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The emotional significant negative events and wellbeing of student teachers during initial teacher training: The case of physical education

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Teaching is a demanding job and the aim of the present study was to explore the emotional experiences and wellbeing levels (burnout and vigor) of Physical Education (PE) student teachers in comparison with student teachers of other subjects. In all, 167 student teachers (99 in PE and 68 in other subjects) described two significant professional negative events experienced during the school placement. They also reported the frequency of occurrence of these events, the level of unpleasant emotions related to the events, and their scores of burnout and vigor. The negative emotional events were encoded following an inductive approach and five categories emerged: *Student rules violations*, *Collaborative issues*, *Physical integrity risks*, *Organizational issues*, and *Lack of student motivation*. The Chi-square analyses revealed a different distribution in the negative events according to the subject taught, especially including an overrepresentation of *Lack of student motivation* and *Physical integrity risks* for PE student teachers and *Collaborative issues* for other-subjects student teachers. Moreover, Mann-Whitney *U*-tests revealed a similar frequency of negative emotional events whatever the subject taught, but a lower intensity of unpleasant emotions, lower physical fatigue and higher scores of physical strength for PE student teachers in comparison with those of other subjects. The present findings confirmed that the specificities of PE lead to singular significant negative events for PE students during initial training. Finally, the health outcomes (intensity of unpleasant emotions, burnout and vigor) suggest that PE teachers have developed specific resources to cope with school constraints, probably in relation to their sport experiences.

KEYWORDS

emotions, occupational health, novice teacher, physical education, teacher training

Introduction

The topic, teachers' wellbeing and emotions, has garnered a great deal of attention since the late 1990s (Hargreaves, 1998, 2000). Teaching is a demanding job and secondary school teachers are one of the groups with the highest levels of job sick leave (García-Carmona et al., 2019) due to stress related to a wide variety of social (e.g., low status and conflicts), psychological (e.g., pressure from school community and parents), and physical (e.g., fatigue and musculoskeletal pain) demands at school (Richards et al., 2018). This stress can lead to *burnout* syndrome, which refers to a persistent negative psychological syndrome marked by physical, emotional, and cognitive exhaustion (Shirom, 2003). However, recent studies have highlighted the importance of exploring both negative and positive wellbeing indicators in a work domain. Teachers are also involved in stimulating and significant activities (Salmela-Aro et al., 2019). Thus, the concept of vigor refers to a positive and pleasant work effect defined by physical strength, emotional energy, and cognitive alertness (Shirom, 2011). In line with Shirom's approach which considers that the levels of burnout and vigor represent independent factors (Shirom, 2011; Pérez-Fuentes et al., 2019), recent studies have revealed the interest to investigate both teacher burnout and vigor (Cece et al., 2021b). Previous studies have shown evidence for the role of the emotional process on teachers' wellbeing process involving significant relationships between emotions and both burnout and engagement (Jeung et al., 2018; Atmaca et al., 2020).

In Europe, surveys showed that teachers are exposed to work-related stress and illness in significantly higher proportions than the average for other workers (Amitai and Van Houtte, 2022). The link between teachers' professional drop-out, professional stress and the risk of burnout is now established (Wang et al., 2022). The entry into the teaching profession is specifically identified in the literature as a particular, complex and emotionally intense stage (Stewart and Jansky, 2022). In relation in part with the emotional overload at the beginning of a career (Squires et al., 2022), the phenomenon of drop-out is specifically important among novice teacher in Western school systems (Rajendran et al., 2020; Amitai and Van Houtte, 2022). For example, in the USA, 14% of novice teachers leave the profession at the end of their first year, 33% within 3 years and 50% within 5 years (Hong, 2010). Erb (2002) likes to use the image of an emotional *whirlpool* to describe this stage of the entry into the teaching profession, stage in which emotions are often intense, never flat, which can lead to emotional overload and drop-out.

The actions of student teachers are a crossroad of intense emotions, most notably, those related to dilemmas (Lassila and Uitto, 2016), unpredictability (Bullough, 2009), and shock of reality (De Mauro and Jennings, 2016). With regards to the categories of class events producing negative emotions, Petiot and Visioli (2017) showed that negative emotions are mainly

provided by Student's rules transgressions (against each other or the professor) for all the disciplines taught.

However, Physical Education (PE) is a school subject that has a special character for various reasons. It is the only subject that has a direct link with the current and future Students' health (Derri et al., 2014), but it is defined by Gaudreault et al. (2018) as a "marginal" school subject. One of the dilemmas particularly accentuated in PE seems to concern the double management, in the class collectively and with individuals, especially related to the individual needs of students (Derri et al., 2014), and without stable places for the students. While teachers of other subjects assign students to personal seats, PE teachers must interact with students in movement (Reuker, 2017), which implies specific constraints and challenges mostly because involvement, successes and failures are visible to all. Even though, PE teachers aim to promote Students' health, they suffer more than others from lack of perceived mattering in their role as teachers (Gaudreault et al., 2018). Nevertheless, the literature identifies many concerns for PE teachers: e.g., controlling the class (Cheon et al., 2022), getting students to work and avoiding conflict (Cheon et al., 2018) or adhering to the lesson plan (Ria et al., 2003), that are the origin of dilemmas providing intense emotions (Descoedres and Méard, 2019; Keller and Becker, 2020). PE teachers could internalize unpleasant emotions in relation to marginalization which could compromise their teaching (Gaudreault et al., 2018) and it seems that marginalized teachers may be more probably to experience burnout, which is marked by physical and emotional exhaustion, relative to one's teaching. However, Salaveria et al. (2014) emphasized that in PE, teachers manage to control better, these unpleasant emotions, due in particular, to their sporting background. They are able to find positive outcomes in negative situations through resource persons, tutors, peers and other teachers (Moussay and Blanjoie, *in press*). In line with these specific resources and according to recent studies, PE teachers tend to have lower levels of burnout scores and higher scores of engagement than other teachers (Guillet-Descas and Lentillon-Kaestner, 2019; Cece et al., 2021a).

As regards PE novice teachers, studies confirm a multiplicity of concerns: controlling the class (Cheon et al., 2022), getting students to work, avoiding conflict (Cheon et al., 2018) or adhering to the lesson plan (Ria et al., 2003). These various concerns are the basis of dilemmas providing intense emotions (Descoedres and Méard, 2019). PE student teachers make a lot of efforts to hide their emotions in a relevant way and to give the impression of controlling events, even though they are partly beyond their control (Karnovsky et al., 2021). Overall, PE student teachers seem exposed to very distinctive work features which could represent a serious challenge for them and lead to differences in work wellbeing. However, to date, no study has explored the specific psychological experiences of PE student teacher in initial

teacher training in comparison with other-subject student teachers.

Thus, using a mixed research design, the purpose of the present study was to explore the emotional experiences and wellbeing levels of PE student teachers during initial teacher training in comparison with teachers of other subjects. Specifically, the first emphasis was to understand the different categories of emotionally significant negative events experienced by student teachers during their first year of learning teaching while they were supervised by a tutor, in PE or in other subjects. Secondly, the present study aimed to explore the levels of PE student teachers' emotions, vigor, and burnout, as compared to those of teachers of other subjects. Based on theoretical and empirical research (Descoedres and Hagin, 2020; Silva et al., 2021), it is assumed that the distribution of negative event categories would be different between PE student teachers and those of other subjects since PE teachers are confronted with multiple and specific concerns linked to student movements, workplace conditions and workplace (e.g., gym and outdoor education). Moreover, in line with previous studies focusing on PE teachers' wellbeing (Guillet-Descas and Lentillon-Kaestner, 2019; Cece et al., 2021a), it is hypothesized in the current study that PE student teachers will report better wellbeing scores than other teachers. Specifically, lower levels of unpleasant emotions and burnout, and higher levels of vigor could be expected for PE teachers in comparison with other teachers.

Materials and methods

Study design

A mixed research design based on a narrative questionnaire (describing two significant negative emotional events and the inherent emotions) on one hand and a quantitative questionnaire (teacher burnout /vigor) on the other hand, was adopted.

Participants

A sample of 167 Swiss student teachers ($M_{age} = 28.68 \pm 5.78$ years, 99 males and 68 females) participated in this study. At the time of the data collection, all the students received an initial training course to teach in secondary schools at the Institute of Teacher Education, State of Vaud (Switzerland). The students were studying modules in PE programs ($n = 99$) or in other disciplines ($n = 68$). The group called "other subjects" was composed of student teachers who followed French, German, English, Natural Sciences, History, Geography, Mathematics, Arts, or Music training courses.

Procedure

The research was conducted in accordance with the principles of international ethical guidelines. Permission to conduct the study was granted by the ethics board of the host university. Student teachers were informed that their participation was voluntary, that their responses would be confidential and that they could withdraw from the study at any time. Participants provided written informed consent by e-mail. The data were assessed during a course. Written questionnaires were completed, which took 20 min to complete.

Measures

The significant negative emotional events

The student teachers were asked to describe two significant professional emotional events experienced during teaching practice (Petiot and Visioli, 2017). The events refer to their teaching during the school placement. The students also reported the frequency at which they experienced negative events during their teaching experiences. Fifteen student teachers completed only one significant event.

Finally, the intensity of the negative emotions in association with each event was measured. More precisely, these measures were based on the negative primary emotions (that is, anger, sadness, and fear)¹ of Parrott (2001) who argued that, primary emotions are deeper, more intense and harder to deal with. The student teachers reported the intensity of their unpleasant emotions experienced related to the two events mentioned. The experiences of anger, sadness, and fear were examined using a single-item approach. A mean score was computed for events 1 and 2. The students responded on a 5-point Likert scale with values ranging from 1 (not-at-all) to 5 (very much).

Burnout and vigor

The quantitative questionnaire consisted of two measures, teacher burnout and vigor. The French version (Sassi and Neveu, 2010) of the Shirom-Melamed Burnout Measure (SMBM; Lerman et al., 1999) was used to measure burnout levels. Fourteen items and three subscales were used to measure physical fatigue ($\alpha = 0.86$; 6 items), cognitive weariness ($\alpha = 0.92$; 5 items), and emotional exhaustion ($\alpha = 0.67$; 3 items). Vigor was assessed using the French version (Isoard-Gauthier et al., 2020) of the Shirom-Melamed Vigor Measure (SMVM, Shirom, 2003). Three subscales and 12 items were used to measure physical strength ($\alpha = 0.94$; 5 items), cognitive liveliness ($\alpha = 0.80$; 3 items) and emotional energy ($\alpha = 0.91$; 4 items). For these two

¹ The primary emotion of disgust, after discussions with scientific researchers, was removed as it was likely not suitable for the teaching context.

scales, the subjects responded on a 7-point Likert scale with values ranging from 1 (never) to 7 (always).

Data analysis

The choice of a mixed methodology aims to have quantitative trends and be able to investigate deeper with qualitative data. As a part of the study is exploratory, analysis closer to the field are required and mixed methods more appropriate. All the qualitative data (e.g., descriptions of the two negative events) were transcribed in chronological order and anonymized. In order to evaluate the important diversity of these complex data, the 334 significant negative emotional events were analyzed according to the procedures of the Grounded theory, a qualitative inductive method based on the analysis of authentic data with three basic types of coding: open, axial, and selective (Strauss and Corbin, 1990). The first step is called *open coding* and consists of turning the data into small, discrete components and to code each discrete piece of data with a descriptive label. The second step (*axial coding*) aims to find connections and relationships between codes and to aggregate and condense codes in broader categories. The third and last step (*selective coding*) aims to bring the data together with one or more overarching categories and to identify the connections between this overarching category and the rest of the codes and data.

This analysis leads to identification of five categories of negative events: *Student rules transgressions*, *Risks for student physical integrity*, *Lack of student motivation*, *Organizational issues* (teacher difficulties related to organization, planning, and anticipation) and *Collaborative issues* (collaborative difficulties with partners in and outside the class). Two researchers collaborated in the data analysis, step by step, for several months. The coding was double-checked by two experts.

Below is one example illustrating the three steps of coding.

Student teacher n°33, situation A: transcription of the reported event, emotions and intensity (Fear 4/5; anger 2/5, sadness 1/5).

“PE lesson, in the gym with students aged from 14 to 16. There was 10 min left before the end of the lesson, I was replacing my tutor because he was ill. It is a small class size (9–12 students). None of them can make a sentence without an insult. One student in the class was not feeling well, so I allowed her to go to the nurse. When she came back, she and another student started insulting each other in a very violent way. The student (boy) threw his shoes on her and I stood between the two students to calm them down, but neither of them wanted to listen to me. I felt totally helpless in this situation and as I did not know the students very well, I had no means of turning the situation around immediately. After 5 min, I managed to get them back under control.”

The first step, called *open coding*, was entitled “Loss of control of the school class due to a disruptive student,” while the second step (*axial coding*) was entitled “Voluntary transgression in individual opposition.” The third step (*selective coding*) allowed us to identify *Student rules transgressions*. This third and last step of this inductive coding aimed to identify the five categories used in the data collection analysis. The transcription and the two first steps (*open* and *axial coding*) permitted only explicating all the procedures but were not used to analyze the data.

All the quantitative analyses were conducted using the program Statistica version 7.1 (StatSoft France, 2005). A series of Chi-square tests were used to explore the association between significant professional event ($n = 5$, *Student rules transgressions*, *Risks for student physical integrity*, *Lack of student motivation*, and *Organizational issues*) and subject taught ($n = 2$, physical education vs. others). The Chi-square tests were independently performed for the two events including the effect size (W).

Before conducting the analyses of the numeric data, the normality of the distributions was examined using Shapiro-Wilk test. The Shapiro-Wilk test revealed that the data violated the assumption of the normality of the data for the dependent variables ($p < 0.05$). Consequently, following the suggestions of MacFarland and Yates (2016), a series of Mann-Whitney U -Test were conducted for non-parametric data with intensity and frequency of negative emotions, burnout, and vigor scores entered as dependent variables in the same model to explore potential differences between PE teachers and teachers of other subjects. Alpha was set at 0.05 for all the analyses.

Results

Differences in the significant negative emotional events between physical education and other-subject student teachers

The present procedure led to discovering five categories of significant negative emotional events experienced during the school placement among student teachers. Tables 1, 2 present the significant professional events and subject distributions for the two reported events. The observed distributions differed from the expected equal distribution for both events [$\chi^2 = 17.93$ (4); $W = 0.33$, $p < 0.005$ for event 1 and $\chi^2 = 11.93$ (4); $W = 0.27$; $p < 0.05$ for event 2]. This result shows that the two groups (PE vs. other subjects) did not report the same distribution in the

TABLE 1 Event class distribution of event 1 for physical education teachers (PE) vs. teachers of other subjects (other).

	PE (99)	Other (68)
Student rules violations	44	37
(% column)	44.44%	54.41%
Collaborative issues	13	21
(% column)	13.13%	30.88%
Risks for the student physical integrity	22	4
(% column)	22.22%	5.88%
Organizational issues	6	3
(% column)	6.06%	4.41%
Lack of student motivation	14	3
(% column)	14.14%	4.41%
χ^2 (4)	17.93	
W	0.33	
p	<0.005	

χ^2 , Chi-square; W, Effect size. Italic scores refer to % (column) for each category.

TABLE 2 Event class distribution of event 2 for physical education teachers (PE) vs. teachers of other subjects (other).

	PE (92)	Other (64)
Student rules violations	31	24
(% column)	33.70%	37.50%
Collaborative issues	19	26
(% column)	20.65%	40.63%
Risks for the student physical integrity	23	7
(% column)	25.00%	10.94%
Organizational issues	5	3
(% column)	5.43%	4.69%
Lack of student motivation	14	4
(% column)	15.22%	6.25%
χ^2 (4)	11.93	
W	0.27	
p	<0.05	

χ^2 , Chi-square; W, Effect size. Italic scores refer to % (column) for each category.

significant negative events according to the five categories identified.

With regards to the emotional events in PE and in other subjects, one category emerged in both, that is, the *Student rules violations*. This category represents 44.44 (for event 1) or 33.70% (for event 2) of the events reported by the PE student teachers and 54.41 (for event 1) or 37.50% (for event 2) for the student teachers of other subjects. For example, when a group of students disrupts classes or when a student explicitly insults another student or does not listen to the instructions or prefers to talk and laugh with friends, like during the “Conflict with a student who did not wish to follow the instructions given by the referee (uni-hockey), it is insolence against the teacher and insult to peers,” (29A). This is even more present in the

classroom, as in the gym, when for example, a student teacher reported:

“I asked a pupil to stop playing with a paper plane and he did not stop. I had to ask him to give it to me, but then, he made another one and I had to ask him to give it to me again. I reminded him that his persistence would have consequences (remarks in the diary). After that, he calmed down” (97A).

In contrast to the category, *Student rules violations*, some categories were more relevant in PE than in the other subjects. That is the case of the categories concerning the *Lack of student motivation*, *Risk for student physical integrity*, and *Collaborative issues*.

The category, *Lack of student motivation*, is more frequently present in PE, representing 14.14 (for event 1) and 15.22% (for event 2) of the events reported by the PE student teachers but 4.41 (for event 1) and 6.25% (for event 2) for the student teachers of other subjects. For example:

“In Uni-hockey class with 15–16 years old girls, neither were they motivated, nor did they perform the challenges asked (abs, crunches...). The tutor screamed at them for being such disrespectful ‘princesses,’ but they did not really care. It was a Friday afternoon” (25A).

Student risk for physical integrity is also an important part of the significant negative emotional events experienced by Physical Education teachers. This category represents 22.22 (for event 1) and 25.00% (for event 2) of the events reported by the PE student teachers but only 5.88 (for event 1) and 10.94% (for event 2) for the student teachers of other subjects.

“In Ski camp with 9th classes in Château-d’Oex, there was injury on the slope, a student fell badly on his head. I had to call the first aid team and went to hospital with them. Finally, and hopefully, it was nothing too serious” (24A).

The *Organizational issues*, even if less lived by both types of student teachers are more present in the PE student teacher school placements than in the other subjects. This category represents 6.06% for event 1 and 5.43% for event 2 reported by the PE student teachers and 4.41 (for event 1) and 4.69% (for event 2) for the student teachers of other subjects.

“I arrived early to set up the volleyball net, but one of the poles from the garage had been put in the corridor because the handle was broken. The poles in the other gyms were used. The students arrived and I could not start the class on time. My tutor found a solution by tying the net to the broken pole” (21A).

Collaborative difficulties with the tutor, colleagues or even the principal are less relevant for PE student teachers. This

TABLE 3 Comparison of emotions, frequency, burnout, and vigor for physical education (PE) teachers vs. teachers of other subjects (other)—Mann-Whitney *U*-test.

	PE teachers		Other		<i>U</i>	<i>Z</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Unpleasant emotions—Event 1 (intensity)	2.54	0.71	2.92	0.93	2,732	2.07	0.04
Unpleasant emotions—Event 2 (intensity)	2.65	0.87	2.87	0.83	2501.5	1.74	0.08
Frequency of negative experience	3.25	1.05	3.33	1.13	3,202	0.53	0.59
Physical fatigue	2.76	0.97	3.27	1.21	2,517.5	2.76	0.01
Cognitive weariness	2.62	0.91	2.96	1.06	2,791	1.87	0.06
Emotional exhaustion	2.59	0.94	2.87	1.74	3,218	0.48	0.63
Physical strength	5.15	0.96	4.73	1.06	2,610	−2.46	0.01
Cognitive liveliness	4.94	0.98	5.02	0.98	3,227	0.45	0.65
Emotional energy	5.57	0.97	5.55	0.89	3,228	−0.45	0.65

U, Mann-Whitney Test; *Z*, Standard score. Italic scores refer to % (column) for each category.

category represents only 13.13 (for event 1) and 20.65% (for event 2) of the events reported by the PE student teachers but 30.88 (for event 1) and 40.63% (for event 2) for the student teachers of other subjects. The findings show that student teachers from other subjects had more negative events involving the tutor and the student:

“The students entered the classroom quite agitated. Normally, I attend the class and observe my tutor. On this day, she wanted me to do the corrections of two exercises. She did not give me time to welcome the students and she spoke loudly, telling the students to be quiet and that she is doing this for me, because I would not dare to intervene. I did not feel valued and respected at all” (159B).

A second example arising from a student teacher in art is also relevant to the collaborative difficulties between tutors and student teachers:

“It was during the observation period at the end of a school day. My tutor, the second student teacher in arts and I were in the classroom, and the end of the placement was approaching. I came with 6–7 ideas for lesson topics to give to my class. I had no teaching experience, unlike the other trainee, who is in his second year. I started to explain my ideas to my tutor but he immediately interrupted me and said that he did not like this idea. I followed up with the next ones, but each time he did not like it and I felt very uncomfortable, ashamed and very silly in front of the other student. The tutor also asked me a lot of technical questions (how do you plan to do this? when? what?) when they were only propositions and I had no idea how to do it, because I have never taught such a lesson. I found it very humiliating that all my ideas were brushed aside in front of my colleague. My tutor must have realised this, because the next day, he apologised for being so hard.” (161A).

The results show that the negative events presented in this category are related to mainly troubles between the mentor and the student teachers of other subjects (that is, 84% of the events while 9% is related to the parents and other 7% to the hierarchy).

Differences between physical education student teachers and student teachers of other subjects in their wellbeing levels

The results on the student teachers' wellbeing levels are presented in [Table 3](#).

Concerning the intensity of unpleasant emotions related to the events, results of the Mann-Whitney *U*-tests showed that PE student teachers had significantly lower scores of unpleasant emotions than other student teachers for event 1 ($U = 2,732$, $Z = 2.07$, $p < 0.05$) and marginally significantly lower for event 2 ($U = 2,502$, $Z = 1.74$, $p < 0.10$). Thus, the significant events were related to less intensity of unpleasant emotions for PE student teachers than other student teachers. The analyses revealed no significant difference for the frequency of the negative experience reported ($U = 3,202$, $Z = 0.53$, $p > 0.10$). Consequently, PE and other student teachers reported the negative events in the same proportion.

Regarding burnout, the Mann-Whitney *U*-tests showed that PE student teachers had significantly lower scores for physical fatigue than other-subject student teachers ($U = 2,518$, $Z = 2.76$, $p < 0.01$). Moreover, they also had marginally significantly lower levels of cognitive weariness ($U = 2,791$, $Z = 1.87$, $p < 0.10$) but no significant difference was shown for emotional exhaustion ($U = 3,218$, $Z = 0.48$, $p = 0.63$).

Finally, PE student teachers had significantly higher scores for physical strength than other-subjects ($U = 2,610$, $Z = -2.46$, $p > 0.10$). However, no significant difference was observed for

emotional energy ($U = 3,228$, $Z = -0.45$, $p = 0.65$), and for cognitive liveliness ($U = 3,200$, $Z = 0.45$, $p = 0.65$).

To note, in the description of one significant negative event, a PE student teacher defined how he copes and deals with negative events and has the energy to overcome some difficulties in teaching:

“I experience negativity when a lesson does not go well as planned, when students dissipate because the time of the workshops was too long, or when the amount of movement was not sufficient because the material planned to create a second installation was used by a colleague. This does not occur often, but it impacts me. I try to tell myself that I can make mistakes, which is how one learns, especially as I do not have much experience. But I’m still disappointed, and I’m beginning to worry about the note I’ll get on teaching, even though majority of the lessons are going well. So, I take over, imagine I am in the middle of a game and motivate myself again to face my disappointment.” (129A).

Discussion

The purpose of the present study was to explore the emotional experiences and wellbeing levels of PE student teachers during initial teacher training in comparison with other-subject student teachers. More specifically, the authors aimed to (1) identify the differences and similarities in the types of significant negative emotional events between PE and other-subject student teachers, and (2) explore and compare levels of negative emotions, burnout and vigor among PE and other-subject student teachers.

First, it was assumed that the distribution of negative event categories would be different between PE student teachers and those of other subjects as PE teachers are confronted with multiple and specific concerns (Silva et al., 2021) associated with Students’ movements and workplace conditions (e.g., gym and outdoor education). The hypothesis of this study was confirmed and the results show an over-representation of two categories of negative significant events among PE student teachers: *Risks for the student physical integrity* and *Lack of student motivation*. This category, *Lack of student motivation* where students are not involved in the PE lessons, is in line with Gaudreault et al. (2018) findings that show PE as *marginal* school subject. In PE, students are exposed to gazing by others in the gym and it is less the case when students are sitting on a chair behind their desk. It is more visible in PE lessons when a student is not motivated and is not involved in the task proposed by the teacher (no movement, other movements). Secondly, the over-representation of the category, *Risk for the student physical integrity*, among PE teachers is not unexpected as compared to other-subject teachers and confirms previous results (Descoedres and Hagin, 2020):

subjective and objective risks are more prevalent in physical activities than in intellectual ones.

In addition, this study shows an under-representation of the significant events related to *Collaborative issues* among PE student teachers. It can be assumed that in the present context (state of Vaud), the link between PE university trainers and PE mentors is well maintained because the community is quite small and yearly meetings permit focusing together on the professional development of PE student teachers. This link seems to be less useful in the other subjects. The PE and community work together to bring the PE student teachers forward in their curriculum and there are fewer difficulties between tutors and PE student teachers as shown by the results of the present study. The student teachers talk about seeking guidance as a tactic in resolving their professional inadequacy at the beginning of their teaching careers. Student teachers, mainly in other subjects, experience tensions in their role (Pillen et al., 2013) like in this category, *Collaborative issues*, which leads to lack of recognition that student teachers feel during their school placement. Some of them are included in the teamwork while others are not. In line with recent studies based on the conservation of resources theory (e.g., Granziera et al., 2021), the results of the current study show that the challenges are not only related to classroom discipline problems, individual differences among students, workload and work pressure (Kyriacou and Kunc, 2007), but also to finding and negotiating a place of their own in the school’s culture. This seems to be easier for PE student teachers than for student teachers from other subjects.

The negative category, *Student rules violations*, is represented in a similar way among PE and other-subject student teachers. These results give a different perspective to those presented in many studies (Descoedres and Hagin, 2020; López et al., 2021), where conflicts between students are recurrent in PE lessons due to the competitive nature of some activities. It seems that in other subjects, such behaviors are also present as well as disrespectful behaviors (De Mauro and Jennings, 2016).

Moreover, a central aspect of the current work was to explore the similarities and differences in the wellbeing levels between PE and other-subject student teachers. First, no significant differences emerged in the frequency of negative emotional events according to the subject taught (PE vs. other subjects). Thus, despite various working conditions, all student teachers experienced a similar frequency of occurrence for the negative emotional events during school placement. Thus, the emotional *whirlpool* (Erb, 2002) seems not specific to the subject taught. Secondly, the negative events were associated with lower levels of unpleasant emotions (that is, anger, sadness, and fear) for PE student teachers than for other-subject student teachers. Thus, even if PE student teachers experience a similar level of negative emotional events, these events are associated with less intensity of unpleasant emotions in comparison with student teachers of other subjects. In line with the findings of Salaveria et al.

(2014), these positive emotional outcomes for PE teachers may be explained by high levels of emotional regulation, especially because of their sport background. From this perspective, it could be assumed that PE teachers, which have been involved in sport competitions in their background and curriculum (Armour and Jones, 2002), transfer and use the emotional skills and emotional labor (Lee, 2019) previously developed to cope with school stress factors.

In line with the study of Atmaca et al. (2020), these differences in well-being levels are confirmed by health indicators including burnout and vigor scores. In particular, significantly higher scores of physical strength, lower scores of physical fatigue, and marginally lower scores of cognitive weariness were observed for PE teachers in comparison with student teachers of other subjects. These findings are consistent with previous studies focusing on more experienced PE teachers (Guillet-Descas and Lentillon-Kaestner, 2019; Cece et al., 2021a). It is noteworthy that the higher differences in the wellbeing levels refer to the physical dimensions of vigor (physical strength) and burnout (physical fatigue). At first, this result is unexpected, considering the physical constraints of PE teaching (e.g., using sport equipment and regular movement) which could lead to physical pain (Kedebe et al., 2019). In line with the conservation of resources theory (Shirom, 2003, 2011; Hobfoll, 2010), this result suggests that PE teachers have higher physical resources and are able to maintain them. Again, according to the findings of Salaveraa et al. (2014) and Armour and Jones (2002), it is assumed that the physical health profiles of PE teachers explain the ability to cope with the physical constraints of the teaching activities, especially for novice PE teachers.

Limitations and perspectives

On one hand, this study has several limitations and opens new research perspectives. Firstly, the results obtained in this study should be extended to differences between the different subjects taught. Here, PE teachers as compared to other-subject teachers based on the specificity of PE at school, were focused on. In further studies, a larger sample size should be used to explore the potential presence of sub-groups and inter-individual variability for the same subject taught. In addition, future studies could focus on experienced teachers, notably, concerning perceived negative events during teaching and associated emotions. In addition, a deeper investigation on the negative events' antecedents could be done including additional variables such as emotional competences, age, school placement, or previous experiences in competitive sport to have in-depth knowledge on the relationship between specific resources of PE teachers and their better capability to cope with school negative events. Finally, future studies should use a longitudinal design to

deeply explore the changes and stability in the emotional process of novice teachers during their first months or years of teaching.

On the other hand, this study could provide interesting implications for school stakeholders (such as university trainers and mentors) to promote student teachers' health. In summation, the present results enhance the necessity to adjust teacher training to better support student teachers in front of the shock of reality and to limit the amount of teacher dropout (De Mauro and Jennings, 2016). First, according to the distribution of the negative events, although some teaching issues seem similar for all teachers (e.g., rules violations), it appears necessary to train teachers for professional demands adapting to the subject taught. Thus, skills for managing interactions with other school actors (that is, colleagues, tutors and hierarchy) seem relevant for most disciplines. On another hand, teachers' initial training in PE should highlight the training to a risk pedagogy (Porsanger, 2021) (e.g., progressive assumption of responsibility by students) as well as a learning climate limiting deviant behaviors (e.g., rules integration) (Méard, 2019). Finally, it may be interesting to prevent the practice shock among beginners by presenting the usual issues experienced by novice teachers according to the subject taught (e.g., students with low sport interest for PE student teachers).

Conclusion

The present study, based on narrative and quantitative questionnaires, aimed to explore the emotional experiences and wellbeing levels of PE student teachers during initial teacher training in comparison with teachers of other subjects. More specifically, the purposes of the study were to (1) identify the differences and similarities in the types of significant negative emotional events between PE and other-subject student teachers, and (2) explore and compare levels of negative emotions, burnout, and vigor among PE and other-subject student teachers. Concerning our first research issue, the distribution of negative event categories is different between PE student teachers and those of other subjects, maybe because PE teachers are confronted with multiple and specific concerns linked to student movements and higher risks (because students are not sitting on a chair in a classroom), workplace conditions and the better visibility of Students' involvement or lack of involvement in the task (the novice teacher may not see when a student doesn't fill a mathematics worksheets, but in PE none can miss a student sitting in the bench instead of practicing). This finding highlights the specific constraints of PE (e.g., lack of motivation and risk for physical integrity) and supports adapted teacher training. Moreover, in connection with our second objective, the present findings showed differences in the wellbeing levels (intensity of unpleasant emotions, vigor, and burnout) according to the subject taught despite a similar frequency of negative emotional events. It seems that PE

teachers have developed specific resources to cope with school constraints, probably, in relation to their sport experience. Future research is needed notably, to better understand why they cope better with school negative events and the difference in emotional experiences and wellbeing levels between teachers of other subjects.

Data availability statement

The original contributions presented in this study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by the Haute École Pédagogique Canton de Vaud Switzerland. The patients/participants provided their written informed consent to participate in this study.

Author contributions

MD carried out the experiment. MD wrote the manuscript with support from VC. VL-K helped to supervise the project and conceived the original idea. All authors contributed to the article and approved the submitted version.

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Conflict of interest

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