing new pedagogical methods, and for a critical reflection on their use (Lamote & Engels, 2010).

Research shows that preservice teachers tend to start teaching using teacher-centered approaches for facilitating the management and control of classroom behavior (Harvey & Jarret, 2014; Mesquita & Graça, 2009). However, they recognize the added value of resorting to student-centered approaches by taking care of the affective and social components as motivators for learning, as well as for the development of habits of active life (Mesquita, Pereira, & Graça,

2009). As a period full of significant experiences, many of which are indispensable for increasing the teacher's varied personal and professional skills, the constant challenge and consolidation that it faces creates the necessary conditions for applying and developing the different teaching models.

It is unequivocal that experience, when coated with quality, plays a critical role in teachers' knowledge construction as it enables them to understand theory in practice and theory through practice. Because practical field experience is one of the most appreciated by preservice teachers in their education programs (Tsangaridou, 2006), and, therefore, a key factor of a teacher education program, it is relevant to develop studies with preservice teachers that provide experiences likely to challenge them to use different pedagogies and correct misconceptions, both in content knowledge and in pedagogy strategies. Successful attempts to innovative approaches to teaching, such as SE, have a powerful influence on the teaching approach chosen by preservice teachers through the support and confidence they offer (Hastie, Curtner-Smith, & Kinchin, 2005). Consequently, it sets the stage for preservice teachers' ability and motivation to implement different teaching models in the future (MacPhail, Tannehill, & Goc Karp, 2013).

1.2. Research problems and aims

The PE curriculum highlights the value of developing personal and social skills and constitutes one of the main and most frequently cited goals of European PE programs (Hardman, Murphy, Routen, & Tones, 2014). These skills include, among others, empowerment, personal and social responsibility, self-confidence, and engagement (Opstoel et al., 2019). Such skills are crucial for students' overall development and recognized as structural vectors of learning of the second-generation models, of which SE is one.

TT presents as a teacher-centered model, with several advantages in specific situations, either for improving the performance of students' skills in less complex skills or in early ages (Rosenshine & Stevens, 1986), or as a specific strategy to be used within other models, particularly in the early stages (Siedentop et al., 2020). While having strengths, TT tends to be used in PE and

in youth training as a strategy, and not as a model. Indeed, there are many potentialities in TT that should and can be timely applied to help resolve particular situations.

Indeed, this study aims to understand if, in the students' perception, there are differences between models grounded in different teaching approaches (SE and TT) with regard to the development of the personal and social skills considered essential in student's education.

Research comparing the two models (SE and TT) has been focused on students' learning results and does not reveal any benefit of one model over another (Araújo et al., 2014). However, few studies have focused on developing students' personal and social skills, and, in particular, the variables we propose to study. Furthermore, most of these studies used qualitative approaches and on the lessons of experienced teachers (Farias et al., 2016).

Although the body of evidence on the development of personal and social skills within the scope of PE is developing, we realize that because personal and social skills are a widely accepted goal of PE and central to the student's education, there is a need for an extensive analysis that allows for a more comprehensive understanding of how (and if) these competencies develop, from the perception of students.

The use of classes taught by preservice teachers will help clarify whether students perceive any differences between teaching approaches. Furthermore, this will allow for the dissemination of relevant data that shows the strengths of different approaches for developing students' personal and social skills. It is also an opportunity to overcome potential barriers to implementing different PE teaching approaches, such as resistance within some PE departments or in-service teachers' own beliefs and habits (Penney, Clarke, Quill, & Kinchin, 2005). Thus, considering the conceptual and methodological differences that characterize the SE and the TT, it is relevant to study whether the models are effective in developing the personal and social skills that are highly relevant in student's educations, in the context of preservice teachers' lessons.

Additionally, despite claims for developing students' personal and social skills in the school context, little is known about the difficulties faced by preservice

teachers when developing these skills in a SE season, or how to overcome them. Research on SE still calls for an in-depth examination of its teaching and learning process. More importantly, there is a scarcity of research regarding student-coaches, one of the main student roles in SE. Therefore, it is also necessary to investigate which strategies are used by preservice teachers to empower student-coaches within the SE experience.

Therefore, the overarching objective of this dissertation was to examine the students' perceptions about the impact of two different teaching approaches (SE and TT) on developing personal and social skills considered central to an integral student education: engagement, empowerment, personal and social responsibility, and self-confidence.

Considering the general aim of the study, the following specific objectives were established:

1. To review and quantify what is currently known about the development of students' personal and social skills within a SE experience;
2. To summarize and assess the main findings from investigations devoted to comparing the influence of SE and TT on students' learning outcomes;
3. To examine which of two teaching approaches (SE or TT) has the most significant impact on students' perceptions of responsibility, engagement, empowerment, and self-confidence;
4. To examine the impact of each teaching approach (SE and TT) on students' perceptions of responsibility, engagement, empowerment, and self-confidence;
5. To examine the evolution of students' perceptions of responsibility, engagement, empowerment, and self-confidence within SE and TT;
6. To identify the strategies used by preservice teachers to empower student-coaches within a SE season.
7. To examine the impact of an action-research project on applying strategies, by preservice teachers, for empowering student-coaches within a SE season;

1.3. Thesis structure

The present dissertation was written in conformity with the requirements and presentation guidelines of the Faculty of Sport University of Porto (FADEUP, 2009). Specifically, it is structured according to the Scandinavian model, chosen by the opportunity to develop specific competencies related to this knowledge domain and produce scientific papers to be submitted to international peer-reviewed journals with impact factor indexed.
This dissertation is comprised of two systematic reviews and three empirical investigations (please, see Table 1 for further details).

Chapter I assigns the introduction to the dissertation, which provides the theoretical framework and contextualizes the relevance and novel aspects of the theme, considering the research already developed in the field being studied. Besides, the dissertation's general and specific purposes are presented in this chapter, followed by a description of its structure.

Chapter II integrates the theoretical components of the dissertation and consists of two systematic reviews (published). The first review article, titled "What Do We Know About the Development of Personal and Social Skills within the Sport Education Model: A Systematic Review", sought to provide a summary about what is currently known concerning the development of students' personal and social skills within a SE experience. Specifically, this article offers a synthesis of information about the contexts, participants, designs, variables analyzed, methodologies and main findings of past scientific investigations. Suggestions are offered of possible directions that future research of the model might follow. The second review article is titled "What Actually Differs between Traditional Teaching and Sport Education in Students' Learning Outcomes? A Critical Systematic Review". This quantitative review article sought to assess the main findings concerning to the investigations devoted to compare the influence of SE and TT on students' learning outcomes. It also sheds light over the more commonly utilized statistical methods, variables, samples, contexts, designs, and

key findings of scientific investigations developed to date. This quantitative review article sought to assess the main findings concerning the investigations devoted to comparing SE and TT on students' learning outcomes. It also highlights the more commonly utilized statistical methods, variables, samples, contexts, and designs, as well as the main scientific investigation findings. The conclusions of these articles were crucial to provide a sustained theoretical framework to the empirical articles included in this thesis.

Chapter III incorporates the thesis's empirical component and is composed of three empirical studies (two quantitative and one qualitative) that were either published or submitted to international peer-review journals with impact factor. The first empirical study is titled "Differences between Sport Education and Traditional Teaching in developing students' engagement and responsibility". This quantitative investigation compared the effects of the two teaching approaches (TT or SE) on students' responsibility and engagement within high school PE classes taught by preservice teachers. The study also analyzed the evolution of the students' perceptions of responsibility and engagement in each of the teaching approaches. The second empirical study has the title "Sport Education and Traditional Teaching: Influence on students' empowerment and self-confidence in high school physical education classes". This quantitative study examined the effects of the two different teaching approaches (TT or SE), on students' empowerment and self-confidence, in high school PE classes taught by preservice teachers. It also examined the evolution of students' perceptions of empowerment and self-confidence in each of the mentioned approaches. The third and final empirical study was titled "Developing student-coaches' empowerment within a sport education season: an action research study with preservice teachers". This qualitative study analyzed the impact of an action research project in applying specific pedagogical strategies to increase student-coaches' empowerment, by preservice teacher within a SE season. Besides, this action-research study identified the problems faced by preservice teachers and strategies to overcome them, the gaps in the preservice teachers' knowledge, and examined the student-coaches' empowerment evolution.

Chapter IV is dedicated to the general discussion and final thoughts supported by the main findings of each empirical article. Particularly, the findings of each study were related, interpreted, and discussed in an attempt to better comprehend and understand the development of students' personal and social skills according to different teaching approaches, namely SE and TT. Lastly, suggestions for future scientific research, and limitations of the current thesis are acknowledged.

The references of each chapter are presented at the end of each chapter. Additionally, the references of each article are presented at the end of each study in conformity with the publication guidelines of the journal in which each study was published or submitted.

Table 1 provides a complete outline of the structure of the dissertation.

Table 1. Synopsis of the structure, contents and studies included in the present dissertation

Chapter I	**Introduction**
	Theoretical framework, pertinence of the investigation, research questions and purposes as well as the structure of the dissertation.
Chapter II	**Theoretical Articles**
Review Article	**What Do We Know About the Development of Personal and Social Skills within the Sport Education Model: A Systematic Review.** *Bessa, C., Hastie, P., Araújo, R., & Mesquita, I.* Published in Journal of Sports Science and Medicine
Review Article	**What Actually Differs between Traditional Teaching and Sport Education in Students' Learning Outcomes? A Critical Systematic Review.** *Bessa, C., Hastie, P., Ramos, A., & Mesquita, I.* Published in Journal of Sports Science and Medicine

Chapter III	Empirical Articles
Empirical Study 1	**Differences between Sport Education and Traditional Teaching in developing students' engagement and responsibility.** *Bessa, C., Hastie, P., Rosado, A., & Mesquita, I.* Published in Journal of Physical Education and Sport
Empirical Study 2	**Sport Education and Traditional Teaching: Influence on students' empowerment and self-confidence in high school physical education classes.** *Bessa, C., Hastie, P., Rosado, A., & Mesquita, I.* Published in Sustainability
Empirical Study 3	**Developing student-coaches' empowerment within a Sport Education season: An action research study with preservice teachers.** *Bessa, C., Hastie, P., Rosado, A., & Mesquita, I.* Submitted to Journal of Teaching in Physical Education
Chapter IV	**General overview, limitations, future research and conclusions of the dissertation**

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CHAPTER II – REVIEW ARTICLES

REVIEW ARTICLE 1

What Do We Know About the Development of Personal and Social Skills within the Sport Education Model: A Systematic Review

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Abstract

The purpose of the present study was to conduct a review of the research on the Sport Education (SE) studies that have examined the development of students' personal and social skills. Research articles selected were found through Web of Science, SCOPUS, Academic Search Complete, ERIC, SPORTDiscus with Full Text, Education Source, PsycINFO and PsycARTICLES databases. The keywords "Sport Education" and "physical education" were used in different combinations. The articles were included for analysis if the following criteria were met: (i) were published in peer-reviewed international journals indexed in JCR (Journal Citation Reports) or SJR (Scimago Journal & Country Rank); (ii) were available in full-text; (iii) examined personal and social variables included or measured as main outcomes within the SE model.

The quality of the selected studies was scored using a quality assessment list. Fifty-one studies were included. Results showed that, considering the development of social and personal competencies, the majority of SE research took place in Spain and USA in a co-educational PE context (high school). Enjoyment/satisfaction, enthusiasm and engagement were the predominant outcome measures, using a non-experimental design and multiple qualitative tools in more than half of the studies. Few studies established the fidelity of the model implementation. There is a need for future research to consider other samples, contexts, cultures and types of sports seeking to reinforce the positive impact of SE on the personal and social competencies. Longer units with a good planning, mixed and quantitative methodological designs and the report of the model fidelity would be also particularly important for future investigations.

Keywords: Sport Education model, physical education, pedagogical models, personal skills, social skills.

Introduction

Physical Education (PE) is recognized by its crucial role in students' acquisition of values and competencies that contribute to their motor, cognitive, emotional, personal and social development and facilitate the inclusion in current society, preparing them for the future (Giraldéz, 2006; Mesquita, 2012; Rosado and Mesquita, 2011; Taggart, 1988).

The explicit and formal character of the instructional process, evident in the traditional pedagogical approaches (called teacher-centered approaches) have tended to dominate PE

instruction for much of the 20th century (Gubacs-Collins, 2015; Gubacs-Collins and Olsen, 2010; Lee, 1993). The teaching/learning process is one in which the role of the teacher is primarily as instructional leader and students are expected to demonstrate more compliance than initiative (Metzler, 1989; Rosado and Mesquita, 2009; Rosenshine, 1979). This direct style has the potential to compromise students' capabilities of building their own learning, and reduce the role of their cognitive and social processes, decision-making and autonomy (Bruning et al., 2004; Ennis, 2014; Metzler, 2011; Siedentop et al., 2011). As a result, a number of student-centered approaches (SCA) have been developed which are based on the constructive and social theories of learning (Hastie and Siedentop, 1999; Mesquita et al., 2012; Putnam et al., 1990). SCA are designed to stimulate the ability of students to make decisions, to reflect, and to solve problems (Dyson et al., 2004; Hastie and Mesquita, 2016). This then allows students to have a more proactive than reactive role in their own learning and changes the role of the teacher to one more of a facilitator (Ennis, 2014; Hattie, 2012; Jones, 2007; Mesquita, 2013).

In PE, one of the most widely implemented and researched "second generation of models that build on strong statements of democratic, student-centered practice" (Ennis, 2014, p.63) is SE (Siedentop et al., 2011). SE is a pedagogical model that incorporates the tenets of socio-constructivist learning theories recognized by its valences for "learning focused, provide measurable student outcomes, and assist students to become engaged in positive, learning-oriented sport environments" (Ennis, 2014, p.67). It is characterized by prioritizing more implicit and informal teaching strategies (prevails questioning) allowing students to make decisions during the learning process and encouraging them to learn autonomously and responsibly (Mesquita et al., 2012). The features that underpin SE (seasons, affiliation, formal competition, culminating events, record keeping and festivity) aim to fulfil Siedentop's (2002) goal of educating students to be "athletes in the fullest sense and to help them develop as competent, literate and enthusiastic sportspersons". To do this, students are given opportunities to engage in a variety of roles, beyond that of simply as player. These can include coaches, referees, score keepers, statisticians, members of the sports organizing board or sports director.

Justification

According to the Cochrane Collaboration (Higgins et al., 2019), systematic reviews are important because they provide a high-level summary of primary research on a specific

research question that attempts to identify, select, synthesize, and appraise all high-quality evidence relevant to that question to answer it. Further, systematic reviews collate all evidence pertinent to a priori selected criteria for eligibility to address the specific research question. Without them, researchers lack an understanding of the subject, of what has already been examined, how it has been researched, and what key concerns have been identified.

Previous systematic reviews of SE research (Araújo et al., 2014; Evangelio et al., 2018; Hastie et al., 2011; Hastie and Wallhead, 2016; Wallhead and O'Sullivan, 2005) have been structured with different focus. For example, Wallhead and O'Sullivan (2005) and Hastie, Martínez de Ojeda and Calderón (2011) focused on the achievement of the "big 5" aims of PE, namely students' attitudes and values, personal and social skills, fitness, as well as motor skills and tactical knowledge. Later, Araújo, Mesquita and Hastie (2014) reviewed studies where there was a specific examination of students' learning outcomes, while Hastie and Wallhead (2016) focused on the extent to which the competent, literate and enthusiastic goals of SE were achievable. Most recently, Evangelio et al. (2018) organized their review around SE's impact on cognitive, social, affective and physical outcomes.

During recent years, PE programs have been challenged by the needs of children and youth in a changing environment (Chin and Edginton, 2014; Ennis, 2014; O'Sullivan, 2013) and the development of personal and social skills have become particularly valued. Hence, it is necessary to perform this review including the most prominent research, indicating which are the most studied and valued personal and social variables within the SE model, in order to answer specific research questions and indicate directions that future research and practice might follow.

Aim and research questions

The purpose of this study was to systematically review and synthesize the SE studies that have examined the development of students' personal and social skills. The five research questions which guided the review of these studies were:

(Q1) Which contexts are the most prevalent with respect to research on the development of personal and social skills within SE?

(Q2) Who are the participants included in SE studies that consider the development of personal and social skills?

(Q3) What were the most frequently analyzed variables when participating in a SE season?

(Q4) What are the methodologies that have been used to investigate the development of personal and social skills within SE classes?
(Q5) How many studies have established the fidelity of the model implementation?

Methods

Search Strategy

The systematic review followed the PRISMA protocol for reporting systematic reviews (Moher et al., 2009), and was conducted through electronic searches on eight databases. These include Web of Science, SCOPUS, Academic Search Complete, ERIC, SPORTDiscus with Full Text, Education Source, PsycINFO and PsycARTICLES. The search included all papers published up until March 2018, using the Boolean operators (AND, OR) to concatenate the search terms “Sport Education”, “physical education”. A secondary search was performed by screening the reference lists of the included studies and relevant review articles. The study selection was carried out independently by two authors to minimize potential selection bias. Both these authors have experience in this methodology and are knowledgeable of instructional models in PE, and any discrepancies were resolved by consensus.

Inclusion/Exclusion Criteria

Studies for this review were included according to the following criteria: (i) were published in peer-reviewed international journals indexed in JCR or SJR; (ii) were available in full-text; (iii) examined personal and social variables as either included or measured as main outcomes within the SE model.

Studies were excluded if they: (i) were review or opinion articles; (ii) were articles without full-text availability; or (iii) addressed issues related with SE other than the development of personal and social skills. Duplicate documents, opinion articles, books, book chapters, review articles, conference papers or theses were also excluded from this review.

Articles’ titles and abstracts generated from this process were read and included or excluded on the basis of the above criteria.

Study Selection Process

Figure 1 presents the study selection processes. The initial search, from the wide range of articles that identified “Sport Education” AND “physical education” in either the title, abstract or keywords (*n* = 1644), only peer-reviewed articles with impact factor related to SE research were selected for reading (*n* = 99). From this number, only those related to social

and personal development were selected (*n*= 59). Review articles (*n* = 3) and articles without full text (*n*= 5) were excluded for this review. After a review of titles and abstracts, 49 articles were selected, and their full text was analyzed. Therefore, only peer review journal articles, published in journals with impact factor, that specifically studied the development of personal and social skills with SE were included to the present review (*n* = 51).

Data Extraction and codification of the studies

In order to extract all relevant data from the 51 studies included in this review, content analysis was performed. Studies are presented in Table 1, in alphabetical order according to the first last name of the principal author.

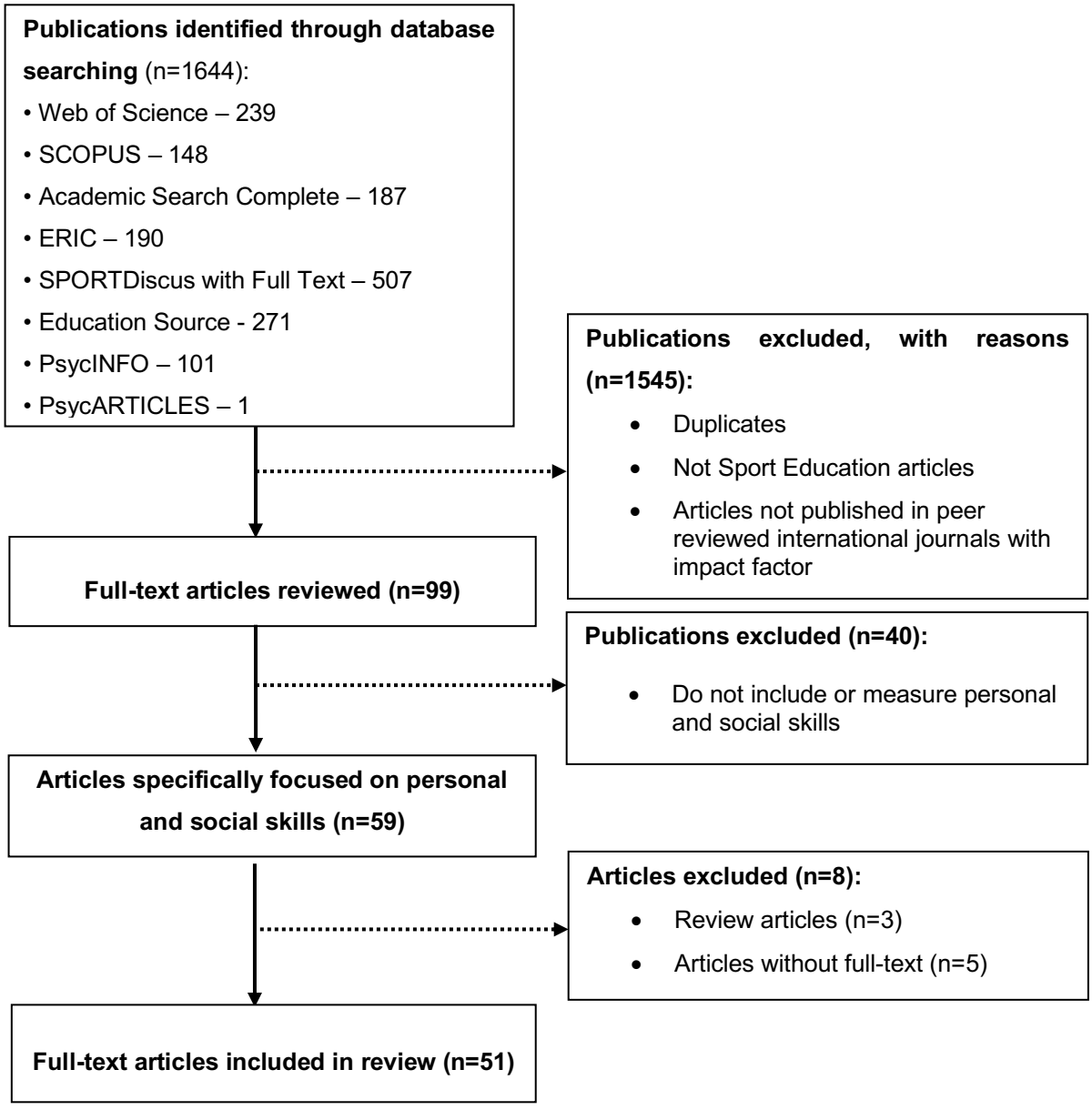

Figure 1. Study flowchart.

The review categories used were defined a priori (Harris et al., 2014) seeking to answer the research questions. The categories are listed below (Table 1) with the legends used for each one in Table 2 appearing in brackets.

Table 1. Categories and legend.

Category	Legends
Author(s) / Country	Identifies the authors, the year and the country where the study took place
Purpose	Describes the purpose of the study
P - Participants	St – Students T – Teachers A – Athletes C – Coaches Pa – Parents
SP - School Population	E – Elementary School M – Middle School H – High School
CL - Classes	Sx – Single Sex Classes Mx – Mixed Sex Classes
D/R - Skills of the participants	Whether disabled or at-risk students are included in the study: Y – Yes N – No
S – Sport	Whether the investigated SE season were with: TS – Team Sports IS – Individual Sports MA – Multiactivities
DES – Study Design	QL – Qualitative QT – Quantitative MIX – Both qualitative and quantitative E – Experimental QE – Quasi-experimental NE – Non-experimental
LS – Length of the SE Season	Number of lessons
F - Fidelity of the SE model	Whether is performed in the study: Y – Yes N – No
Variables	Personal and social variables that were analyzed across the study
Main Results	Main results of the study provided by the author/s
Q – Study Quality	Methodological quality of the study

Methodological Quality Assessment

To assess the methodological quality of the included 51 studies we used the validated Downs and Black checklist (1998). Items that were not applied to the design of the analyzed studies were removed from the 27-item checklist. The modified version consisted of items 1-4, 6, 10-13, and 18-24, with the highest possible score of 16 (Table 2). Two main evaluators independently performed the assessment of the selected studies. Both researchers discussed and agreed upon the reconciliation of observed differences. In the present systematic review, no study was excluded due to a significantly low-quality assessment score.

Table 2. Modified version of the checklist.

Reporting
1 - Is the Hypothesis/aim/objective clearly described?
2 - Are the main outcomes to be measured clearly described in the Introduction or Methods section?
3 - Are the characteristics of the participants included in the study clearly described?
4 - Are the interventions of interest clearly described?
6 - Are the main findings of the study clearly described?
10 - Have actual probability values been reported (e.g**.,** 0,035 rather than <0,05) for the main outcomes except where the probability value is less than 0.001?
External Validity
11 - Were the subjects asked to participate in the study representative of the entire population from which they were recruited?
12 - Were those subjects who were prepared to participate representative of the entire population from which they were recruited?
13 - Were the staff, place, and facilities where the patients were treated, representative of the treatment the majority of patients receive?
Internal Validity - *Bias*
18 - Were the statistical tests used to assess the main outcomes appropriate?
19 - Was the compliance with the interventions reliable?
20 - Were the main outcome measures used accurate (valid and reliable)?
Internal Validity - *Confounding (selection bias)*
21 - Were the patients in different intervention groups (trials and cohort studies) or were the cases and controls (case-control studies) recruited from the same population?
22 - Were the study subjects in different intervention groups (trials and cohort studies) or were the cases and controls (case-control studies) recruited over the same period of time?
23 - Were study subjects randomized to intervention groups?
24 - Was the randomized intervention assignment concealed from both patient and health care staff until was complete and irrevocable?

Results

Table 3 provides an overview of each of the 51 studies included in this review.

The results of this study are presented in response to the research questions mentioned above.

Q1. Which contexts are most likely to research the development of personal and social skills within SE?

Countries

According to the country where the research on the development of personal and social skills using the SE took place, the United States (29%) and Spain (29%) represented over half of all publications (58%), followed by Australia (12%) and the United Kingdom (12%), Russia (6%), Portugal (4%), Finland (2%), Ireland (2%), New Zealand (2%) and Singapore (2%).

Context

Regarding the studies' context, the majority of research (94%) took place in school contexts and within PE lessons. Only three studies (6%) were conducted within sport club settings. Studies with involving data from only students were more frequent (67%). Ten studies (20%) used student and teacher data, whereas only 4 studies (8%) focused exclusively on teachers. Two studies (4%) were focused on athletes as participants while one study (2%) involved at same time coaches, athletes and parents.

Classification of sport type

With respect to the type of sport/activity studied, the predominance of team sports in 37 studies (72%) was noticeable, whereas only 7 studies (14%) incorporated individual sports (such as kickboxing, badminton, swimming) in their seasons. The remaining 7 studies (14%) were developed with multiactivities (individual and team sports).

Q2. Who are the participants included in SE studies that consider the development of personal and social skills?

Participants

The total sample of the included studies was 2949 students (83%) (1301 boys and 1118 girls, considering that in eight studies the gender of 353 participants was not specified), 496 teachers (15%) (107 with experience in teaching SE), 68 athletes (2%) (22 boys and 23

Table 3. Characteristics of included studies.

Author(s)/Country	Purpose	P	SP	CL	D/R	S	DES	L	F	Variables	Main results	Q
Alexander & Luckman (2001) Australia	Identify the teachers' perceptions and uses of the SE curriculum model	T	E/H	Mx	N	Ma	QT/NE	-	N	Equity Inclusion Enjoyment	- Greater emphasis on social skills; - SE is inclusive and promotes gender equity and enjoyment for students in physical education.	9
Alexander et al., (1996) Australia	Report the Australian national trial of SE: Program change, educational impact, inclusivity, SE as a management tool	T/St	E/H	Mx	N	Ma	MIX/QE	-	N	Leadership Ownership Equity Teamwork Peer-support	- SE promoted a growing sense of ownership, cooperation, compliance, leadership, teamwork, peer support and equity. - Potential for gender marginalization.	8
Ang & Penney (2013) Singapore	Explore the modification of the SE and utilization of pedagogical strategies to respond to students' limited skills and abilities to handle failure in the context of PE.	St	E	Mx	N	TS	MIX/E	30	N	Confidence Resilience Inclusion Peer-support Fair-play	- Students' physical self-concept and their ability to handle the stress from failure in PE were increased by the confidence- enhancing strategies used during the SE season; - Positive developments in students' social and emotional skills.	12
Browne et al., (2004) Australia	Examine the impact that two instructional approaches (traditional and SE) to teaching rugby had on students' learning, enjoyment and affection.	St	M	Sx (Boys)	N	TS	MIX/QE	20	N	Affiliation Enjoyment Responsibility Autonomy	- SE developed a greater feeling of community among their team; - Differences between groups were explained by the increased membership and feelings of belonging in SE.	14
Brunton (2003) United Kingdom	See whether SE is a curriculum model that can successfully change power hierarchies in school PE.	St	H	Mx	N	IS	MIX/QE	20	N	Responsibility Teamwork Engagement	- Preference for responsibility expressed by female students - Team work was achieved through cooperative learning methods;	12

Table 3. Continued

Author(s)/Country	Purpose	P	SP	CL	D/R	S	DES	L	F	Variables	Main results	Q
Burgueño et al., (2017) Spain	Examine the influence of an intervention based on SEM, in comparison with Traditional Teaching Model, on motivational regulation in high school students in PE class.	St	H	Mx	N	TS	QT/QE	12	N	Motivation	- SE encouraged the development of the most self-determined regulations of motivation (intrinsic motivation and identified regulation) in teaching-learning process in school setting, which could arouse the interest of students for regular practice of sport in free time.	12
Calderón et al., (2010) Spain	Analyze the initial implementation experiences of SE of a teacher and his students, in the elementary education.	St	E	Mx	N	TS	MIX/NE	14	Y	Enthusiasm Engagement Affiliation Satisfaction	- SE developed a greater feeling enthusiasm and engagement; - Drawings revealed that students developed the sense of affiliation and satisfaction.	12
Calderón et al., (2013) Spain	Compare the students and teachers' perceptions after practice with different pedagogical models (SE and Traditional Style).	St/T	E	Mx	N	TS	QL/NE	8	Y	Engagement Enthusiasm Satisfaction	- Students referred greater feelings of satisfaction, enthusiasm and engagement.	12
Calderón et al., (2016) Spain	Investigate the effect of shared teaching or co-teaching using the SEM in Primary, on the Social Climate Pre and post-intervention classroom.	St	E	Mx	N	TS	MIX/QE	10	N	Teamwork Satisfaction Autonomy Engagement Fair-play Responsibility	- The SE improved the Social Climate Classroom in the Primary sample object of study, favors the integration and teamwork, the students' engagement and fair-play.	

Table 3. Continued

Author(s)/Country	Purpose	P	SP	CL	D/R	S	DES	L	F	Variables	Main results	Q
Carlson & Hastie (1997) Australia	Examination of the social system as it occurred in a unit of SE.	St/T	H	Mx	N	TS	QL/NE	16	N	Leadership Trust Responsibility Cooperation Engagement Enjoyment Fair-play Inclusion	-SE increased the socialization due to increased interaction time; - Students spoke of cooperating, working as a team, learning to trust each other, fair-play and inclusion; - Facilitation of enjoyment within the SEM - Students who took referees roles viewed their refereeing as a positive experience with responsibility' improvements.	9
Clarke & Quill (2003) UK	SE as a vehicle to enhance learning aligned with the National Curriculum	St	M	Mx	N	Ma	QL/NE	44	N	Inclusion Autonomy Leadership Motivation Empathy Ownership Fair-play Responsibility	- Greater inclusion of less able students - Less teacher-dependent; - The pupils became valued team members, and the more able pupils helped the less able to ensure the success of the team; - The pupils who took responsibility within the lesson became more involved in the learning process and demonstrated a strong sense of ownership and generally seemed more motivated and determined to succeed; - Pupils valued acceptable codes of behavior for competition.	**8**
Cuevas et al., (2015) Spain	Analyze the impact of SEM in psychological basic need satisfaction in PE secondary students.	St	H	Mx	N	TS	QT/QE	19	Y	Autonomy Social interactions	- Improvements in the autonomy and satisfaction of the competence in the SE group; - Emphasized the suitability of the SEM to improve the satisfaction of psychological basic needs in PE.	13

Table 3. Continued

Author(s)/Country	Purpose	P	SP	CL	D/R	S	DES	L	F	Variables	Main results	Q
Cuevas et al., (2016) Spain	Analyze the impact of the SEM in self-determination and motivation, psychological basic need thwarting, enjoyment-satisfaction, boredom, and intention to be physically active in PE secondary school students in Spain.	St	H	Mx	N	TS	QT/QE	19	Y	Motivation Self-determination Enjoyment	- Significant improvements in intrinsic motivation in the SE group; - Emphasized the suitability of the SEM to improve self-determined behaviors in PE; - Changes were also observed in the satisfaction-enjoyment.	13
Curtner-Smith & Sofo (2004) USA	Determine 15 American preservice teachers' (PTs) conceptions of the teaching–learning process while teaching Sport Education and Multi-activity units during an early field experience.	T	M	Mx	N	TS	QL/NE	10	N	Enjoyment Ownership Motivation	- PTs found SE more attractive due to its compatibility with their occupational socialization and its cultural advantages; - PTs perceived that pupils "really enjoyed competition and games and being in a team".	9
Farias et al., (2018) Portugal	Examine students' development of Game Performance and Game Involvement during participation in three consecutive SE seasons of invasion games.	St/T	M	Mx	N	TS	QT/QE	54	Y	Engagement Ownership	- Improvements in Game Involvement in the second (handball) and third (football) seasons; - Students' Game Involvement scores of handball and football were significantly higher than their scores while playing basketball; - The opportunity for an extended engagement in game-play activities and prolonged membership of students in the same teams throughout three consecutive seasons of SE were key to the outcomes found.	9

Table 3. Continued

Author(s)/Country	Purpose	P	SP	CL	D/R	S	DES	L	F	Variables	Main results	Q
Fernandez-Rio & Menéndez Santurio (2017) Spain	Assess students and teachers' perceptions concerning their participation in an educational kickboxing learning unit based on a hybridization of two pedagogical models: Sport Education and Teaching for Personal and Social Responsibility.	St/T	H	Mx	N	IS	QL/NE	16	N	Responsibility Enjoyment Cooperation Affiliation Friendship	- Data produced 11 themes: responsibility, learning and roles, enjoyment, teaching, competition, cooperation and novelty, friendship, affiliation and transfer. - The hybridization of the two pedagogical models seemed to help increase both social and personal responsibility and to provide students with meaningful sporting experiences.	11
García-Lopez & Gutiérrez (2015) Spain	Analyze the effect of a SE season on student empathy and assertiveness.	St	E/M	Mx	N	TS	QT/QE	18	N	Assertiveness Empathy	- SE was shown to be a useful instructional model for improving a variable (assertiveness) directly related to personal and social responsibility. Group and team were key aspects when differences were significant.	10
García-Lopez et al., (2012) Spain	Analyze the development of empathy, assertiveness and social relations that are usually attributed to this instructional model.	St	M	Mx	N	TS	QT/QE	18	Y	Friendship Engagement Responsibility Empathy Assertiveness	- Significant differences were found in increasing positive friends among the components of each team; - High levels of students' engagement and responsibility to the performance of their duties both as referees and statisticians.	12

Table 3. Continued

Author(s)/Country	Purpose	P	SP	CL	D/R	S	DES	L	F	Variables	Main results	Q
Gil-Arias et al., (2017) Spain	Investigate the effect a hybrid TGfU/SE unit, in comparison to direct instruction, on Students' perceptions of various aspects of their motivation to engage in physical education	St	H	Mx	N	TS	QT/QE	8	Y	Autonomy Enjoyment Empowerment	- Students showed significant improvements in autonomy and enjoyment; - Students valued the empowerment by the teacher to solve specific tactical problems.	13
Gutierrez et al., (2014) Spain	Analyze the viability of the SEM in the 2nd year of Elementary School, based on the analysis of the perceptions of teacher, and students.	St/T	E	Mx	N	TS	MIX/NE	10	Y	Motivation Inclusion Affiliation	- SE improved the inclusion; - Students revealed high levels of motivation and highlighted the affiliation.	10
Grant (1992) New Zealand	Report the teacher perspectives of curriculum in terms of student gains.	T	H	Mx	N	Ma	QL/NE	22	N	Ownership Responsibility Inclusion Cooperation Enthusiasm Decision-making	- Students had considerable ownership and responsibility for what occurred at different stages of the program; - Helped establish realistic goals for the program; - Were valued members of a team; - Had an opportunity to share responsibility for and fully participate in all aspects of sport; - Were involved in decision making; - Were in situations where their presence and contributions were valued. - Revealed enthusiasm for competition - Promoted successful inclusion of lower skilled student.	7

Table 3. Continued

Author(s)/Country	Purpose	P	SP	CL	D/R	S	DES	L	F	Variables	Main results	Q
Hastie (1996) USA	Examine the student role involvement in SE.	St	M	Sx (Boys)	N	IS	MIX/NE	12	N	Engagement Responsibility Ownership Enthusiasm	- High levels of student engagement with both playing and non-playing roles; - Student preference for responsibility and persistent team membership; - Students showed high levels of enthusiasm during their duty roles.	9
Hastie & Buchanan (2000) USA	Analyze the combined SE-TPSR model.	St	M	Sx (Boys)	N	TS	QL/NE	26	N	Responsibility Empowerment Problem-solving	- The hybrid model was effective in facilitating personal responsibility, student empowerment and problem-solving; - Given the many opportunities to solve problems, the students were able to demonstrate a high degree of personal responsibility.	11
Hastie et al., (2014) USA	Implement a SE season designed to be mastery involving and examine the degree of congruence between the objective measure of the presented climate with the students' perceptions of the saliency of this motivational climate.	St	H	Sx (Boys)	N	TS	QT/NE	12	Y	Satisfaction Engagement Autonomy	- Consistent student perception of a mastery climate across all phases of the season; - Students' perception of increased autonomy throughout the intervention; - The intervention caused improvements in engagement, satisfaction and perceived competence.	11

Table 3. Continued

Author(s)/Country	Purpose	P	SP	CL	D/R	S	DES	L	F	Variables	Main results	Q
Hastie & Sinelnikov (2006) Rússia	Examine the participation and perceptions of Russian students to SE	St	M	Mx	N	TS	MIX/NE	18	Y	Engagement Ownership Enjoyment Compliance Empathy	- Students of both genders and skill levels spent most of their lesson time actively engaged in motor tasks. - Students demonstrated significant competence in the officiating and coaching roles associated with the season. - Students commented that they found the season to be particularly interesting, that they enjoyed having student coaches and that they developed significant team affiliation. - Students showed high levels of compliance with the attentional requirements of these roles and stated that officiating was enjoyable and 'interesting'.	12
Hastie & Sharpe (1999) USA	Examine the effect of SE curriculum on prosocial behavior.	St	M	Sx (Boys)	Y (At risk)	TS	QT/QE	20	N	Compliance Friendship Leadership	- Formalized fair-play accountability system within formal competition phase increased compliance, reduced negative peer interactions and increased instances of leadership.	11
MacPhail et al (2004) UK	Analyze year-5 students' experiences of SE and the effects of membership of persisting groups on team affiliation.	St	E	Mx	N	TS	QL/NE	16	N	Ownership Confidence Empathy Friendship Cooperation	- The opportunity to become affiliated with a team was an attractive feature of the pupils' PE experience and that, under the framework of SE, there was an obvious investment made by the students in relation to their sense of identity and involvement as members of a persisting group.	11

Table 3. Continued

Author(s)/Country	Purpose	P	SP	CL	D/R	S	DES	L	F	Variables	Main results	Q
MacPhail et al (2008) UK	Explore children's' experiences of fun and enjoyment during SE.	St	E	Mx	N	TS	MIX/NE	16	N	Ownership Enjoyment Autonomy Motivation	- Students found the model to be fun and entertaining and developed the sense of affiliation and membership of a team. - Students' perceptions of increased autonomy.	11
Méndez-Gimenez et al., (2015) Spain	Compare the effects of three different instructional models: Traditional, Sport Education and Sport Education with Self-Made Materials on PE students' motivation and sportsmanship.	St	M/H	Mx	N	TS	QT/QE	12	N	Friendship Fair-play Sportsmanship Autonomy	- SE seems to offer more advantages to develop achievement and social goals, as well as sportsmanship, of adolescents in PE. - SE groups showed significant increases in friendship goals; - SE groups reported improvements in autonomy, - Regarding fair play, significant improvements were also found in those groups that experienced SE.	11
Menéndez & Fernandez-Rio (2017) Spain	Explore the impact of the combination of two pedagogical models, SE and Teaching for Personal and Social- Responsibility, for learners with disabilities experiencing a contactless kickboxing learning unit.	St/T	H	Mx	Y Disability)	IS	QL/QE	16	Y	Ownership Enjoyment Inclusion Cooperation Friendship	- Data analysis resulted in three major categories: part of the team, learning and enjoyment. - The hybridization of SE and TPSR seems to be a powerful tool for including students with disabilities in PE, helping them and their classmates connect in and out of class. - Many students without a disability highlighted the importance of cooperative learning in this experience.	11

Table 3. Continued

Author(s)/Country	Purpose	P	SP	CL	D/R	S	DES	L	F	Variables	Main results	Q
Meroño et al., (2015) Spain	Analyze the effect of an intervention program based on Sports Education, on the perception of autonomy; the degree of enjoyment and perceived competence, and the degree of commitment; in a group of swimmers belonging to a sports club.	A/C	M/H	Mx	N	IS	MIX/QE	32	Y	Autonomy Enjoyment Commitment Motivation	- Optimal behavior of the psychological variables of this study after the SE intervention; - Perception of autonomy of young athletes increased throughout the intervention; - Intrinsic and extrinsic motivation scores also showed no change from pre-post-SE.	13
Meroño et al., (2016) Spain	Examine the effect of a Sport Education season on the technical learning of four swimming strokes and the perceived motivational climate.	A/C	M/H	Mx	N	IS	MIX/QE	32	N	Motivation	- The intervention program based on SE had a positive impact on improvement of swimming skill, and a more optimal motivational climate.	12
Mowling et al., (2006) USA	Examine student drawings to determine what they perceived as most important during SE.	St	E	Mx	N	TS	QL/NE	20	N	Affiliation Responsibility Engagement	- Four key themes emerged: (1) winning as a primary agenda; (2) a strong focus on affiliation and festivity; and (3) minimal representation of roles and responsibilities, (4) engagement.	12

Table 3. Continued

Author(s)/Country	Purpose	P	SP	CL	D/R	S	DES	L	F	Variables	Main results	Q
Mesquita et al., (2016) Portugal	Examine the perceptions of a physical education teacher and her students about the educational value of SEM regarding the development of competence, literacy and enthusiasm.	St/T	M	Mx	N	IS	QL/NE	20	N	Autonomy Equity Responsibility Enthusiasm Teamwork Motivation Engagement	- Development of competent, literate and enthusiastic sportspersons; - Sense of autonomy, promoted by the balance between competition and inclusion, which also promoted literacy; - The enthusiasm was fostered by the interrelationship between the dynamics in cooperative work and the motivational climate generated having significant impact on students' engagement in practice.	11
O'Donovan (2003) UK	Analyze the effect of SE on student social goals and peer culture.	St	M	Mx	N	Ma	QL/NE	170	N	Inclusion Peer-support	- SE promoted contact with peers from a variety of social groups and this provided an opportunity for these pupils to become affiliated to peers in 'higher' social groups and provided opportunities for pupils to exert their position in the social hierarchy to influence the PE culture.	11
Perlman (2010) USA	Examine the influence of Sport Education on amotivated students affect and needs satisfaction.	St	H	Mx	N	TS	QT/QE	15	Y	Enjoyment Satisfaction	- Amotivated students in SEM perceived higher levels of enjoyment and satisfaction than students taught by the traditional approach. - There was no difference in the need for autonomy and competence.	12

Table 3. Continued

Author(s)/Country	Purpose	P	SP	CL	D/R	S	DES	L	F	Variables	Main results	Q
Perlman (2011) USA	Examine the influence of the SEM on students' self-determined motivation and underlying psychological need(s) in PE.	St	H	Mx	N	TS	QT/QE	20	Y	Self-determination Motivation	- Changes in self-determination for students engaged in the SEM; - Implementation of the SEM may be utilized as a means for supporting students' social connectedness and motivation to engage in sport-based activities.	12
Perlman (2012) USA	Examine the perceptions and experiences of 33 amotivated students (during four consecutive seasons of the SEM.	St	H	Mx	N	Ma	QL/NE	12	Y	Engagement	- The features of team affiliation and a holistic game-play evaluation facilitated changes to amotivated students' perceptions of a sport-based physical education class.	11
Perlman & Goc Karp (2010) USA	Examine the perceptions of students and teachers from their experiences in two consecutive units of SE.	St/T	H	Mx	N	TS	QL/NE	12	Y	Self-determination Fair-play Inclusion	- Structural aspects of SE assisted in facilitating movement along the self-determined continuum; - Students attributed being on a team throughout each season and implementation of a fair-play evaluation facilitated the sense of inclusion.	11
Pill (2010) Australia	Explore a SE pilot project as a case study of the approach in a primary school setting.	St/T	M	Mx	N	Ma	QL/NE	10	N	Equity Responsibility Motivation Teamwork Engagement	- SE can deliver positive products for the class climate as well as for a student's personal and social skill development in a primary school setting. - Enhanced levels of cooperation with peers, and a determination to be more equitable in participation during practice and play; - Students felt more included and motivated, and understood that they had developed skills for working cooperatively with others; - Enhanced feelings of motivation and inclusion.	11

Table 3. Continued

Author(s)/Country	Purpose	P	SP	CL	D/R	S	DES	L	F	Variables	Main results	Q
Romar et al., (2016) Finland	Describe and understand players', coaches' and parents' perceptions and experiences of a soccer season when using the model in a Finnish junior sport club.	A/C/Pa	M	Mx	N	TS	QL/NE	11	Y	Affiliation Enjoyment Autonomy Responsibility Empowerment Enthusiasm	- Players affiliated within their teams, enjoyed having autonomy, responsibilities, had 'fun', enjoyed and spoke passionately about the experience; - Players valued the chance to make decisions and be responsible for their own actions.	11
Sinelnikov and Hastie (2008) Rússia	Study the ecology of SE in one Russian school.	St	H	Mx	N	TS	QL/NE	18	Y	Responsibility Ownership Fair-play Empowerment Enjoyment	-Students enjoyed being part of a team and developed a strong sense of belonging; - During officiating, students were concerned about not giving an advantage to any particular team; - Fun was derived from being part of the team and from the authentic competition; - Students reported increased levels of responsibility and decision-making during the season.	12
Sinelnikov and Hastie (2010) Russia	Measure and describe the objective motivational climate of a Sport Education season conducted in a Russian school.	ST	H	Mx	N	TS	QT/QE	18	Y	Motivation	- SE had more mastery-oriented and less performance-oriented teacher behaviors. - The objective motivational climate of skill practice and practice competition phase had more of a mastery-oriented climate.	11

Table 3. Continued

Author(s)/Country	Purpose	P	SP	CL	D/R	S	DES	L	F	Variables	Main results	Q
Smither & Xihe (2011) USA	Examine high school students' experiences in a Sport Education unit being implemented with smaller teams and fewer roles.	St/T	H	Mx	N	TS	QL/NE	280	N	Engagement Autonomy Problem-solving	- Transformation of students into more active learners through team autonomy and problem solving within the team; - The smaller teams with few roles appeared to lead to higher engagement, especially for less skillful students.	11
Spittle & Byrne (2009) Australia	Investigated the influence of SE on student motivation.	St	M	Mx	N	TS	QT/QE	10	N	Motivation	- Difference were found between the conditions on changes in perceived competence, task orientation, and mastery climate, with the traditional condition decreasing significantly from pre- to post-test compared with SE.	12
Tindall (2013) Ireland	Provide a detailed description of post primary students' reactions to a disability awareness experience using extended contact theory, SE and the disability sport of sit-volleyball as the framework.	St	H	Sx (Girls)	Y	TS	QL/NE	16	N	Enjoyment Empathy (experience)	- Participating in a disability sport was found to be favorable amongst the students; - Students expressed an interest in further disability sport experiences as part of their regular PE curriculum.	11
Vidoni & Ward (2009) USA	Examine the effects of fair-play instruction on student social skills during SE.	St	M	Mx	N	TS	QT/QE	18	N	Engagement Enjoyment Fair-play	- Fair-Play instruction was effective in increasing students' active participation, and in decreasing waiting time for all participants; - students enjoyed participating in the study because they had fun with that.	11

Table 3. Continued

Author(s)/Country	Purpose	P	SP	CL	D/R	S	DES	L	F	Variables	Main results	Q
Wallhead et al., (2010) USA	Analyze the effects of SE on students' voluntary participation in a lunch-time recess sport club.	St	E/H	Mx	N	TS	QT/QE	24	Y	Motivation	- Autonomy supportive curriculum models, such as SE, may have the potential to facilitate transfer of motivation and participation in PA from a physical education to an extracurricular context.	12
Wallhead & Ntoumanis (2004) UK	Analyze the changes in student motivation as a result of SE.	St	H	Sx (Boys)	N	TS	QT/QE	6	N	Enjoyment Engagement Motivation	- Increases in SE student enjoyment and perceived effort; - Perceptions of task involving climate explained increases in student motivational indices.	11

* P= participants, St= students, T= teachers, A= athletes, C= coaches, Pa= parents, SP= school population, E= elementary, M= middle school, H= high school, CL= classes, Sx= single-sex, Mx= mixed-sex, D/R= disabled or at-risk students, Y= yes, N= no, S= sport, TS= team sports, IS= individual sports, MA= multiactivities, DES= study design, QL= qualitative, QN= quantitative, MIX= qualitative and quantitative, E= experimental, QE= quasi-experimental, NE= non-experimental, LS= length of the Sport Education season (number of lessons), F= fidelity of the Sport Education model, Q= methodological quality of the study.

girls, considering that in two studies the participants' gender was not specified), 8 coaches (0.2%) (without previous experience in SE) and 4 parents (0.1%).

School level

The most frequent school level studied (40%) was high school (considered as grades 9-12), followed by the middle school (31%), which is from 6th until 8th grade. Fewer studies (18%) took place in elementary schools (1st to 5th grade), and of those, the most common grade level were 4th and 5th.

Class composition

36 studies (70%) were in a co-educational PE context, two examined only girls (4%), and 6 examined only boys (12%) in a single-sex PE context. Class composition was not reported in 7 (14%) of the studies.

Students with special needs or "at risk"

In 49 studies (96%) participants were not students with special needs or "at-risk" of failure due to undisciplinary behaviors or in process of early dropout. Of interest, only 2 studies (4%) included participants who had a disability (intellectual or motor) or were considered as "at risk" of failure or early dropout.

(Q3) What were the most frequently analyzed variables when participating in a SE season?

Figure 2 provides an illustration of the range of variables examined in studies in this review. As can be seen in the figure enjoyment/satisfaction, enthusiasm and engagement are the predominant outcome measures.

(Q4) What are the methodologies that have been used to investigate the development of personal and social skills within SE classes?

Study approach

Almost half of all studies adopted a qualitative approach (23; 45%), of the remainder, 14 adopted a quantitative approach (27%), while 14 assumed a mixed approach combining both quantitative and qualitative approaches (27%).

Study design

More than half of the studies (26) included in this review utilized a non-experimental design (51%) to describe the development of students' personal and social skills within SE (without control, manipulation or alteration of the variables, focused on teachers and students' perceptions).

However, is that of the 24 studies that involved a quasi-experimental design (49%) (being able to manipulate and control the variables with pre-posttest designs), only two included a control group. Further, there was no randomization of participants within these studies.

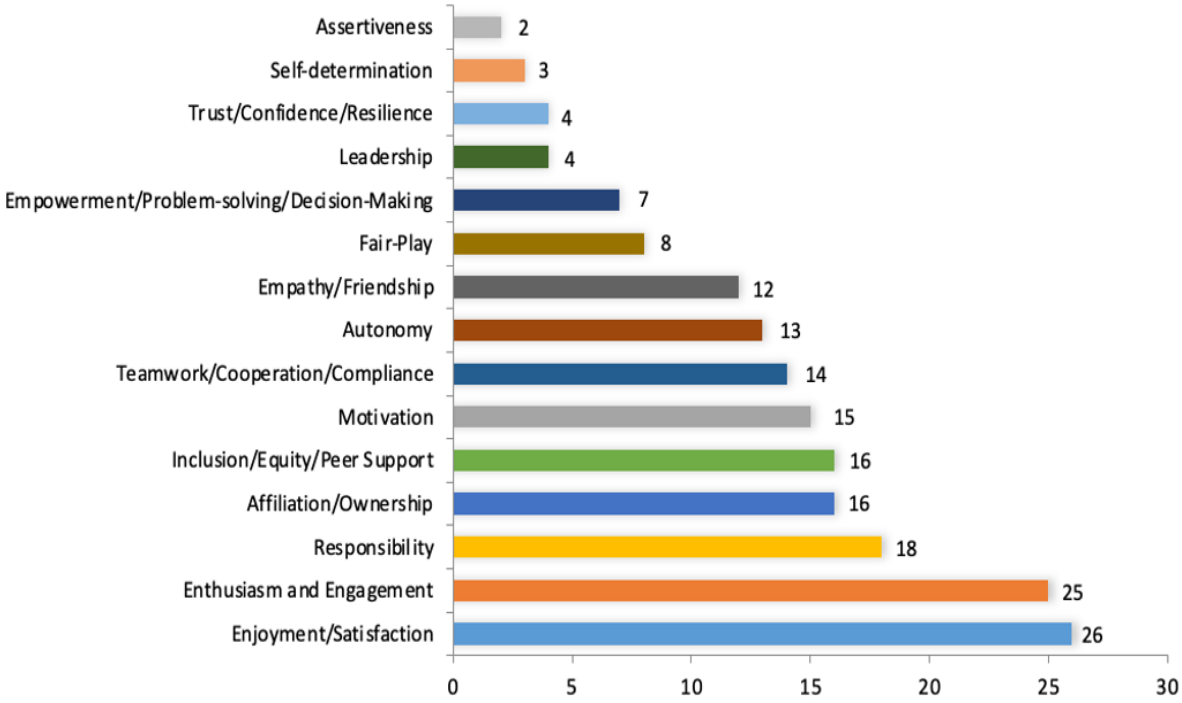

Figure 2. Personal and social variables studied in a Sport Education season.

Instruments

The use of questionnaires was reported in all quantitative studies (27) and focused on students' perceptions, and two collected data with direct observation. The analyzed qualitative studies have focused on students and teachers' perceptions and adopted semi-structured interviews and drawings to collect data. Data collection with mixed methods studies was mostly conducted using

individual or group interviews and questionnaires, as well as through diaries, interviews and questionnaires.

The most widely used instruments to collect data in studies with a qualitative multimethod strategy were interviews (12/18), followed by diaries and/or field notes (8/18), focus group interviews (6/18), participant observation (5/18), journals and/or reflective logs (3/18), videotape (3/18), drawings (2/18), photovoice (1/18) and document analysis (1/18). One study adopted a quantitative multimethod strategy (with multiple forms of quantitative data) using the questionnaires and the field work.

Length of the season

In 18 studies, the SE season extended for more than 20 lessons (35%), 15 studies for between 15 and 19 lessons (29%), 13 between 10 and 14 (6%) and 4 with less than 9 lessons (4%). Each lesson lasted 45-60 minutes.

No information was given about the length of the SE season implementation in 2 studies (4%).

Q5. How many studies have established the fidelity of the model implementation?

In 19 studies (37%) the fidelity of the SE implementation was confirmed, that is, the authors performed the validation of the model implementation and presented a detailed description of the program and curricular elements of the unit (Hastie and Casey, 2014). In 25 studies (49%), the authors presented only a description of the program or curricular elements of the unit, failing to carry out the validation of the model, that is, did not assure that the instruction was indeed consistent within the accepted standards for the SE.

Discussion

The aim of this systematic review was to describe and examine what is currently known concerning students' development of personal and social competencies when participating in PE classes with SE, in order to give directions for future research and practice.

The SE research included in this systematic review was published between 1992 and 2018 with an increasing number of publications over the years. The fact that the majority of studies took place in USA and Spain (58%) is in line with previous reviews. Although studies have been developed in other countries, namely in Australia and elsewhere in Europe (such as United Kingdom, Russia, Portugal), it would be important to expand the impact of the SE on those and other contexts and cultures.

The findings revealed that studies regarding the development of personal and social competencies focused mostly on students' perceptions (83%), and were located in school contexts (94%), and involved co-educational classes (70%). However, in the main, there was minimal research that involved students with disabilities, or those considered "at-risk" of failure or who were in the process of early dropout (96%).

One of the long-term purposes of the SE is to make sport more widely accessible so that race, disability, or socioeconomic status are not barriers to participation, thereby promoting inclusion and equity (Siedentop, 1994). By consequence, samples that consider participants with those particular characteristics must be taken into account in SE season implementations. Moreover, given that it is recognized that sport is a privileged space for the development of personal and social skills (Fraser-Thomas et al., 2005; Wright and Côté, 2003) the implementation of SE should not be limited only to the area of PE. It should focus on addressing the level of transfer to other contexts, namely sport training settings, seeking to reinforce the positive impact of SE on the personal and social skills of athletes found in studies of Meroño et al. (2015; 2016).

Results showed that the development of personal and social competencies was more studied in high-school (40%) and 9th grade (30%), which is in contrast to other reviews which identified middle (Araújo et al., 2014; Hastie et al., 2011) and elementary schools (Evangelio et al., 2018) as the most frequent levels studied. These findings are supported by studies (Ntoumanis and Standage, 2009; Van den Berghe et al., 2014) which report that older students, when participating in a SE program, are likely to develop personal and social skills. Furthermore, Layne and Hastie (2016) reported that in very young students

the implementation of an SE season requires greater teacher preparation, presenting itself as a potential limitation when studying early grade levels.

Consistent with the previous reviews of (Araújo et al., 2014; Chu and Zhang, 2018; Hastie et al., 2011), the majority of studies in this review investigated team sports in SE programs (70%). This has the potential of undervaluing the possibility of different results in individual sports. As such, it is imperative to conduct further studies in individual and performance sports given that research has shown that students engaging in SE seasons of involving these activities are more likely to participate in these sports more regularly, and that participation may extend to adulthood (Tammelin et al., 2003).

From this systematic review, the personal and social variables that appeared more often were the same as those considered to be crucial for learning in PE irrespective of the teaching approaches. These included enjoyment and satisfaction (*n*=26), enthusiasm and engagement (*n*=25) and motivation (*n*=15) as the most prevalent. Findings suggested high levels of enjoyment and satisfaction in SE (e.g. Alexander and Luckman, 2001; Curtner-Smith, 2004; Menendez and Fernandez-Rio, 2017; Meroño et al., 2015; Sinelnikov and Hastie, 2008), increases in enthusiasm and engaged participation (e.g. García-López et al., 2012; Grant, 1992; Hastie, 1996; Meroño et al., 2016; Mesquita et al., 2016; Smither and Zhu, 2011), and enhanced feelings of motivation (e.g. Burgueño et al., 2017; Hastie et al., 2014; MacPhail et al., 2008; Pill, 2010; Sinelnikov and Hastie, 2010). These results could be associated to the structural features of SE such as longer seasons, consistent team membership, and a significant amount of time allocated to game play, as well as features such as competition, festivity, and the presence of a culminant event. Further, the diversity of students' roles within the team (playing and non-playing roles) as well their opportunity to make decisions may have a strong influence on enthusiasm and engagement. With regard to the more specific variables strongly foregrounded with SE, due to its own structure and pedagogical principles, the personal and social variables mostly studied were responsibility (*n*=18), affiliation and ownership (*n*=16), inclusion, peer support and equity (*n*=16), teamwork, cooperation and compliance (*n*=14), autonomy (*n*=13), empathy and friendship (*n*=12). Fair-play (*n*=8), empowerment, problem-solving and decision-making (*n*=7), leadership

(*n*=4), trust and confidence (*n*=4), self-determination (*n*=3), assertiveness (*n*=2) were also present.

The theme of responsibility was found in a number of studies (e.g. Browne et al., 2004; Brunton, 2003; Fernandez-Rio and Menéndez-Santurio, 2017; Hastie, 1996; Hastie and Buchanan, 2000; Sinelnikov and Hastie, 2008). Students' ability within SE to take on roles (e.g., referee, coach, and statistician) and the opportunities to solve problems were identified as key points to the perceptions of greater levels of responsibility developed by students. Nevertheless, in the study of Mowling et al. (2006) involving fourth grade students, a minimal representation of roles and responsibilities were noted. The author attributed this finding to the early age of the students who sought victory as their primary agenda. However, it should be noted that this study did find that students placed a strong focus on affiliation and festivity.

Studies gathered to this review highlighted the value of team affiliation in developing students' ownership within a SE experience (e.g. Curtner-Smith and Sofo, 2004; Farias et al., 2018; Gutierrez et al., 2014; Hastie, 1998; Hastie and Sinelnikov, 2006; MacPhail et al., 2008). In a similar vein, a sense of cooperation, teamwork and compliance within the teams were all reported as important outcomes of participation in a season of SE. This feature was seen as crucial to ensuring the success and maintenance of team affiliation during the season (e.g. Alexander et al., 1996; Brunton, 2003; Fernandez-Rio and Menéndez-Santurio, 2017; Mesquita et al., 2016).

The focus of SE in promoting inclusion, equity and peer support was also suggested in a number of studies (Alexander and Luckman, 2001; Browne et al., 2004; Curtner-Smith and Sofo, 2004; Gutierrez et al., 2014; Hastie, 1998; Menendez and Fernandez-Rio, 2017; O'Donovan, 2003; Pill, 2010). Here, the importance given to all team members (regardless of a student's gender or skill level), the opportunities provided for inclusion participation and the emphasis on "doing your best" were highlighted. Nevertheless, in the Alexander et al. (1996) study, the analysis of female students' journals indicated that they did not perceive such equitable participation as players in coeducational SE learning environments. However, in subsequent studies of gender inequity and marginalization (e.g. Alexander and Luckman, 2001; Hastie, 1998; Hastie and

Sinelnikov, 2006) girls did not consider these inequities as problematic as they continued to feel a useful part of their teams and continued to prefer SE over traditional models.

This review also showed that an enhanced level of autonomy was perceived by students, teachers and athletes as a result of their participation in SE (e.g. MacPhail et al., 2008; Méndez-Gimenez et al., 2015; Meroño et al., 2015; Romar et al., 2016; Smither and Zhu, 2011). Autonomy was seen as deriving from allowing students to select their teams, choosing the roles they wished to take within their team, as well as establishing and managing their own practices and games. The study of Cuevas (2015), however, provided evidence on only minor (but not significant) improvements in students' autonomy after experiencing a SE season. The main argument for this finding was that students with higher social status tended to restrain more introverted students' behaviors, thereby limiting their perceptions of autonomy.

Some studies also reported the development of perceived empowerment by students mostly due to the opportunities of SE to solve problems, make decisions and take control over their learning environment (e.g. Gil-Arias et al., 2017; Hastie and Buchanan, 2000; Romar et al., 2016; Sinelnikov and Hastie, 2008). Furthermore, students and teachers recognized that SE provides an excellent training for leadership capacity given the students' ability to take on roles within the various activities in a season (e.g. Alexander et al., 1996; Clarke and Quill, 2003; Hastie and Sharpe, 1999). Similarly, there is empirical evidence with respect to the impact of pedagogical strategies used in SE seasons (e.g., particular roles students such as coach or reporter) on the development of students' trust, resilience and self-confidence (e.g. Ang and Penney, 2013; Carlson and Hastie, 1997; MacPhail et al., 2004). The increases of students' self-determination were also reported in some studies due to the features of SE (e.g., team affiliation and an affective game play rubric) (Cuevas et al., 2016; Perlman, 2011; Perlman and Goc Karp, 2010).

The findings also reported enhanced feelings of empathy and friendship among students in their experience with SE, producing positive changes in classmates' perceptions (Fernandez-Rio and Menéndez-Santurio, 2017; Hastie and Sinelnikov, 2006; Menéndez and Fernandez-Rio, 2017; Wallhead and

Ntoumanis, 2004). Nonetheless, the different interests and motivations among students that occur throughout the SE season can lead some students to adopt more egocentric positions, and not to put themselves in the place of the other. This was highlighted in the studies of e García-López et al. (2015; 2012) where they reported that empathy has decreased maybe due to large number of situations that occur within a SE season in which there is a clash of interests between students.

Regarding fair-play, studies with SE mentioned improvements including respect for oneself, others, adults and rules (e.g. Calderón et al., 2016; Clarke and Quill, 2003; Méndez-Giménez et al., 2015), and decreases in the number of negative sporting behaviors (Perlman and Goc Karp, 2010; Vidoni and Ward, 2009).

The development of students' assertiveness was only examined in two studies García-López et al. (2015; 2012). In the earlier study (García-López et al., 2012), students' assertiveness did not increase. It was suggested that for this to occur, specific strategies related with assertiveness need to be deliberately implemented within the SE season design. Following this recommendation, in the García-Lopez (2015) study, findings suggested that SE proved to be a useful instructional model for improving students' assertiveness.

Concerning the designs of the reviewed studies, almost half used a qualitative approach (45%) and a non-experimental design (53%) using multiple qualitative tools (35%). These tools included interviews, diaries and/or field notes, focus group interviews and participant observation. These findings are consistent with the reviews of Hastie et al. (2011) and Pozo et al. (2016). However, the most recent reviews of SE (Chu and Zhang, 2018; Evangelio et al., 2018) have indicated that significantly more studies in SE are following a quantitative (Chu and Zhang, 2018) or mixed method research approach (Evangelio et al., 2018). This divergence can be explained with the fact that Chu and Zhang's (2018) review focused specifically on motivation. Nevertheless, due to the preponderance of qualitative studies in SE focusing on the development of personal and social competencies, new studies might begin to consider including mixed and quantitative methods, as these might provide objective and controlled measures and allow for their findings to be more widely generalized.

In quasi-experimental designs (47%), previously created class groups have always been used because it is very difficult to randomly distribute students in a school setting. However, when multiple classes are used it is important that the appropriate unit of analysis is used. Research has shown that usually the articles disregarded the unit of analysis and most of the articles applied the interventions to classes/groups but used individual students as unit of analysis (Li et al., 2017).

Although the recommended length for a SE season is a minimum of 20 lessons (Siedentop, 1994) most studies (61%) did not comply with this principle. According to Siedentop (1994), seasons need to be long enough to allow for meaningful experiences, particularly since SE has more to accomplish. Specifically, when sport is taught more completely and authentically, it takes more time for students to develop the different roles and capabilities promoted by the model. Therefore, considering the main assumptions of the model, and the findings that development of social skills needs time (Ang and Penney, 2013; Farias et al., 2017; Hastie and Mesquita, 2016), in order to succeed and ensure more reliable results, future research must prioritize appropriate planning and design of the SE seasons themselves before any investigation of dependent measures is considered.

Fidelity of the implementation refers to the degree to which an intervention is delivered as intended and it is critical to successful translation of evidence-based interventions into practice (Carroll et al., 2007). Hastie and Casey (2014) consider that for an accurate and complete understanding of a study's results, the methods section should include a rich description of the curricular elements of the unit, a detailed validation of model implementation, and a detailed description of the program context. Even though the research on SE highlights the importance of reporting the fidelity of the model implementation (Hastie and Casey, 2014; Ko et al., 2006), only 37% of the studies were in compliance with this aspect of design. This lack of model fidelity is consistent by with those of O'Donnell and Carol (2008) who state that fidelity of a model implementation is rarely reported in educational studies. The evaluation of the model implementation fidelity is essential because (a) it allows readers to moderate the

relationship between an intervention and its outcomes, and (b) its assessment may also prevent potentially false conclusions.

Conclusions

Research concerning the impact of SE on students' personal and social development has shown unequivocal results. In particular, the most examined personal and social variables within SE tend to be related with more general variables, which are crucial for learning in PE in all teaching approaches (e.g., enjoyment, satisfaction, enthusiasm and engagement). However, the interest of knowing the effect on variables strongly foregrounded with SE, due to its own structure and pedagogical principles (e.g., affiliation, ownership, peer support and fair-play) has been growing and becoming more specific (e.g., assertiveness, self-determination, compliance). In order to reinforce the positive impact of SE on the personal and social competencies it would be important that research consider other cultures, samples (e.g., coaches, athletes, disabled students), contexts (sport club setting) and types of sports (e.g., individual sports). A more equitable balance of research designs (mixed and quantitative methods), longer units with an effective planning of the SE season itself, as well as report of model fidelity is critical in future studies, as they might provide more robust and objective findings that can possibly be generalized.

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Key points

- Considering the development of social and personal competencies, the majority of SE research took place in Spain and USA in a co-educational PE context (high school).
- Enjoyment/satisfaction, enthusiasm and engagement were the predominant outcome measures, using a non-experimental design and multiple qualitative tools in more than half of the studies.

- Few studies established the fidelity of the model implementation.
- Future studies should consider other samples, contexts, cultures, types of sports and longer units seeking to reinforce the positive impact of SE on the personal and social competencies.

REVIEW ARTICLE 2

What Actually Differs between Traditional Teaching and Sport Education in Students' Learning Outcomes? A Critical Systematic Review

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Abstract

This systematic review aimed to examine the main findings concerning to the investigations focused on compare, within Physical Education context, the influence of Sport Education (SE) and Traditional Teaching (TT) on students' learning outcomes. A literature search was conducted on nine electronic databases (PubMed, Google Scholar, Web of Science, SCOPUS, Academic Search Ultimate, ERIC, Education Source, APA PsycINFO and APA PsycARTICLES). Inclusion criteria were defined before the selection process. Accordingly, were only included articles that (i) were published in peer-reviewed international journals indexed in Journal Citation Reports or Scientific Journal Rankings; (ii) were available in full-text; (iii) were published in English, Portuguese or Spanish; (iv) were performed within Physical Education context; and (v) provided specifically a comparison between the effects of SE and TT on students' learning outcomes. Globally, twenty-eight studies met the inclusion criteria. The manuscripts' methodological quality was assessed through Downs and Black checklist, with all studies displaying moderate quality. Results showed that comparisons among SE and TT tend to analyze team sports activities sampling high-school students via quasi-experimental designs, with more than half of them were published over the past five years. Also, these investigations typically focused on the differences between both models on the development of personal and social skills, as well as its impact on the motor and cognitive domains. In this respect, although the results tend to point out increases in both SE and TT, superior values are achieved when SE is implemented. The analysis of the teaching-learning process using alternative research methods and designs (i.e., experimental studies, qualitative data, longitudinal analysis, action-research and case studies), longer units with appropriate planning, and the report of model´s fidelity so that robust findings can endorse the teachers' praxis, must be a concern in future studies.

Keywords: Instructional models, Physical education, Comparative analysis, Sport pedagogy, Teacher-centered approach, Student-centered approach.

Introduction

Across the last three decades, the research has been investigated on how different teaching models may impact on students' learning through the building of high-quality learning environments (O'Sullivan, 2013). Retrospectively, Physical Education (PE) evolved across the 1980s in response to the socio-political reform movements that were characteristic of that decade. Accordingly, teaching approaches moved from teacher-centered (e.g., direct instruction model) which were based on behavioristic assumptions, to student-centered (e.g., Sport Education) built upon constructivist and social learning theories (Dyson, 2014; O'Sullivan, 2013). Within a socio-constructivist perspective, the learner is placed at the core of the learning process, playing an active role in building his/her knowledge and developing autonomy and responsibility skills (Perkins, 1999). In this sense, the teacher's role is readjusted, acting as a *facilitator* of learning who uses informal and implicit instructional strategies to guide the discovery of the learning process (Goodyear and Dudley, 2015).

Aligned with the socio-constructivist premises, and following the conceptual and practical evolution in PE, the Sport Education (SE) model (Siedentop, 1994) was developed as a learner-centered teaching model. Since its conceptualization, SE has been undeniably a hot topic in the field of PE research. In contrast to teaching-centered approaches that place teachers on 'center-stage', and consider learners as motion reproducers, SE aims principally to develop competent (i.e., tactical and technically skilled to participate in game-forms), literate (i.e., aware of sport traditions, rules as well as good and bad sports practices) and enthusiastic (i.e., motivated to preserve the sports culture) sportspersons (Siedentop et al., 2020). In doing so, SE engages concomitantly motor, cognitive, social and emotional domains, all contributing to the holistic development of the learners (Araújo et al., 2014; Bessa et al., 2019; Hastie et al., 2011b; Wallhead and O'Sullivan, 2005).

Overall, SE was designed to recreate the key features of the institutionalized sport context. In this sense, learners usually perform other roles besides player, including for instance coach, team manager, or referee roles. SE, therefore, is a curriculum and instruction model designed to afford an authentic,

educational and thereby rich sport experience. Specifically, learning tasks in SE are carefully organized to underline cooperative work, problem-solving, critical reflection, and learner interaction experiences (Siedentop et al., 2020). Due to the wide range and complexity of the learning activities, from a structural viewpoint SE requires seasons of at least 18 lessons. Globally, seasons are designed according to six main characteristics, namely, affiliation (work on common goals), seasons (longer units than typical PE units) formal competition (meaningful games), culminating events (recognition of those who excel), record keeping (built-in feedback) and festivity (celebration) (Siedentop, 1994).

The relevant advantages identified in implementing SE have been attributed to its structural features, such as: (i) the authentic recreation of the sport context (i.e., competitive seasons, formal competition, teams, etc.) which increases the motor, cognitive, and emotional engagement of learners (Mesquita et al., 2014), (ii) the competition, which portrays as a useful educational tool enabling the development of tactical knowledge and game performance (Layne and Hastie, 2014; Mahedero et al., 2015), (iii) the reduced exclusion of learners, by balancing the opportunities of participation through the building of authentic and meaningful competitive game-forms (Farias et al., 2017), and (iv) the learner as an active voice throughout their own learning process and the reinforcement of teamwork which, in turns, promotes the development of personal and social competences (Smither and Zhu, 2011).

Given the high number of studies that have sought to empirically test the purported benefits of SE, systematic reviews have been conducted to summarize the key research findings, support practitioner's pedagogical intervention, and guide future research avenues (e.g., Araújo et al., 2014; Bessa et al., 2019; Hastie et al., 2011b; Wallhead and O'Sullivan, 2005). In this respect, the systematic reviews undertaken so far have emphasized the positive benefits of SE in improving learners' responsibility, cooperation, and trust skills (Bessa et al., 2019). Also, systematic reviews have depicted how SE expanded enormously over the last five years to include all learning domains: physical, social, cognitive, and affective (Evangelio et al., 2018), as well as how studies focusing on SE have

tended to progress to more sophisticated designs and larger sample sizes (Hastie et al., 2011b).

Despite the extensive research focus on SE, the Traditional Teaching approach (TT), which is linked to a more teacher-centered approach, is also frequently adopted by PE teachers (Gubacs-Collins, 2015). The TT involves a teaching style where decisions concerning planning, instruction, and assessment are made by teachers with little or none student input (Mosston and Ashworth, 2008). Thereby, within the TT, the teacher is completely in charge of all instructional decisions about didactical content development, class management, learner accountability and learner engagement (Metzler, 2017). Thus, in order to potentiate task efficacy and the time-class available, the teacher assumes full control of events by defining rules and behavioral patterns that learners must follow. Contrary to how SE structures its classes, the TT classes are typically structured through time-periods, with the teacher presenting the expected movement patterns. In this sense, the motor and cognitive domains are highlighted due to its assumption that some level of proficiency in elementary motor skills is necessary before proficient engagement in more complex game-forms (Rink, 1993).

Overall, the TT has a preference for high-structured learning tasks, as it allows close observation by the teacher who critically examines the learners' movement patterns and skills performed, reinforces correct responses, and gives corrective feedback when incorrect responses are identified (Metzler, 2017). Learners are thus expected to replicate movement patterns, answering to specific, and punctual, questions. This teaching approach involves, thereby, a low-cognitive engagement as students' cognitive processes are only recruited when they receive information from the teacher and internalize it (McMorris, 1998).

Given its instructional and structural features (e.g., skills-drills, lines or circuit organization), the TT is largely recognized to be efficient in promoting active participation of learners due to its repetitive practice emphasis (Hastie et al., 2011a). In addition, it is seen as helpful in motor domain as it focuses on developing motor skills through progressions (e.g., close motor skills), as well as

in earlier stages of learning (i.e., novice learners) (French et al., 1991; Sweeting and Rink, 1999). Finally, the frequent and ongoing teacher's feedback featured of TT has been identified as an important tool to provide in-time correction of a learners' movements and actions (Metzler, 2017).

With the purpose of understanding the influence of SE and TT on the learning outcomes of different domains (e.g., game performance, affiliation, enjoyment, etc.), some studies have been conducted to contrast both models (e.g., Browne et al., 2004; Rocamora et al., 2019). Commonly, these studies claim a superiority of SE over TT. However, despite the well-reported benefits from SE, its advantages in comparison to TT are still under-developed. The novelty and scientific contribution of this systematic review grounds precisely on the need to synthesize evidence for extending and update the comprehension about what it currently knew, and what remains unclear in the literature. By doing so, this review also avoids the ongoingly false speculation and / or overly optimistic assumptions not supported by scientific evidence, while guiding future research avenues.

Previous reviews about the impact of SE have irrefutably contributed to summarize the available evidence concerning the main aims of PE, namely fitness and tactical awareness (Hastie et al., 2011b), students' learning (Araújo et al., 2014), students' competence, literacy and enthusiasm (Hastie and Wallhead, 2016), learning outcomes (Evangelio et al., 2018), and more recently, students' personal and social development (Bessa et al., 2019). Accordingly, due to the progressive amount of investigations dedicated to compare the influence SE and TT on students' learning outcomes, summaries of the main empirical research findings are constantly required to update our understanding about the effects of its practical application. Also, knowing the benefits and weaknesses of each teaching model is possible to extend the comprehension of their effects on students' learning domains, as well as the understanding of how the teaching models might be used and combined to optimize learning processes. Despite many systematic reviews have summarized the main findings about the impact of different teaching approaches, up to this date were not find any quantitative or qualitative review that has specifically compared, contrasted, and debated the

impact of SE and TT on students' learning which reinforces the innovative character of the present review.

Aligned with the aforementioned rational, this study sought to assess the main findings concerning to the investigations devoted to compare the influence of SE and TT on students' learning outcomes. Four research questions supported this review, namely:

(Q1) Which contexts were predominant in investigations that aimed to compare SE and TT on students' learning outcomes?

(Q2) What were the most frequently variables analyzed when comparing a SE season and a TT unit?

(Q3) What were the methods predominantly used to compare the influence of SE and TT on students' learning outcomes?

(Q4) Have these investigations been concerned about established the fidelity of the models' implementation?

Methods

Data sources and Search Strategy

This systematic review followed the recommendations stated by Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Moher et al., 2015). An exhaustive and systematic search was conducted through nine scientific literature databases (PubMed, Google Scholar, Web of Science, SCOPUS, Academic Search Ultimate, ERIC, Education Source, APA PsycINFO and APA PsycARTICLES) for papers published up to, and including, June 2020. The English Boolean data types "AND" and "OR" were used to combine the following terms: "physical education", "sport education", "direct instruction", "traditional teaching", "traditional instruction", "traditional model", "multiactivity instruction", "instructional approaches" and "pedagogical models". Afterwards, the reference lists of the selected articles were screened for potentially suitable articles to include in the review. The study selection was independently carried out by two experienced authors to minimize any potential selection bias. Both were knowledgeable of instructional models in PE. The reviewers were not blinded to the authors' list, institutions, or journals of publication. Any

discrepancies were resolved by consensus. Also, study abstracts that did not offer adequate information considering the eligibility criteria predefined were retrieved for full-text evaluation.

Inclusion/exclusion criteria

Following the recommendations of Simonsohn et al. (2013) eligibility criteria were defined before the electronic search. Also, to promote the quality assurance, and given the possibility of it had not been subjected to independent and peer-review, books, book chapters, conference abstracts, thesis, and dissertations were excluded from analysis. Aligned with this, articles published in non-peer-reviewed journals and/or those not indexed in Journal Citation Reports or Scientific Journal Rankings were also disregarded. Also, based on the study's purpose, the investigations that did not measure specifically the influence of TT and SE on students' learning outcomes, were not conducted within the PE context, or used exclusively qualitative data, were also excluded. Thus, peer-reviewed studies were included according to the following criteria: (i) provide a comparison between SE and TT on students' learning outcomes, (ii) were available in full-text, and (iii) were written in English, Portuguese or Spanish language. Notwithstanding, after reading the titles and the abstracts, articles were included or excluded based on the criteria above mentioned.

Data Extraction and codification of the studies

Content analysis was conducted on the manuscripts selected to record authors' names, year of publication, study context (i.e., countries, interventional context, sport type), study design (i.e., length of the units/season) sample characteristics (i.e., participants, grade and class composition), statistical methods, variables assessed, fidelity of the model implemented, and main findings.

Methodological Quality Assessment

An evaluation of the methodological quality of the selected studies was accomplished using the validated Downs and Black (1998) checklist. This scale

enables researchers to highlight the strongest and weakness points of each study and assess both cross-sectional and longitudinal investigations (Bento, 2014). The checklist includes 27-items that aim to assess the reporting, validity, and statistical power of the published manuscripts. Specifically, items 1-10 relate to reporting, items 11-13 refer to external validity, items 14-26 relate to internal validity and item-27 attends the statistical power. The quality of the studies was classified adapting the criteria applied by Grgic et al. (2018). Accordingly, studies were classified as “good quality” if they scored 20-27 points, “moderate quality”, if they scored 11-19 points, and “poor quality” if they scored < 11 points. Two independent researchers evaluated the studies selected. The final ratings were discussed among the research team (first author and co-authors), with discussion and agreement for any observed differences. No study was excluded due to a significantly low-quality assessment score.

Results

Studies selection

The search stages and the study selection procedures are depicted in Figure 1. A total of 28 studies met the inclusion criteria and were included in the present systematic review. Detailed information of the studies selected are presented in alphabetical order in Table 2. With the aim of achieving the study’s purpose, the review categories were defined a priori (Harris et al., 2014). These categories are described in Table 1 and used as labels in Table 2.

Methodological quality

The average score on the Downs and Black checklist was 13 (range 11-14). All studies included were assessed as having moderate methodological quality. Specifically, one study was scored with 14 points, seventeen studies with 13 points, seven studies with 12 points and three studies with 11 points (Table 3).

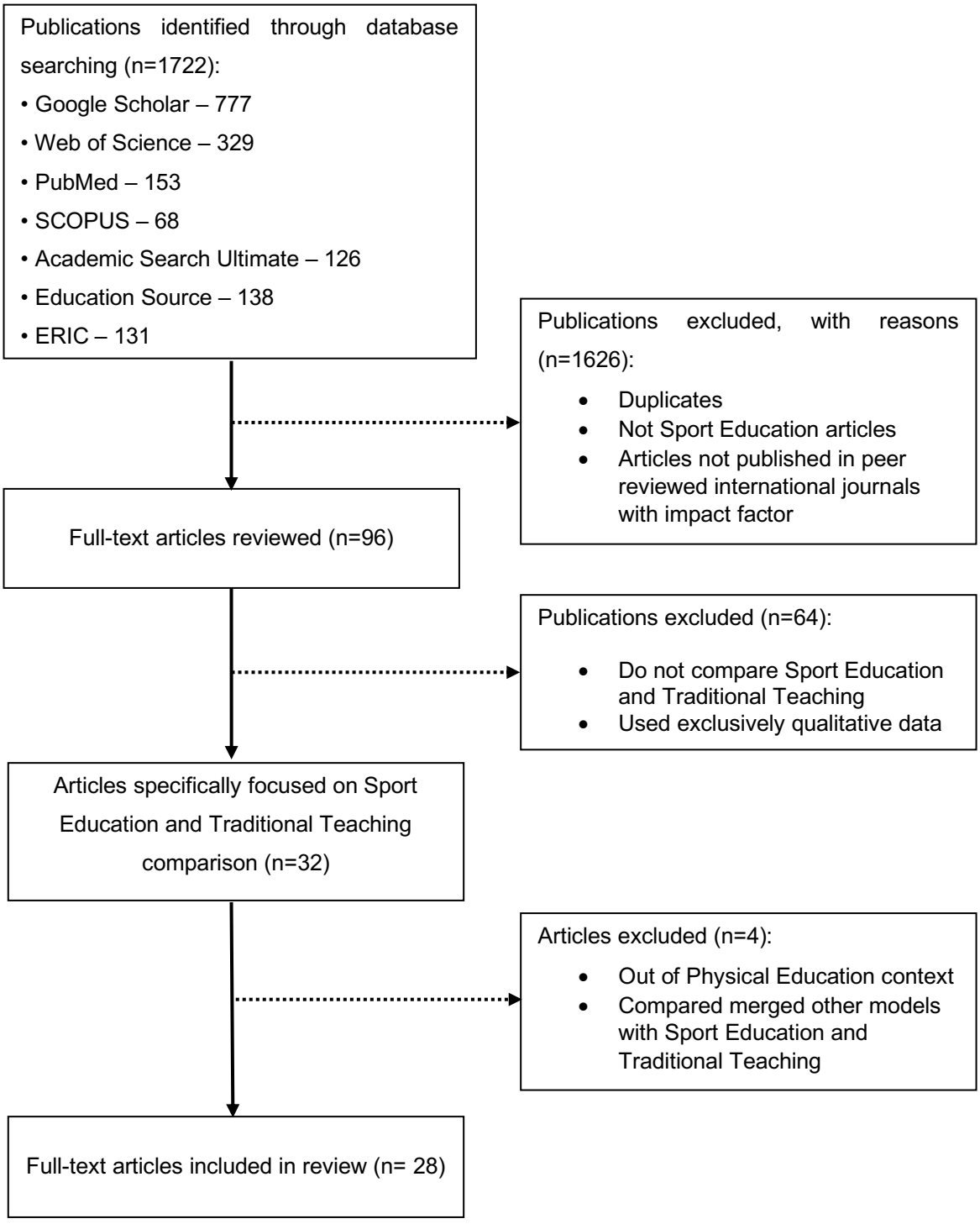

Figure 1. Study flowchart.

Table 1. Categories and legends.

Category	Legends
Author(s) / Country	Identifies the authors, the year and the country where the study took place
Purpose	Describes the purpose of the study
P - Participants	St – Students T – Teachers
SP - School Population	M – Middle School H – High School U - University
CL - Classes	Sx – Single Sex Classes Mx – Mixed Sex Classes
S – Sport	The sport form used TS – Team Sport IS – Individual Sport
DES – Study Design	QT – Quantitative MIX – Both qualitative and quantitative E – Experimental QE – Quasi-experimental
LS – Length of the SE Season	Number of lessons
F - Fidelity of the SE model	Fidelity measures are reported: Y – Yes N – No
Variables	Variables that were analyzed across the study
Main Results	Main results of the study provided by the author/s
Q – Study Quality	Methodological quality of the study

Table 2. Characteristics of included studies.

Author(s)/Country	Purpose	P	SP	CL	S	DES	L	F	Variables	Main results	Q
Browne, Carlson & Hastie (2004) **AUSTRALIA**	Examine the impact that two instructional approaches (TT and SE) to teaching rugby had on students' learning, enjoyment and affection.	St	M	Sx (Boys)	TS	MIX/QE	20	N	Student Learning Enjoyment Affect	- Both groups made significant improvements in their knowledge of the game as well as their skill. - The interview data provide repeated references that suggest the clear majority of students from both classes enjoyed their unit, regardless of the way it was taught. - SE students expressed an increased feeling of ownership and commitment to the process as well as increased feeling of being part of a team.	12
Burgueño & Medina-Casaubón (2020) **SPAIN**	Examine the influence of SE on sportsmanship orientations in high school students.	St	H	Mx	TS	QT/E	16	Y	Sportsmanship	- Significant improvement of four of the five sportsmanship orientations (i.e., respect for social conventions, respect for rules and referees, full commitment, and respect for opponents) after a SE season.	13
Burgueño, Cueto-Martín, Morales-Ortiz, Silva & Medina-Casaubón (2018) **SPAIN**	Examine the influence of SE on basic psychological need satisfaction in the sport teaching-learning process that takes place in PE.	St	H	Mx	TS	QT/QE	12	Y	Basic psychological needs (Autonomy Competence Relatedness)	- SE significantly improved the levels of autonomy, competence and relatedness need satisfaction in the inter-group analysis and in the intra-group analysis.	13

Table 2. (continued)

Author(s)/Country	Purpose	P	SP	CL	S	DES	L	F	Variables	Main results	Q
Burgueño, Medina Casaubón, Morales-Ortiz, Cueto-Martín, Sánchez-Gallardo (2017) SPAIN	Examine the influence of an intervention based on SE, in comparison with TT, on motivational regulation in high school students in PE class.	St	H	Mx	TS	QT/QE	12	N	Motivation	- SE group increased significantly in intrinsic motivation, identified regulation and decreased amotivation, external regulation - TT group increased in external regulation and amotivation and decreased in intrinsic motivation and identified regulation	13
Cuevas, García-Lopez & Contreras (2015) **SPAIN**	Analyze the impact of SE in psychological basic need satisfaction in PE secondary students.	St	H	Mx	TS	QT/QE	19	Y	Basic psychological needs (Autonomy, Competence and Relatedness)	- Significant improvements in competency for SE group; TT group decreased. - Increased in autonomy and relatedness for both groups but not significantly.	13
Cuevas, García-Lopez & Serra-Olivares (2016) **SPAIN**	Analyze the impact of the SE in self-determination and motivation, psychological basic need thwarting, enjoyment-satisfaction, boredom, and intention to be physically active in PE secondary school students in Spain.	St	H	Mx	TS	QT/QE	19	Y	Motivational regulation Psychological need thwarting Intention to be physically active Satisfaction-enjoyment Boredom Self-determination	- Significant improvements in intrinsic motivation in the SE group. - Although changes were not found to be significant for the other variables: slight improvements were noted in self-determination and identified regulation in the SE group; small changes were observed in the satisfaction- enjoyment and need thwarting of competence variables in the SE group.	13

Table 2. (continued)

Author(s)/Country	Purpose	P	SP	CL	S	DES	L	F	Variables	Main results	Q
Fernandez-Rio, Mendez-Gimenez, Mendez-Alonso (2013) **SPAIN**	Examine the effects of three instructional approaches in secondary education students' physical self-concept after the implementation of an ultimate learning unit.	St	H	Mx	TS	QT/QE	12	N	Physical self-concept	- Students in the TT and SE groups increased their physical self-concept from initial to final tests, but not significantly.	13
Hastie, Calderón, Rolim & Guarino (2013) **PORTUGAL**	Examine the relative effectiveness of 2 forms of PE instruction on students' skill and technical performance, as well as content knowledge in 3 track and field events.	St	H	Mx	IS	QT/QE	20	Y	Technical performance Content knowledge	- Although both groups improved significantly their technical performance from pretest to posttest, the SE classes outperformed the TT classes in both technique and skill execution. - Only the SE group made significant improvements in content knowledge.	13
Hastie, Sluder, Buchanan & Wadsworth (2009) **USA**	Investigate changes in students' aerobic fitness levels following a season of SE.	St	M	Mx	IS	QT/QE	15	N	Aerobic Fitness Levels	- SE group with higher increases than TT group; significant differences between both models (TT group with small improves).	13
Kao (2019) **CHINA**	Analyze the impact of a SE unity on team cohesion (within effect) and compare team cohesion between a TT method and a SE unit (between effects).	St	U	Mx	TS	QT/QE	+20	N	Team Cohesion (teamwork, team adaptation, interpersonal interaction)	- SE group made significant improvements on team cohesion after the course; all post-test scores were higher than those for the TT group; - TT group did not notice significant improvements on team cohesion or any subscale.	12

Table 2. (continued)

Author(s)/Country	Purpose	P	SP	CL	S	DES	L	F	Variables	Main results	Q
Luna, Guerrero, Rodrigo-Ruiz, Losada & Cejudo (2020a) **SPAIN**	Evaluate the impact of an educational intervention on social competence and social acceptance among adolescents.	St	H	Mx	TS	QT/E	16	N	Social competence Peer social acceptance	- SE group presented more significant improvements in some indicators of social competence and social acceptance among peers than those obtained with the TT.	14
Luna, Rodriguez-Donaire, Rodrigo-Ruiz & Cejudo (2020b) **SPAIN**	Evaluate the impact of a physical-SE pilot programme on adolescents' subjective well-being (health-related quality of life, positive and negative affect), trait emotional intelligence and social anxiety	St	M	Mx	TS	QT/QE	18	N	Subjective well-being (positive affect and negative affect) Psychosocial adjustment (depression, anxiety and social stress)	- SE group had significant improvements in the affective component of subjective well-being and a reduction in anxiety.	13
Méndez-Gimenez, Fernandez-Rio & Méndez-Alonso (2015) **SPAIN**	Compare the effects of three different instructional models: TT, SE and SE with Self-Made Materials on PE students' motivation and sportsmanship.	St	M/H	Mx	TS	QT/QE	12	N	Achievement goals (mastery approach, performance approach, performance avoidance, mastery avoidance) Friendship Basic psychological needs (autonomy, competence and relatedness) Fair-play	SE group presented: - Significant increases in autonomy, competence, relatedness, friendship, social conventions, rules and officials, opponent and in performance-avoidance goals. TT group: - Increased but not significantly in performance avoidance-goals, in friendship avoidance, in social conventions and opponent. - Increased significantly (less than SE group) in autonomy and competence (not in relatedness)	13

Table 2. (continued)

Author(s)/Country	Purpose	P	SP	CL	S	DES	L	F	Variables	Main results	Q
Parker & Curtner-Smith (2005) **USA**	Compare the health-related fitness benefits for pupils participating in SE and traditional multiactivity (MA) units of instruction.	St	M	Mx	TS	QT/QE	10	Y	Physical activity	- Students in the MA unit spent slightly more than the recommended 50% of lesson time in moderate to vigorous physical activity (MVPA) while the pupils in the SE unit did not approach this level.	11
Pereira, Araújo, Farias, Bessa & Mesquita (2016) **PORTUGAL**	Examine the effects of SE and Direct Instruction on students' content knowledge in three track and field events (hurdles, triple jump, and shot put) considering their gender and skill level.	St	M	Mx	IS	QT/QE	20	Y	Student knowledge	- Significant knowledge improvements in both instructional approaches irrespective of students' gender and skill level.	12
Pereira, Hastie, Araújo, Farias, Rolim, Mesquita (2015) **PORTUGAL**	Examine students' technical performances improvements in three track and field events (hurdles, shot put, and long jump) following either a SE season or a Direct Instruction unit.	St	M	Mx	IS	QT/QE	20	Y	Technical performance	- SE students of both genders and skill levels improved significantly in all events. - Direct Instruction group presented significant improvements but limited to boys and students of higher skill level.	12

Table 2. (continued)

Author(s)/Country	Purpose	P	SP	CL	S	DES	L	F	Variables	Main results	Q
Perlman (2010) **USA**	Examine the influence of Sport Education on amotivated students affect and needs satisfaction.	St	H	Mx	TS	QT/QE	15	Y	Basic psychological needs (autonomy, competence and relatedness) Enjoyment	- Amotivated students in SEM perceived higher levels of enjoyment and satisfaction than students taught by the traditional approach. - Significant differences between groups for relatedness, with significant improvements for SE group - There were no differences in the need for autonomy and competence. - Both groups presented decreases on these variables, from pre- to post-test.	13
Perlman (2011) **USA**	Examine the influence of SE on students' self-determined motivation and underlying psychological need(s) in PE.	St	H	Mx	TS	QT/QE	20	Y	Self-Determined Motivation (Intrinsic Motivation, Identified Regulation, External Regulation and Amotivation Basic Psychological needs (Autonomy, Competence and Relatedness)	- Significant differences on the self-determination index between groups, with higher improvements for students in SE group. - Significant differences between groups for relatedness, with significant improvements for SE group. - Lack of significant differences between groups for autonomy and competence; - TT group presented increases only on competence.	13

Table 2. (continued)

Author(s)/Country	Purpose	P	SP	CL	S	DES	L	F	Variables	Main results	Q
Perlman (2012) **USA**	Examine the physical activity differences between amotivated students engaged in the SE compared with a TT sportbased physical education class.	St	H	Mx	TS	QT/E	15	Y	Physical activity levels	- Engagement within the SE provided amotivated students with an increased opportunity to engage in higher levels of physical activity.	13
Pritchard, Hawkins, Wiegand & Metzler (2008) **USA**	Study the effects of SE and the TT instructional approaches on skill development, knowledge, and game performance of the sport of volleyball.	St	H	-	TS	QT/E	20	Y	Technical performance Student Knowledge Game Performance Game involvement	- No significant difference between models for technical performance (SE group increased in all skills, TT group did not in setting skill). - No significant difference between models for knowledge and game involvement (both variables increased). - Significant differences between models for game performance with increases for SE but decreases for TT.	13

Table 2. (continued)

Author(s)/Country	Purpose	P	SP	CL	S	DES	L	F	Variables	Main results	Q
Rocamora, González-Víllora, Fernández-Río & Arias-Palencia (2019) **SPAIN**	Assess the effects of two instructional approaches, SE and Direct Instruction (DI) on students' physical activity intensity levels, game performance, and friendship goals.	St	M	Mx	TS	QT/E	15	Y	Physical activity Game performance Friendship	- Sedentary PA levels were significantly higher in the DI group. - Light and moderate PA levels were significantly higher in the SE group. - Increased values for SE group in friendship-approach and friendship-avoidance goals - In the DI group, only girls increased significantly in friendship-avoidance goals. - Significant gains in both study groups for game performance, but larger in the SE group.	13
Segovia & Gutierrez (2020) **SPAIN**	Evaluate the effects on schoolchildren's body composition of a game-based high intensity interval training.	St	M	Mx	TS	QT/QE	15	N	Body composition (waist circumference and body fat percentage)	- GB-HIIT is effective in modifying the body composition of primary school children. However, the methodology used to implement the GB-HIIT program (SE or TT) had no impact on the findings.	12
Spittle & Byrne (2009) **AUSTRALIA**	Investigate the influence of SE on student motivation.	St	H	Mx	TS	QT/QE	20	N	Intrinsic motivation (enjoyment/interest, effort/importance, perceived competence, and pressure/ tension) Goal orientations Perceived motivational climate	- Significant difference between the conditions on changes in perceived competence, task orientation, and mastery climate, with the Traditional condition decreasing significantly from pre- to post-test compared with the SE condition. - No significant differences between conditions on interest/enjoyment, effort/importance, pressure/tension, ego orientation, or performance climate.	12

Table 2. (continued)

Author(s)/Country	Purpose	P	SP	CL	S	DES	L	F	Variables	Main results	Q
Viciana, Casado-Robles, Pérez-Macías & Mayorga-Vega (2020) **SPAIN**	Examine the effect of a PE-based SE program on personal and interpersonal variables, social environment, and the predisposition of acquiring positive habits and autonomy in high-school students in order to assess the contribution of this model to the students.	St	H	Mx	TS	QT/E	12	N	Motivation Satisfaction Perceived physical fitness Effort and improvement Relatedness Cooperative learning Classroom climate Sportsmanship Intention to be physically active Autonomy	- Compared with the TT group, SE participants had a statistically significant increase in self-determined motivation toward PE, satisfaction toward sport, physical self-concept, relatedness with others, cooperative learning, classroom climate, sportspersonship, autonomy and acquisition of habits (autonomy support, and the intention to be physically active).	13
Wahl-Alexander & Chomentowski (2018) **USA**	Determine changes in college-aged students' aerobic fitness levels following participation in a university physical conditioning course.	St	U	Mx	IS	QT/QE	26	Y	Physical activity levels	- Students who participated in the SE condition experienced significantly greater improvements in the number of PACER laps when compared to the TT group. In addition, students in this same condition significantly decreased their one-mile run time during their enrolment in this course.	12

Table 2. (continued)

Author(s)/Country	Purpose	P	SP	CL	S	DES	L	F	Variables	Main results	Q
Wallhead & Ntoumanis (2004) **UK**	Determine the effect of SE and TT approach, to teaching a unit of games-based activity in physical education.	St	H	Sx (male)	TS	QT/QE	8	N	Enjoyment Perceived effort Perceived competence Motivational climate Autonomy	- Students in the SE curriculum group reported significantly higher postintervention enjoyment and perceived effort than those taught with the TT.	11
Wallhead, Garn & Vidoni (2014) **USA**	Examine the effect of a high school-required program taught using SE on students' perceived effort and enjoyment in physical education, physical activity intentions, and leisure-time physical activity.	St	H	Mx	TS	QT/QE	25	N	Student Learning enjoyment affect	- SE participants reported greater increases in perceived effort and enjoyment than did the students taught within the TT. - Limited support for the direct transfer of motivation from a sport education program to increases in leisure-time physical activity behavior.	11
Xu, Gao & Xu (2019) **CHINA**	Investigate the impact of SE on students' skills and attitudes in table tennis course in high school.	St	H	-	IS	MIX/QE	16	N	Table tennis skills Students' attitudes	- Both classes (SE and TT) made significant improvements in their skills, while SE students made more progress in forehand drive and serve than TT students did.	13

Notes: P = participants, St = students, T = teachers, SP = school population, M = middle school, H = high school, U = university, CL = classes, Sx = single-sex, Mx = mixed-sex, S = sport,

TS = team sports, IS = individual sports, DES = study design, QN = quantitative, MIX = qualitative and quantitative, E = experimental, QE = quasi-experimental, LS = length of the Sport Education season (number of lessons), F = fidelity of the model, Q = methodological quality of the study.

Table 3. Study quality checklist with quality scores assigned

Author(s)/Date	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q14	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	QS
Browne et al. (2004)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	1	0	0	0	UTD	0	12
Burgueño & Casaubón (2020)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	1	1	0	0	UTD	0	13
Burgueño et al. (2018)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	1	1	0	0	UTD	0	13
Burgueño et al. (2017)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	1	1	0	0	UTD	0	13
Cuevas et al. (2015)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	1	1	0	0	UTD	0	13
Cuevas et al. (2016)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	1	1	0	0	UTD	0	13
Fernandez-Rio et al. (2013)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	1	1	0	0	UTD	0	13
Hastie et al. (2013)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	1	1	0	0	UTD	0	13
Hastie et al. (2009)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	1	1	0	0	UTD	0	13
Kao (2019)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	1	0	0	0	UTD	0	12
Luna et al. (2020a)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	1	0	1	1	1	1	1	1	1	0	0	UTD	0	14
Luna et al. (2020b)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	1	1	0	0	UTD	0	13

Table 3. (continued)

Author(s)/Date	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q14	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	**QS**
Méndez-Gimenez et al. (2015)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	1	1	0	0	UTD	0	**13**
Parker & Curtner-Smith (2005)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	0	0	0	0	UTD	0	**11**
Pereira et al. (2016)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	1	0	0	0	UTD	0	**12**
Pereira et al. (2015)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	1	0	0	0	UTD	0	**12**
Perlman (2010)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	1	1	0	0	UTD	0	**13**
Perlman (2011)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	1	1	0	0	UTD	0	**13**
Perlman (2012)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	1	1	0	0	UTD	0	**13**
Pritchard et al. (2008)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	1	1	0	0	UTD	0	**13**
Rocamora et al. (2019)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	1	1	0	0	UTD	0	**13**
Segovia & Gutierrez (2020)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	1	0	0	0	UTD	0	**12**

Table 3. (continued)

Author(s)/Date	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q14	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	**QS**
Spittle & Byrne (2009)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	1	0	0	0	UTD	0	**12**
Viciana et al. (2020)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	1	1	0	0	UTD	0	**13**
Wahl-Alexander & Chomentowski (2018)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	1	0	0	0	UTD	0	**12**
Wallhead & Ntoumanis (2004)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	1	0	0	0	0	UTD	0	**11**
Wallhead et al. (2014)	1	0	1	1	0	1	1	0	0	1	UTD	UTD	UTD	0	0	0	1	1	1	1	0	1	0	0	0	UTD	0	**11**
Xu et al. (2019)	1	1	1	1	0	1	1	0	0	1	UTD	UTD	UTD	UTD	UTD	0	1	1	1	1	1	1	0	0	0	UTD	0	**13**

Question (Q). Q1: Is the Hypothesis/aim/objective clearly described? Q2: Are the main outcomes to be measured clearly described in the Introduction or Methods section? Q3: Are the characteristics of the participants included in the study clearly described? Q4: Are the interventions of interest clearly described? Q5: Are the distribution of principal confounders, in each group of subjects to be compared, clearly described? Q6: Are the main findings of the study clearly described? Q7: Does the study provide estimates of random variability in the data for the main outcomes? Q8: Have all the important adverse events, that may be a consequence of the intervention, been reported? Q9: Have the characteristics of patients lost to follow-up been described? Q10: Have actual probability values been reported for the main outcomes except where the probability value is less than 0.001? Q11: Were the subjects asked to participate in the study representative of the entire population from which they were recruited? Q12: Were those subjects who were prepared to participate representative of the entire population from which they were recruited? Q13: Were the staff, place, and facilities where the patients were

treated, representative of the treatment the majority of patients receive? Q14: Was an attempt made to blind study subjects to the intervention they have received? Q15: Was an attempt made to blind those measuring the main outcomes of the intervention? Q16: If any of the results of the study were based on 'data dredging', was this made clear? Q17: In trials and cohort studies, do the analysis adjust for different lengths of follow-up of patients, or in case-control studies, in the time period between intervention and outcome the same for cases and controls? Q18: Were the statistical tests used to assess the main outcomes appropriate? Q19: Was the compliance with the interventions reliable? Q20: Were the main outcome measures used accurate (valid and reliable)? Q21: Were the patients in different intervention groups (trials and cohort studies) or were the cases and controls (case-control studies) recruited from the same population? Q22: Were the study subjects in different intervention groups (trials and cohort studies) or were the cases and controls (case-control studies) recruited over the same period of time? Q23: Were study subjects randomized to intervention groups? Q24: Was the randomized intervention assignment concealed from both patient and health care staff until was complete and irrevocable? Q25: Was there adequate adjustment for confounding in the analysis from which the main findings were drawn? Q26: Were losses of patients to follow-up taken into account? Q27. Did the study have sufficient power to detect a clinically important effect where the probability value for a difference being due to chance is less than 5%?
UTD – Unable to determine.

Overview of articles and study background

Research dedicated to compare the influence of SE and TT on students' learning outcomes took place mostly in Spain (n = 12; 43%) and in the United States (n = 8; 29%), followed by Portugal (n = 3; 11%), China (n = 2; 7%), Australia (n = 2; 7%) and the United Kingdom (n = 1; 3%).

Overall, throughout the SE competitive seasons, team-sports (such as volleyball, soccer, or handball) were frequently studied (n = 22; 79%), whereas only six studies (21%) incorporated individual sports (e.g., track in field). Most of the studies were conducted for less than 18 lessons (15; 54%) in the units/seasons examined. Specifically, 13 studies (46%) analyzed units/seasons for more than 18 lessons, 8 studies (28%) extended between 13 and 17 lessons, with the remaining 7 studies (25%) examining between 8 and 12 lessons. Most investigations recorded data only from students (27; 96%).

Globally, the studies selected encompassed a sample of 3281 students (1615 boys and 1538 girls, with two studies not specifying the gender of 128 participants) and 46 teachers (7 were preservice teachers). Concerning the grade level examined, the high-school (i.e., ninth to twelfth grade) was typically investigated (17; 61%), followed by middle-school (i.e., sixth to eighth grade, 9; 32%), and the remaining 2 studies (7%) were conducted in the university. Also, 26 studies (93%) were in a co-educational PE context, with 2 studies (7%) examining only boys in a single-sex context. Class composition was not reported in 2 of the selected studies (7%). Of interest, none of the studies reported including participants with disabilities.

Variables

The Figure 2 provides an illustration about the range of variables examined by the studies included in this systematic review.

Methodological procedures to collect data

Apart from two articles that resorted to a mixed method (Browne et al., 2004; Xu et al., 2019) (7%), all studies selected followed a quantitative approach (26; 93%). Most of the studies (21; 75%) used a quasi-experimental, pre-test and post-test design, to compare SE and TT. The remaining 7 studies (25%) utilized an

experimental design. The use of questionnaires (20; 54%) was the most reported instrument in the extracted studies. Other data sources included systematic observation (5; 13%), accelerometers (4; 11%), written tests (3; 8%), students' interviews (2; 5%), critical incidents (1; 3%), body composition measures (1; 3%) and teacher evaluations (1; 3%). Data collection from the mixed-methods study combined the use of interviews, written tests, and questionnaires.

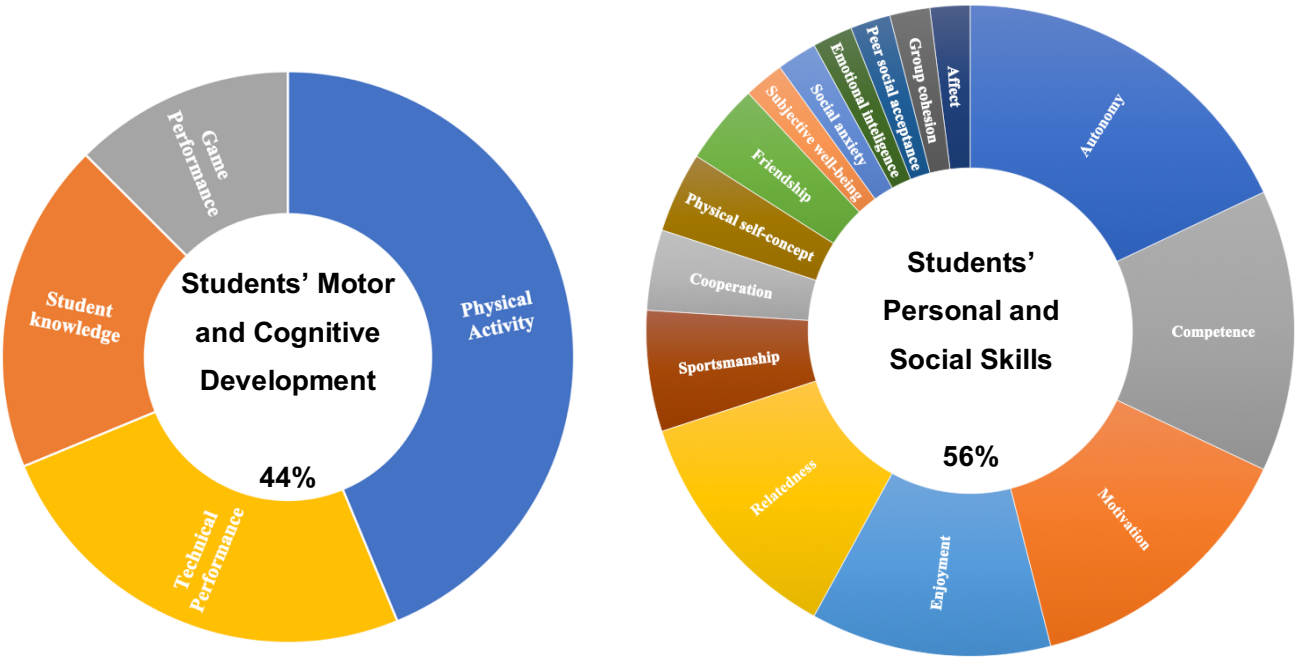

Figure 2. Variables examined in studies comparing SE and TT.

Fidelity of the models implemented

In 15 of the selected studies (54%), the fidelity of the models implemented was reported. That is, the authors performed the validation of the model applied presenting a detailed description of the program and curricular elements of the unit (Hastie and Casey, 2014). In the remaining 13 studies (46%), the authors presented only a description of the program or curricular elements of the unit, failing to carry out the model validation. Accordingly, an assessment of instruction according to the accepted standards for each model was not confirmed.

Discussion

This review sought to summarize and examine the main findings from the studies that compared the influence of SE and TT on students' learning outcomes, in order to provide directions for future research and practice. Overall, studies tended to analyze Spanish and American data, as well team sports activities with high-school samples. Also, investigations focused typically on the differences between both models on the enhancement of personal and social skills and motor and cognitive factors. From a methodological viewpoint, the studies were most likely to adopt quasi-experimental designs, in which half of the studies did not report the fidelity of the model implemented.

Findings about studies background

The comparative research between SE and TT included in this systematic review was published between 2004 and 2020 with an increasing number of publications over the last five years. Specifically, more than half of the studies were carried out between 2015 and 2020. Back in 2005, Wallhead and O'Sullivan (2005) called precisely for comparative studies. Although authors have not immediately considered these suggestions (Hastie et al., 2011b), researchers are currently showing interest in this subject. Specifically, the pertinence of these theme is justified by the need to (i) expand knowledge about the models and their differentiated effects on learning variables or school levels, (ii) adopt different methodologies or statistical procedures, (iii) implement in other countries or contexts, and (iv) overcome the limitations identified in previous studies.

Although scientific investigations have also been developed in other countries, namely in Portugal, Australia, China and United Kingdom, most of the reviewed studies used Spanish or US data. This finding is congruent with the outcomes of previous reviews (Bessa et al., 2019; Evangelio et al., 2018), despite the undeniable importance of expanding the impact of SE to another contexts and cultures. However, in reason of the flexibility demonstrated by SE, we strongly emphasize the relevance of investigate the differences among schools, teachers, sport season, instead of countries (Curtner-Smith et al., 2020). Accordingly, future investigations could address this issue.

Overall, the findings revealed that when comparing the students' learning outcomes in a SE and TT season/unit, the high- and middle-school students in co-educational classes were the most studied. In fact, we did not find any investigation within elementary school settings that specifically compares TT with SE. In this respect, despite the difficulties of implementing SE in the earliest grade levels (Layne and Hastie, 2016), the research has been suggested potential for introducing SE in the elementary education (Gutierrez et al., 2014; Layne and Hastie, 2013; Layne and Hastie, 2016; Martínez de Ojeda et al., 2019). From the above, and for a better perception of the impact of different teaching approaches at early ages, we recommend that future investigations develop studies in primary education that provide comparisons between SE and TT. Additionally, the implementation of other research designs, such as action-research or case studies, could be adopted. Indeed, given its potential to interpret and contextualize in-depth a particular and complex phenomenon (in this case, the impact of SE throughout all learning stages), the use of action-research or case studies could enable to move forward on sport pedagogy research field.

Consistent with other reviews involving SE (Araújo et al., 2014; Bessa et al., 2019; Hastie et al., 2011b), team sports (basketball, volleyball, handball, soccer, ultimate frisbee and ringo) are frequently more investigated than individual sports (table tennis, fitness and track in fields). For this reason, there is the possibility of undervaluing different results from studies utilizing individual sports. Moreover, such research tendency displays quite a paradoxical on. That is, given the nature and purpose of team sports, the personal and social skills are inherently needed and developed over the practice. In contrast, individual sport activities do not implicitly promote the enhancement of personal and social skills. However, these skills are equally needed in individual sports and should be largely examined, particularly as SE is exclusively a team-based curriculum model.

Findings about the development of students' personal and social skills

When studies compared the influence of both teaching models on students' learning outcomes, one of the most analyzed dimensions was the development of students' personal and social skills. Although PE is widely

recognized as contributing to students' motor development and healthy lifestyles, it has also played a crucial role on the development of positive attitudes and values that immensely contribute to personal and social students' development (Hardman et al., 2014; Weiss, 2011). In fact, pupils endowed with superior personal and social skills acquired throughout their formal education are seen as being successful learners (Barr and Lewin, 1994; Sibley and Etnier, 2003) who smoothly integrate into society and transition easily to adulthood (Taggart, 1988; Wright and Craig, 2011).

Among the studies examined, the following variables were identified relative to the development of personal and social skills: autonomy (e.g., Cuevas et al., 2015); motivation (e.g., Cuevas et al., 2016), competence, relatedness (e.g.,Viciana et al., 2020), enjoyment/satisfaction (e.g., Browne et al., 2004), sportsmanship (e.g., Méndez-Gimenez et al., 2015), physical self-concept (Fernandez-Rio et al., 2013), cooperation (e.g.,Viciana et al., 2020), friendship (e.g., Rocamora et al., 2019), group cohesion (e.g., Kao, 2019), self – efficacy, peer social acceptance (Luna et al., 2020a), emotional intelligence, social anxiety, subjective well-being (Luna et al., 2020b), and affect (Perlman, 2010).

An overview of the variables examined in the different studies (namely, competency, enjoyment, relatedness, and friendship), suggest a tendency for their increase regardless of the model applied. A possible explanation for such findings regards to the fact that these variables are generally associated with effective teaching, and specifically linked to the teacher's pedagogical effectiveness (Stronge et al., 2011). In this sense, it is worthwhile to emphasize that the pedagogical approach used by a teacher can be more effective than a good model (Rink, 1993). Indeed, independent of the teaching approach, the teacher should have pedagogical competencies with respect to class management, discipline, climate or instruction, thus being able to use different strategies that enable him/her to respond appropriately to students' current needs (Casey et al., 2020).

On the other hand, motivation and autonomy were variables consistently higher in SE seasons. These results are possibly due to the structural characteristics of the model (e.g., competition as an educational tool, learner as an active core in the learning process) in enhancing these competencies.

Moreover, there was a tendency of not finding differences between both models (or finding a decrease after a SE season) in variables associated with discipline (i.e., following rules, respect or helping others). Two main reasons can help to interpret these findings. First, these variables are mainly associated with a teacher's pedagogical effectiveness and not specifically related to the potential of each teaching model. Second, we must not confuse basic concerns, such as "helping others", with collaborative learning (organization by teams, group affiliation, etc.).

Findings about students' motor and cognitive development

Another dimension commonly examined by comparing the impact of SE and TT on students' learning outcomes relates with the motor and cognitive domains. Measures included physical activity (e.g., Rocamora et al., 2019; Wahl-Alexander and Chomentowski, 2018), technical performance (e.g., Hastie et al., 2013; Xu et al., 2019), and game performance (e.g., Pritchard et al., 2008). Sport specific content knowledge was also measured (e.g., Browne et al., 2004; Pereira et al., 2016).

The results portrayed by the abovementioned indicators tend to point out increases in SE and TT, however higher values are observed when SE is implemented. This finding suggests that, even with more time spent by students managing their teams and assuming different roles, there are significant learning gains resulting from these cooperative team practices. Compared to TT, from a technical viewpoint, the instructional interactions promoted by SE intertwined with the students' engagement with the subject matter (MacPhail et al., 2008) seems to display a positive impact on students' technical improvements (Pereira et al., 2016). Also, within physical activity, it was noted that even without direct teacher control, the features of involvement (more cooperation, autonomy, responsibility, mutual engagement) enhances student commitment. This finding supports the assumption that competition and collaboration are crucial to provide meaningful stimulus to the students. With regards to specific sport content knowledge, the perceived advantage of using SE arises through greater cognitive involvement of students during the teaching-learning process. Possibly, this is a consequence of how the model is (i) conceptualized (i.e., student-centered), (ii) structured (e.g.,

authentic recreation of sport context) and didactically conceived (i.e., using guide discovery to enhance problem-solving and decision-making).

Findings about methodological issues

In terms of study design, the influence of each teaching model on students' learning outcomes has been typically conducted using quasi-experimental (nonrandomized controlled design), pre-test and post-test designs. This finding is in agreement with other reviews involving SE (e.g., Araújo et al., 2014; Bessa et al., 2019; Chu and Zhang, 2018). Since the majority of the investigations are conducted within the educational context, the already formed classes in schools may partly explain the difficulty to randomize the participants what consequently justifies the scarce use of experimental designs, broadly recognized as the highest-quality designs (Seel, 2012). Despite the undeniable contributions of the included pre- and post-test design investigations, these only identified the final performance levels achieved by students. That is, these studies did not include access to the dynamic teaching-learning process developed in the classroom, the social agendas of the students, or the teaching strategies used over time. Only through the understanding of these pedagogical dynamics it would be possible to comprehend in-depth the teaching-learning process and guide the implementation of future pedagogical models. In this sense, the present systematic review reinforces the call of Hastie and Mesquita (2016), who highlighted the need to analyze the teaching-learning process, the suggestion of Hastie et al. (2011b) to conduct experimental studies, as well as the recommendation of Araújo et al. (2014) to carry out longitudinal studies.

While the recommended length of a SE season, at the high- and middle-school levels, is a minimum of 20 lessons (Siedentop et al., 2020), most studies did not reach this target. Despite the positive results achieved by the SE, units of longer duration could lead to significant differences between the models analyzed. Concerning SE, seasons need to be long enough to allow meaningful experiences, particularly since SE has more to accomplish (Siedentop, 1994). Therefore, considering the main SE's assumptions, to succeed and ensure more reliable results, future research must prioritize appropriate planning and designing of the units/seasons.

Although the exclusion of qualitative studies is in line with the purposes of this systematic review, once qualitative data disable the metric comparison among learning outcomes, we recommend that future review articles focus on other research questions that enable the inclusion of qualitative studies. In fact, qualitative analysis could help to understand the process of the change inherent to learning, as well the perceptions and feelings of students and teachers when SE and/or TT are implemented.

Findings about the fidelity of the models' implementation

Regarding the fidelity of the implementation, Hastie and Casey (2014) considered that for an accurate and complete understanding of a study's results, the methods section should include a rich description of the curricular elements of the unit, a detailed validation of model implementation, and a comprehensive description of the program context. Even though the research highlights the importance of reporting the fidelity of the model implemented (Ko et al., 2006), fourteen studies presented only a description of the program and curricular elements of the unit. This gap in teaching models research has already been mentioned by different authors (e.g., Bessa et al., 2019; O'Donnell, 2008). Accordingly, the present systematic review emphasizes that the assessment of the model's fidelity must be a concern in future research because (i) it allows readers to moderate the relationship between an intervention and its outcomes, and additionally (ii) its assessment may prevent potentially false conclusions.

Concerning the analysis of the methodological quality, all the selected studies were identified with moderate quality (i.e., scored among 11 and 19 points) (Grgic et al., 2018). Despite this trend, the average score was relatively low (i.e., 13-points out of 27-points). This finding suggests that caution should be applied when interpreting the results of each study in order to avoid potentially false conclusions which may be introduce a certain bias in the PE literature. Additionally, the Downs and Black scoring criterion clarify that if the information provided in the study does not explicitly state a certain requested methodology for a particular item, it must be scored as not satisfying the criterion what could also justifies the low scoring. Specifically, the methodological rating criteria that were most frequently not satisfied in the included studies were related to blinding,

randomization, power, representativeness of the sample group, and the adjustment for confounding factors in data analysis.

By comparing the main findings of the investigations dedicated to contrast the practical implementation of antagonist models (i.e., teacher-centered vs student-centered) on students' learning outcomes, it is noted a clear and positive expression of SE over TT. Nevertheless, far beyond the traditional idea of comparing models, tendentially favoring one in detriment of other, a broadly perspective is currently required so that the combined use of the strengths of each model can help to solve the unpredictable challenges inherent to a teaching-learning process. To achieve this integrative perspective, firstly models should be understood as pedagogical tools and at the service of learning, and we must counter the "one-size-fits-all" approach since the idiosyncratic nature of contexts, students, and teaching content requires the intertwining use of more formal and/or informal strategies (Hastie and Mesquita, 2016). Absolutist perspectives must be thus avoided (Entwistle and Entwistle, 1991) in favor of the relativistic ones, in which multiple possibilities complement each other and are appropriate to the particular stage of students learning.

A limitation that should be recognized in the current investigation refers to the inclusion of investigations exclusively conducted within PE context, which might limit our understanding about how the comparison of both models can impact on students learning within other informal learning environments (e.g., Wahl-Alexander and Morehead, 2017).

Conclusions

This study summarizes the main findings of the research that compares the impact of TT and SE on students' learning outcomes. Although TT continues to be widely used by PE teachers, students seem not to show increments in their learning when this teaching model is applied. In fact, when compared to a TT implementation, SE tends to achieve superior results in all the dimensions considered, namely personal and social skills, technical performance, game performance, sport specific content knowledge, and physical activity as well. Moreover, although SE shows a superior contribution to the development of personal and social skills, it does not prove to be inferior on its contribution to the

motor and cognitive domains. This finding is aligned with the current requirements of democratic societies where students are more attracted to learning when they are invited to make decisions and solve problems autonomously. In fact, this trend seems to endow a greater students' commitment with learning, as well as a greater awareness of their difficulties and needs.

Finally, despite SE providing to be crucial in meeting the student's educational requirements, it is worthwhile to highlight that TT displays some benefits and therefore the idea that it must not be implemented needs to be clarified. Future research must prioritize the analysis of the teaching-learning process using alternative research methods and designs (i.e., experimental studies, qualitative data, longitudinal analysis, action-research, and case studies). Moreover, in order to extend our comprehension about the impact of the different models on students' learning outcomes longer units with an appropriate, well-conducted, and ongoingly evaluated planning in which models' fidelity are assessed, must be a concern in future investigations.

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Key points

- Comparisons among SE and TT tend to analyze team sports activities by sampling high-school students in co-educational classes via quasi-experimental designs.
- More than half of the studies that compares SE and TT were published over the past five years.
- Overall, the variables analyzed are related with the development of students' personal and social skills, as well as its motor and cognitive development.
- Although the results tend to point out increases in both SE and TT, superior achievements are observed when SE is implemented.
- Half of the studies did not establish the fidelity of the model implementation.

- Future studies should consider other methodological procedures and research designs, as well as longer units, in order to deep the understandings about the impact of the different models on students learning outcomes.

CHAPTER III – EMPIRICAL ARTICLES

EMPIRICAL ARTICLE 1

Differences between Sport Education and Traditional Teaching in Developing Students' Engagement and Responsibility

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Abstract

Physical education not only provides conditions for the development of motor skill competence and the adoption of healthy lifestyles, but it is also valued for its influence on students' personal and social development. In particular, the ability to develop personal and social responsibility and engagement fostered in physical education provides skills that can contribute to a student's inclusion in society and a successful transition to adulthood. Nevertheless, different teaching approaches adopted by teachers may lead to different outcomes. The purpose of this study was to verify and compare the effects of two different teaching approaches, Traditional Teaching and the Sport Education model, on students' responsibility and engagement in high school Physical Education classes. A quasi-experimental pretest-posttest design was used across eighteen classes from eight different schools in northern Portugal. The participants were 430 high-school students (66.7% male), aged between 14 and 21 years (M =16.22, SD =1.03) enrolled in 10th, 11th and 12th grades. All classes met twice a week across 8 weeks, for a total of twenty-four 45-min lessons. Two hundred and twenty-six students participated in a 24-lesson unit following the Traditional Teaching, while 204 students were taught using the Sport Education model. Students' personal and social responsibility was assessed with the Personal-social Responsibility Questionnaire, and the Athlete Engagement Questionnaire was administered to assess students' engagement.

Results showed that participation in the SE season significantly improved the students' levels of personal and social responsibility. In contrast, the perceptions of personal responsibility of students in the Traditional Teaching unit decreased. No significant difference was found in student engagement when the two teaching approaches were compared. These results suggest the suitability of the Sport Education in physical education classes, and particularly on its positive impact on students' personal and social responsibility and engagement.

Keywords: Teaching models, skills development, personal and social skills, physical education, preservice teachers.

Introduction

Students who develop personal and social skills during their formal education are more likely to be successful learners (Capel, Breckon, & O'Neill, 2013; Priestley & Biesta, 2013), to be included in society, and to transition successfully to adulthood (Taggart, 1988; Wright & Craig, 2011). While the goal of Physical Education (PE), that distinguishes it from other subjects in schools, is the development of motor skill competence, across many countries there is considerable attention placed on the acquisition of attitudes and values that lead to personal and social development (Coulter, McGrane, & Woods, 2020). That being said, evidence suggests that participation in PE may or may not positively influence the development of young peoples' personal and social skills (Beni, Fletcher, & Ní Chróinín, 2017; Opstoel et al., 2019). However, simply participating in PE may not be sufficient for achieving positive outcomes (Cryan & Martinek, 2017; Fraser-Thomas & Côté, 2009). Rather, it is necessary to create deliberate pedagogical environments and circumstances that promote active and engaged participation under which positive outcomes can be stimulated and obtained (Bailey et al., 2009). Those pedagogies include cooperative learning (Dyson, Griffin, & Hastie, 2004), experiential learning (Tapps, Passmore, Lindenmeier, & Kensinger, 2014), problem-based learning (Jones & Turner, 2006), and other pedagogical methods.

It can be seen that the pedagogies valued in the development of students' personal and social skills, such as engagement and responsibility, run counter to the most predominant form of instruction in PE, an approach which involves a teaching style where decisions concerning planning, instruction, and assessment are made by teachers with little or no student input (Mosston & Ashworth, 2008). For the purposes of this paper, that approach has been given the label of Traditional Teaching (TT), largely because it has been the predominant form of instruction across the past 50 years (Moy, Renshaw, & Davids, 2016).

In TT, classes involve reproductive (rather than discovery) pedagogies that are based on efficient knowledge transfer and focus on teaching elementary skills and techniques within a highly structured lesson (Rink, 1993). By consequence, students are required to be attentive, well-behaved and disciplined, while

directing their attention to predominantly motor-oriented than cognitive-oriented tasks (Rosado & Mesquita, 2009; Rosenshine, 1979).

The early research on the impact of TT suggests it is effective in improving students' skill performance (mostly in less complex skills and in early ages) (Brady, 1998; Rink, 1993), through high rates of positive and corrective feedback (Metzler, 2017). In contrast, the weakness frequently attributed to such controlling teaching style is that students' ability to build their own learning is compromised, decreasing their autonomy, decision-making, and cognitive and social processes (Ennis, 2014; Metzler, 2017; Siedentop, Hastie, & van der Mars, 2020). Consequently, during the 1990s, a number of prominent scholars in PE presented alternatives to the TT approach by introducing what Ennis (2014, p. 63) referred to as a second generation of models. These included Sport Education (SE) (Siedentop et al., 2020), Teaching Games for Understanding (Bunker & Thorpe, 1982) or Teaching Personal and Social Responsibility (Hellison, 2011). A commonality across these models is that students must be capable of acting autonomously, responsibly and competently with the challenges, risks and opportunities they face. These models follow a "Student-Centered Approach" (SCA), which based on constructivist and social learning theories (Chandler & Mitchell, 1991), and designed to promote problem solving and decision making. Therefore, the student occupies a central place in the learning process, playing an active role in building his/her knowledge and developing autonomy and responsibility skills (Lynch, 2019).

In PE, one amongst the foremost wide applied and researched model is Sport Education (Siedentop et al., 2020). The structure and pedagogies of SE shift the focus from content to transferable skills, knowledge, and behaviors and values, providing experiences that are deeper and more complete than typical PE approaches (Siedentop, 1998). All students are offered the opportunity to work in small groups, where peer teaching is promoted, as well as the possibility of performing different roles beyond simply that of player. These roles can include, among others, referee, coach, statistician, scorekeeper or sports director. Within such roles, opportunities are created for students to make decisions and solve problems, seeking to promote their autonomy, responsibility and commitment (Mesquita, Farias, & Hastie, 2012). With the aim to develop

students as competent, literate, and enthusiastic sportspersons, Siedentop (1998) supported SE with six distinctive features (affiliation, formal competition, record keeping, seasons, culminating events, and festivity).

Research on SE has demonstrated positive and significant outcomes of participants' game performance and tactical-technical knowledge (Araújo, Mesquita, & Hastie, 2014) their personal and social skills such as engagement, motivation, responsibility, or fair play (Bessa, Hastie, Araújo, & Mesquita, 2019; Chu & Zhang, 2018). However, with respect to students' personal and social development, there is still a need for further empirical evidence comparing and showing the impact of different teaching models. Although responsibility and engagement are two of the foremost studied personal and social variables of SE learning outcomes (Bessa et al., 2019), research comparing SE and TT has focused more on autonomy (e.g., Perlman, 2010), motivation (e.g., Spittle & Byrne, 2009), and enjoyment (e.g., Browne, Carlson, & Hastie, 2004).

In the school context, the importance of the students' engagement is recognized, as it reflects, through the student's behavior, confidence, dedication, and enthusiasm for learning and development (Reeve, Jang, Carrell, Jeon, & Barch, 2004). Indeed, the engagement of students helps to predict their achievements and allows teachers to use it as an observable indicator of students' motivation. In turn, there is a general consensus on the importance of students assuming greater responsibility for their learning, in order to achieve a deep understanding and transferable skills that benefit them throughout their lives (Hellison, 2011).

To our knowledge, no study has assessed the perception of students' engagement comparing a SE season and a more traditional unit in PE classes, and only two studies (Browne et al., 2004; Pan, Huang, Lee, & Hsu, 2019) compared students' responsibility across different teaching models. In the study of Browne et al. (2004), interview data supported that students identified greater responsibility in SE than in TT. In turn, Pan et al. (2019) merged units of TT and SE with Teaching Personal Social Responsibility Model (TPSR-SE and TPSR-TT) and results showed that TPSR-SE had superior outcomes in three dimensions (effort, self-direction, and cooperation) of the responsibility scale.

For specific learning outcomes, optimal learning environments need to be designed (Metzler, 2017). There is still a lack of controlled comparisons between TT and SE in promoting engagement and responsibility as personal and core learning outcomes, and still more involving Preservice Teachers (PSTs). It is an opportunity to challenge PSTs and to inform the Physical Education Teacher Education (PETE) programs, seeking to optimize the process of learning to teach PE (Curtner-Smith, 2012; O'Sullivan, 2003), considering the requirements currently demanded by society for students' personal and social development. The use of classes taught by PSTs allows knowing if their students perceive any differences between teaching approaches and, consequently, understand whether PSTs are using each teaching approach effectively. Furthermore, it allows the dissemination of relevant data that shows the strengths of different approaches to the development of students' engagement and responsibility. It is also an opportunity to overcome potential barriers to the implementation of different PE teaching approaches, such as resistance within some PE departments or in-service teachers' own beliefs and habits (Penney, Clarke, Quill, & Kinchin, 2005).

The purpose of this study was to compare the effects of the two different teaching approaches (TT or SE) on students' responsibility and engagement in high school PE classes.

Material and Methods

Participants and setting

The participants in this study were 430 high-school students (66.7% male) in eight different schools located in northern Portugal. These students were in grades 10 (n = 199; 8 classes), 11 (n = 181; 8 classes) and 12 (n = 50; 2 classes) and ranged in age from 14 to 21 years (M =16.22, SD =1.03).

The 18 PSTs (12 male and six female) involved in this study were in the final year of their master's degree program in *Teaching of Physical Education in Primary and Secondary Education* at a large public university in northern Portugal. All PSTs had completed practical experiences as learners across a number of PE content areas and had experience with both teacher and student-centered approaches. The PSTs also had experience in teaching TT and SE

lessons during the previous year of their coursework. In addition, during their student teaching, the PSTs taught complete versions of the models under the supervision of experienced teachers who were familiar with each approach and model. As this study was conducted during the third term of the school year, all PSTs had previously taught units of each model with the same classes from which the data were collected. For this study, the PSTs only taught one of the two conditions (TT or SE) to their class.

The ethics committee of the first author's university approved the protocol of the study, and all institutions and participants provided assent following parental informed consent.

Method

A quasi-experimental pretest-posttest design was used across eighteen classes from eight different schools. Pretests and posttests took place at the first and last lesson of the unit, respectively.

Two hundred and forty lessons across ten different classes at six schools were taught using the TT approach, while 192 lessons across eight different classes were taught at six schools following the key principles of SE. All classes were co-educational and met two times a week (one lesson was scheduled for 45 minutes and the other for 90 minutes), during a period of eight weeks.

Description of the units

Table I shows the list of schools, model, seasons/units, grade, and participants.

Traditional Teaching

The TT units had the PST as instructional leader. He/She was responsible for defining the learning content and presenting students with a technique model of movement, for implementing the class warm-ups, controlling the place of the tasks and monitoring the practice. The PST generally used whole-class instruction. Lessons began with basic skill drills to game play, with practice organized in blocks of students providing high rates of practice and repetition. In the final part of each lesson, students chose teams to compete against each other (students had different teammates each lesson). The last three lessons were

solely dedicated to competition between teams, organized by the PST. All record keeping was conducted by the teacher. No formal statistics were kept. Students were not responsible for other roles such as refereeing or scorekeeping.

Table I. List of schools, model, seasons/units, grade and participants.

School	PST	Model	Grade	Students	Sport played
A	1 female	SE	10	10 Boys 16 Girls	Track and field
	1 female	TT	10	15 Boys 10 Girls	Track and field
	1 male	TT	10	21 Boys 2 Girls	Track and field
B	1 male	SE	10	10 Boys 19 Girls	Volleyball
	1 male	TT	11	19 Boys 5 Girls	Volleyball
	1 male	TT	11	19 Boys 5 Girls	Football
C	1 female	TT	11	7 Boys 13 Girls	Basketball
D	1 female	TT	11	11 Boys 11 Girls	Basketball
	1 male	TT	10	5 Boys 14 Girls	Volleyball
	1 male	SE	10	12 Boys 14 Girls	Volleyball
E	1 male	TT	12	3 Boys 19 Girls	Basketball
	1 male	SE	11	10 Boys 15 Girls	Gymnastics
	1 male	TT	12	16 Boys 12 Girls	Basketball
F	1 male	SE	10	16 Boys 9 Girls	Rugby
	1 female	SE	10	12 Boys 14 Girls	Rugby
G	1 male	TT	11	11 Boys 7 Girls	Gymnastics
H	1 female	SE	11	10 Boys 14 Girls	Gymnastics
	1 male	SE	11	5 Boys 18 Girls	Gymnastics

Sport Education

The SE seasons followed the key principles suggested by Siedentop et al. (2020) to ensure the most authentic experience. These are affiliation, formal competition, festivity, seasons, record keeping and the inclusion of a culminating event. All classes met the equivalent of a SE season of twenty-four 45-min lessons.

In the initial lessons (1-2), the PST presented the model, described the roles and explained the competition format. Equally skilled teams were created by the PST, following the criterion of homogeneity in gender and level of motor ability. These teams were maintained throughout the season. After being placed on teams, the students assigned roles, designed colored shirts, and determined their team's name. All students practiced different roles (at some point of the season) such as coaching the team, refereeing games, scorekeeping and keeping team, and individual statistics; however, no formal statistics were posted. The following four lessons (3-6) were led by the PST for basic skills introduction. In the student-led phase, the lessons began with a warm-up (led by students), then the first half was dedicated to the practice and the second to formal competition. Lessons 7 through 15 involved teams practice and competition against each other while learning roles such as referee, scorekeeper and statistician. Lessons 16 through 23 were dedicated to a tournament. In these lessons (16-23), scores related to fair-play were attributed, which were counted towards the final score of each team. The last lesson consisted of a final competition and awards ceremony.

Validity of instruction

A 10-item checklist (Table II) from Hastie, Calderón, Rolim, and Guarino (2013) was used to determine the behavioral fidelity of the PST's instruction according to SE or TT. The checklist asks a trained observer to make decisions about whether an item is representative of the lesson.

In this case, videotapes of four randomly selected lessons of each class were examined by two experts with extensive research in instructional models. Analysis across the two experts revealed a 100% agreement, confirming the instructional model used in the lessons.

To be effective, an instructional model needs to consider the contextual conditions such as teacher proficiency and student willingness for the model (Metzler, 2017). All PSTs were familiar with both models, having experienced SE and TT as participants during their on-campus coursework, and having taught units/seasons of TT and SE. The SE PSTs also attended a three-hour SE workshop led by an investigator who was familiar with the SE curriculum and the challenges implementing this model in schools.

All schools provided the space and material need (e.g., balls, cones, scorers, whistles, etc.) to create the required conditions for suitably implemented both models.

Table II. Instructional Checklist (Hastie et al. 2013).

1. Groups of students go to a designated home area and begin warming up with that group.
2. Student's warm-up as a whole class under the direction of the teacher.
3. Students practice together with their group/team under the direction of a peer leader.
4. Students practice individually or in small groups under the direction of the teacher.
5. Students remain a part of easily identifiable groups throughout the lesson and throughout different tasks.
6. Student grouping throughout the lesson is variable across tasks.
7. Performance records are kept by students.
8. Students perform specialized tasks within their group/team.
9. Student performance scores count toward a formal and public scoring system.
10. Student performance scores are not recorded or are recorded in private.

Note. Items 1, 3, 5, 7, 8 and 9 suggest a SE season, whilst items 2, 4, 6, and 10 are features of the TT.

Instruments

*Personal-social responsibility***.** Personal-social responsibility was measured by the *Personal-social Responsibility Questionnaire* (Li, Wright, Rukavina, & Pickering, 2008), translated and adapted for Portuguese populations by Martins, Rosado, Ferreira and Biscaia (2015). The questionnaire consists of two factors with each one containing seven items. The first factor (personal responsibility) reflects an individual's effort and self-direction. Sample items include "I try hard" and "I set goals for myself". The second factor (social

responsibility) reflects respect and caring for others. Sample items include “I respect my class mates” and “I am helpful to my class mates”. A 5-point Likert-type scale, extending from 1 (never) to 5 (always), was used to measure all items.

*Engagement***.** Engagement was measured using the *Athlete Engagement Questionnaire* (Lonsdale, Hodge, & Jackson, 2007), translated and adapted for Portuguese populations by Martins, Rosado, Ferreira and Biscaia (2014). The 16-item questionnaire has four factors: confidence, dedication, vigor, and enthusiasm. Confidence reflects a belief in one’s ability to attain a high level of performance and achieve desired goals. Dedication reflects the desire to invest effort and time towards achieving goals seen as important. Vigor refers to the physical, mental, and emotional energy or liveliness. Enthusiasm is characterized by feelings of excitement and high levels of enjoyment. Sample items include: “I feel capable of success in PE class” (confidence), “I am dedicated to achieving my goals in PE class” (dedication), “I feel really alive when I participate in PE class” (vigor), and “I feel excited about PE class” (enthusiasm). A 5-point Likert-type scale, extending from 1 (never) to 5 (always), was used to measure all items. Both questionnaires were completed in a classroom setting during school time in the presence of the first author. Average completion time was 10 minutes. Pre-test and post-test data were collected in the first and last lesson of the unit/season, respectively.

Data analysis

All data were analyzed using SPSS 26.0 (IBM, Chicago, IL). Descriptive analyses were performed to characterize the samples and establish whether data met parametric assumptions. Given that dependent variables were not normally distributed, and considering the ordinal scale of items, non-parametric tests were used to analyze gathered data. Ordinal alpha (Zumbo, 2007) for Likert data as a measure of the reliability of the scales were calculated. Ordinal alpha is conceptually equivalent to Cronbach's alpha and it performs better for ordinal data.

To test differences between groups in the two assessment moments (PreT and PosT), the Mann-Whitney test for two independent samples (responsibility and engagement) was used. The Wilcoxon test was used to test intra-group

differences from the PreT to the PosT. When the Wilcoxon's yielded a significant difference, subsequent analyses were performed at the subscale level to provide insight into the precise location of differences. The *r* statistic for non-parametric tests (Field, 2013) was used to estimate the effect size using the formula: r = Z / $\sqrt{N}$ where *Z* represents the absolute Z-value resulting from the non-parametric test; and *N* to the total number of subjects. According to Cohen (1988), a small effect size with *r* < .30, a moderate effect size with *r* between .31 and .50, and a large effect size with *r* > .50 were considered. While a statistical level of .05 was used to determine significance, the exact *p* scores are presented in the results.

Results

Ordinal alpha coefficients and descriptive statistics for both conditions and all measures at pre- and post-test are displayed in Table III and IV. According to Nunnally's (1994) cut-off criterion of .70 for the psychological domain, all subscales were considered acceptable. The analysis of descriptive statistics allows identifying changes between the pre- and the post-test in both groups.

Table III. Descriptive statistics and internal consistency of subscales for TT (n = 226).

		PRE-TEST				POST-TEST			
Measure	Subscale	Ordinal α	*M* (SD)	M_e	Ske Kur	Ordinal α	*M* (SD)	M_e	Ske Kur
TPSR		.89	4.09 (.03)	4.14	- .45 - .20	.94	3.92 (.04)	4.00	-.94 .83
	Social responsibility	.74	4.12 (.03)	4.14	- .27 - .15	.88	3.98 (.04)	4.00	- .99 1.01
	Personal responsibility	.86	4.07 (.04)	4.14	- .59 - .26	.90	3.87 (.05)	4.00	- .72 .23
AEQ		.97	3.81 (.05)	3.81	- .58 .65	.98	3.78 (.05)	3.90	- .49 - .35
	Confidence	.88	3.92 (.05)	4.00	- .39 -. 19	.94	3.89 (.06)	4.00	- .56 - .36
	Dedication	.89	3.75 (.05)	3.75	- .51 .17	.93	3.71 (.06)	4.00	- .49 - .33
	Vigor	.88	3.65 (.05)	3.75	- .52 .65	.94	3.68 (.06)	3.75	- .52 - .06
	Enthusiasm	.86	3.93 (.06)	4.00	- .77 .49	.89	3.86 (.06)	4.00	- .54 - .32

Table IV. Descriptive statistics and internal consistency of subscales for SE (*n* = 204).

		PRE-TEST				POST-TEST			
Measure	Subscale	Ordinal α	*M* (SD)	M_e	Ske Kur	Ordinal α	*M* (SD)	M_e	Ske Kur
TPSR		.90	4.07 (.04)	4.21	- .73 - .27	.89	4.28 (.03)	4.29	- .70 .49
	Social responsibility	.73	4.10 (.03)	4.14	- .60 .63	.73	4.33 (.03)	4.43	- .56 .14
	Personal responsibility	.89	4.04 (.05)	4.14	- .82 .31	.88	4.22 (.04)	4.28	- .99 1.13
AEQ		.97	3.66 (.05)	3.75	- .57 - .07	.98	3.86 (.05)	4.00	- .45 - .57
	Confidence	.90	3.94 (.06)	4.00	- .88 .17	.89	4.04 (.05)	4.00	- .35 - .34
	Dedication	.91	3.62 (.06)	3.75	- .45 - .03	.93	3.79 (.06)	4.00	- .55 - .19
	Vigor	.93	3.41 (.07)	3.50	- .46 - .45	.94	3.73 (.07)	4.00	- .66 .03
	Enthusiasm	.88	3.69 (.07)	3.75	- .67 - .13	.87	3.92 (.06)	4.00	- .81 .13

In the PreT, no significant differences were found between the TT and the SE group, confirming the homogeneity among groups in both dependent variables, personal and social responsibility and engagement (Table V). In the PosT, significant changes were found on personal and social responsibility ($p < .001$), with a small effect size ($r = .28$), revealing that the SE context promoted improvements in this variable. In contrast, no significant differences were found between groups (TT and SE) on students' perceptions of engagement.

Table V. Results of the between-groups analysis using the Mann-Whitney U test for personal and social responsibility and engagement.

		PRE-TEST			POST-TEST			
Measure	Group	Sum of Ranks	Z scores	*p*	Sum of Ranks	Z scores	*p*	*r*
TPSR	TT SE	48930.50 43734.50	- .18	.860	41302.50 51362.50	- 5.76	< .001	.28
AEQ	TT SE	50903.50 41761.50	- 1.71	.087	47478.00 45187.00	- .95	.341	.05

Table VI presents the results of the Wilcoxon Rank test used to analyze the differences obtained within groups. Significant pre-post intervention differences were found among the study groups on the examined dependent variables. The TT group only showed significant differences in personal and social responsibility (p = .017). These students' perceptions of responsibility decreased significantly from PreT to PosT, with a small effect size (r = .16). Regarding the SE group, there were significant improvements in student's perceptions in both variables, personal and social responsibility (p < .001) and engagement (p < .001), from pre to post-test, with a moderate (r = .35) and small (r = .25) effect size, respectively.

Table VI. Results of the within analysis using the Wilcoxon test for personal and social responsibility and engagement across time (Pre and Post-Test results).

Measure	Group	Z scores	*p*	*r*
TPSR	TT	- 2.38	.017	.16
	SE	- 4.95	< .001	.35
AEQ	TT	- .04	.965	.03
	SE	-3.51	< .001	.25

Table VII shows subsequent analyses performed at the subscale level to provide insights into the precise location of differences. From the PreT to the PosT students who participated in a TT unit perceived slight decreases on personal responsibility (p < .001, r = .22). Considering the SE students' perceptions, it is worth highlighting the improvements on social responsibility (p < .001, r = .40). Although differences were not found to be significant for the confidence, slight improvements on personal responsibility (p < .001, r = .23), dedication (p = .021, r = .18), vigor (p < .001, r = .26), and enthusiasm (p = .002, r = .22) were noteworthy in the SE context.

Table VII. Results of the within analysis using the Wilcoxon test for personal and social responsibility and engagement subscales (Pre and Post-Test results).

Measure	Subscale	Group	Z scores	*p*	*r*
TPSR	Personal Responsibility	TT	- 3.32	< .001	.22
		SE	- 3.33	< .001	.23
	Social Responsibility	TT	- 1.82	.068	.12
		SE	- 5.70	< .001	.40
AEQ	Confidence	TT	- .06	.952	.003
		SE	- 1.53	.129	.07
	Dedication	TT	- .37	.712	.02
		SE	- 2.32	.021	.16
	Vigor	TT	- .67	.503	.04
		SE	- 3.69	< .001	.26
	Enthusiasm	TT	- .90	.368	.06
		SE	- 3.17	.002	.22

Discussion

The present study compared the effects of implementing, by PSTs, two different teaching approaches on students' personal and social responsibility and engagement in high school PE classes. Overall, our findings endorsed the notion that participation in the SE season had a positive influence on the students' perceptions of personal and social responsibility. Specifically, the results suggested that while a SE season provides significant enhancements in students' personal and social responsibility, the participation in a TT unit decreased the students' personal responsibility.

In the SE season, the placement of students into persisting small-group activities and competition, the opportunities to lead their own learning process, the opportunity to work as a team and with fair-play might have promoted their social responsibility development. In addition, in the SE season, personal responsibility was fostered by the autonomy given to students (such as refereeing games, scorekeeping or keeping individual statistics), in addition to the opportunity to design and implement team warm-ups and solve problems. These outcomes corroborate the findings of Browne et al. (2004) who examined the impact of SE and TT on students' learning, enjoyment and affect, identifying higher levels of students' responsibility in the SE experience. Furthermore, these results are in line with prior research on SE contexts that recognizes its value on promoting all students' participation, capacity to assume different roles (e.g.,

coach, referee and statistician), and opportunities to be autonomous, solve problems and make decisions (Romar, Sarén, & Hastie, 2016). In fact, as claimed by Romar and colleagues (2016), as well by Hastie and Buchanan (2000), the students' personal and social responsibility are strongly supported by the mentioned SE features.

In our study, no significant differences were found in terms of students' engagement between the two teaching conditions. Nevertheless, it is relevant to note that in the TT condition the students' perception of engagement decreased from pre- to post-test and increased for the SE condition. On the one hand, in the TT unit, high levels of student engagement may have been achieved due to teacher-controlled decisions and teacher-directed engagement patterns for students (Bertills, Granlund, & Augustine, 2019). Furthermore, in the TT unit, the managerial and organizational requisites placed upon the students were minimal (students just needed to follow the teacher commands and repeat the tasks). On the other hand, students in the SE seasons were involved in different tasks, which allow them to be alternatively active and engaged during class time (practicing, officiating, coaching, etc.). Thus, the challenge was to promote increases in engagement without losing the central role of the students in organizing, deciding, and developing the activities (Mesquita, Pereira, Araújo, Farias, & Rolim, 2016; Smither & Xihe, 2011). However, it is noteworthy that in the SE season, the outcomes regarding the students' engagement suggest that SE was successful in increasing significantly three of its four sub-scales: students' perceptions of dedication, vigor, and enthusiasm. Indeed, several authors (e.g., García-López, Gutiérrez, Gonzalez-Víllora, & Valero Valenzuela, 2012; Wahl-Alexander, Curtner-Smith, & Sinelnikov, 2016) have argued that the feeling of belonging to the same team throughout the season proves to be a factor that increases enthusiasm. Likewise, the cooperative work and the alternative roles during the implementation of the SE season seem to have been crucial to enhance students dedicated and vigorous participation in PE classes (e.g., Gutierrez Diaz del Campo, García López, Chaparro Jilete, & Fernández Sánchez, 2014; Perlman & Goc Karp, 2010; Wallhead & Ntoumanis, 2004). Perhaps the fact that students had been taught by an experienced SE teacher in the Menickelli and Hastie study (2014) was significant in the development of students' confidence, contrary to our

study, in which students were taught by PSTs, and despite the improvements, they were not significant.

The review of research developed by Bessa et al. (2019) regarding students' development of personal and social skills within a SE season, indicates that only 14% of studies (7 studies) resort to comparison with a TT. Of these, only one study (Burgueño, Medina-Casaubón, Morales-Ortiz, Cueto-Martín, & Sánchez-Gallardo, 2017) had PSTs teaching the PE classes. It is recognized the importance of providing PSTs opportunities and time to develop learning opportunities that will contribute to their future work (Romar, Aström, & Ferry, 2018). Despite the literature on the experiences of PSTs in teaching SE identifies a set of difficulties, such as the omission of vital aspects of the model (Curtner-Smith, Hastie, & Kinchin, 2008; McCaughtry, Sofo, Rovegno, & Curtner-Smith, 2004) or problems in encouraging students to work with each other (McMahon & MacPhail, 2007), the outcomes of our study suggest that PSTs who taught SE were able to create favorable conditions for the development of personal and social responsibility. Concerning engagement, the PSTs only struggled with the development of students' confidence.

These results highlight the effectiveness of the PETE program that the PSTs attended, which takes into account Curtner-Smith's (2012) recommendations concerning the provision of practical experiences (as both learners and teachers) with different approaches and teaching models, all while being supervised by experienced teachers. Moreover, the results of this study provide support for SE as a viable option for providing students with new experiences, and as a feasible teaching model for teachers in order to promote personal and social responsibility and engagement in PE.

Considering the strengths of this study, it is worth mentioning: 1) the measurement and report of the teacher's fidelity to teach each model; 2) the use of a large sample in different schools; and 3) the length of the SE season in twenty-four 45-minute classes, fulfilling the duration suggested by Siedentop et al. (2020) for an SE season. However, this study has limitations: 1) the classes already formed in schools make it difficult to randomize participants and, consequently, the possibility to generalize results to other populations; 2) the use

of self-reports to evaluate the variables; and 3) the use of different teachers to teach different instructional approaches.

Conclusions

The results of this research have shown that SE, when compared to a TT approach, provides greater improvements in students' personal and social responsibility and does not differ on students' engagement. These findings contribute to emphasize the need to rethink the teaching process in PE classes, particularly the progression from traditional PE lessons towards a more constructivist approach. It is in these lessons that students can adopt an active role that promotes their personal and social development.

Considering the past research suggestions (Araújo et al., 2014; Hastie, Martinez de Ojeda, & Calderón, 2011; Wallhead & O'Sullivan, 2005), as well as the recommendations for the development of social and emotional learning programs, future studies should involve multiple seasons/units, in a more longitudinal data collection protocol. In order to reduce the *teacher effect* that may occur when different teachers teach different instructional approaches (Browne et al., 2004), future research must use the same teacher in the same grade to teach all the groups. Seeking to strengthen the positive impact of different teaching models, it would also be relevant for future research to consider variables (such as empowerment, self-confidence, creativity, or assertiveness), that meet the best interests and needs of today's young people. The findings of the current study can be further explored with qualitative methodologies seeking additional explanations that can improve our understanding.

In conclusion, this research suggests the suitability and educational potential of the SE in PE classes, as well as its methodological and practical effectiveness, namely in the development of students' engagement and responsibility. Recognizing the effectiveness of SE, PE teachers can use it as a tool to help them develop skills that can help students succeed as learners, facilitate their inclusion in society, as well as the transition to adulthood.

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EMPIRICAL ARTICLE 2

Sport Education and Traditional Teaching: Influence on Students' Empowerment and Self-confidence in High School Physical Education Classes

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Abstract

Physical Education (PE) is recognized for its value in developing personal and social development. However, the instructional approach adopted by the teacher may affect the achievement of positive outcomes. This study aimed to examine the effects of two different teaching approaches, Traditional Teaching (TT) and the Sport Education (SE) model, on students' empowerment and self-confidence in high school PE classes. 430 high-school students (66.7% male) aged 14-21 years (M =16.22, SD =1.03) enrolled in 10th, 11th and 12th grades, participated in this study. A pretest-posttest quasi-experimental design was used across 18 classes. Classes met two times a week during a period of 8 weeks for a total of 1080 minutes. The Psychological Empowerment Instrument was used to measure empowerment. Students' self-confidence was measured with the self-confidence sub-scale of the Competitive State Anxiety Inventory-2. The findings of the research revealed that only SE was effective in improving high school students' empowerment and self-confidence. In the TT group, no gains were found, even decreasing over time. These results reinforce the adequacy of SE in PE as a curricular model to be used by teachers, particularly for the development of students' empowerment and self-confidence.

Keywords: Teaching approaches, skills development, personal and social skills, preservice teachers.

Introduction

We live in a constantly changing world, and adaptability is a skill that everyone needs. In the school context, the ever-changing society calls for teachers to be more responsive to students' needs, supporting them to more successfully meet life's challenges [1,2]. Here, educational policies and curriculum guidelines emphasize the students' personal and social development as a fundamental goal of contemporary education. In particular, Physical Education (PE) is recognized for its value in developing positive attitudes and values that contribute to students' personal and social development [3,4]. Nevertheless, evidence suggests that simple participation in PE classes does not automatically lead to positive outcomes [5,6]. It may or may not positively

influence the development of students' personal and social skills [7,8]. Rather, it is requested an empowering education that prepares and supports students to succeed in dynamic and collaborative work environments, where cooperation, self-direction, self-confidence, and communication are key competencies [9]. Therefore, it is necessary to create pedagogical environments and circumstances that promote students working collaboratively, cohesively, and constructively, through which positive outcomes can be encouraged and acquired [10]. Examples of those pedagogies include cooperative learning [11], experiential learning [12], and problem-based learning [13].

It is noted that the pedagogies valued in the development of students' personal and social skills, such as empowerment and self-confidence, go against the predominant form of instruction in PE. Traditionally, a teacher-centered approach (TCA) is adopted, which involves a teaching style where decisions about planning, instruction, and assessment are all made by teachers [14]. For the purposes of this paper, that approach has been given the label of "traditional teaching" (TT), largely because it has been the predominant form of instruction across the past 50 years [15]. In TT, a major concern is the transfer of knowledge, relating to elementary motor skills and techniques within a highly structured lesson [16]. Consequently, students are required to be attentive, disciplined and well-behaved, put all their focus on the teacher, and assume a passive, receptive and reproductive role [17,18]. These features fail to promote social processes where decision making and problem-solving are valued, and by consequence are not particularly conducive to personal and social development [19]. Several key authors in physical education have noted this as a major limitation of TT [20-22]. That being said, early research on the impact of TT provided evidence of its effectiveness in improving students' skill performance (especially in early ages and less complex skills) [16,23,24], through high rates of positive and corrective feedback [22]. However, research also showed that such a controlling teaching style tends to thwart students' feelings of competence, autonomy and relatedness [25]. Beyond that, its decontextualized sports teaching [26], and its emphasis on a mechanistic and "one-size-fits-all" pedagogical approach has shown that TT is not the most appropriate for the contemporary educational demands [27].

By consequence, alternatives to the TCA were developed during the 1990s educational reform and were based on constructivist and social learning theories [28], which are considered as a more student-centered approach (SCA). Several noted scholars in PE introduced alternatives to the TT approach by introducing what Ennis [20] called "second generation of models", such as Sport Education (SE) [21], Teaching Games for Understanding [29] or Teaching Personal and Social Responsibility [30]. This new trend moved the focus from the teacher and instruction to the student and learning [22], with the aim of providing opportunities to promote students' cognitive development, ability to make decisions, as well as solve problems. Therefore, a change in the roles of both teachers and students is noted. Teachers act as *facilitators*, giving students an active role in building their knowledge autonomously, competently, and responsibly. Students are encouraged to make choices about what to learn and how to learn [20,31,32].

In PE, SE [21] is one of the most widely implemented and researched model. SE structure and pedagogies focus on transferable skills, knowledge, and behaviors and values, providing richer and more complete experiences than typical PE approaches [33]. This model aims to provide an authentic and contextualized sporting experience looking for help students to develop as competent, literate, and enthusiastic sportspersons [33,34]. In this sense, SE incorporates six features: seasons, affiliation, formal competition, culminating events, record keeping, and festivity. For better achieve it, SE integrates cooperative small-group work and peer teaching, students have the opportunity to engage in a variety of roles beyond simply that of player (such as coaches, referees, scorekeepers, statisticians, or sports director). Within these roles, students have the chance to make decisions and are encouraged to learn committedly, autonomously and responsibly [35].

Over the years, SE has been a growing body of research in PE. Findings support the positive and significant outcomes on participants' game performance and tactical-technical knowledge [36], on their personal skills and social skills such as responsibility, satisfaction, empathy, or affiliation [37]. However, concerning students' personal and social development, there is still a need for further empirical evidence comparing and showing the impact of different

curriculum models, particularly with respect to two important, but underdeveloped variables, namely empowerment and self-confidence.

For the purposes of this paper, empowerment has been defined as a process through which people gain autonomy and self-determination to achieve their own goals, and represent their interests, becoming stronger and more confident [38]. Self-confidence refers to individuals' beliefs that they can accomplish a given task or achieve a desired objective [39].

Empowerment and self-confidence show themselves to be closely linked concepts to learning. If students feel empowered and confident to act, they will likely learn in the process, be more able to engage on challenges and opportunities, experiencing a greater ability to take control or to make changes in their own lives. Particularly, PE has the potential to promote and develop personal qualities and experiences essential to increase students' empowerment and self-confidence [40].

Although it has been recognized that variables such as empowerment and self-confidence are important goals of education [41], and that PE can be a medium of these variables [42,43], few studies were conducted in this scope.

In the specific case of SE, it is believed that by providing students with decision-making opportunities and encouraging them to solve problems on their own, they can develop a sense of feeling in control which reinforces their sense of empowerment. Consequently, this control associated to positive and successful experiences which can boost their self-confidence [40,44]. The scarce results corroborate the positive impact of a SE season on students' empowerment given the opportunities to students solve problems and make decisions [45-47]. Evidence also suggests that students develop self-confidence through participation in a SE season due to opportunities to take on roles that encourage them to talk with their peers and make collective decisions [48,49].

Research comparing SE and TT tends to analyze the differences between both models on the motor and cognitive domains (e.g., physical activity, content knowledge, and technical and game performance), and its impact on the development of personal and social skills [50]. In this respect, comparisons between SE and TT have focused more on the constructs of autonomy [e.g., 51], motivation [e.g., 52], and enjoyment [e.g., 53], all of which show superior results

when students experience a season of SE. In essence then, the teaching styles of SE tend to be particularly autonomy supportive [54-56] while those adopted in the comparison TT conditions reflect more closely to controlling styles.

To the best of our knowledge, the impact of a SE season and a more traditional unit in developing student´s empowerment and self-confidence has not been directly measured or compared in previous research. Rather, they are part of a set of outputs obtained through the perceptions of students or teachers about the instructional models [e.g., 46,47,49].

Furthermore, most of the comparative studies between TT and SE, as well as studies focusing on the personal and social skills within SE reported in the literature, have involved experienced teachers as the instructors [37,57]. Recognizing that research indicates that preservice teacher (PSTs) points out some difficulties in applying different teaching models [58,59], it is relevant to develop studies with PSTs that gives them training experiences likely to challenge them to use different pedagogies and fill possible gaps, both in content knowledge and in pedagogy strategies. Consequently, it sets the stage for PSTs' ability and motivation to implement different teaching models in the future [60].

For specific learning outcomes, optimal learning environments need to be designed [22]. There is still a lack of controlled comparisons between TT and SE in promoting empowerment and self-confidence as personal and core learning outcomes, and still more involving PSTs. It is an opportunity to challenge PSTs and to inform the physical education teacher education (PETE) programs, seeking to optimize the process of learning to teach PE [61,62]. The use of classes taught by PSTs allows knowing whether PSTs are using each teaching approach appropriately and understanding if their students perceive any differences between teaching approaches.

Furthermore, research on this topic allows the dissemination of relevant data that shows the strengths of different approaches to the development of students' engagement and responsibility. Indeed, this study may contribute to overcoming potential barriers to the implementation of different PE teaching approaches, such as resistance within some PE departments or in-service teachers' own beliefs and habits [63].

Aligned with the aforementioned, this study aimed to examine the effects of the two different teaching approaches (TT or SE), on students' empowerment and self-confidence, in high school PE classes. It was hypothesized that students´ empowerment and self-confidence would be significantly greater following SE than TT (Hypothesis 1). Furthermore, it was hypothesized that students' empowerment and self-confidence would significantly improve only for those in the SE classes (Hypothesis 2), with no such improvements within classes taught using the TT (Hypothesis 3).

Materials and Methods

Participants and setting

A total of 430 high-school students (66.7% male) in 8 schools in northern Portugal took part in the study. The sample was composed of 224 girls and 206 boys and ranged in age from 14 to 21 years (M =16.22, SD =1.03). These students were in grades 10 (n= 199; 8 classes), 11 (n= 181; 8 classes) and 12 (n= 50; 2 classes).

The 18 PSTs (12 male and 6 female) involved in this study were in the final year of their master's degree program in "*Teaching of Physical Education in Primary and Secondary Education*" at a large public university in northern Portugal. In the previous year of their coursework, all PSTs had completed practical experiences as learners across several PE content areas and had experience with both teacher and student-centered approaches. The PSTs also had experience teaching TT and SE lessons during the previous year of their coursework. Furthermore, during their student teaching, the PSTs taught full versions of the models under the supervision of experienced teachers who were familiar with each approach and model. All PSTs had previously taught units of TT and SE with the same classes, as this study was conducted during the third term of the school year. For this study, the PSTs only taught one of the two conditions (TT or SE) to their class.

The ethics committee of the first author's university approved the protocol of the study, and all participants provided assent following parental informed consent.

Design

The study design was a quasi-experimental pretest–posttest, used across 18 classes from 8 different schools. Pretests took place in the first lesson, while posttests took place at the last lesson of the unit.

Two hundred and forty lessons across ten different classes at 6 schools were taught using the TT approach, while 192 lessons across 8 different classes were taught at 6 schools following the key principles of SE. All classes were co-educational and met twice a week over a period of 8 weeks (one lesson was scheduled for 45 minutes and the other for 90 minutes). This total instruction time of 1080 minutes easily exceeded the recommended minimum of 800 posited by Siedentop et al (2011) as necessary for a fully-fledged experience of SE at the secondary level.

Description of the units

Table 1 shows the list of schools, model, seasons/units, grades, and participants.

Traditional Teaching

Ten TT units were completed across 6 schools and involved a total of 226 students from 10 different classes. The TT unit was characterized by teacher-controlled decisions and teacher-directed engagement patterns for students. The PST was responsible for the main managerial control: established the learning content, implemented class warm-ups, defined the patterns of the technique model, controlled the rhythm of the tasks, as well the engaged time in the exercises and transition between activities. The PST delivered positive and corrective feedback to students frequently. Lessons began with basic skill drills to game play, with practice organized in lines of students providing high rates of practice and repetition. In the final part of each lesson, students chose teams to compete against each other (students had different teammates each lesson). The last three lessons were solely dedicated to competition between teams, organized by the PST. All record-keeping was conducted by the teacher. No formal statistics were kept. Students were engaged in whole-class instruction and were not responsible for roles such as refereeing and scoring.

Sport Education

The SE seasons followed the six key characteristics described by Siedentop and Tannehill (2000) to ensure the most authentic experience. These are seasons, affiliation, formal competition, record keeping, festivity and a culminating event.

In the initial lessons (1-2), the PST presented the model, described the roles, and explained the competition format. Equally skilled teams were created by the PST, following the criterion of homogeneity in gender and level of motor ability. These teams were maintained throughout the entirety of the season. After being placed on teams, the students assigned roles, designed colored shirts, and determined their team name. All students practiced different roles (at some point of the season) such as coaching the team, refereeing games, scorekeeping, and keeping team and individual statistics; however, no formal statistics were posted. The following four lessons (3-6) were led by the PST for basic skills introduction. In the student-led phase, the lessons began with a warm-up (led by students), practice in the first half, with the second half seeing formal competition. Lessons 7 through 15 involved teams practice and competition against each other while learning roles such as referee, scorekeeper and statistician, while lessons 16 through 23 were dedicated to a tournament. In these lessons, scores related to fair play were attributed, which were counted towards the final score of each team. The last lesson consisted of a final competition and awards ceremony.

Validity of instruction

A 10-item checklist with benchmarks [65] was used to assess the behavioral fidelity of the PST's instruction according to SE or TT (Table 2). The checklist asks a trained observer to make decisions about whether an item is representative of the lesson. In this case, two experts in instructional models with extensive research in instructional models, examined videotapes of four randomly selected lessons of each class to confirm the characteristics of the model used in the lessons. Analysis across the two experts revealed an inter-observer agreement of 100%, confirming the instructional model used in the lessons.

To be effective, an instructional model needs contextual conditions such as teacher proficiency and student willingness for the model [22].

Table 1. List of schools, model, seasons/units, grade and participants.

School	PST	Model	Grade	Students	Sport played
A	1 female	SE	10	10 Boys 16 Girls	Track and field
	1 female	TT	10	15 Boys 10 Girls	Track and field
	1 male	TT	10	21 Boys 2 Girls	Track and field
B	1 male	SE	10	10 Boys 19 Girls	Volleyball
	1 male	TT	11	19 Boys 5 Girls	Volleyball
	1 male	TT	11	19 Boys 5 Girls	Football
C	1 female	TT	11	7 Boys 13 Girls	Basketball
D	1 female	TT	11	11 Boys 11 Girls	Basketball
	1 male	TT	10	5 Boys 14 Girls	Volleyball
	1 male	SE	10	12 Boys 14 Girls	Volleyball
E	1 male	TT	12	3 Boys 19 Girls	Basketball
	1 male	SE	11	10 Boys 15 Girls	Gymnastics
	1 male	TT	12	16 Boys 12 Girls	Basketball
F	1 male	SE	10	16 Boys 9 Girls	Rugby
	1 female	SE	10	12 Boys 14 Girls	Rugby
G	1 male	TT	11	11 Boys 7 Girls	Gymnastics
H	1 female	SE	11	10 Boys 14 Girls	Gymnastics
	1 male	SE	11	5 Boys 18 Girls	Gymnastics

Note. School names are pseudonyms.

Table 2. Instructional Checklist [65].

1. Groups of students go to a designated home area and begin warming up with that group.
2. Students warm up as a whole class under the direction of the teacher.
3. Students practice together with their group/team under the direction of a peer leader.
4. Students practice individually or in small groups under the direction of the teacher.
5. Students remain a part of easily identifiable groups throughout the lesson and throughout different tasks.
6. Student grouping throughout the lesson is variable across tasks.
7. Performance records are kept by students.
8. Students perform specialized tasks within their group/team.
9. Student performance scores count toward a formal and public scoring system.
10. Student performance scores are not recorded or are recorded in private.

Note. Items 1, 3, 5, 7, 8 and 9 are characteristics of the SE. Items 2, 4, 6 and 10 are characteristics of the TT.

All PSTs were familiar with both models, having previously taught units/seasons of TT and SE. All PSTs were familiar with both models, having experienced SE and TT as participants during their on-campus coursework, and having taught units/seasons of TT and SE. The SE PSTs also attended a three-hour SE workshop led by an investigator who was familiar with the SE curriculum and the challenges implementing this model in schools.

There was sufficient space and equipment (e.g., balls, scorers, whistles, etc.) in all schools for every class to create adequate pedagogical and practical conditions.

Table 3 provide data confirming the characteristics of the model used in the lessons by each PST.

Table 3. Characteristics of the lessons taught by each PST.

PST	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Item 9	Item 10	Model
A1	X		X		X		X	X			**SE**
A2		X		X		X				X	**TT**
A3		X		X		X				X	**TT**
B1	X		X		X		X	X	X		**SE**
B2		X		X		X				X	**TT**
B3		X		X		X				X	**TT**
C1		X		X		X				X	**TT**
D1		X		X		X				X	**TT**
D2		X		X		X				X	**TT**
D3	X		X		X		X	X	X		**SE**
E1		X		X		X				X	**TT**
E2	X		X		X		X	X			**SE**
E3		X		X		X				X	**TT**
F1	X		X		X		X	X	X		**SE**
F2	X		X		X		X	X	X		**SE**
G1		X		X		X				X	**TT**
H1	X		X		X		X	X	X		**SE**
H2	X		X		X		X	X	X		**SE**

Instruments

Empowerment. Spreitzer's [66] 12-item Psychological Empowerment Instrument (PEI), translated and adapted for Portuguese populations by Santos et al. [67], was used to measure empowerment. The PEI test and retest reliability has been shown to be strong and the validity estimates for the dimensions are typically around .80 [e.g., 68]. The items are distributed by four dimensions: meaning, competence, self-determination, and impact. Meaning reflects the value of a work goal or purpose, judge in relation to an individual's own ideals or standards [69]. Competence, or self-efficacy, reflects an individual's belief in his or her capacity to perform activities with skill [70]. Self-determination reflects autonomy in the initiation and continuation of work behaviors and processes [71]. Impact reflects the degree to which an individual can influence strategic, administrative, or operating outcomes at work [72]. Sample items include, "The role that I have in class is very important to me" (meaning), "I am confident with the performance that I have in PE class" (competence), "I have significant autonomy in determining how I do my tasks in PE class" (self-determination), and "I have a great deal of control over what happens in PE class" (impact). All items were measured using a 7-point Likert-type scale that ranged from 1 (totally disagree) to 7 (totally agree).

Self-confidence. Self-confidence was measured with the 9-item self-confidence sub-scale of the Competitive State Anxiety Inventory-2 (CSAI-2) [73] translated and adapted for Portuguese populations by Vasconcelos-Raposo [74]. CSAI-2 has been widely used by researchers as a means of explaining the independent forms of influence of somatic anxiety, cognitive anxiety, and self-confidence on sport performance. The validity and reliability of this instrument have been verified by Gabilondo, et al. [75]. Sample items include “I feel at ease” and “I feel secure”. All items were measured using a 5-point Likert-type scale that ranged from 1 (never) to 5 (always).

Both questionnaires were completed in a classroom setting during school time in the presence of the first author. Average completion time was 10 minutes. Pre-test data were collected in the first lesson of the unit/season, while post-test data were collected following the last lesson of the unit/season.

Data analysis

The IBM Statistical Package for the Social Sciences (version 26) was used to analyze the data. The descriptive analysis conducted to characterize the samples revealed non-normality of the distribution of data. Therefore, non-parametric statistics were used. Scale reliability was obtained for the pre- and post-test using Ordinal alpha for Likert data. Ordinal alpha is conceptually equivalent to Cronbach's alpha and it performs better for ordinal data [76].

The Mann-Whitney test for two independent samples (empowerment and self-confidence) was used to test the differences between groups in two assessment moments, the pre-test (PreT) and the post-test (PosT). To test intra-group differences from the PreT to the PosT, the Wilcoxon test was applied. When the Wilcoxon’s yielded a significant difference, subsequent analyses were performed at the subscale level to provide insight into the precise location of differences. The effect size was estimated with the r statistic for non-parametric tests [77] using the formula: $r = Z / \sqrt{N}$ where Z represents the Z score resulting from the non-parametric test; and N to the total number of subjects. According to Cohen [78], a small effect size with $r < .30$, a moderate effect size with r between .31 and .50, and a large effect size with $r > .50$ were considered. The statistical level to determine the significance was set at $p < .05$.

Results

Tables 4 and 5 present the Ordinal alpha coefficients and descriptive statistics for both conditions and all measures at pre- and post-test. The Ordinal alpha coefficients of all subscales yielded values above .70, which can be considered acceptable [79]. Regarding the descriptive statistics, there are certain changes in means and standard deviations between the pre- and post-test in both groups.

Table 4. Descriptive statistics and internal consistency of subscales for TT context (n=226).

		PRE-TEST				POST-TEST			
Measure	**Subscale**	**Ordinal *α***	***M* (SD)**	**M_e**	**Ske Kur**	**Ordinal *α***	***M* (SD)**	**M_e**	**Ske Kur**
CSAI-2									
	Self-confidence	.90	3.81 (.04)	3.80	- .39 - .08	.92	3.68 (.05)	3.80	- .45 - .26
SPES		.94	4.89 (.06)	4.92	- .46 1.39	.97	4.86 (.07)	5.00	- .48 .53
	Meaning	.85	4.86 (.07)	5.00	- .08 .32	.92	4.82 (.08)	5.00	- .33 - .08
	Competence	.85	5.18	5.00	- .55 .84	.88	5.03 (.07)	5.00	- .61 .85
	Self-determination	.77	4.98 (.07)	5.00	- .68 1.39	.90	4.97 (.08)	5.00	- .56 .52
	Impact	.72	4.55 (.07)	4.67	- .23 .76	.85	4.65 (.07)	4.67	- .26 - .01

CSAI- 2 - Competitive State Anxiety Inventory – 2; SPES - Spreitzer's Psychological Empowerment Scale.

In the PreT, initial homogeneity among groups was assessed using the Mann-Whitney test on the dependent variables: self-confidence and empowerment (Table 6). In the PosT, significant differences were found between SE and TT groups on students' perceptions of empowerment (p = .001), with a small effect size (r = .17). Also, significant differences were found on students' perceptions of self-confidence (p < .001), with a small effect size (r = .18).

Table 5. Descriptive statistics and internal consistency of subscales for SE context (n=204).

		PRE-TEST				POST-TEST			
Measure	**Subscale**	**Ordinal α**	***M* (SD)**	**M_e**	**Ske Kur**	**Ordinal α**	***M* (SD)**	**M_e**	**Ske Kur**
CSAI-2									
	Self-confidence	.86	3.73 (.04)	3.70	.32 - .86	.91	3.95 (.05)	4.00	- .71 1.10
SPES		.94	4.76 (.06)	4.75	- .25 .65	.96	5.24 (.07)	5.25	- .21 - .33
	Meaning	.87	4.58 (.08)	4.67	- .43 .17	.91	5.15 (.08)	5.00	- .45 .11
	Competence	.82	5.09 (.07)	5.00	- .71 - .77	.88	5.41 (.07)	5.33	- .29 - .34
	Self-determination	.72	4.99 (.08)	5.00	- .27 - .07	.85	5.35 (.08)	5.33	- .62 .52
	Impact	.70	4,40 (07)	4.33	- .26 .91	.81	5.06 (.08)	5.00	- .08 - .32

Table 6. Results of the intergroup analysis using the Mann-Whitney U test.

		PRE-TEST			POST-TEST			
Measure	**IA**	**Sum of Ranks**	**Z scores**	***p***	**Sum of Ranks**	**Z scores**	***p***	***r***
CSAI-2 (Self-confidence subscale)	TT	51057.50	- 1.83	.067	43961.00	- 3.690	< .001	.18
	SE	41607.50			48704.00			
SPES	TT	50619.50	- 1.49	.136	44233.50	- 3.475	.001	.17
	SE	42045.50			48431.50			

Table 7 presents the results of the Wilcoxon Rank test used to analyze the differences obtained within groups. Significant pre-post intervention differences were found among the study groups on the examined dependent variables. Regarding the SE group, there were considerable improvements on student's perceptions for both variables; empowerment ($p < .001$, $r = .42$) and self-confidence ($p < .001$, $r = .31$), from pre to post-test. No significant differences were found in the perceptions of students in the TT group for any variable.

Table 7. Results of the within analysis using the Wilcoxon test for empowerment and self-confidence across time (Pre and Post-test results).

Measure	IA	Z scores	*p*	*r*
CSAI-2 (Self-confidence subscale)	TT	- 1.697	.090	.11
	SE	- 4.445	< .001	.31
SPES	TT	- .527	.598	.04
	SE	- 5.973	< .001	.42

Table 8 shows subsequent analyses performed at the empowerment subscale level to provide insight into the precise location of differences. Considering the SE students' perceptions, results revealed significant increases on all subscales ($p < .001$), presenting a large effect size for impact ($r = .50$), and a considerable effect size for meaning ($r = .40$), competence ($r = .26$) and self-determination ($r = .26$).

Table 8. Results of the within analysis using the Wilcoxon test for empowerment subscale (Pre and Post-test results).

Measure	Subscale	IA	Z scores	*p*	*r*
SPES	Meaning	SE	- 5.692	< .001	.40
	Competence	SE	- 3.682	< .001	.26
	Self-determination	SE	- 3.762	< .001	.26
	Impact	SE	- 6.731	< .001	.50

4. Discussion and conclusions

The purpose of the current study was to examine the effects of the implementation of two different instructional models (SE and TT) by PSTs on students' empowerment and self-confidence in high school PE classes. Results of the present study showed that only SE was effective in improving high school students' empowerment and self-confidence, supporting the first hypothesis. This effectiveness was confirmed by the comparison with the data from the TT group, with significant increases for the SE group in the studied variables. While in the SE group the participants exhibited significant improvements in their empowerment and self-confidence levels, in the TT group, no gains were found, confirming the second and third hypotheses respectively. In fact, in the TT group,

the levels of empowerment and self-confidence decreased over time, even though this decrease was not significant. This sort of effect has previously occurred in Spittle and Byrne [80] study, in which the Traditional condition was associated with decreases in student personal and social variables, namely in perceived competence, task orientation, and mastery climate. According to these authors, these effects may be due partly to high initial levels of motivation. Furthermore, the length of the TT unit may also have contributed to these decreases, since traditionally, this type of PE classes rarely spends so much time in just one sport. If the experience is not being positive and successful, students can become demotivated, compromising their sense of empowerment and self-confidence.

When considering the decrease in the perception of empowerment by students in the TT group, a possible explanation for these results lies in the fact that the PST was responsible for making all the decisions (planning, instruction, assessment, students' engagement patterns, etc.), limiting students to a passive and reproductive behavior, with no space to make decisions or solve problems.

On the other hand, it is noteworthy the decrease (although not significant) obtained in the students' self-confidence in the TT group, when there is a high frequency of positive feedback from the teacher. This may be because students have previously experienced other models, namely SE, and eventually could have perceived less opportunities to develop this variable. Furthermore, we also believe that the empowerment results may have influenced this result. That is, if the students do not feel empowered, they do not feel self-confident.

The efficiency of SE in improving students' empowerment and self-confidence lies primarily in the strategies used during the season. Examples are the possibility of assuming particular roles and responsibilities that encourage students to talk and make decisions, the opportunity to have some degree of control over their learning process, and to provide students with opportunities to solve problems and make decisions. In this sense, students can experience boosts to their self-esteem and self-confidence. Likewise, providing students with decision-making opportunities, and encouraging them to solve problems on their own may help them feel in control. This can eventually reinforce their sense of

ownership and empowerment, both of which are important ingredients in the development of self-confidence.

Concerning the SE gains on the studied variables, similar results have been reported in the investigation of Gil-Arias, Harvey, Cárceles, Práxedes and Del Villar [45], where in a hybrid TGfU/SE unit, students felt empowered because were provided with the opportunity to solve specific tactical problems. Likewise, Hastie and Buchanan [46] incorporated throughout a hybrid TGfU/SE unit numerous instances of problem-solving without providing the solution, which they suggested contributed to students' empowerment. Regarding self-confidence, our results are consistent with previous research which has indicated that the self-confidence enhancing strategies, the supportive learning environment, as well as the performance of different roles used in a SE season were the key to the positive development of students' self-confidence [48,49].

A review of the research concerning students' development of personal and social skills when participating in PE classes with SE [37] indicates that only 23% of studies (12 studies) incorporate a comparison with a TT. Of these, only two studies [81,82] had PSTs teaching the PE classes, with both reporting significant improvements. Regarding the effect sizes of the SE season, results of the present study confirmed not only the change in the variables studied but also moderate-to-large magnitudes of those effects. Similar results were achieved in different studies using experienced teachers [37] which suggests that PSTs are using each teaching approach appropriately.

Despite the literature on the experiences of PSTs in teaching SE identifying certain challenges such as the omission of vital aspects of the model [58,59] or problems in encouraging students to work [83], the outcomes of this study suggest that PSTs who taught SE were able to create favorable conditions for the development of empowerment and self-confidence. These results highlight the effectiveness of the PETE program that the PSTs attended, which takes into account Curtner-Smith's [61] recommendations of providing practical experiences, as learners and teachers, with different approaches and teaching models, supervised by experienced teachers.

We can note several strengths within the current study. First, teacher fidelity to teach each of the models was measured and reported. Second, it was

utilized a large sample at different schools. Third, the SE season's length exceeded the recommendation as appropriate for a high school SE season [21]. However, research has shown that programs regarding social and emotional learning need to be ongoing and adopt a multi-year approach. Thus, reinforcing the suggestions of past reviews [36,84-86] future research should adopt more longitudinal data collection protocols, involving multiple seasons/unit.

This research suggests the suitability of the SE in PE classes but is not without limitations. In order to reduce the “teacher effect” that may occur when different teachers teach different instructional approaches [87], future research must use the same teacher in the same grade to teach all the groups. The already formed classes in schools made difficult the random assignment of students but should be considered a limitation of the design. Future studies might consider developing experimental studies since randomly assigning students to experimental and comparison conditions provides greater certainty that differences between groups on outcome measures result from the intervention. Another limitation is that this study was carried out in PE classes' real context decreasing the internal validity. However, the importance of ecological validity must also be considered, which consequently makes its results and conclusions relevant.

To reinforce the positive impact of different teaching models on personal and social skills, it would be important for future research to consider variables (such as responsibility, creativity, or assertiveness), that meet the best interests and needs of today's young people. Once significant improvements in empowerment and self-confidence help students tackle potential social problems they may face in their lives, future research can further explore these results with qualitative methodologies seeking additional explanations that can improve our understanding.

The results of this study provide support for SE as a viable option for providing students with new experiences, and as a feasible curricular model for teachers in order to promote empowerment and self-confidence in PE.

Author Contributions

Conceptualization, C.B., P.H. and I.M.; methodology, C.B, A.R. and I.M.; formal analysis, C.B, A.R. and I.M.; investigation, C.B. and I.M.; writing—original draft preparation, C.B., P.H. and I.M.; writing—review and editing, C.B., P.H., A.R. and I.M.; supervision, I.M.; funding acquisition, C.B. All authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement

The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Ethics Committee of the Faculty of Sport from the University of Porto (Process CEFADE 07.2018, approved on 24th March 2018).

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Conflicts of Interest

The authors declare no conflict of interest.

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EMPIRICAL ARTICLE 3

Developing student-coaches' empowerment within a Sport Education season: An action research study with preservice teachers

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Abstract

Through a collaborative action research project in a real school context, the purpose of this study was to analyze the impact of applying specific pedagogical strategies on increasing student-coaches' empowerment, by preservice teachers within a SE season. Sixty-seven tenth-grade students from three different classes, participated in a Sport Education season, instructed by three preservice teachers. The research involved three action research cycles, and each cycle included the processes of planning, acting and monitoring, reflecting, and fact-finding. Data from multiple sources were collected, including a) participant observations, b) semi-structured focus group interviews, c) informal interviews, and d) field notes. Analysis of data was conducted through thematic analysis and verified with trustworthiness elements of triangulation, member checks and peer debriefing. The results demonstrated that the implementation of specific strategies by the preservice teachers proved to be crucial for student-coaches empowerment, particularly in assuming their role, in their interventions with less-skilled students, and their specific content knowledge, which highlights the need to better prepare student-coaches. The collaborative work developed in this action-research study provided opportunities for preservice teachers to gain valuable insights about themselves as teachers, their proficiency regarding a Sport Education model implementation, and the quality of the training received in the Physical Education Teacher Education program for Sport Education.

Keywords: sport education model, physical education, preservice teachers, sport pedagogy.

Introduction

Sport Education (SE) (Siedentop, Hastie, & van der Mars, 2020), one of the most implemented and researched student-centered models in the Physical Education (PE) context, presents itself with the goal of offering students more complete and authentic sports experiences. SE embraces features of institutionalized sport deemed particularly meaningful to students, but often absent within PE settings. These include the concepts of seasons, affiliation, formal competition, record keeping, culminating events, and festivity. The overarching goal of SE is to develop students as competent, literate, and enthusiastic sportspersons (Siedentop, 1998).

One of the particularities of SE is the centrality of persisting teams and the opportunity for students to engage roles other than as a player. These can include being a student-coach, referee, scorekeeper, statistician, or sports director (Siedentop et al., 2020). By participating in these roles, students are encouraged to learn autonomously and responsibly, to solve problems, and to make decisions during the teaching-learning process. At the same time, the teacher assumes the role of facilitator, scaffolding students' learning through the regulation of tasks, demonstrations, reflective questioning, and positive feedback (Farias, Hastie, & Mesquita, 2018). A central role within SE is the student-coach (SC). SCs are expected to take on a considerable amount of instructional responsibility, including providing general team leadership, making team organization decisions, presenting tasks, setting the practice's strategic thinking, and managing the group dynamics (Siedentop et al., 2020).

There is a substantive body of knowledge illustrating the positive educational outcomes achieved by students following participation in a season of SE. These include improvements in students' game performance, tactical and technical knowledge (Araújo, Mesquita, & Hastie, 2014; Hastie, Martinez de Ojeda, & Calderón, 2011), enhanced students' cognitive and affective development (Evangelio, Sierra-Díaz, Gonzalez-Víllora, & Fernández-Rio, 2018), and the promotion of personal and social skills (Bessa, Hastie, Araújo, & Mesquita, 2019). Nonetheless, despite the centrality of its role in SE, research focusing on the SC is still rare. Those studies which have examined the efficacy of SCs have raised doubts regarding their effectiveness of the SC role (Alexander

& Luckman, 2001; Carlson, 1995; Hastie, 2000). Being novice instructors, it should not be surprising that SC struggle to offer quality practices, to modify tasks, or provide quality feedback to their teammates (Araújo, Hastie, Bessa, & Mesquita, 2017; Farias et al., 2018; Wallhead & O'Sullivan, 2007).

Referring to SE, literature suggests that more than know "about the model", a major concern is that teachers know "how to do the model works" (Glotova & Hastie, 2014). Teachers, then, have a central role in helping SCs develop at least some basic pedagogical skills. They must provide strategies to empower SCs in their role, guide their practice in basic pedagogical skills and develop SCs' independence and problem-solving capabilities (Wallhead, 2017). SC's empowerment actively inspires them to direct and lead their teams, while having an active role in planning team tactics and practice content. Enabling SCs to make team decisions promotes a sense of autonomy and self-determination, which can lead to higher levels of motivation, commitment and self-confidence (Hastie & Buchanan, 2000; Moore & Fry, 2017).

The studies developed in the last years, focusing on the efficacy of SCs, have provided insights into how teachers can develop SCs effectiveness in SE, but have only resorted to experienced teachers as instructors (Araújo et al., 2017; Farias et al., 2018). Considering the known challenges of preservice teachers (PSTs) in bridging theory and practice when teaching SE (Deenihan & MacPhail, 2013; Hordvik, MacPhail, & Ronglan, 2017), the need to support the PSTs' practice is expected. As McMahon and MacPhail (2007) noted, despite having knowledge of the theory of SE, the PST involved in their study was unable to implement roles and responsibilities due to lack of experience with the SE model. In this sense, the development of teaching and research partnerships among researchers and PSTs is a promising practice for ensuring that questions and needs related to SE practice guide and inform PSTs practice. Thus, as a critical, transformative and 'emancipatory' research design, a collaborative action research (CAR), must be considered for their dynamic, flexible, cyclical, and reflective nature (Carr & Kemmis, 1986). Action research has been recognized as an effective means within preservice education to professionally develop PSTs while teaching and operating in the classroom. It improves PSTs understanding and learning, supporting them in transforming and rethinking their practices by

the ongoing change and continuous construction and testing of explanations in practice (Kemmis, 2010; Yelland, Lee, O'Rourke, & Harrison, 2008).

Furthermore, the literature has suggested more empirical studies to understand and examine specific features of SE, namely the SC role (Araujo, et al., 2014), as well as more research to study how empowerment can be developed in a SE season (Hastie, Sinelnikov, Wallhead, & Layne, 2014). Therefore, it is crucial a deepened insight on how PSTs can empower successfully the SCs and what strategies they can use, augmenting SCs' self-confidence, autonomy and proactivity.

There is an evident lack of research conducted in SE to examine how teachers can support and empower SCs, and what strategies teachers can use to prepare SCs to cope with the demands of instructional leadership, even more with PSTs. With this understanding, this qualitative study sought to develop a collaborative action research project with the purpose to develop relationships between the researcher (facilitator) and the PSTs to improve and understand their practice, and self-direct their own development into effective SE teachers, and more specifically, to support PSTs to learn how to empower the SCs and what strategies the PSTs can use to achieve it.

This study's main purpose was to analyze, in a real school context, the impact of applying specific pedagogical strategies to increase SCs' empowerment, by PSTs within a SE season, through a collaborative action research project.

The specific objectives were: a) to examine SCs' empowerment evolution; b) to identify the problems faced by PSTs, their causes, and strategies to overcome them; and c) to promote learning opportunities for PSTs in practical field experience, allowing a better understanding of theory in practice.

Methods

Study Design

This study followed an action research design, as a way to challenge PSTs to better understand how to improve their own educational practice, being self-critical, reflecting on their work and making the necessary changes in their

practices as a result of their reflections (Carr & Kemmis, 1986). Specifically, a collaborative action research approach was implemented, seeking to empower and support the PSTs in the transformation and rethinking of their practices (Kemmis & McTaggart, 1988). For this purpose, a researcher in pedagogy and teaching models collaborated in the study as facilitator.

This research involved three action research cycles, and each cycle included the processes of planning, acting, observing, and reflecting (Kemmis & McTaggart, 1988) in order to inform the planning of the next cycle. The study encompassed the third term of the school year, lasting approximately two months. The first cycle represented the baseline in which the goal was to identify the main difficulties of the SCs intervention, while the following two cycles involved specific interventions that were design and developed under the guidance of the facilitator to address problems or issues identified in the preceding cycle.

Participants

The participants were three preservice PE teachers (2 males and 1 female; M_{age} = 23.3, *SD* = .58) in their final-year master's degree program in *Teaching of Physical Education in Primary and Secondary Education* at a large public university in northern Portugal. During the previous year of their coursework, the PSTs had completed practical experiences as learners with student-centered approaches including SE. The PSTs had also taught a complete version of the model under the supervision of experienced teachers familiar with each approach model. As the data were collected in the third term, all PSTs had previously taught SE seasons to the same classes.

In this study, each PST conducted an eight-week SE season with one of their tenth-grade classes. The sports approached were Volleyball (PST 1), Basketball (PST 2) and Gymnastics (PST 3). Each class met two times per week (one lesson of 45 minutes and one of 90). This allowed for a total of 1080 minutes of instruction time, which clearly exceeds (Miller, 2015) recommendation of an intervention volume of greater than eight hours as the cut point for interventions using games-based approaches to PE.

Students in the three classes were 28 boys and 39 girls (M_{age} = 15.9, *SD* = .73). Specifically, 22 students (11 boys and 11 girls, M_{age} = 16.4, *SD* = .58) were in the PST 1 class, 26 students (14 boys and 12 girls, M_{age} = 15.8, *SD* = .76) were in the PST 2 class, and 19 students (14 boys and 5 girls, M_{age} = 15.7, *SD* = .65) were in the class of the PST 3. Three students from each class (6 boys and 3 girls) participated in focus group sessions. Prior to this project, the students had previously participated in a SE season with the same PST, in a different sport.

By the time of the research, the role of the AR facilitator was adopted by the first author, a researcher in pedagogy and teaching models and experienced physical education teacher (over 12 years) who had significant experience using student-centered instructional models, namely in SE, over the previous four years.

The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Ethics Committee of the Faculty of Sport from the University of Porto (Process CEFADE 07.2018, approved on 24th March 2018). All participants and their parents were informed about the purpose of the study and the right to withdraw at any time. Informed consent was obtained, and confidentiality was ensured. All the participants were provided with pseudonyms to protect their identity and distinguish their opinions.

SE seasons

Each PST implemented a SE season that incorporated all of the model's key features (i.e., affiliation, formal competition, festivity, seasons, record keeping and the inclusion of a culminating event) (Siedentop et al., 2020).

In the initial lessons (1-2), the PST presented the model and the roles, and explained the competition format. Equally skilled teams were created by the PST following the criterion of homogeneity in gender and level of motor ability. These teams were maintained throughout the season. After being placed on teams, the students assigned roles, designed colored shirts, and determined their team's name. All students practiced different roles (at some point of the season) such as coaching the team, refereeing games, scorekeeping and keeping team and individual statistics; however, no formal statistics were posted. The following four lessons (3-6) were led by the PST for basic skills introduction. In the student-led

phase, the lessons began with a warm-up (led by students), then the first half was dedicated to the practice and the second to formal competition. Lessons 7 through 15 involved teams practice and competition against each other while learning roles such as referee, scorekeeper and statistician. Lessons 16 through 23 were dedicated to a tournament. In these lessons (16-23), scores related to fair play were attributed, which were counted towards the final score of each team. The last lesson consisted of a final competition and awards ceremony.

Instructional validity

To determine the behavioral fidelity of the PST's instruction according to SE a 10-item checklist (Table 1) from Hastie, Calderón, Rolim, and Guarino (2013) was used. Two experts with extensive research in instructional models examined videotapes of four arbitrarily selected lessons of each class. The experts filled the checklist of whether each item was representative of the lesson. A 100% agreement level between experts confirmed the SE as the model used in the lessons.

Table 1. Instructional Checklist (Hastie et al., 2013).

1. Groups of students go to a designated home area and begin warming up with that group.
2. Students warm-up as a whole class under the direction of the teacher.
3. Students practice together with their group/team under the direction of a peer leader.
4. Students practice individually or in small groups under the direction of the teacher.
5. Students remain a part of easily identifiable groups throughout the lesson and throughout different tasks.
6. Student grouping throughout the lesson is variable across tasks.
7. Performance records are kept by students.
8. Students perform specialized tasks within their group/team.
9. Student performance scores count toward a formal and public scoring system.
10. Student performance scores are not recorded or are recorded in private.

Note. Items 1, 3, 5, 7 and 8 suggest a SE season, whilst items 2, 4, 6, and 10 are features of the 'traditional' teacher-directed format.

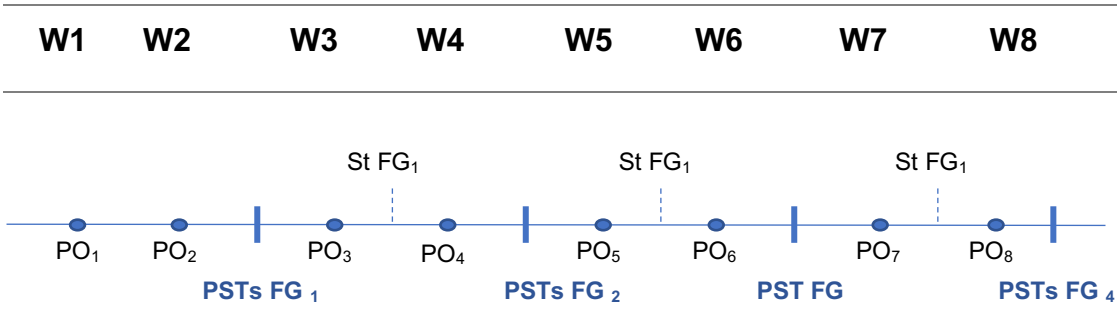
To be effective, an instructional model needs to consider the contextual conditions such as teacher proficiency and student willingness for the model (Metzler, 2017). All PST's have experienced SE as participants during their on-campus coursework and have taught SE seasons. The PSTs also attended a three-hour SE workshop led by an investigator who was familiar with the SE curriculum and the challenges implementing this model in schools.

The school provided the necessary space and material (for example, balls, cones, markers, whistles, etc.) to create the required conditions to properly implement the SE model.

Data collection

Multiple methods were used to collect the data, which included participant observations, focus group interviews, informal interviews and field notes. Table 2 presents the data collection timeline.

Table 2. Data collection timeline.



W – Week; PO – Participant Observation; FG – Focus Group; StFG – Students' Focus Group

Participant Observation. The main researcher conducted 24 participant observations (8 per class) lasting approximately 60 minutes each. Participant observation provided easy and direct access to the data and allowed to build descriptions from the ground up. During the observations, special attention was given to the PST's and students' behaviors and attitudes, identifying critical and/or problematic situations in the SCs performance, within the SE learning experience. The researcher followed an observation script to help focus on what to observe and to identify regular and irregular behaviors of PSTs and SCs. The

initial script focused on the SCs' behaviors (verbal and non-verbal interactions) to identify possible gaps, and the following ones were adjusted to the collected data and strategies outlined in each focus group. The researcher took field notes through the entire observation and wrote down reflections about the observation.

PSTs Field Notes. Each PST took field notes during lessons to record thoughts and observations about critical incidences of each lesson. At the end of the lessons, after noting the pertinent details, each PST reflected on the whole of the lesson and their performance and made written reports of that data (Burgess, 1991). No template was defined for recording field notes. Each PST registered what it considered relevant. The field notes tended to focus on the data and strategies defined during the focus groups or on the difficulties that the PSTs identified in the SCs' role. These field notes enhanced data and provided richer context for the data analysis, developed PSTs' reflective thinking and gave insights into their own practice, beliefs, perceptions, and personal experiences.

Informal Interviews. Consisted of spontaneous questioning of individual students (SCs and students) made by the facilitator at the end of the lessons (total of 24). Immediately following the lessons can be a good time for collect data with students, while the emotions and behaviors are still fresh. These instant and quick interviews aim to obtain students' first impressions after lesson, accessing their perceptions about particular situations that occurred in class. Sample questions included "How do you think your SC was doing today?", "Do you highlight any improvement in your performance in today's class?" or "Do you think that today your SC could have improved in some way?".

Students Focus Group Interviews. Students were interviewed in groups of nine (SCs and players), three of each class, randomly selected from different teams. A total of three students' focus group interviews were conducted by the researcher in the school PE office. Each of these was audio recorder, lasted between 49 and 56 minutes, and was transcribed verbatim. Interviews were based on critical incidents (Rink, 1993), that is, in concrete cases and events, in which the researcher identified that students had difficulties or facilities, which

were important for the development of SCs' empowerment, or their feelings and experiences about their own evolution. The interview protocol followed a semi-structured format, presenting the same topics to all participants and using subsequent questions when more details or clarifications were needed. Typical questions that drove the interviews raised by the researcher included "How do you feel as SC? Your teammates respect/accept what you said?", "If you could, what would you change in your SC?", or "What kind of interaction do you value most in your SC? Do you suggest any changes?".

PSTs Focus Group Interviews. A total of three focus group interviews were conducted with the PSTs to access the participants PSTs' beliefs, perceptions and personal experiences. All focus groups were conducted outside the school hours, in the university setting as it was an environment in which participants were comfortable with. Focus group interviews were conducted in a classroom, with chairs arranged in a circle. Each of these was recorded using a portable digital audio recorder and lasted approximately 90 minutes. The interviews were semi-structured and conducted throughout the SE season. The focus group were centered on pedagogy, considering the development of SCs' empowerment within a SE experience. The questions were based on the information collected in the participant observations, students' interviews (formal and informal) and PSTs' field notes. During the focus group, the facilitator encouraged PSTs' interactions and participation, in sharing his experiences, opinions, thoughts, doubts and beliefs, reflecting and developing their practice (Jones, Morgan, & Harris, 2012).

Data analysis

The data were analyzed continuously throughout the data-gathering period in keeping with the cyclical and iterative demands of action research (Charmaz, 2014). However, an inductive thematic analysis (Braun, Clarke, & Weate, 2016) was used to evaluate the data from the participant observations, field notes, and interviews.

After each data collection, audiotapes of the interviews were transcribed verbatim, and transcripts were given to the participants so that they could review

the data and make any necessary corrections or amendments. No participants made significant changes to the content of the transcripts. Following the process suggested by Charmaz (2014), transcripts were read several times followed by an inductive line-by-line initial coding of data to expose the embedded thoughts, ideas and meanings, and search for patterns. Through focused coding, related codes with similar meanings were reassembled achieving a more robust systematization of the data. This interpretative analysis sought to provide a deeper understanding of the findings by clarifying possible relationships between codes and themes. In the next phase, theoretical coding was carried out to examine the possible relationship between the themes and some theoretical perspectives (Corbin & Strauss, 2014) to clarify any complexities, conflicts or contradictions identified during the analysis. It should be noted, however, that data were not categorized to fit the theory but to search for patterns and understand their influence on current conceptualizations. Data triangulation was carried using the constant comparison method of the data from the different data sources (participant observations, field notes, and interviews).

Trustworthiness

Trustworthiness was established through the use of data triangulation, participant checks and peer debriefing (Creswell, 1998). Triangulation of data involved the collection and analysis of different data sources, namely, the interviews, the participant observations and the field notes. Collected data was provided to each participant to verify and ensure that the intent and meaning were accurately portrayed. Additionally, regular peer debriefing was achieved with the research team members that cross-checked all information to ensure a level of consistency in the analysis and representation of data (Patton, 2015).

Results

After analyzing the data, it was possible to identify that the greatest difficulties for SCs were related to two fundamental systems that optimize a good learning environment, that is, the student social system, and the instructional task system. The three main themes that characterized each cycle were: “1st AR-

Cycle: Promoting the assumption of the SC's role", 2nd AR-Cycle: Balancing the intervention with the high- and less-skilled students, and "3rd AR-Cycle: Improving the SC's specific content knowledge". In each cycle was included an initial section related to the identified gaps in SCs' role by the different participants (PSTs, SCs, and teammates), a second section incorporates the identification of the adopted strategy to overcome the gaps identified, followed by a third part reserved for the perceptions of all participants about the efficacy of the implemented strategies.

The PSTs and the SCs were identified by a number, while pseudonyms identify teammates.

1st AR-Cycle – Promoting the assumption of the SC's role

The first cycle allowed the collection of evidence on the gaps in the role of SCs. SCs were charged with leading and monitoring teammates' practice, providing feedback, and encouraging them to work as a team.

Before the study, all students had experienced a number of seasons of SE. However, the evidence collected from this exploratory stage showed that SCs seemed to experience difficulties assuming their role. More specifically, they *"do not seem to pay attention to their teams. Instead, they seemed more concerned with their own performance"* (participant observation, lesson 4, April), failing to become fully involved with the team, neglecting their intervention and support of their teammates, and projecting counterproductive attitudes such as *"being irritated with their teammates for not winning the game"* (participant observation 2, lesson 6, April)

The SCs recognized many of these features identified from the observations. During focus group discussions SCs acknowledged they were adopting an individualistic and self-centered attitude, assuming that they *"don't like to lose, and as a captain, don't want that the team loses."* (SC 4, students' focus group 1, April). SCs also mentioned they were neglecting their role, not giving support and guidance to their teammates, and focusing only on their performance and personal success. Besides, they were experiencing difficulties

in managing their own behavior and those of their teammates. Comments included:

> SC 2: "*Honestly, I don't think I'm the best student-coach because I have my mistakes and I'm not good at accepting criticism. I do not accept well when my colleagues criticize me. And when I criticize them, I don't like their reactions*." (Students' Focus Group 1, April)

The informal context of the after lessons interviews promoted a spontaneous and natural interaction between the facilitator and the SCs, which allowed SCs to speak more freely and openly about what they thought or felt about their performance. In one of those moments, the SCs assumed the main difficulties of their function, and the need to *"improve the attitude, be more involved with teammates and give more attention to the game than to the final result"* (SC1, informal interview, lesson 6, April).

These gaps were also perceived by students and PSTs. The students pointed out the SC's lack of interest as one of the aspects to improve, mainly because, as explained Cate, "with the SC we do less because he doesn't care much about what we're doing" (students' focus group 1, April). The PSTs noticed that "*when the captain is a player (in the modality) the results are worst due to the SC' arrogance in being better than the others"* (PST 3, PSTs' focus group 1, April),

Based on these findings, the PSTs recognized that they were "*not taking full advantage of the SCs' potential, mainly because (I) never gave them specific goals. (I) just told them that they were SCs and (I) assumed from then on that they realized the role that was inherent in that title*" (PST 1, PSTs' focus group 1, April). Consequently, framing the difficulties noted in the SCs role, during the focus group, with the facilitator's help, were developed strategies to empower and support the SCs to overcome the difficulties pointed out.

For the first AR-cycle, it was defined that the PST should improve their communication with the SCs. This strategy attempted to provide detailed information about what was intended with the role of SCs and to empower them and reinforce their confidence. As a direct communication strategy was created

the *pre-lesson meeting* in which the PSTs transmitted to SCs explicit information about the responsibilities and goals of their role and relevant details for the lesson. Besides, PST's adopted indirect communication strategies during the lessons, namely face expressions, body language, and the use of touch to establish confidence, and support the SCs' performance, and encourage them to interact with their teammates or when they were not engaged enough. The following excerpts, resulting from the focus group with the PSTs, reveal their understanding of these communication strategies and how PSTs will operationalize them.

> PST 2: "*I will say to the SCs: "I know you are good, and you know how to do it, and if I ask you to do 10 times you will get it right. But what I really want you to do is to get your teammates to get it 5 and 10."* (PSTs' focus group 1, April).

> PST 1: "*I will use non-verbal communication to let them (SCs) know that I am attentive and available to help them (SCs) with whatever they (SCs) need ... to give them (SCs) confidence and also not to be sloppy. I believe that a tap on the shoulder, a positive look or a sign has as much or more strength than a word."* (PSTs' focus group 1, April).

Another strategy adopted to empower the SCs in this AR-cycle was to promote their social recognition. In this sense, SCs were *"identified with a "C" on sticky paper to put on their shirt, to see if they feel they have an important and prominent role in the team."* (PST 1, PSTs' focus group 1, April).

In addition, an accountability strategy implemented by PST was the establishment of specific criteria to assess the performance of SCs. Specifically, a scoring system was created that punctuated the SCs whenever they interacted and supported their teammates. The SC's score contributed to each team's total score.

> PST 2: *"I explained to the SCs, at the beginning of the class, what was going to score. I told them that they had 3 goals for this class: to*

encourage teammates, help and guide them during the game. During the lesson, I was going to point out their attitude as SCs... They were more intervened and assumed themselves more as leaders and responsible for the team." (PST field note, lesson 8, April).

The strategies defined by the facilitator and the PST were well perceived by the SCs, as reflected in the following excerpts of the students' focus group:

SC2: "*She made it clear (at the pre-lesson meeting) what we had to do as SCs. Our main goal is to support our teammates, interact with them, encourage them to try harder […] and then I noticed that the teacher was walking around the class to see if I was doing it or not [...] she even winked! It was because I was doing what was intended."* (Students' focus group 1, April)

SC3: "*From the conversation we had with the Teacher (PST) before the lesson I realized that he recognizes my value ... he chose us because he knows that we can interact with them (teammates), we know how to talk and so we can make them (teammates) improve."* (Students' focus group 1, April)

When asked about their perceptions about the implemented strategies, SC1 reinforced that "*the "C" sticker was a nice idea because I felt that I had an important role and that the teacher (PST) trusted me to do it."* (students' focus group 1, April), and SC4 commented that "*I don't think it is necessary to speak to show us his (PST) support. He (PST) sometimes slaps us on the back as if to say: "Good, that's right!"*" (students' focus group 1, April).

The strategies implemented proved to be crucial for SCs to assume their role effectively and improve their intervention with teammates. They realized the impact of the strategies implemented, having mentioned that they started to *"pay more attention and help to (my) teammates, and encouraged them more"* (SC2, students' focus group 1, April) and felt more motivated and engaged because *"(I)*

realized that (I) have an important role in the team and the lesson." (SC5, students' focus group 1, April).

PSTs noted considerable improvements in the attitude of SCs, specifically because they effectively assumed their role. The following excerpts are evidence of the results obtained with the implementation of the strategies mentioned above:

> PST 1: "*After speaking with the SCs about their roles, it was the class in which they were truly SCs because they played their role very well. They helped their teammates, provided more positive feedback, mainly during the game… I told them specifically what I was going to see and that I would be very attentive to their performance. They did it!"* (PSTs' focus group 2, April)
> PST 3: "*After talking to the SCs, I saw them concerned with helping those who were failing, encouraging them to do better, and were not so concerned with the game's score… they also started to help in other lessons, even though they were not SCs*." (PSTs' focus group 2, April)

Despite the improvements in the SCs' interaction and intervention with their teammates, there was evidence that their feedback was essentially motivational or related to the task's organization. They were experiencing difficulties in providing adequate feedback to help their teammates to overcome some performance issues, even more evident with less-skilled students. It became clear to the teacher of the need to develop new strategies to support the SCs intervention with the less skilled teammates:

> The SC's positive and enthusiastic attitude towards their teammates stands out. They are truly concerned with encouraging them and giving them confidence. But they don't seem to identify some inaccuracies in their performance ... or even don't know how to help them. […] They are not tolerant with less-skilled teammates, (e.g., some girls who "try very little and play a lot"). In fact, they are not

engaged and have a lot of difficulties doing some exercises and the SCs are not helping them. (participant observation, lesson 11, April)

Table 3. Strategies of the first AR-cycle.

Need	Strategies
Assumption of the SC's role	*Direct and indirect communication* - Explicit information about responsibilities and goals of the SC's role. - Face expressions, body language, and the use of touch *Social recognition of the SC* - SCs´visual identification - SCs' intervention score.

2nd AR-Cycle – Balancing the intervention with the high- and less-skilled students

During AR-cycle one, the SCs began to understand the responsibility implicit in their role and felt empowered to assume a more active role in interacting and intervening with their teammates. However, weaknesses were detected in the SCs´ intervention, specifically in the difficulty of intervening timely and effectively with teammates with greater difficulties. Their teammates went further, and Kate commented: "*I don't always work hard for it, but the fact that he (SC) is upset about it won't help [...] it would be different if he helped me*." (informal interview, lesson 11, April). In its turn Tom added that "*He (SC) sometimes walks by and says nothing to me, even though he sees that I cannot do the exercise well."* (informal interview, lesson 12, April).

The SCs assumed that they had difficulty dealing with the team's failure and the lack of commitment of some of their teammates. SC1 admitted that "*When I see that they are not giving their best in the game, I am a bit rough ... if it is a player who does not strive, I do not react well."* (students' focus group 2, May).

Besides, they did not always feel confident that the support they were giving to their teammates was the most adequate. As SC 6 referred: *"It is easier to help Kevin (high-skilled teammate) […] the problem is that sometimes I'm not*

sure what to say to help my teammates with more difficulties" (students' informal interview, lesson 12, April).

In the focus group the PSTs acknowledge that they "*expected the SCs to be able to solve everything on his own, but then (I) realized that they needed (my) help"* (PSTs' focus group 2, May). For this second AR-cycle, the strategies developed with the facilitator's support sought to address these SCs' constraints, namely empowering them to empower their less-skilled teammates, promote inclusion, cooperation, and fair-play.

As a first step, in the *pre-lesson meeting,* the PSTs asked the SCs for greater support from the less qualified teammates, stimulating them to struggle to succeed in the game. This support aimed to empower teammates, giving them the confidence to do better, giving them more prominence and meaning to participate in the tasks, as expressed by all PSTs:

> PST 1: *"I talked with him (SC) and tried to call him to reason. Saying that he was one of the best and most capable in the class, and what he had to do in these circumstances is to help others do better and not always be complaining about the injustices that happened in the game."* (PSTs' focus group 2, May)
> PST 2: "*I asked SCs to give more prominence to the less skilled (teammates) so that they feel confident and empowered and increase the meaning they attach to what they are doing.*" (PSTs' focus group 2, May)
> PST 3: *"I appealed for these students (less skilled) to be given a greater role, so they could feel that they were being supported by the SC and felt more confident and motivated."* (PSTs' focus group 2, May)

Given the difficulty pointed out by SCs to intervene correctly with the less-skilled teammates, the PSTs and the facilitator considered there was a need to give in-task support to SCs. That is, PSTs provided information to SCs about the most appropriate way to solve a certain problem, or the key points of the task, whenever they felt some difficulty, for instance: *"look, he is doing that wrong, go*

there and tell him to correct this, this way". Instead of being the SC to tell the teammate, I help the SC." (PST 2, PSTs' focus group 2, May)

Another strategy developed with the facilitator´ help was to score the SC's true praise for the less skilled students, as well as the fair play. Scoring "*the genuine compliment to teammates with greater difficulties will increase their loyalty to the task"* (PST 1, focus group 2, May). In turn, scoring fair play will allow to reduce the contribution of the game's result to the team's final score. Consequently, the SCs must change their critical attitude towards teammates' failures, and start to help them, encourage them to improve, and value small achievements.

The following extracts provide examples from the SCs' perceptions about the effectiveness of these strategies:

> SC1: *"The worst thing about being a captain is that I wasn't a "big deal" in basketball ... when I didn't know, the teacher (PST) spoke to me separately and helped me."* (students' focus group 2, May)
> SC6: *"The fact that there was a score for fair play ended up helping me to forget the result of the game and think that we would all win if I helped them in what they needed to improve."* (students' focus group 2, May)
> SC3: *"I got the feeling that because they realized that I was attentive to what they were doing, it made them feel happy and do the task more often."* (students' focus group 2, May)

The strategies implemented in this AR-cycle aimed to improve the SCs intervention and reinforce their role vis-à-vis their teammates, which proved to be decisive interventions to increase the SCs' confidence:

> PST 3: *"Sometimes I called the student and the SC and said to both of them: "The SC will explain to you how you have to do" […] by the assertive way he explained to his teammate how he could improve, I*

noticed that he (SC) felt empowered by the fact that I adopted this strategy." (PSTs' focus group 3, May)

PST 1: *"When he didn't pay attention to a certain move that someone was doing wrong, if I told him, and he told the team, the team recognized him as capable."* (PSTs' focus group 3, May)

The impact of these strategies was also perceived by the less-skilled students. They highlighted the importance that SCs have in motivating them to try and not give up. As reported in the following excerpts, they value someone who is not just concerned with pointing out what is wrong but gives them confidence and encouragement to keep trying and improving. Comments included:

Andy: *"At first, I didn't do it very well, but then the SC started to help me by giving some tips. I felt good. With what he said, I was able to do it. It was important!"* (informal interview, lesson 16, May)

Kate: *"I noticed that SC is different with me. He is attentive and less grumpy [...] he gave me tips on how to get a better pass, and it worked [...] now, the points are not just for the result of the game, and he (SC) is no longer upset when I fail."* (informal interview, lesson 16, May)

As Mary explained: "*If SCs are aware of mistakes, I also want them to tell me that I did well ... I will feel better, fulfilled, more confident. If they recognize what I do well I will try to do it for myself next time, I will give more value to what I am doing.*" (informal interview, lesson 15, May). Their teammates reinforce the importance of having feedback from their SC because make them "*give more importance to the task… more meaning and work harder*!" (Claire, informal interview, lesson 15, May)

Nonetheless, after another round of observations, the facilitator realized that "*SCs turn to the PSTs several times to decide basic things about their team, such as, for instance, adjusting the exercise of teammates who are unable to meet the goal*" (participant observation, lesson 17, May). Furthermore, *"it is noticeable that*

they essentially resort to feedback focused on the result of the task [...] and do not verify the effect of their issued feedback" (participant observation, lesson 18, May)

SCs were unable to modify tasks when necessary, even when in simple acquisition tasks, and to provide feedback with substantive content, as well as to comply with the feedback cycle.

Table 4. Strategies of the second AR-cycle.

Need	Strategies
Effective intervention with less skilled students	- In-task support. - Specific score for fair-play. - Specific score to the SCs' genuine praise to the less skilled teammates.

3rd AR-Cycle – Improving the SC's specific content knowledge

In the previous cycle, the SCs struggled with modifying tasks in order to adjust them to the performance of their teammates, namely the less-skilled students. The tasks needed to be changed so that it became more accessible to students with more difficulties, but SCs were unable to do it, as seen in the following example:

> Facilitator: *"It seemed to me that Cindy couldn't do the service (volleyball) and that was compromising the game. Could you have allowed her to do it differently?"*
> SC2: "*I tried to help her correct the movement, but the ball did not pass through the net."*
> Facilitator: "*What if you allowed her to start with pass?"*
> SC2: *"Humm…OK…I didn't think about it."* (informal interview, lesson 18, May)

Furthermore, the facilitator' suggestions, pointed out by the participant observation, and the PSTs' critical notes referred to the need to *"increase the students' ability to provide feedback"* (PST 1, PST field note, lesson 17). Although

SCs have shown that were able to provide feedback (sometimes with the PST support), the PSTs also noted that they relied predominantly on evaluative and descriptive feedback, such as "*Good!"; "It's not like that!*" (PST 3, PSTs' focus group 3, May), or "*tell them that it is not right and describes what they are doing wrong."* (PST 1, PSTs' focus group 3, May).

Of the few times that they resorted to prescriptive feedback, they were failing to comply with the feedback cycle, and just "*show the error and then show how it is done well*" (informal interview, lesson 18, May). SCs were "*not careful to check whether or not it (the feedback) had the desired effect"* (participant observation, lesson 18, May), as highlighted by the following excerpt:

> SC 5: *"I am concerned with telling them what they need to do to be able to do it well."*
> Facilitator: *"And then?"*
> SC5: *"Then? That's it"* (informal interview, lesson 18, May)

In light of this, the facilitator and PSTs specifically targeted to provide SCs with strategies that encourage them to adapt tasks to allow all students to succeed and improve the SCs' ability to vary and verify the emission of feedback better support their teammates.

The *pre-lesson meeting* focused on briefing SCs on the importance of modifying tasks whenever they considered necessary and diversifying their interventions with teammates through different types of feedback (evaluative, prescriptive, descriptive, or interrogative), their greater or lesser cognitive implications, and the importance to verify if the feedback was effective.

To reinforce the SCs' confidence in modifying tasks, the facilitator and the PSTs created the modification task cards. These cards presented options of different levels of task difficulty and suggestions for modifications. The suggested modifications could be by representation, allowing success in the task (e.g., court dimensions, number of players), or exaggeration, focusing attention on a critical task component (e.g., double score an intended action). It was SCs' responsibility to decide which task best suited their team. The following excerpt express this idea:

PST 2: *"The SCs could make changes to the exercises ... modeling, rules adaptation, change positions, distribute functions ... sometimes, they didn't remember these possibilities, and I called their attention to the task card. They applied according to the circumstances."* (PSTs' field note, lesson 20, May)

Further, it was also developed the feedback cards with examples of different types of feedback to assist the intervention of the SCs during the lesson. On each card, an image appealed to the fulfillment of the feedback cycle, highlighting the importance of checking if the feedback had corresponded to the teammate's need or it would be necessary to issue different feedback.

PST 2: *"The cards had phrases and images so that SCs could quickly think of alternative feedback. For example, one of the phrases was: "why do you think you are failing?" Or "What should you do in this situation?". Were Accompanied by an image of a question mark, appealing to questioning, and with the image of a cycle, appealing to the cycle of feedback."* (PSTs' focus group 4, June).

The fact that SCs realized that they had the possibility to modify the tasks, it was enough to *"gave me that feeling of leader and that I can make a difference"* (informal interview, lesson 22, May), empowering and motivating them, as expressed by the SC4, *"since we started to successfully adapt the task to our teammates the teacher (PST) was relaxed, showing that he trusted us and that we knew what we were doing."* (Informal interview, lesson 22, May).

The results of these strategies included increases in the confidence, motivation, and enthusiasm of SCs and their teammates, as reflected in the following excerpt:

SC2: "*I modified one of the exercises with the suggestion I had on the card, and it worked! In the most competitive part, I did not use only*

quantitative criteria but added qualitative criteria in the pass execution. I was proud of myself because I noticed that they were more committed and enthusiastic when making this modification, and more importantly, they were successful." (students' focus group 3, May)

Concerning the feedback cards, SCs valued the strategy once it "*had helped a lot to not tell them right away that was wrong […] Just having it (feedback card) in the pocket already made (me) think that is important to explain how to and wait to see the result*" (students' focus group 3, May). Besides, SCs recognized that "*using questioning encouraged them (teammates) thinking about the solutions and about their own difficulties*" (SC 2, students' focus group 3, May).

The PSTs also highlighted the effectiveness of the implemented strategies, with increases in the SCs' specific content knowledge, noticing that "*most SCs already change exercises without looking at the card"*. (PST 2, PST field note, lesson 23) and that SCs "*didn't depend on me (PST) so much and* things *were flowing much more*" (PST 1, PSTs' focus group 4, June).

It was evident that SCs became responsible to modify and adapt tasks, and to vary the feedback, without depending on the PST. The following excerpts from the PSTs express these ideas:

PST 2: "*The feedback cards were a success. I was careful to tell them not to overdo it. Try to adapt to the colleague and vary. At one point, they didn't even need to look at the card anymore […] There were times that I thought I didn't need to be there*." (PSTs' focus group 4, June)

PST 3: "*At first, I saw that they were always looking at the feedback card. But they realized the relevance of each type of feedback and varied the feedbacks they gave to teammates.*" (PSTs' focus group 4, June)

The students were not indifferent to the SCs intervention changes, having considered it to be *"a more interesting and challenging way to help and correct us"* (Mary – students' focus group 3, May). They also perceived increases in their cognitive involvement, and consequently in their engagement and motivation, as suggested in the following excerpts:

> Tom: "*I realized that he (SC) has changed. Now, first, he tells us that something is wrong, so we have to think why. I think it makes us think. Now we are the ones to discover the solution*." (informal interview, lesson 22, May)
> Francis: "*Yes, I feel more motivated when he (SC) questions me. It looks like a test; he (SC) wants to see if I know what the error is. It helps me to be aware of what I need to correct*." (informal interview, lesson 22, June)

The compliance of the feedback cycle by SCs did not go unnoticed by their peers. They commented that their SC "*act like the teacher (PST) when we're in the game. He corrects us and if we still can't do it, tell us to do it another way. It's like the teacher (PST) is always there to see what we're doing…It makes a difference... I am more motivated and work harder.*" (Mary, students' focus group 3, May)

Table 5. Strategies of the third AR-cycle.

Need	Strategies
Improve the SC's specific content knowledge	- Task cards. - Feedback cards.

Discussion and conclusions

Through an action-research intervention within a SE season, this study analyzed the impact of the strategies used by preservice teachers to increase

student coaches' empowerment. The results demonstrated that the implementation of specific strategies proved to be crucial to the SCs' empowerment, particularly in assuming their role, in their intervention with less-skilled students, and their specific content knowledge.

In the first AR-cycle, SCs experienced difficulties in assuming their role, failing to involve, intervene with, and support their teams, as well as in managing their own behavior and those of their teammates. The PSTs' use of direct and indirect communication strategies was essential to establish confidence and support SC's performance, and encourage them or interact with their teammates. Particularly, the PSTs denoted proficiency in using affective tools, such as touch, body language, and facial expressions, to make SCs felt more confident, engaged, and empowered in their role. Several studies have recognized the positive affective connection between teacher and student in order to enhance their motivation, confidence, and, consequently, engagement (Jung & Chio, 2014; Mesquita et al., 2015; Vidoni & Ward, 2009). The social recognition of SCs was also a successful strategy to empower SCs, highlighting their identification and distinguishing their role positively before teammates. As stated by Grimminger (2013), social validation is linked to students' competence to fulfill the instructed tasks and the expectations that are addressed to them. To be recognized as a competent member of the team to develop their role is essential for SCs to be accepted by their teammates and to assume their role effectively, even more in secondary PE environments (Wallhead, 2017). In addition, the scoring system created to punctuate the SCs allowed increments in their interaction and support to their teammates. As noted by Doyle (1983) students tend to take tasks more seriously when tasks are accountable. The accountability systems refer to being held responsible and answerable for a specific outcome or result of an activity over which they have control. In their study, Lund and Shanklin (2011) found that students improved their performance when they were informed in advance about the teacher's expectations and then held accountable for meeting them. Prior research developed within a SE experience also has shown the effectiveness of the accountability systems, revealing high levels of student involvement in requested tasks due to the support of accountability systems (Hastie, 2000).

The second AR-cycle identified weaknesses in the SCs´ intervention with teammates with greater difficulties. Consequently, three strategies were introduced: in-task support, scoring praise, and fair-play. In addition to these strategies, a pre-lesson meeting was created in this cycle, continuing through the next cycle as it proved to be effective in reinforcing relevant information about the strategies to be implemented in this class, as well as raising awareness of the difficulties that have been found in SCs role. During the in-task support, the PSTs helped SCs to solve problems whenever they felt some difficulty or provide them the key points of the task. The findings are in line with previous research, which reinforced that, without support, SCs may struggle to effectively and appropriately intervene with less-skilled teammates (Farias, Mesquita, Hastie, Araújo, & Santos, 2013; Wallhead & O'Sullivan, 2007), but with the support of an informed teacher, SCs can meet the expectations of their intervention. The score attributed to the SCs for directing true praise to the less-skilled teammates proved to be quite positive, promoting an encouraging interaction with the teammates. In its turn, the accountability system for fair-play reinforced the educative values of the sport experience in the SE season (Siedentop et al., 2020), reducing the contribution of the game's result to decide the season champions, which helped SCs to support and encourage their less-skilled teammates to improve and value small achievements. The studies of Mowling, Brock, and Hastie (2006) and Brock and Hastie (2007) reinforced the importance of implementing fair-play accountability systems, since their studies results pointed, respectively, to an overvaluation of the result of the game, as well as the unequal participation of the least skilled teammates to guarantee a good result in the game. Both implemented accountability systems proved to be an effective strategy to increase the SCs' skills and confidence to act.

The third AR-cycle sought to enable SCs to modify tasks according to the performance of their teammates, provide feedback that is not only positive, and comply with the feedback cycle. Some researchers have suggested that SCs tend to lack specialized content knowledge, considered to identify errors affecting students' gameplay and modify learning tasks to become appropriate to all teammates (Wallhead & O'Sullivan, 2007). The use of task-cards with suggestions for modifying tasks and cards with different types of feedback and

an image referring to the feedback cycle promoted improvements in the SCs' specific content knowledge. A similar impact of this strategy has already been noted in Araújo et al. (2017) study, in which SCs showed that had progressed from using more prescriptive feedback during initial lessons to the greater use of questioning at the end of the SE season, and developed the ability to modify tasks by representation and exaggeration.

The strategies implemented over the three cycles proved to be adequate and efficient to overcome the difficulties identified in the role of SCs. Therefore, it is possible to conclude from the analysis of the results that the role played by the SCs has evolved positively throughout the SE season, managing to respond to the challenges with which they were debating. It should be noted that the results achieved were always perceived by the different actors in this intervention, namely, PSTs, SCs, and teammates.

Regarding the PSTs, in this study it was possible to notice some gaps in their practice within SE, particularly in the SCs role. The PSTs revealed difficulties in developing strategies to improve the SCs' intervention. These PSTs' instructional difficulties, resulting from a lack of model-specific pedagogical content knowledge have already been mentioned in the literature (Silva, Farias, & Mesquita, 2021; Ward & Ayvazo, 2016). The collaborative work developed with the facilitator to identify the gaps and respective strategies to overcome them, was fundamental to surpass the difficulties experienced by the PSTs. These findings align with Curtner-Smith's (2012) recommendations for Physical Education Teacher Education (PETE) programs to train their PSTs to use SE effectively. The author highlights the relevance of the PSTs, in their first experience teaching SE, to be supervised and supported by teachers familiar with the SE, benefiting the learning experience, the PSTs' learning, and the possibility of using the SE in the future.

This study was developed during a short-term school placement period. To allow an increased time for PSTs enhanced professional development, we suggest that future research consider studies with more extended length. Furthermore, to assess the persistent effects of the competencies developed with PSTs and SCs, longitudinal follow-up studies would be of interest. Another limitation is that only three PSTs and their 10-grade classes participated in the

current study. Continued research with larger and diverse samples is suggested for future studies to strengthen and generalize the findings.

Considering the relevance attributed to the role of SCs for the success of an SE experience (Siedentop et al., 2020), and the challenges faced by PSTs in implementing a SE season (Silva et al., 2021), it is relevant to integrate explicitly, in the PETE programs, training opportunities to develop strategies to improve SC's role and assure the Curtner-Smith (2012) recommendations of having an experienced teacher in SE supporting their early field experience.

This study highlighted the need to better prepare SCs, as the strategies implemented by the PSTs proved to be crucial for improving the development of their central role to a successful experience within SE. It also provided opportunities for PSTs to gain valuable insights about themself as teachers and to realize the quality of the instruction received in the PETE program regarding a SE model implementation.

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CHAPTER IV – Concluding Remarks

4.1 General discussion of the main findings

It is indisputable that the development of students' personal and social skills is a widely accepted goal of PE and sports worldwide, and that PE has favorable conditions for achieving it. However, simply participating in PE and sports does not automatically lead to positive outcomes (Bailey et al., 2009; Cryan & Martinek, 2017; Fraser-Thomas & Côté, 2009). For this reason, the general purpose of this thesis was to analyze the students' perceptions of the impact of two different teaching approaches (SE and TT) on developing personal and social skills that are central to a student's integral education, namely: engagement, empowerment, personal and social responsibility, and self-confidence. The specific objectives included examining the performance of preservice teachers during the units/seasons and identifying the strategies they used to empower student-coaches within a SE season.

Overview of main findings

CHAPTER II – Systematic reviews

The first systematic review described prior research on students' development of personal and social competencies when participating in PE classes, within a SE experience. This systematic review showed that the most frequently studied personal and social variables were those that are transversally considered to be crucial for PE learning in all teaching approaches (e.g., enjoyment, motivation or enthusiasm). This was followed by more specific variables strongly associated with SE, due to its own pedagogical structure and principles (e.g., affiliation, cooperation, or autonomy). A synthesis of results highlighted the positive impact of the SE on students' personal and social development and the preponderance of qualitative and non-experimental designs, as well as the lack of model fidelity in SE seasons with less than 20 lessons. Based on these limitations, it was argued that researchers should consider conducting more quantitative studies with experimental designs, longer

units, and the model fidelity report, as they might provide more robust, objective, and generalizable findings.

Findings of the second systematic review revealed that studies comparing the influence of SE and TT on students' learning outcomes have typically focused on the differences between models on the enhancement of personal and social skills, and on motor and cognitive development. This review also reinforced the lack of fidelity of the models and the non-conformity of the length of the SE season with that established in the literature. Additionally, results revealed that most prior studies comprised samples with experienced teachers as instructors, suggesting the need to develop studies with preservice teachers.

CHAPTER III – Empirical studies

Based on the findings and recommendations of the systematic reviews, two empirical studies (paper 3 and 4) were conducted to examine and compare the effects of two different teaching approaches (TT and SE), taught by preservice teachers, on student responsibility, engagement, empowerment, and self-confidence in high school Physical Education classes. These studies adopted a quantitative approach with a quasi-experimental design, fulfilled the recommended length for a SE season, and reported on the models' fidelity. Because research indicates that preservice teachers experience some difficulties in applying different teaching models (Curtner-Smith, Hastie, & Kinchin, 2008; Kinchin, Penney, & Clarke, 2005), the third empirical study (paper 5) adopted an AR-design with the aim to support preservice teachers in empowering the student-coaches within a SE season. The collaborative, cyclical, and interventionist nature of the AR-design allows for continuous and contextualized data collection and analysis, as well as a reflection about the preservice teachers practice and SC's needs which, in turn, helped to guide the preservice teachers' intervention as it progressed.

(i) TT and SE' impact on students' perceptions of responsibility and engagement.

The first empirical study aimed to analyze and compare the effects of TT and SE on students' responsibility and engagement within PE lessons. The study showed that SE, when compared to a TT approach, provides greater improvements in students' personal and social responsibility, but not differences in students' engagement. Specifically, the results suggested that while a SE season provided significant enhancements in students' personal and social responsibility. Otherwise, the participation in a TT unit decreased the students' personal responsibility. Concerning engagement, it was noteworthy that in the TT condition the students' perception of engagement decreased from pre- to post-test (although not significantly) but increased significantly for the SE condition.

The main implication of the study findings was that SE features are key for increasing levels of personal and social responsibility in students. Specifically, working in small groups as a team, the appreciation of fair play, and allowing students the autonomy to develop different roles, make decisions and solve problems seem to have contributed to achieving superior results.

One explanation for the absence of differences in engagement is that for both models, students had the chance to achieve high levels of engagement. In the TT unit, this was facilitated by the teacher-directed engagement patterns for students, where students just needed to follow the teacher commands and repeat the tasks. In the SE season, this was facilitated by the students' involvement in different tasks during class time, such as practicing, officiating, and coaching, etc. However, the lack of significant improvements in the development of SE students' confidence (an engagement sub-scale) might also have been due to the fact that the instructor was a PST.

This study corroborates findings of prior research that suggest the features of SE have a fundamental role in the development of students' personal and social responsibility (Browne, Carlson, & Hastie, 2004; Hastie & Buchanan, 2000; Romar, Sarén, & Hastie, 2016) and engagement (García-López, Gutiérrez, Gonzalez-Víllora, & Valero Valenzuela, 2012; Menickelli & Hastie, 2014; Wahl-Alexander, Curtner-Smith, & Sinelnikov, 2016). Moreover, the findings of this empirical study (i) suggested that preservice teachers who taught SE were able

to create favorable conditions for the development of personal and social responsibility, only struggling with the development of students' confidence, and (ii) provided support for SE as a viable option for providing students with new experiences, and as a feasible teaching model for teachers to promote personal and social responsibility and engagement in PE.

(ii) TT and SE' impact on students' perceptions of empowerment and self-confidence.

The objective of the second empirical study was to examine and compare the effects of two different instructional models (SE and TT), implemented by preservice teachers, on students' empowerment and self-confidence in high school PE classes. The main finding of this study was that only SE preservice teachers were effective in improving high school students' empowerment and self-confidence. Specifically, while in the SE group the students exhibited significant improvements in their empowerment and self-confidence levels. However, in the TT group, students' levels decreased over time, although this decrease was not statistically significant.

Several explanations are possible for the decreases within the TT unit. Firstly, these decreases might be partly associated with the initially high level of student motivation (Spittle & Byrne, 2009) and the TT unit's extended length. Specifically, students may have become demotivated if they did not have a positive and successful experience, thus compromising their sense of empowerment and self-confidence. This negative effect may have been notable considering that students experienced a TT unit, of the same sport, with a longer unit than usual for this type of approach.

A second explanation was that the students' passive and reproductive behavior within the TT unit, with little space to make decisions or solve problems, and the fact that students had previously experienced the SE model, may have led students to perceive fewer opportunities to develop empowerment and self-confidence.

Third, it was suggested that the empowerment results might have influenced the self-confidence results. Specifically, if students did not feel empowered within the TT unit, they had probably also lost their self-confidence.

Concerning the increments observed across the SE season, the strategies used during the SE season, such as the possibility for students to assume certain roles and responsibilities, the opportunity to have some degree of control over their learning process and the opportunities to solve problems and make decisions, seem to have been responsible for increasing students' self-esteem and self-confidence, and for reinforcing their sense of empowerment.

Similar results have been reported in previous research on the SE model. This includes highlighting the favorable learning environment, the different roles played by students, and the opportunity to solve problems and make decisions as key elements for promoting students' empowerment and self-confidence. (Ang & Penney, 2013; Gil-Arias, Harvey, Cárceles, Práxedes, & Del Villar, 2017; MacPhail, Kirk, & Kinchin, 2004).

The results of this empirical study reinforced (i) the efficacy of the preservice teachers in creating favorable conditions for the development of empowerment and self-confidence within a SE experience, and (ii) the adequacy of SE as a curricular model to be used by teachers in PE, particularly for the development of students' empowerment and self-confidence.

Both empirical studies indicated (i) that there were significant differences between groups (TT and SE) in students' perceptions of responsibility, empowerment, and self-confidence, (ii) that participation in the SE season significantly improved all studied variables, and (iii) that students' perceptions of responsibility, empowerment, and self-confidence decreased over time in the TT unit, albeit not significantly. These observed differences in impact of each model (SE and TT) might, in large part, be due to the structure, features and objectives of the SE model.

Despite being statistically significant, the magnitudes of the positive effects for SE seasons in both studies were only small-to-moderate. This may be because the implementation of any student-centered model, specifically the SE, is particularly challenging, requiring great preparation and workload for a teacher to be comfortable and effective (Dyson, Griffin, & Hastie, 2004; Ellis, Alonzo, & Nguyen, 2020). Indeed, more than simply knowing "about the model", teachers need to understand "how the model works" (Glotova & Hastie, 2014).

(iii) Pedagogical strategies to empower student-coaches within a SE season.

Although the empirical studies results suggested the effectiveness of the PETE program attended by preservice teachers, the third empirical study (paper 5) indicated that there are issues with how preservice teachers prepare student-coaches, which can interfere in obtaining more optimal results in the SE seasons.

The purpose of the third empirical study was to analyze the impact of applying specific pedagogical strategies to increase student-coaches' empowerment, by preservice teachers within a SE season, using an action research methodology. The results of this study shows the value of specific pedagogical strategies for empowering student-coaches; that is, to help them assume their role, improve their intervention with less qualified students, and increase their specific content knowledge.

The preservice teachers' use of direct and indirect communication strategies (such as touch, body language, and facial expressions) was essential for establishing confidence and supporting SC's performance, and for encourage SC's to interact with their teammates (Mesquita et al., 2015). Social recognition was also a successful strategy for empowering student-coaches, highlighting their identification and distinguishing their role positively before teammates (Grimminger, 2013; Wallhead, 2017).

In addition, accountability systems were implemented in order to enhance (i) student-coaches' interactions with, and support for, their teammates, (ii) student-coaches' true praise to the less-skilled teammates, and (iii) students' fair-play. These systems reduced the contribution of the game's result in deciding the season champions, which helped student-coaches to support and encourage their less-skilled teammates to improve and value small achievements (Brock & Hastie, 2007).

Another effective strategy introduced in this study was the in-task support, which involved preservice teachers helping student-coaches solve problems whenever they experienced difficulty and providing them the key points of the task (Farias, Mesquita, Hastie, Araújo, & Santos, 2013). The use of task-cards with suggestions for modifying tasks, and cards with different types of feedback and an image referring to the feedback cycle, proved to be an effective strategy

for improving the student-coaches' specific content knowledge (Araújo, Hastie, Bessa, & Mesquita, 2017).

The collaborative work developed in this action-research study provided opportunities for preservice teachers to identify some of their difficulties in a SE implementation and to gain valuable insights about themselves as teachers. The adaptive development of the student-coaches was perceived by the different actors in this intervention, the preservice teachers, student-coaches, and teammates, which supports the conclusion that the strategies implemented were adequate and effective. The results highlighted the need to better prepare student-coaches, as the strategies implemented by the preservice teachers proved to be crucial for improving the development of their central role within SE.

Most research on preservice teachers experiences of teaching SE have reported struggles and challenges with SE features or problems in encouraging students to work (Farias, Hastie, & Mesquita, 2018; Wallhead & O'Sullivan, 2007; McCaughtry, Sofo, Rovegno, & Curtner-Smith, 2004; McMahon & MacPhail, 2007). Although, the findings of this dissertation's empirical studies suggest that preservice teachers who taught SE were able to create favorable conditions for the development of the studied variables (personal and social responsibility, engagement, empowerment and self-confidence). We believe that the support of a SE specialist through the action-research study favored the preservice teachers' understanding, beliefs, and confidence about SE, and added richness and depth to the preservice teachers learning process.

Studies strengths

It is worth highlighting some of the strengths of empirical articles 1 and 2: (i) the large samples representing different schools, (ii) the measurement of the teacher fidelity to teach each of the models (Hastie & Casey, 2014), and (iii) the fulfillment of the recommended length for a high school SE season (Siedentop, Hastie, & van der Mars, 2020). These factors contribute significantly to the robustness of the study results, reinforcing the validity of the information provided to teachers' practice.

While the length of the seasons/units ensured that the practice extended for longer periods to allow for more meaningful experiences, thus fulfilling a feature of the SE, it may not have been advantageous for the traditional approach. Indeed, TT units rarely spend so much time on a single sport because it can trigger demotivation in students, especially if it proves to be an experience with less success in fulfilling the proposed tasks.

Regarding the fidelity of model implementation, this dissertation's empirical studies address a limitation in the literature highlighted by several authors (Kloeppel, Kullina, Stylianou, & Van der Mars, 2013; O'Donnell, 2008). The assessment of the models' fidelity enabled a precise and complete understanding of the studies' results, reinforcing its value and validity (Hastie & Casey, 2014).

The comparison of teaching models

Although SE was found to be crucial for meeting the educational requirements of the students in this study, and clearly beneficial compared to TT, the study did not have the aim to favor one model in detriment of the other. On the contrary, we defend a broader perspective in which the integrated use of each model's strengths can help solve the unpredictable challenges inherent to the teaching-learning process. It is noteworthy that TT has some benefits and, therefore, the notion that it shouldn't be implemented needs to be clarified. Models should be understood as pedagogical tools at the service of learning. We must, therefore, counter the "one-size-fits-all" approach as the idiosyncratic nature of contexts, students, and teaching content requires the integrated use of formal and/or informal strategies (Hastie & Mesquita, 2016). Relativistic perspectives, in which multiple possibilities complement each other and are appropriate to the particular stage of students learning, must be adopted over absolutist ones (Entwistle & Entwistle, 1991). In fact, we must not forget that in its assumptions about teaching, SE considers resorting to a combination of strategies capable of facilitating the different learning goals, particularly to direct instruction (Metzler, 2017). It is also worth emphasizing that the pedagogical approach used by a teacher can be more effective than a good model (Rink, 1993). Indeed, independent of the teaching approach, a teacher should have pedagogical competencies for class management, discipline, climate, or

instruction, and thus be able to use different strategies that enable him/her to respond appropriately to students' current needs (Casey, MacPhail, Larsson, & Quennerstedt, 2020).

4.2 Limitations and suggestions for future research

This dissertation suggests that SE in PE classes is suitable for developing students' personal and social competencies and for addressing some issues identified in the literature. However, the research in this dissertation is not without its own limitations.

The implementation of teaching approaches in the educational context implies resorting to existing classes. For this reason, is difficult to randomly assign the students to groups, which can be considered a limitation of the design. Future studies might consider developing experimental studies because randomly assigning students to experimental and comparison conditions provides greater certainty that differences between groups on outcome measures result from the intervention (Check & Schutt, 2012).

Another limitation specific to empirical articles one and two is the "teacher effect" that emerges because each class has a different teacher. To reduce this "teacher effect", which can occur when different teachers teach different instructional approaches (Browne et al., 2004), future research must use the same teacher in the same grade to teach all the groups.

From the results of the systematic reviews, we concluded that most research on SE, or comparing TT and SE, has focused on high- and middle-school students. Despite the difficulties of implementing SE at the earliest grade levels (Layne & Hastie, 2016), research has suggested the potential for introducing SE in elementary education (Gutierrez, García López, Chaparro Jilete, & Fernández Sánchez, 2014; Martínez de Ojeda, Puente-Maxera, Méndez-Giménez, & Mahedero, 2019). As such, we recommend that future investigations develop more studies in primary education for a clearer understanding of the impact of different teaching approaches at early ages.

Additionally, having demonstrated that significant improvements in personal and social responsibility, engagement, empowerment and self-

confidence help students tackle potential social problems they may face in their lives, future research should further explore these results with more sophisticated research designs, including case studies and action research designs. Indeed, given their potential for providing a rich and contextualized interpretation of a complex phenomenon, action-research or case studies could contribute to the progression of the field of sport pedagogy research.

To reinforce the positive impact of different teaching models on personal and social skills, it is important that future research considers other variables of equal importance that meet the interests and needs of today's youth, such as creativity or assertiveness.

To assess what effect this practical teaching experience can have on the curriculum learning process, future studies should follow groups of preservice teachers for their student teaching experiences, involving multiple seasons/units in a more longitudinal data collection protocol.

Recent research has highlighted the role of digital technology in improving the teaching and learning process in higher education (Calderón, López-Chicheri, Fernandez-Rio, & Sinelnikov, 2017; Calderón, Meroño, & Macphail, 2019). It would be interesting to investigate the usefulness of digital technology in preparing preservice teachers to implement student-centered models, such as SE, as they represent a greater challenge in terms of organization, content knowledge, and leadership, especially concerning student coaches' empowerment.

4.3 Recommendations for practice

The findings of this dissertation (i) provide evidence of the adequacy and pedagogical potential of SE in PE classes, (ii) support SE as a viable option for offering students new experiences, (iii) reinforce its methodological and practical effectiveness, and (iv) support SE as a feasible curriculum model for teachers to promote students' responsibility, engagement, empowerment, and self-confidence. PE teachers can use SE as a tool for developing students' personal and social skills, thus helping students succeed as learners and facilitating their inclusion in society and transition to adulthood. Ideally, SE implementation will

benefit from more than one season throughout the year, considering that the development of personal and social skills it is an on-going process that needs time to be consolidated.

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