"Pandemic" lessons on constraints, enablers, and preservice teachers' training (mis)alignment in physical education teacher education

Lecciones "pandémicas" sobre las limitaciones, los facilitadores y los (des) alineamientos en la formación de futuros docentes de educación fisica

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How to cite in APA

Fernandez-Rio, J., Martins, J., & Farias, C. (2025). "Pandemic" lessons on constraints, enablers, and preservice teachers' training (mis)alignment in physical education teacher education. *Retos*, *64*, 838–852. https://doi.org/10.47197/retos.v64.107839

Abstract

Introduction: the COVID-19 pandemic significantly affected all spheres of social life, particularly in education (schools and higher education). It is particularly important to study the specific context of physical education preservice teachers' professional training, as they serve as a critical vehicle for the renewal of teaching practices in schools.
Objective: this study examined the school placement teaching experiences of physical education Preservice teachers during the pandemic and assessed the potential shortcomings/strengths of their course unit learning experiences (first-course year) and their effect on the subsequent school placement teaching practices (second-course year). Methodology: twenty-eight Preservice teachers enrolled in their school placement, 10 cooperating teachers, and one university supervisor participated in this qualitative and longitudinal study. Data was collected via multiple sources and thematically analyzed.
Results: the main constraints to Preservice teachers' practices included shortcomings in the teacher education program, pandemic and school restrictions, and technological barriers. The enablers were: teaching strengths fostered by the teacher education program, training alignment and pedagogical opportunities and school restrictions.
Discussion: (preservice) teachers' digital empowerment, creativity and teaching adaptability and regulatory flexibility in schools were novel findings.
Conclusions: universities must adjust their teacher training programs to the swift nature of real-life problems and local conditions physical education Preservice teachers find in their placement practice.

Keywords

Covid-19; distance learning; professional development; teacher education; teaching skills.

Resumen

Introducción: la pandemia Covid-19 afectó significativamente a todas las esferas de la vida social, particularmente en la educación (escuelas y educación superior).
Objetivo: Este estudio examinó las experiencias de enseñanza de profesores en formación de educación física durante la pandemia y evaluó las posibles deficiencias/fortalezas de sus experiencias de aprendizaje en la unidad curricular (primer año del curso) y su efecto en las prácticas de enseñanza en el practicum posterior (segundo año del curso).
Metodología: 28 profesores en formación de EF realizaron su practicum, 10 profesores colaboradores y un supervisor universitario participaron en este estudio cualitativo y longitudinal, realizado entre septiembre de 2020 y abril de 2021. Los datos recopilados a través de múltiples fuentes se analizaron tematicamente.
Resultados: Las principales restricciones para las prácticas de los profesores en formación fueron deficiencias en la formación inicial de profesores de educación física (PETE), restricciones de la pandemia y de la escuela, y barreras tecnológicas. Los facilitadores incluyeron: fortalezas en la enseñanza fomentadas por el programa PETE, alineación de la formación; oportunidades pedagógicas impulsadas por la pandemia y las restricciones escolares.
Discusión: El empoderamiento digital de los profesores en formación de educación física (y sus mentores), la creatividad y la adaptabilidad docente y la flexibilidad regulatoria en las escuelas fueron hallazgos novedosos.
Conclusiones: Las universidades deben ajustar sus programas de formación de profesores para abordar los problemas de la vida real y las condiciones locales que los profesores en formación encuentran en su práctica de colocación.

Palabras clave

Covid-19; aprendizaje a distancia; desarrollo profesional; educación de profesores; habilidades de enseñanza.

Introduction

The societal impact of the COVID-19 pandemic has been devastating, and fully understanding the pervasive effects of this phenomenon will be a task for decades to come. As the strong trend grows for university training, Physical Education Teacher Education (PETE) included, to become predominantly distance learning, it seems urgent to understand how the specific set of pandemic circumstances, where face-to-face learning was reduced to a minimum, hindered and shaped teacher education programs. This insight will guide teacher education practices for the benefit of preservice teachers (PSTs) in their school placement. Since little research has uncovered the constraints and facilitators of PSTs' teaching practices in schools during the pandemic, this is the purpose of this study. Studying the context of PETE is critical because, in a time of alarming shortage of new young adults who wish to become teachers and the lack of renewal in schools' professional staff, PSTs' (positive) experiences at school placement are a main factor in their retention in the profession. In addition, PSTs' teaching practice remains a principal source of renovation of PE practices, impacting students' lives and future dispositions regarding participation in physical activity (Silva et al., 2021).

(Alignment) challenges in Physical Education Teacher Education

Professional experience is a critical element in the initial teacher-education (Allen et al., 2019), and although teacher-education students undergo considerable transformations in their professional identity during their university training (Korthagen, 2004), their professional development begins during preservice teaching. This is considered a critical period, where learning acquired in higher education course units is put "to the test". Much criticism has been exposed regarding the real impact of teacher education programs on pre-service professional practice once students are placed in the schools. Shoval et al. (2010) indicated that PSTs tend to desert the ideas learned in college and use "survival" strategies to be comfortable. Cohen and Zach (2013) found that PSTs felt that their teaching efficacy was higher when they used direct instruction during their school placement than when they used cooperative learning (a new instructional framework learned in their PETE classes). Recently, Macken et al. (2020) highlighted that only through modeling and mentoring are PSTs willing to use strategies learned in college (i.e., assessment for learning) while in their school placement.

In this line of thought, instructional alignment refers to the connection between learning outcomes, assessment, and instructional practices (Tannehill et al., 2015). When dealing with teacher training, research has shown that alignment between different educational systems (K-12 and university training) is complex (Perna & Armijo, 2014). It is extremely important to target specific skills the teachers need when they enter the schools (i.e., classroom behavior management, instruction, assessment) (SueSee et al., 2020). Effective training should show a direct link between what teachers want their learners to know and what they can do (MacPhail et al., 2023). This requires PETE faculty members to incorporate alignment between their planning and their teaching practices. This seems extremely important in times of turmoil: to prepare PETE programs to fit PSTs' needs.

What do we still need to know about the pandemic effects on PETE to improve future practices?

The outbreak of the Covid-19 pandemic (WHO, 2020) included school closures during the spring semester of the 2019-20 school year. After a reduced rate of infections during the summer, and the conviction of the negative consequences of school closings on children and young people's health, well-being, and learning (Meherali et al., 2021; Rundle et al., 2020), the Portuguese government decided to begin the 2020-21 school year using face-to-face education (DGE, 2020). However, there were very restrictive operating guidelines and rules for Physical Education (PE) teachers and students (DGE 2020). Unfortunately, after several winter peaks of infection, schools were closed again and forced into online, distance education. Several studies have been published on the effects of the COVID-19 lockdown on students and teachers of all educational stages (Collie, 2021; Mata et al., 2023; Mata et al., 2024; Pressley, 2021; Van de Velde et al., 2021), but only a few on PE teachers (Howley, 2022). They all highlighted the difficulties experienced when moving from one type of teaching and learning (direct) to another (online).

Only a few studies have been conducted on PETE programs forced to go to online teaching during their practicum. Varea et al. (2022) found that this move created a new assemblage of PE, away from physical encounters between teachers and students and close to fears, insecurity and precarity (Kirk, 2020). This

re-assembled PE included virtual rather than real bodies, producing human (students and families) and non-human (space, home) interactions. Finally, Varea et al. (2022) indicated that direct instruction was the predominant methodological approach used by the PSTs before the lockdown (they were trained to use it), and they mentioned that online learning "requires a new pedagogical perspective." In another study, Varea and González-Calvo (2021) believed that PE had lost its identity online and wondered if the PE teacher education programs should prepare better PSTs. Have we learned anything from PETE? All the challenges that the COVID-19 pandemic brought to schools and the teaching-learning process probably impacted PSTs even more strongly than their placement usually does. As previously mentioned, PSTs predominantly used direct instruction instead of other methodological approaches learned during their training (e.g., cooperative learning, sport education) in their placement during the Covid-19 (Varea & González-Calvo, 2021). The pandemic added the move to online teaching due to the traditional difficulties confronted in face-to-face teaching in "normal" times. There seems to remain a need to explore the effects of these extraordinary times, uncover the constraints and enablers to PSTs' pedagogical practice, and draw conclusions for the future regarding how PETE courses may better tackle eventual future pandemics or, at least, be best prepared to navigate a transition to distance learning formats.

The main goal of this study was to examine the school placement experiences of PSTs during pandemic times. There were three specific objectives: (i) To examine the conjunctural constraints and difficulties as well as the facilitative factors and opportunities experienced by PSTs during their school placement professional practice; (ii) to examine PSTs' school placement teaching experiences during face-to-face and distance-learning teaching practices; and (iii) to assess PSTs' perceptions about the potential shortcomings (constraints) or strengths (enablers) of their course units learning experiences (first-course year) and its relationship with their pedagogical ability to deal with the demands felt in the subsequent school placement teaching practice (second-course year) to align instructional practices and learning outcomes.

Method

Study design, setting and participants

Regarding the timeline, this study included data collected from the beginning of the first term of the 2020-2021 academic year (September of 2020) to the end of the second term (April of 2021). Due to the unpredictable circumstances of the pandemic outbreak, this study centered on two school terms because it allowed us to capture information about two markedly distinct contexts of PSTs' pedagogical practice in school placement: face-to-face PE teaching in the first term and distance learning in the second term. The aim was to produce knowledge that could inform future PETE practices.

The general setting of this study was the master's course in teaching PE in the elementary and secondary schools of a PETE program at a Northern Portuguese university. Table 1 presents an overview of the year one and year two course-units (content).

Overall, the first-course year (2019-2020) included both face-to-face (September 2019 to February 2020) and distance-learning (March 2020 to June 2020) experiences. The participant PSTs experienced six theoretical course units (Curricular Development). In addition, many of the units took the form of teaching methods units specific to different sport contents (e.g., Basketball, Swimming). These sport-based teaching methods units intended to engage PSTs in combined learning of each sport while also learning to frame that teaching according to different pedagogical frameworks (e.g., Direct instruction, Sport Education, Tactical Games, Step-game-approach). All sport-specific teaching methods units were semi-annual. Most of these units engaged the PSTs in peer-teaching practice (groups of PSTs took turns to teach other groups) and some units also included micro-teaching sessions, where students from 5th grade went to the university to be taught by several groups of PSTs.

The second course year (2020-2021) repeated the cycle of face-to-face teaching in the first semester and distance-learning teaching in the second semester. At this point, the PSTs had been through an 800-hour training process, comprising 29 weeks of school placement teaching and additional training in once-a-week work sessions (Plenary sessions). Thus, 72 PSTs were placed in 24 host public schools located in northern Portugal for undertaking their yearlong school placement in groups of two to three PSTs per school. According to the course regulation, each host school's internal organization, and the

guidelines of the national PE curriculum, each PST was responsible for teaching an average of 3 units per school term (two team sports – basketball, handball, football; one individual sport - Athletics, Gymnastics; and one Outdoor Adventure - Orienteering) to one fixed class across the entire academic year (from grades 7 to 12). In the second term, the PSTs were also set to teach two additional units to one fifth- or sixth-grade class. Each group of PSTs was supervised by a school host cooperating teacher (CT) and by one university supervisor (US).

As for the participants, from the original 72 PSTs previously mentioned, 28 PSTs (15 males, 13 females, mean age = 23,19 years) placed in 10 public schools were selected to participate in this study based on the following criteria: (i) above 90% attendance in all course units in the first year; (ii) willingness to participate. Thus, a total of 28 elementary and secondary education classes (10 seven-to-ninth grade classes and 18 10-12th grade classes) and 28 pre-elementary classes (16 sixth-grade and 12 fifth-grade classes) were taught by the PSTs.

The 10 cooperating teachers (CTs; 7 males, 3 females; Mean age = ~50 years; Years of experience in teaching = ~30 years; and in supervision = ~20 years) of the host schools were also participants in the present study. One US participant (male, aged 43) responsible for supporting the 28 PSTs was an additional participant in this study. He was a former PE teacher with 10 years of experience and a teacher educator school placement supervisor for the past 10 years. The CTs and the participant US were not part of the research team.

Regarding the study design, a qualitative, exploratory, and longitudinal approach (Bryman, 2012) with multiple data collection points and sources was conducted from the beginning (September 2020) to the end of the second school term (April 2021). This research design allowed to gain an in-depth understanding of the continual perspectives of PSTs on the main constraints, challenges, enablers, and achievements they experienced during their school placement professional practice. The use of different qualitative data collection instruments (e.g., focus groups, interviews), over a long period of time (September 2020-April 2021) shows the strength of the research design.

Table 1. Mapping of the Master course units, timeline, focus, content, and Pre-service teachers' engagement.

Course year	Course unit	Timeline			Focus	Content	PST engagement
		Duration	Weeks[a] Face-to-face	Online			
First	Curricular development School Management and Organization General Teaching Methods	Annual (300h)	22	13	Theoretical	Curriculum development, conceptual issues, typologies, models, and curriculum decision levels School as an organization and cultural hub, pedagogical autonomy, and school culture General fundaments of planning, implementation, and assessment	Small-group cooperative work follow by short debates Flipped teaching, and expository and interrogative methods
	Professional practice Research in Education Educational psychology	First semester (150h)	18	-		Professional issues in Education Research traditions in education, ethics, methods, and procedures Communication skills; Sport Health and Positive Development intervention strategies	
	Sport-based Teaching Methods: Functional Training Outdoor Adventure Activities Badminton		18	-	Practical	Critical thinking and appropriate professional intervention Teaching skills for innovating and adapting teaching to the school context	Learning content as performers Shaping and applying the sport content through peer-teaching activities
	Sport-based Teaching Methods: Basketball, Volleyball, Football, Athletics, Dance, Gymnastics Handball Fighting sports	Second semester (150h)	4	13		Learning, implementation, and assessment of sport-based teaching units.	Group Peer-teaching and micro-teaching: Planning, teaching, and assessing task progressions to their fellow PSTs

	Swimming					Teaching different stages of sport development Video-based learning
Course year	Course unit	Timeline			Focus	Content/PST engagement
		Duration	Weeks[a] Face-to-face	Online		
Second	Professional School placement	Annual (800h)	16 + 11[b]	12[c]	Practical	Teaching a fixed elementary/secondary class Teaching 2 sport units to a fifth- or sixth-grade class Teaching school sport Participation in school organisation tasks Managing sport events
	Plenary sessions with supervisor		4	12	Theoretical/ practical	Ongoing work meetings to solve and reflect about PSTs' daily teaching problems Pedagogical support to implementation of model-based practice
	General support training		22	13	Theoretical/ practical	Basic life support Motor development Endnote Database search Writing a thesis/school placement report Research methods (action-research)

Ethical considerations

Prior to the study, authorization was obtained from the Ethical Committee of the study's host University. Some members of the research team worked at the same institution as the US participant and were also acquainted with some of the participating CTs. Therefore, to avoid deception, harm, and exploitation, researchers made no attempts to influence their actions, avoiding any form of direct or indirect "coercion" (Parsell et al., 2014).

Before the beginning of the school placement, the research team met with the entire group of PSTs, presented the study, provided a thorough explanation of the objectives and procedures, specified the participant's eligibility criteria, and asked for volunteers. It was explained that there would be no formal attachment of the participants to the study, that the participants could withdraw from the study at any time if they so choose, and that this would have no influence on their school placement grading. After being given a guarantee of anonymity and confidentiality, 28 PSTs volunteered to participate. They all signed the informed consent build based on the Declaration of Helsinki and voluntarily participated in the study.

Data collection procedures

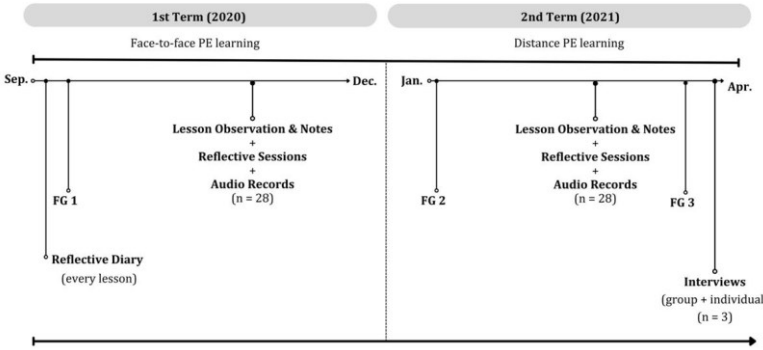
The several interdependent data collection procedures adopted in distinct moments of the study are outlined in Figure 1. To avoid creating data through the exclusive setting up of particular 'artificial' research environments, this study combined the collection of naturally occurring data (without the intervention of the researcher) "to access what people are routinely up to" (Silverman, 2013, p. 131) with the triangulation of other sources of 'focused' data collection. Thus, the data included the documental analysis of the field observation notes of 56 lessons observed by the US participant (1 lesson observed per PST; 28 lesson observation entries per each school term).
The following teaching characteristics were considered in the lesson's observation: instruction, organization and motivational climate, feedback, teaching styles, levels of student practice, and opportunities. These characteristics were considered relevant both in the face-to-face and distance learning lessons. Naturally occurring data also included the analysis of the reflective diary of each of the 28 PSTs and the audio collection of 20 post-lesson observation reflective sessions taking place between each group of PSTs, their respective CT, and the participant US.

The research team also conducted three focus group (FG) sessions; one held after the beginning of the school placement (first term), one after the beginning of the second term, and a final session conducted after the second term. The focus group sessions had different foci. The first focus group conducted an exhaustive survey on the working conditions the PSTs found in their schools. Information was collected on the selected PE contents, the possibility of face-to-face teaching, class organization in restricted or more open group activities, type of activities and interactions allowed (e.g., skill drills or reduced

games), or the available class time depending on the health safety procedures. The PSTs were also consulted regarding the greatest constraints to the development of their teaching practice. The second focus group session repeated the procedures of the first one and intended to understand the particularities of the new distance learning conditions.

The third focus group session was different. The PSTs were asked to critically reflect on the different constraints and difficulties felt in the different phases of the school placement, the opportunities that each of the contexts of practice brought, and to establish a bridge with the formative experiences lived in the first year of the course, identifying the practices that best prepared them for the challenges they encountered or what they felt there was lacking. Drawing on procedures related to autobiographical memory techniques, the PSTs were invited to reflect on multiple experiences based on specific prompts introduced by the research team. These reflective prompts were based on the research team's in-depth knowledge of the contents taught in the teaching units of the first year of the course and the dynamics of teacher training specific to each one (e.g., micro-teaching, video-based learning). In addition, to help PSTs confront their subjective perceptions and interpretations about the teaching moments experienced from other points of view, the researchers used prompts from the information collected from the interviews with the CTs and from the US participant field observations (e.g., "the work of the basketball passing in lesson x, wouldn't there be the possibility of implementing small-sided games as an alternative to the used isolated skill-drills?"). Each session included two groups of PSTs (4-5 maximum). The groups were swapped as the session progressed. These sessions lasted between 80 and 130 minutes, and in all of them, steps were taken to ensure that all participants were willing to contribute and to speak openly and truthfully.

Figure 1. Data collection procedures timeline.



At the end of the study timeline, two group interviews were conducted with two groups of five CTs, and an individual interview was conducted with the US participant. The interview guide intended to collect the perspectives of these participants about the topics of reflection addressed with the PSTs. The interviews lasted approximately 90 minutes.

Data analysis

Using a thematic analysis approach (Braun & Clarke, 2019), all data collected from the multiple sources used were read, reread, inductively, and thematically analyzed and triangulated to create themes that reflected the main constraints and enablers perceived by the PSTs during their school placement. First, the transcriptions of all data and the PSTs' individual reflective diary entries were coded against the three specific objectives of this study included at the end of the introduction section. Next, those codes were compared and integrated into higher-order categories until data saturation was reached. This was an iterative process led by the first author, but that involved constant feedback from other researchers. Finally, after the refinement, the previous categories were further clustered into agreed higher-order themes related to enablers and constraints of teaching practices.

Trustworthiness

Guba and Lincoln (1994) propose that it is necessary to specify explicit ways of establishing the quality of qualitative research that provide an alternative to reliability and validity as they are ascertained in

quantitative research. Several procedures were used to ensure the quality of research. First, the prolonged participation in the social setting of the phenomenon and the ongoing, iterative, and intertwined process of data collection and analysis allowed the researchers to ensure a high level of congruence between the concepts derived from the data and the respective inferences drawn (internal validity). Second, multiple accounts of the social reality in the study were gathered through several data sources (data triangulation), and the data analysis process was subject to member validation. The PSTs, the CTs, and the participant US were provided with an account of the findings to seek corroboration or correction of the interpretations made (credibility). Data analysis also underwent an 'auditing' approach (Bryman, 2012). Led by the first author, the analysis was carried out collaboratively by several research team members. Interpretation was verified by collecting new data (during the ensuing focus groups). This data was also subject to peer-checking analysis. Two researchers, unrelated to the study, were asked to examine original data samples and allocate the different data pieces to different categories. Potential divergences were debated until a consensus was reached, sometimes leading to the "re-labeling" of a category (Silverman, 2013).

Results

The joined analyses of all the data obtained from the participants through the different instruments produced "two sides of the same coin", constraints faced, and enablers acknowledged during the changing times of face-to-face and distance-learning teaching experiences. Constraints included three themes: a) shortcomings in PETE, b) pandemic and school restrictions, and c) technological barriers. The enablers included another three themes: a) teaching strengths fostered by the PETE program, b) training alignment, and c) pedagogical opportunities prompted by the pandemic and the school restrictions. Figure 2 provides a schematic representation of the themes and respective subthemes representative of the enabling and constraining elements of PSTs' teaching practice and associated level of alignment with training received in the first-year course units.

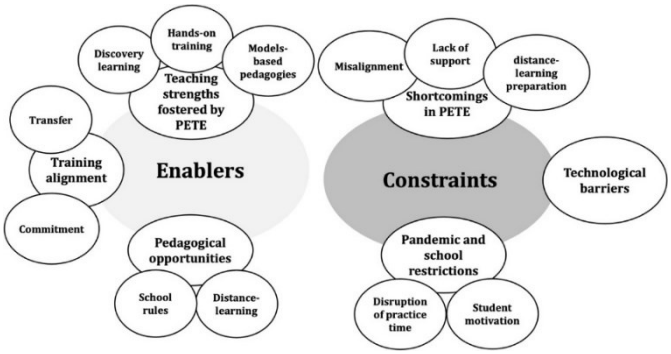
Constraints

Shortcomings in PETE: deficit of real-life training, continuous pedagogical support, distance-learning preparation, and curriculum misalignment

According to the PSTs (not always supported by the field observation data), many of the difficulties experienced during their school placement resulted from insufficiencies in the teaching practices of the first-year course units. In addition, the PSTs associated their perceived lack of teaching skills to the scarcity of experiential learning (e.g., micro- and peer-teaching) and the dearth of opportunities for practical application of theoretical knowledge granted during the first-year course units. Even when some units promoted PSTs' engagement in micro-teaching activities, the PSTs felt they missed proper pedagogical scaffolding: "In swimming, we went directly to microteaching without having the proper theoretical preparation for it' (PST 2, FG May).

The PSTs also noticed the lack of alignment between their training experiences and the real-life problems encountered during the school placement, which, in some cases, resulted in their low emotional management ability (FG may). The PSTs felt that the "distance-learning format of several course units wasn't helpful" (PST 13, FG May). The following data are representative of the core issues emphasized by PSTs: PST 21: "We should have gone to schools to teach different sports to real students; PST 12: "When we taught our mates there were no motor or discipline problems. Real-life students don't work like that." PST 1: "The planning (in the school placement) was difficult because we did not learn what PE requires: how to transfer learning across tasks?"; PST 28: "The distance-learning course units were very much based on technical knowledge and construction of the lesson plan, without real practical objectives to operationalize. We discussed abstract reactions to that lesson plan".

Figure 2. Schematic representation of the enabling and constraining elements of PSTs' teaching practice.



The PSTs also highlighted the lack of explicit training to teach in a distance-learning regime, "if we felt unprepared to teach face-to-face PE, developing teaching skills for distance-learning was definitely not a concern in the course units" (FG, January) and "teachers could have shed some light on how to practically teach a PE class or any sports content at a distance" (PST 15, Reflective diary).

During the school placement practice, several PSTs also stressed a lack of continual and situated support in solving their daily problems: PST 11: "In those early months of 'suffering and anxiety', it would have been much more helpful to have group reflection sessions and expert support in the problem-solving of basic instruction and behavioral management that was hampering our teaching"; PST 6: "My US participant is a top teacher instruction and teaching models expert. However, I felt that our meetings should include more practical work on planning the teaching units and less on theoretical issues and action-research" (FG, May); "I wanted to implement the teaching models we learned, but my CT was unfamiliar with these pedagogies. I missed the on-the-spot support to solve the simplest practical situations of applying the models with this class and the available equipment" (PST 12, Reflective diary).

Pandemic and school restrictions: disruption of practice time, content development, and student engagement

The compulsory move to distance-learning imposed by the national pandemic lockdown was a distressful moment for all PSTs. Many felt this came to interrupt the progression of their professional development with a strong impact on the planning process: PST 9: "We planned the entire second term for face-to-face learning, and then, the lockdown (…) we had to replan it all, change the sport content, the main learning objectives, class dynamics, a nightmare"; PST 22: "In the first semester, the constant change in weather conditions, the need for rotation, outdoor-indoor teaching spaces led me to have to constantly adapt my teaching (...) the distance-learning interrupted this cycle. You teach through the screen and that's it" (FG, January).

The data also showed marked differences in the restrictions imposed by different school boards. There were pervasive restrictions on students' sharing equipment, group work, and a stark reduction of practice time. This brought content development problems to PSTs and increased challenges to actively engage students in PE activities: PST 8: "All PE lessons started and ended in a classroom, then moving students to the gym dressing rooms in shifts, 25 minutes lost in the beginning, 25 more in the end"; PST 11: "We only teach 45-min lessons, half the class is practicing, the other half is waiting" (FG 1); "There was a lot of lesson-stopping, students having a hard time breathing, needed to take off the mask" (Field notes, October); PST 17: "My school banned the passing. In basketball, one ball per student, and we could only do 1x1, passive defense drills. This clashed against the way the Faculty taught us to teach sport, based on small-sided-games"; PST 18: "There was no game, so it was hard to keep students motivated (...) we had to remove gymnastics from the annual curriculum, so several students lost opportunities to participate in sports they liked best" (FG 3).

Technological barriers: teaching powerlessness

During distance-learning, there were several constraints related to the intricacies of using digital technology. The PSTs stressed several constraints related to student-family dynamics, regulatory processes

(data protection laws), student self-consciousness, or the intrinsic nature of the digital instructional interactions: PST 14: "Distance-learning brought a million problems. Sometimes, the student could not jump because his brother was sleeping next door or lacked the equipment needed for the activity"; PST 12: "The data protection law was a setback. We couldn't 'force' students to voluntarily turn on the cameras"; PST 2: "Some would hide or be embarrassed to expose themselves on camera"; PST 21: "I struggled with the feedback (...) we wanted to value procedural knowledge, but we couldn't assess correctly for not watching their performance"; PST 22: "The demonstrations, what the cameras couldn't capture, the face-to-face touch are critical facets. It (feedback) was not immediate. We provided feedback only after analyzing the performance videos they sent us" (FG May).

Enablers

Teaching strengths fostered by the PETE program: the educational value of hands-on training, discovery-learning, and model-based pedagogies

Regarding the teaching skills fostered during the first-year course units, there was a widespread feeling among PSTs that "even in the face of a very sudden confinement, the teachers (educators) adapted well" (PST 17, FG 3). Some of the identified course units' insufficiencies were also deemed to be enablers of PSTs' professional practice.

The learning of the subject-matter in the role of "student-performer" and the peer-teaching opportunities helped their subsequent school placement teaching practice. The micro-teaching was an important asset in their training: PST 11: "In dance, the body expression activities we learned and the group choreography helped us to 'feel' the content, first with our body and later when we transmitted it to students"; PST 25: "(During the course unit) We only taught three swimming lessons to children before the lockdown, but it was enough to make me feel prepared for teaching it".

Several PSTs emphasized the benefits of having learned sport-based content in connection to pedagogical models and stressed the importance of collaborative learning experiences in their interpersonal skills. The range of different teaching styles used by different teacher educators provided different modeling and benefited the PSTs' ability to interact with students in the subsequent school placement: PST 2: "Though there was a little practical experience in the course, I improved my communication and leadership skills because I had to teach my mates"; PST 10: "One (PST) mastered football, the other was super at gymnastics, we learned from each other, and each added something to the final task"; PST 26: "Professor X applies the Sport Education Model (...) we ended up having this perspective of more fun but compared with other teachers with a more directive method, we could also use this learning, for example when we taught a functional training unit in the school".

Most PSTs emphasized the importance of video-based analysis and error detection feedback used by some teacher educators during distance-learning: PST 11: "We all know how the game is played, but there was a deconstruction of the game, yet from the perspective of the young student"; PST 5: "In handball (teaching methods unit), we analyzed problems that students lived; the teacher showed videos of students' gameplay and set us to identify some game problems, and then we discussed each error identified by different people".

The PSTs stressed the importance of several PETE support structures put in place during their school placement. Namely, the requirement of conducting an action-research self-study project, the ongoing post-observation reflexive meetings, or the opportunity to develop as a community of practice: PST 17: "I had some baseline on the Cooperative Learning model (developed during the first-year course units). But there is nothing to compare with the teaching ability I developed in the second term through my action-research study. Researching and reflecting on problems allowed me to develop much more sophisticated strategies for promoting knowledge sharing among students"; PST 1: "I wanted to properly prepare my students for peer-teaching tasks. I built on some good ideas I grabbed during the observation of my (PST) mates' teaching and on the group discussions on each other's lessons" (FG, May); PST 19: "I found very important the 'visit' of the US participant to my school. He observed my teaching and then (post-observation meeting) helped us bridge theory and practice. I started to notice those small 'big' aspects that really impact student learning (reflective diary); PST 12: "The systemic teaching of games wouldn't have occurred to me if the US had not given this tip during the reflective meeting" (reflective diary).

Training alignment: transfer and commitment

The PSTs felt they were able to transfer knowledge from the course units to their school placement teaching practice. The field observations showed evidence of PSTs' effective implementation of different pedagogical models and the efficient use of technology to actively engage students in PE activities: PST 22: "I tried to edit videos from my students' gameplay and provide feedback on them both during face-to-face and distance-learning (…) I think this was a tool that ended up being passed on to us through the first-year units"; "Students' team affiliation is solid and it's working very well. They (PST) are blending the use of technology with some Sport Education features. Students are very enthusiastic about the activities. Each team responds to the game-based 'quiz' on their mobile phone and the results are released live. This prompts strong dynamics of accountability that trigger students' engagement" (US participant, field notes).

However, both the US participant and various CTs perceived that regardless of the teaching skills potentially developed from the participation in the PETE program, much of the PSTs' performance was a result of a potential 'Factor X': "(During the face-to-face teaching) some of those PSTs more personally committed to the implementation of student-centered models created forms of festivity and competition even in activities with no game-play dynamics such as Athletics" (CT 9, Interview May).

This was particularly noticeable during the distance-learning school placement experiences, where the PSTs' ability to "take control over the teaching-learning process was in large part dependent on the intrapersonal digital skills of each PST. The attractiveness of the PE activities presented to students stemmed strongly from the investment of each PST in researching and planning outside-the-box" (US participant, Interview May). Two groups of PSTs found Mobile apps that allowed them to control the efficiency (with implicit feedback) of students' physical fitness work. Some PSTs created engaging learning climates, with a positive impact on students' personal skills: PST 2: "We used app X; students place the phone in so we can see their body, and the phone camera identifies and counts their squats in real-time. It automatically provides them feedback on the efficiency and sets a class 'podium' that evolves weekly"; PST 12: "Each team met and solved problems collaboratively in the hangout rooms. On the most part the students were helping each other and discussing. We had already done it during face-to-face PE, but in distance-learning it helped fostering student autonomy because they were easily set to individually respond to a quiz question"; PST 10: "The students filmed themselves performing a part of the choreography and sent us this video. Some students became much more expressive, showing skills no one dreamed they had" (FG May).

Pedagogical opportunities prompted by the compulsory pandemic restrictions and schools' organization

From a teaching point of view, some constraints imposed by the distance rules (face-to-face) and national lockdown (distance-learning) provided PSTs with important opportunities for professional development and to enrich the PE activities presented to students: PST 11: "I struggled providing appropriate feedback (in the face-to-face PE), but then, it (distance-learning) was actually a great opportunity to improve my feedback skills. The students uploaded their individual fitness videos, and I had the time to analyze each of them thoroughly and then send them proper feedback"; US participant: "Only half of the class was allowed to participate at a time. This prompted the PST to engage their students in peer-assessment activities. Observational cognitive skills and the subject-matter is closely connected. Many PST typically tend to resist these dynamics" (Interview May); CT 10: "The more individualized teaching (during the zoom activities) prompted an augmented social connection between each PST and their students" (Interview May).

Discussion

The main goal of this study was to examine the school placement experiences of PSTs during pandemic times, which included shifts from face-to-face to distance-learning teaching practices, and the results showed "two sides of the same coin": constraints and enablers.

Regarding the constraints faced, the PSTs stressed the lack of alignment between their training experiences (course year one), the real-life problems encountered and the skills necessary to deliver effective

teaching during the school placement (course year two). The participants' perceptions revolved around a lack of real-life training even when PSTs experienced face-to-face learning, aggravated by the distance learning imposed by the pandemic lockdown. The scarcity of experiential learning and the dearth of opportunities for the practical application of theoretical knowledge during the teaching methods course units was considered a teacher training shortcoming. According to McPhail et al. (2023), effective learning should show a direct link between what learners are intended to know and what they can do. Results from the present study indicate that the PSTs felt that the PETE program they experienced during the year before their placement had limitations. For example, some PSTs emphasized that the lack of practical experiences contributed to their low emotional management ability. Calderón and MacPhail (2021) warned that the misalignment between PETE programs and schools prevents future teachers from developing the needed skills for their job, such as classroom behavior management. This was aggravated during the pandemic, bringing new and unprecedented constraints that society, PETE included, was unprepared to handle. Issues like constant changes in weather conditions or the need for rotation between outdoor and indoor teaching spaces were issues that the PSTs believed they were not prepared to deal with at schools. The misalignment can create disjoined learning for future teachers (Fitchett & Moore, 2022), negatively impacting their performance. Along the same line, the PSTs highlighted the lack of explicit training on distance learning. As with many other sites of human life, the pandemic caught the PETE programs "offside". In this sense, there is an urgent call to adapt and train future PE teachers to be ready for this new era of turmoil and constant shifts between face-to-face and distance learning. This is paramount for assuring quality teaching practice and renovation of the pedagogies brought to schools by the PSTs (Hordvik et al., 2019). More importantly, it reinforces the idea that universities must rapidly adjust their current teacher training programs to the swift nature of real-life problems and local conditions that PSTs find in their placement practice (MacPhail et al., 2023). In this sense, participants mentioned "more technology use" and explicit training for teaching PE under distance learning conditions as prime avenues for equipping PSTs with teaching skills commensurate with pandemic times.

The lack of on-the-spot, continuous pedagogical support during the unfolding of the PSTs' school placement teaching was also highlighted. Procedures like group reflection sessions and expert support would have been crucial to help cope with basic instruction and behavioral management problems that disturbed PSTs' daily teaching. Continuous pedagogical support could be considered part of a broader concept: continuous professional development, which has been signaled as a critical element for teachers to improve their practices (Armour et al., 2017). It can help teachers, and especially PSTs, address their individual needs to meet the demands they face in their teaching placements (Goodyear, 2017). Moreover, continuous pedagogical support and professional development programs can contribute to reducing the lack of alignment between what is taught to PSTs at the university and the pedagogies they implement, where CTs are required to provide support. With the increasing adherence to student-centered pedagogies of many PE curricula across the world (Tannehill et al., 2015), it is critical to involve CTs in the renovation of their teaching conceptions and praxis. Research has shown that CTs who conveyed pedagogical knowledge that is specific to models-based practice were more apt to successfully support the PSTs' effective implementation of student-centered models (Silva et al., 2021). Thus, university teachers need to "cross the border" and act as boundary spanners to empower and support CTs in professional self-improvement (Goodyear et al., 2014).

The compulsory turn to distance-learning imposed by the national pandemic confinement was a distressful moment for all PSTs that interrupted the progression of their professional development. Moreover, the lockdown added more constraints to the PSTs, since they had everything ready for face-to-face teaching and had to change it to online teaching 'in a blink'. Moreover, there were also pronounced differences in the restrictions on the practice of the PE classes imposed by different school boards. This meant there was no single COVID-19 scenario and, consequently, no single response. Again, continuous pedagogical support could have helped these PSTs adapt to their challenging scenarios.

The final constraint highlighted was linked to the intricacies of using digital technology, unveiling, once again, a misalignment between what was offered in the PETE program and the teaching needs of the PSTs during their distance learning teaching of PE activities. In a recent study, Varea et al. (2021) suggested that PETE programs should prepare better PST to teach online, and results from the present study confirmed it. The PSTs claimed for this type of training to face the constraints built by the pandemic. Nevertheless, technology should be pedagogically driven and not just the use of a specific piece of equipment or software (Palao et al., 2015). Moreover, the term Technological Pedagogical Content

Knowledge (TPCK; Koehler & Mishra, 2009; Koehler et al., 2013) was coined to picture the situated and complex knowledge teachers require to properly integrate technology in their classes. In Pandemic times, as society becomes increasingly digitalized, a higher investment in teacher (in-service and pre-service) development of TPCK may be a critical avenue toward improved teaching practices in PE and aligning PETE and what schools require in the 21st century (Fitchett & Moore, 2022).

Despite the intricacies of the digital technology-based pedagogies highlighted above, the PSTs also acknowledged that the same issues were at least partially positive (enablers) in their school placement. First, the roles performed during their PETE program, like "students-performers-players" and the opportunities to teach their peers, or peer- and micro-teaching, brought important learnings for their subsequent school placement teaching practice. They emphasized the benefits of having learned certain pedagogical models (e.g., Sport Education; Tactical Games), but also experienced a wide variety of teaching styles used by their educators, which provided them a wide scope upon which they could develop their pedagogical identity and professional skills. Moreover, the field observations showed evidence of the PSTs' effective implementation of different pedagogical models and the efficient use of technology to actively engage students in PE activities. This provides evidence that the PSTs were enabled to transfer knowledge from the course units to their school placement teaching practice. In the same way, guided-learning strategies (e.g., video-based analysis and error detection feedback) used by some teacher educators during distance-learning were very effective. Therefore, there was some alignment between what the PSTs learned about technology use at the university and what they used in their placement. However, previous researchers warned that the use of technology devices in education does not always follow a pedagogical approach (Palao et al., 2015). TPCK and training are needed in college to help PSTs integrate technology into their pedagogy (Koehler & Mishra, 2009).

According to previous ideas, there was some continuous pedagogical support to the PSTs during their school placement. PETE support structures like the requirement of conducting an action-research self-study project, the ongoing post-observation reflexive meetings, the opportunity to develop as a community of practice and the systematic observation of their peers' teaching practice were fundamental to enhance their professional development. All these elements acted as boundary spanners (Goodyear et al., 2014) to support the PSTs during their placement. Sometimes, these are seen as punishments, because they force individuals to work, but they can help them progress. However, both the US participant and several CTs agreed that regardless of the learning potentially derived from the PETE program and the tools mentioned, much of the success of the PSTs were a result of a so-called 'X Factor': personal commitment. PSTs' personal investment in further researching and planning outside-the-box was crucial.

The present study is no exception and holds several limitations. First, it includes only qualitative data. Mixed methods provide global information that can help understand better the problem under study. Second, data was collected only from a group of PSTs. Not all the PSTs participated, which could be considered a bias in the study. Finally, the study was conducted in a specific geographical region, country and PETE community. Generalization of findings is not possible and is not intended.

Conclusions

The main goal of the present study was to examine the school placement experiences of PSTs during pandemic times, which included shifts from face-to-face to distance-learning teaching practices. Results showed that the main constraints to PSTs' practices included shortcomings in PETE, pandemic and school restrictions, and technological barriers, while the main enablers were: teaching strengths fostered by the PETE program, training alignment, and pedagogical opportunities prompted by the pandemic and the school restrictions. Universities should be aware of the needs uncovered in the present study and adjust their teacher training programs to the real-life problems and local conditions PSTs find in their placement practice.

Acknowledgements

The authors are grateful to all participants who have participated in the present study.

Financing

No funding supported this study.

Disclosure statement

The authors reported no potential conflict of interest.

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