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CLASSROOM OVERCROWDING AND SELF-EFFICACY: THE EXPERIENCES OF PHYSICAL EDUCATION TEACHERS AT PIERRE MAYINDOU MIDDLE SCHOOL IN BRAZZAVILLE

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ABSTRACT

This qualitative study examines the impact of classroom overcrowding on self-efficacy (SE) and the instructional adaptations of 10 physical education (PE) teachers at Pierre Mayindou Middle School in Brazzaville. Grounded in social cognitive theory (Bandura, 1977; R. Tschannen-Moran & A. W. Hoy, 2001), classroom ecology (W. Doyle, 1986), and didactic transposition theory (Y. Chevallard, 1991), the study draws on a thematic content analysis of semi-structured interviews. The findings reveal a weakening of the sources of SE when class sizes exceed 80 students. Faced with an overriding safety imperative (100%), teachers engage in constrained didactic transposition: simplifying high-risk activities such as gymnastics (90%), resorting to general motor exercises (80%), limiting individual feedback (80%), and adopting functional authoritarianism (90%). The main conceptual contribution is the formulation of 'survival SE' (90%): an adaptive mechanism whereby perceived success derives from maintaining group order rather than advancing student learning. The study recommends revising initial and continuing teacher education to address large-group instruction and vicarious learning in highly constrained environments.

Keywords: Self-efficacy, Overcrowded classes, Physical education, Classroom ecology, Professional identity.

1 INTRODUCTION

Efficiently regulating learning arrangements is a cornerstone of teaching (M. Altet, 2000, p. 31). Within this process, teachers' self-efficacy (SE) constitutes a central cognitive variable (A. Bandura, 1997, p. 3): it shapes task planning, persistence in the face of obstacles, and the effectiveness of instructional practices (M. Tschannen-Moran & A. W. Hoy, 2001, p. 783; A. W. Hoy & R. B. Spero, 2005, p. 344).

In physical education (PE), self-efficacy is particularly challenged by the structural characteristics of the subject. Based on motor action and sociomotor interaction (P. Parlebas, 1999, p. 330), PE lessons involve students' physical practice and collective interactions. They take place in dynamic environments in which spatial organization, equipment handling, and physical risk management require continuous regulation (L. Ria & M. Durand, 2001, p. 49). In this complex learning ecosystem, classroom management demands sustained vigilance and real-time adjustments (W. Doyle, 1986, p. 394; 2006, p. 100), directly shaping teachers' perceptions of their own effectiveness.

These demands are exacerbated under conditions of extreme overcrowding, a major systemic challenge in emerging education systems (UNESCO, 2015, p. 32) and sub-Saharan Africa (CONFEMEN, 2019, p. 118; P. Hugon, 2020, p. 117). In such settings, classroom ecology is profoundly destabilized (W. Doyle, 1986, p. 412), while conventional sources of self-efficacy erode under the combined pressures of inadequate infrastructure and responsibility for safety (L. Ria, 2015, p. 45; A. Bandura, 2003, p. 124).

Class-size constraints are particularly acute at Pierre Mayindou public middle school, located in Brazzaville's seventh district (Mfilou), where teachers regularly teach more than 80 students per class. In this illustrative setting, classroom multidimensionality and unpredictability (W. Doyle, 1986, p. 395) reach extreme levels, imposing substantial cognitive overload on teachers. As their attentional resources are depleted, the very conditions required for subject-specific teaching become severely compromised. A major dialectical tension emerges between preserving authentic self-efficacy and ensuring meaningful motor engagement in an environment that drastically restricts instructional differentiation, formative assessment, and individual monitoring of performance. Our analysis therefore examines the interaction between PE teachers' self-efficacy and the reconfiguration of their instructional action. The aim is to understand how this relationship adjusts under the compelling pressure of overcrowded classes.

Although recent research has increasingly examined factors influencing teaching in challenging environments, this issue remains underexplored in sub-Saharan Africa. On the one hand, English-language and European studies of PE teachers' SE (N. Eather et al., 2020, p. 66) have extensively documented the causal relationship between high self-efficacy, innovative instructional strategies, and optimal student motor engagement. However, these studies draw almost exclusively on Western settings characterized by moderate class sizes, rarely exceeding 30 students, and optimal material resources. On the other hand, research on overcrowded classes in sub-Saharan Africa (A. Tchagnaou et al., 2026, pp. 95–97; M. Nda, 2020, p. 142) primarily addresses socio-institutional dimensions, deteriorating working conditions, and the fragility of theoretical learning. Extending these analyses, A. K. Tchameni and M. Ndjendji (2021, p. 55), together with K. R. Lawson (2022, p. 119), highlight the adverse effects of overcrowding on physical safety and lesson organization, while retaining essentially descriptive or ergonomic approaches.

The literature thus reveals a substantial gap in theoretical and empirical evidence on this issue. More specifically, PE teachers' professional cognition remains insufficiently documented from the combined perspective of fluctuations in SE—understood through its organizational, instructional, and relational components—and forms of constrained didactic transposition. Managing large classes exposes teachers to considerable stress and workload, fostering feelings of ineffectiveness and burnout (C. Kyriacou, 2001, p. 28) that directly disrupt their situated cognitive activity.

Our study is situated precisely at the intersection of this conceptual gap—the relationship between SE and didactic transposition—and this contextual gap—the analysis of cognition under the pressure of overcrowded classes. This intersection provides its scientific rationale.

Three central questions structure this research. First, what are the structural configuration and internal dynamics of SE among PE teachers facing classroom overcrowding at Pierre Mayindou Middle School? Second, how do these practitioners negotiate the tension between collective regulation and safety imperatives, on the one hand, and individual instructional support, on the other? Finally, what adaptations and practical strategies do they use to keep students physically active?

To operationalize this inquiry, we formulate the central hypothesis that classroom overcrowding weakens teachers' instructional effectiveness, displacing their expert role toward safety regulation. Three specific hypotheses follow. First, SE assumes a defensive configuration, preserving high perceived organizational effectiveness at the expense of instructional effectiveness. Second, teaching is adjusted through drastically simplified didactic transposition, characterized by a retreat to elementary content and the sidelining of physical activities involving high emotional demands or physical risk. Finally, maintaining a minimum level of motor practice depends on organizational compromises, such as rotations, simplified instructions, and peer tutoring, whereby the amount of practice provided takes precedence over meaningful instructional transformation.

Accordingly, the overall objective is to analyze the impact of overcrowded classes on SE and PE teaching practices. Specifically, the study seeks to characterize the structure of teachers' SE in overcrowded classes, examine instructional adaptations to teaching content, and identify the organizational adjustments used to preserve students' motor practice.

To address these issues, the study proceeds through four complementary stages: presentation of the conceptual framework, specification of the methods used to collect and process empirical data, analysis of the findings, and an in-depth discussion. It concludes with a critical consideration of possible avenues for instructional action.

2 THEORETICAL AND CONCEPTUAL FOUNDATIONS

2.1 Our investigation draws on three theories: social cognitive theory (A. Bandura), classroom ecology (W. Doyle), and didactic transposition (Y. Chevallard).

2.1.1 Social cognitive theory and the dynamics of self-efficacy

Derived from A. Bandura's social cognitive theory (1997, p. 3) and his concept of human agency, teacher self-efficacy (SE) refers to practitioners' beliefs in their ability to organize and execute the actions required to achieve intended learning objectives (M. Tschannen-Moran & A. W. Hoy, 2001, p. 783). SE is not a fixed personality trait but an evolving, context-dependent belief. It is sustained by four sources:

- Past successes: successfully completing a task oneself.
- Others' examples: observing a similar person succeed.
- Encouragement: receiving support and validation from others.
- Physiological and emotional states: interpreting one's stress or energy, for example by turning anxiety into motivation.

In overcrowded PE classes, the structure of SE is operationalized through the tripartite model of M. Tschannen-Moran and A. W. Hoy (2001, p. 796), adapted to large-group constraints:

- Classroom management: perceived ability to maintain order, regulate student movement, and ensure safety in an overcrowded space;
- Instructional strategies: teachers' belief in their ability to simplify and adapt motor content despite high student density;
- Student engagement: confidence in motivating students and preserving effective motor practice time for everyone.

This framework makes it possible to examine the hypothesis of an internal dissociation of SE under class-size pressure, characterized by the preservation of perceived organizational control at the expense of instructional and assessment effectiveness.

2.2 Applying classroom ecology to spaces for motor activity

Understanding the material and human constraints on teaching required a broader theoretical foundation. Alongside social cognitive theory, the complementary use of classroom ecology (W. Doyle, 1986, 2006) proved essential. This framework conceptualizes the classroom as a distinctive ecosystem characterized by the multidimensionality, simultaneity, immediacy, and unpredictability of events. In PE, these ecological properties are considerably amplified by the characteristics of practice spaces, including outdoor facilities and sports courts, and by the nature of motor engagement itself (M. Durand, 1996, p. 82; P. Parlebas, 1999, p. 330).

When groups exceed 80 students on a single sports court, the complexity of this ecosystem crosses a critical threshold, overloading teachers' information-processing capacity. Maintaining order and ensuring safety become overriding imperatives for preventing accidents, substantially restricting instructional regulation. W. Doyle's model (1986, 2006) helps explain teachers' changing role: instead of supporting each student individually, they focus on group management and safety.

2.3 The theory of constrained didactic transposition

Whereas the ecological approach illuminates environmental constraints, understanding how knowledge is reconfigured under class-size pressure requires an analysis of content adaptation. The study therefore draws on didactic transposition. Developed by Y. Chevallard (1991, p. 39) and extended by S. Johsua and J.-J. Dupin (1993, p. 142), this concept models the process whereby scholarly knowledge and reference social practices are converted into knowledge to be taught and subsequently into knowledge actually taught in action. In this study, this conceptual lens helps explain how urgent safety concerns and large-group management alter the nature of the motor tasks taught.

Under conditions of excessive class size and scarce material resources, PE teachers are compelled to undertake reductive, or constrained, didactic transposition. This reconfiguration takes three main forms:

- Simplification of spatial and temporal arrangements and reduction of the equipment used;
- Sidelining or eliminating physical, sporting, and artistic activities involving greater physical risk or strong emotional demands, such as gymnastics or direct opposition activities;
- Prioritizing collective motor engagement time over individualized instructional regulation, differentiation, and formative regulation.

Conceptualized in this way, teaching and learning in overcrowded settings cannot be understood solely as the expression of individual instructional intentions. They emerge from complex instructional tensions at the intersection of self-perception (SE), classroom ecosystem constraints (the ecological approach), and the nature of the knowledge taught (didactic transposition). Combining these three theoretical lenses provides an analytical framework for explaining how spatial and class-size constraints alter PE teachers' professional cognition and reconfigure their instructional action.

Bringing these three theoretical dimensions together requires an empirical approach attuned to field conditions. The following methodology details the data collection and analysis procedures used to capture these instructional adjustments.

3 METHODOLOGY

This research adopts a qualitative, interpretive, and phenomenological approach (C. Selltiz et al., 1977, p. 78), combining the sociology of teaching activity with the ergonomics of educational work.

The empirical investigation involved field immersion from April 11 to May 11, 2025, at Pierre Mayindou Middle School in Brazzaville's seventh district, Mfilou. The site was selected as an illustrative setting characterized by critically overstretched infrastructure and severely limited space for sports practice.

Data were collected through semi-structured interviews (P. Paillé & A. Mucchielli, 2021, p. 162), a preferred method for accessing the structure of practitioners' representations and underlying logics of action. An interview guide was developed around three themes, each targeting a specific dimension of teaching under overcrowded conditions:

- The dynamics of self-efficacy (SE) and the preservation of professional identity;
- Classroom ecology and safety management in overcrowded settings;
- Constrained didactic transposition and the reconfiguration of knowledge.

The study included all ten PE teachers at the school (N = 10; participation rate: 100%). This school-level census approach makes it possible to eliminate local selection bias and capture the full range of logics of action operating at the site (R. Ghiglione & B. Matalon, 1998, p. 25).

In accordance with ethical principles for research in the human sciences, data collection was conditional on each participant's free and informed consent. Strict anonymity was ensured through identifiers E1 to E10. Individual interviews averaging 45 minutes were conducted on *site*. All interviews were digitally recorded and transcribed v*erbatim*.

Following the principles of thematic content analysis (L. Bardin, 2013, p. 147), the transcribed corpus was analyzed through a combined approach: deductively, using the study's key concepts (SE, classroom ecology, and didactic transposition), and inductively, allowing categories specific to the field setting to emerge (P. Paillé & A. Mucchielli, 2021, p. 182). The verbal material was processed sequentially in four stages:

- Identification of meaning units: dividing the corpus into self-contained semantic segments;
- Thematic categorization and coding: grouping semantic units within a framework of homogeneous, mutually exclusive, and exhaustive categories;
- Monitoring thematic saturation: progressively assessing emerging themes to ensure that the categories within the corpus had been exhausted;
- Connecting and integrating themes: organizing categories for presentation and illustration through representative quotations, coded E1 to E10, thereby ensuring that interpretations were empirically grounded and valid.

To combine the phenomenological depth of lived experience with the rigor of thematic content analysis (P. Paillé & A. Mucchielli, 2021, p. 182), the presentation of findings integrates qualitative interpretation with frequency counts. This purely descriptive quantification indicates the relative prominence and recurrence of themes, without claiming statistical inference. Here, N denotes the total sample size (N = 10), whereas n indicates the number of verbal occurrences recorded. The number of occurrences (n) may therefore exceed the number of participants (N) when a teacher repeats a semantic unit during the interview.

4 RESULTS

The findings reveal a profound reorganization of PE teachers' activity in response to overcrowded classes. Content analysis identifies five main themes: erosion of SE, instructional alteration through content reduction, a shift toward control strategies, internal dissociation of SE, and ethical distress associated with the erosion of professional identity.

4.1 Erosion of the theoretical sources of self-efficacy (SE)

Table 1: Impact of classroom overcrowding on the sources of PE teachers' self-efficacy (SE)

Sources of SE	Illustrative quotations	Number of teachers (N=10)	Occurrences (n)	Relative frequency
Failed enactive mastery experiences	"It is impossible to achieve the curriculum objectives. We prepare the lesson, but out there with so many students, nothing goes as planned and the lesson falls apart." (E5).	9	17	95%
Deterioration of physiological and emotional states	"We finish the lesson completely exhausted, our voices gone, with constant anxiety. The noise and fear of a serious accident drain all our energy." (E8).	8	15	85%
Lack of verbal persuasion and recognition	"We feel abandoned by management. There is no encouragement or recognition of the effort we make under this overload." (E1).	7	13	75%
Weakened vicarious modeling	"Even the most experienced colleagues are overwhelmed by the numbers. There is nobody around us whose example we could follow to succeed." (E4).	6	10	60%

Source: Field survey data, 2025

The empirical analysis shows deterioration across all four sources of SE under overcrowding pressure. First, the collapse of mastery experiences (95%, n = 17 occurrences) constitutes the main obstacle: the inability to assess motor learning undermines teachers' belief in their agency ("With this many students, I am just *supervising; I cannot even see who is improving," E8). Second, negative physiolog*ical states (85%, n = 15 occurrences) reflect internal destabilization, as hypervigilance and fear of accidents are interpreted as a loss of control ("I have a knot in my stomach because there is *a constant risk of injury," E2). This is compounded by a la*ck of social persuasion (75%, n = 13 occurrences), reflecting institutional abandonment and insufficient recognition of actual work ("The inspectorate's demands ar*e completely disconnected from reality," E1*). Finally, weakened vicarious experience (60%, n = 10 occurrences) completes this process, as collective resignation reinforces the inevitability of fa*ilure ("Seeing experienced colleagues give up proves there is no*thing we can do," E7). By neutralizing these sources, overcrowded settings shift PE teachers from instructional design toward learned helplessness.

4.2 Instructional alteration and content adaptation

The empirical data reveal a drastic narrowing of the instructional framework under overcrowding pressure. First, the primacy of safety control (100%, n = 18 occurrences) relegates learning to a secondary position ("M*y absolute priority is managing movement and noise to prevent a tragedy, not helping students i*mprove," E10). This approach then requires the exclusion of high-risk physical, sporting, and artistic activities (90%, n = 14 o*ccurrences), such as gymnastics or opposition sports ("I modify gymnast*ics movements with these numbers; otherwise, death is certain," E4). Content is also simplified (80%, n = 12) into p*redictable tasks ("We do jogging or run laps; it is easy to control*," E5). Finally, this group-level approach eliminates individualized feedback (80%, n = 11 occurrences) *("I manage a crowd; I no longer correct any student individually,*" E3). Ultimately, overcrowding transforms instruction for learning into little more than an exercise in surveillance design.

Table 2: Forms of instructional adaptation and redefinition of teaching priorities in overcrowded settings (N = 10)

Subtheme	Representative quotations	Number of teachers	Occurrences (n)	Relative frequencies (%)
Risk-management stance (safety before learning)	"The aim simply becomes keeping everyone moving without an accident." (E1). "My real success [...] is that they return to class uninjured." (E5).	10	18	100%
Abandoning complex activities (gymnastics/duels)	"We have improvised with gymnastics [...] a fracture is guaranteed." (E6). "I have given up combat sports and apparatus work." (E1).	9	14	90%
Simplifying/reducing content (general activities, endurance)	"We do general activities: endurance running or football with everyone crowded together." (E8). "Basic exercises, laps of the field, or simple stretches." (E5).	8	12	80%
Individualization becomes impossible (end of personalized feedback)	"I do not have time to correct students one by one." (E3). "Stopping to help one particular student leaves the door open to disorder." (E3).	8	11	80%

Source: Field survey data, 2025

4.3 Classroom management strategies and management styles

Table 3: Classroom management strategies and forms of order regulation in overcrowded settings (N = 10)

Subthemes	Representative quotations	Number of teachers (N=10)	Occurrences (n)	Relative frequency (%)
Dominance of a directive style (survival authority/sanctions)	*"I threaten them, I raise my voice immediately [...] it is the only thing that calms them down*." (E1). *"If I act like the boss [...] it is because I have no choice."* (E5).	9	15	90%
Loss of control associated with outdoor space	*"The space is too large [...] as soon as you turn your back, students take advantage."* (E7). *"The noise from other classes, this space without boundaries.*" (E2).	8	13	80%
Loss of control associated with outdoor space	*"I cut the activity short; I blow the whistle to stop everything.*" (E3). *"I prefer to sacrifice students' learning to preserve discipline."* (E4).	7	10	70%
Sacrificing lessons for discipline (forced interruptions)	*"As soon as things get out of hand, I stop everything. We sit on the ground in silence until the end of the period—so much for the lesson."* (E2).	7	10	70%

	"I cut the lesson short. We spend the remaining time maintaining order while standing still." (E9).			

Source: Field survey data, 2025

The data reveal a functional authoritarianism oriented toward survival, marking the transition from an instructional stance to an exclusively safety-focused approach. This shift operates along three main lines:

- The dominance of a highly directive intervention style (90%, n = 15 occurrences) emerges as an ergonomic necessity: instructions become exclusively top-down and coercive to maintain control over overcrowded groups ("If I act *like the boss [...] it is because I have no choic*e," E5);
- Spatial vulnerability associated with open grounds (80%, n = 13 occurrences) is an aggravating factor: noise interference and interrupted sightlines across outdoor courts complicate continuous monitoring of student movement ("Honestly, on an *open court with 85 students, you take your eyes off a group for two seconds and that is it—you lose track. (...) I shout myself hoarse, and nobody hears me. And at the far end of the field, there are corners we cannot even see..."* E7);
- Practitioners explicitly sacrifice instruction (70%, n = 10 occurrences), frequently interrupting motor activity to prioritize the restoration of silence and discipline (E2).

Overall, the overcrowded class reduces the educational relationship to basic safety

4.4 Configuration and typology of self-efficacy (SE)

Table 4: Configuration and typology of PE teachers' self-efficacy (SE) in overcrowded settings (N = 10)

Subthemes	Representative quotations	Number of teachers (N=10)	Occurrences (n)	Relative frequency (%)
Defensive/survival SE (organizational effectiveness)	"I feel effective in my management role [...] but not in my teaching role." (E1). "My effectiveness is that of a police chief." (E3).	9	16	90%
Erosion of motivation/resignation (low SE)	"Why look for solutions [...] I do the bare minimum." (E5). "This failure showed me my limits [...] I no longer attempt anything too ambitious." (E8).	6	9	60%
Creative adaptation/challenge (high SE)	"Paradoxically, it strengthens my desire to find solutions." (E4). "The first day that 60 students sat down [...] my confidence soared." (E5).	4	7	40%
Reliance on vicarious mastery and rules (clear rules/modeling)	"Work with two or three very clear rules." (E8). "Find one or two experienced colleagues who succeed and observe them." (E9).	7	11	70%

Source: Field survey data, 2025

The analysis reveals a restructuring of SE, marked by the emergence of "defensive or survival SE" (90%, n = 16 occurrences). Teachers experience a cognitive dissociation: they consider themselves effective at maintaining order but powerless in actual teaching. Two stances emerge under this constraint: a resigned majority with low SE (60%, n = 9 occurrences), characterized by abandoning innovation in favor of a "bare minimum," and a creatively adaptive minority maintaining high SE (40%, n = 7 occurrences), able to value each small organizational success. To preserve their identity,

practitioners rely on observing experienced peers and applying impersonal procedures (70%, n = 11 occurrences). In overcrowded settings, SE thus shifts from instructional development toward professional survival.

In summary, in overcrowded classes, SE shifts from instructional growth—helping students improve—to professional survival—controlling the group without becoming exhausted.

4.5 Erosion of professional identity

Table 5: Summary of the dimensions of professional identity erosion

Observed dimension	Initial/theoretical role	Actual role in overcrowded settings	Frequencies in the sample
Professional role	Subject-specific teaching expert and educator	Mass regulator and order-maintenance technician	90%
Goal orientation	Progress and technical performance	Safety, absence of injuries, and survival	100%
Teaching style	Differentiated instruction and consultation	Directive command and strict procedures	90%
Nature of SE (self-efficacy)	Growth-oriented SE (student learning)	Management/order-maintenance SE (or crisis avoidance)	90%

Source: Field survey, Bakingu and Balenda, 2025.

This table summarizes the fundamental break between the profession's ideal type and the realities of actual work in overcrowded settings.

First, the transformation of the professional role (90%, n = 16 occurrences) shows instructional experts being relegated to managing student flows and maintaining order. Second, the ranking of professional priorities (100%, n = 18 occurrences) establishes the absolute primacy of physical safety over motor development and student progress. Inflexible teaching practices (90%, n = 15) indicate the abandonment of differentiation in favor of strictly directive management. Changes in intervention approaches (90%, n = 15 occurrences) consolidate this shift toward authoritarian, directive control. Finally, the reconfiguration of SE (90%, n = 16 occurrences) reflects a transition from developmental self-efficacy, focused on learning, to protective self-efficacy, centered on risk control.

Overall, SE becomes divided: safety-related effectiveness compensates for instructional powerlessness to preserve teachers' psychological functioning, marking their withdrawal from instructional ambition.

5 DISCUSSION

This study's overall objective was to analyze the impact of classroom overcrowding on PE teachers' self-efficacy (SE) and instructional activity. The analysis reveals a major identity shift in response to excessive class sizes. The almost systematic failure of mastery experiences (95%) undermines SE and fuels emotional exhaustion (85%). To survive this tension, practitioners retreat into safety-focused (100%) and directive (90%) practices, abandoning their role as "instructional experts" to become mere "flow regulators." These findings structure the discussion around four main themes.

5.1 Erosion of SE: collapse of Bandura's sources in overcrowded settings

The findings highlight deterioration across the four sources of self-efficacy information identified by A. Bandura (2003, p. 124). Repeated inability to achieve instructional objectives (n = 17 occurrences; 95% failure of enactive mastery experiences) is the most damaging factor. In social cognitive theory, enactive mastery experience provides the most authentic evidence of one's capacity to succeed. Under overcrowded conditions, the absence of observed learning deprives teachers of indicators of success, preventing the development of growth-oriented SE.

This failure is amplified by substantial physical and emotional deterioration (85%, n = 15). According to R. Tschannen-Moran and A. W. Hoy's model (2001, p. 783), teachers experience exhaustion and anxiety as evidence of their incompetence. Deprived of managerial support (social persuasion: 75%) and inspiring models (vicarious modeling: 60%), practitioners become trapped in collective resignation, lacking resources to restore their sense of efficacy.

The study thus demonstrates that overcrowding's most harmful impact lies in neutralizing teacher agency, leading to a form of "learned helplessness" (M. E. P. Seligman, 1975, p. 37). This process confirms A. B. Bakker and E. Demerouti's

model (2007, p. 312), showing that excessive organizational demands combined with inadequate resources undermine psychological health and erode practitioners' engagement.

5.2 Constrained didactic transposition and content reductionism

Under spatial and class-size pressure, the gap between "knowledge to be taught" and "knowledge actually taught" reflects constrained didactic transposition (Y. Chevallard, 1991, p. 39), distorting PE. The absolute primacy of safety (100%) sidelines motor learning, leading to the abandonment of complex, high-risk knowledge (90%) in favor of impoverished activities that are easy to supervise (80%). This ecological readjustment (C. Amade-Escot, 2007, p. 48) is accompanied by the disappearance of individual feedback (80%), marking the abandonment of instructional differentiation (M. Altet, 2000, p. 112).

This dynamic challenges the established literature. Whereas English-language studies (J. Bradley et al., 2023, p. 418) associate high SE with instructional innovation in manageable classes (≤ 30 students), our data reveal a critical threshold effect: under extreme overcrowding, spatial and class-size constraints neutralize individual expertise. Content impoverishment is no longer an individual choice but the outcome of strictly systemic determinants.

5.3 Disruption of the classroom ecosystem and the shift toward management

Viewed through W. Doyle's ecological model (1986, p. 394), the classroom's structural properties—multidimensionality, simultaneity, and unpredictability—reach a critical threshold of instability on overcrowded open grounds.

The dominance of a directive style (90%) stems from the impossibility of simultaneously controlling more than 80 moving students, making active teaching methods impracticable. Teachers adopt an authoritarian, survival-oriented approach as their sole means of maintaining order. Moreover, the vulnerability of open space (80%), the absence of partitions, and noise disperse students' attention whenever direct visual contact is interrupted, increasing teachers' cognitive overload (L. Ria & M. Durand, 2001, p. 115). Finally, the frequent sacrifice of practice time (70%) shows organizational concerns taking precedence over effective motor engagement. As W. Doyle theorizes (1986, p. 395), when the classroom climate threatens to break down, management—maintaining order—entirely displaces instruction—the transmission of knowledge.

5.4 SE typology and identity transformation: from instruction to safety

These findings challenge the conventional conception of SE. Whereas A. Bandura's theory (1997, p. 240) treats SE as a dynamic resource for mastering the environment, our data show that extreme overcrowding reverses this logic: SE no longer serves to transform the setting but to accommodate its constraints. The aim becomes survival rather than promoting learning. Teachers cease to mediate subject knowledge and become mere "managers of disorder" (F. Saujat, 2010, p. 58), accepting the sacrifice of student progress for the sole purpose of maintaining order.

The principal theoretical departure, however, lies in the division among teachers produced by this context. The literature often describes activity reorganization as an individual and homogeneous adaptation. Our findings instead reveal a clear divide: a majority (60%) move toward learned helplessness (M. E. P. Seligman, 1975, p. 55) and disengagement, while a minority (40%) preserve their capacity to act (Y. Clot, 2008, p. 83) through informal solidarity networks and exceptionally strict structures. The transition from instructional SE to crisis-avoidance SE can therefore no longer be interpreted as individual failure or professional abandonment. Rather, it constitutes an essential political and defensive trade-off to preserve practitioners' health (C. Hélou & F. Lantheaume, 2008, p. 76) in a failing institutional system.

6 CONCLUSION

This study examined the impact of overcrowded classes on the self-efficacy (SE) of physical education (PE) teachers at Pierre Mayindou Middle School. Interpreted at the intersection of social cognitive theory, classroom ecology, and constrained didactic transposition, the empirical findings reveal a substantial reconfiguration of teaching activity under spatial and class-size saturation. Required to operate in an extremely dense environment, practitioners experience marked erosion of their instructional SE. To preserve their capacity to act and prevent burnout, they develop "defensive SE." This pragmatic and identity-related shift redirects action primarily toward risk prevention and maintaining order, sidelining the teaching of complex motor knowledge in favor of safety-focused mass management.

Breaking the vicious circle of learned helplessness and narrowing the systemic gap between prescribed and actual work require action at two complementary levels. At the instructional level, classroom adjustments depend on functional delegation and rational management of student movement. Structured peer tutoring and peer assessment, assigning observer or referee roles to student leaders, can multiply opportunities for regulation while reducing teachers' cognitive

load. Organizing space into autonomous rotating stations can also divide the class into smaller groups, sharply reduce waiting time, and contain disruptive behavior. Finally, operationalizing content requires substantial instructional simplification through adapted, less complex formats: transforming the internal logic of physical, sporting, and artistic activities to offer small-sided games, such as 3v3 or 4v4, makes motor practice feasible in restricted spaces with limited equipment.

At the institutional and teacher-education levels, sustainably restoring the sources of SE requires a realistic transposition of official curricula adapted to high-density settings. This calls for revising initial and continuing teacher-education programs, particularly at ISEPS, to include modules explicitly addressing large-group management, nonverbal communication, and noise management. Institutions would also benefit from promoting communities of practice to stimulate vicarious modeling and peer support, while prioritizing investment in clearly demarcated sports courts to channel student movement.

Looking ahead, this study opens two major avenues for investigation. First, longitudinal research is needed to map novice teachers' SE trajectories from their entry into overcrowded settings. Second, examining students' subjective experiences and perceptions of these reduced instructional formats would help assess how this retreat toward safety affects classroom climate and their relationship with motor knowledge.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

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Disclosure of conflict of interest

The authors declare no conflicts of interest regarding this manuscript

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