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The Teaching Supervision Practices in Secondary Schools: An Analysis of Teacher Characteristics in Burundi

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Abstract

This study examines the practices of pedagogical supervision in Burundi, a context that has been little explored despite the crucial importance of supervision in improving the quality of secondary education. It constitutes an original contribution by simultaneously analyzing the models of supervision, the phases of the supervisory process and the professional development activities, while considering the sociodemographic, professional and institutional characteristics of teachers and school establishments. The main objective of this research was to identify the supervision practices as perceived by secondary school teachers and to explore their relationships with various individual and institutional variables. To this end, a descriptive and correlational methodological approach was adopted. Data were collected using a validated questionnaire adapted to the Burundian context, involving (N = 187) teachers from 19 secondary schools distributed across five regions of the country. The analyses are based on exploratory factor analyses to identify the underlying dimensions of supervision practices, supplemented by Pearson correlations, t-tests and analyses of variance (ANOVA). The results reveal a predominance of clinical and peer supervision models, structured around the phases of preparation, observation and feedback. The individual characteristics of teachers show few significant relationships with supervision practices. On the other hand, the institutional status of school establishments significantly influences the provision of professional development, with private schools offering more opportunities than public schools. These results underline the urgent need to strengthen the training of pedagogical supervisors and to institutionalize collaborative mechanisms to sustainably support the professional development of teachers and improve the quality of secondary education in Burundi.

Keywords

Pedagogical Supervision, Supervision Practices, Teachers' Characteristics, Classroom Observation, Professional Development, Instructional Leadership

1. Introduction

Education is a constantly evolving sector, and the quality of learning largely relies on the teaching practices implemented in the classroom (OECD, 2018; Schleicher, 2020). Improving the quality of teaching thus requires pedagogical support mechanisms that promote professional development (PD) and continuous improvement of teaching practices (Darling-Hammond et al., 2017). Several empirical studies also establish a significant relationship between pedagogical supervision and teacher performance, particularly in language teaching (Neyra et al., 2021).

Beyond scientific work, the importance of pedagogical supervision is also recognized by various international organizations. UNESCO emphasizes that pedagogical support, formative feedback, and professional monitoring of teachers are essential levers for improving the quality of education systems, particularly in low- and middle-income countries (UNESCO, 2015a, 2021a). Similarly, the World Bank and UNICEF highlight the role of supervision mechanisms focused on support in improving teaching practices and student learning (World Bank, 2018; UNICEF, 2020).

In this context, Burundi, like several other countries, is facing persistent challenges related to the quality of teaching. The supervision of teaching staff is considered a key factor in improving pedagogical practices and strengthening the professional skills of serving teachers (Ndayiziga, 2017). However, knowledge remains limited on how these supervision practices are perceived by teachers, as well as the variations in these perceptions according to their characteristics. This study aims to analyze, from the teachers' perspective, the pedagogical supervision practices implemented by supervisors, examining the models, phases of pedagogical supervision, and professional development mechanisms, and to relate these practices to the characteristics of the teachers.

Although pedagogical supervision is unanimously recognized as a fundamental lever for improving the quality of teaching and supporting the professional development of teachers, its implementation in the Burundian context remains faced with considerable challenges. The existing mechanisms are often perceived as being more focused on control than on support, and the actual practices of supervisors, as experienced by teachers, remain largely unexplored. Furthermore, the relationships between these practices and the professional and contextual characteristics of teachers (seniority, level of training, type of institution, location) are largely neglected. This empirical gap raises a central question: to what extent do the pedagogical supervision practices, as perceived by teachers, relate to their characteristics and contribute to their professional development?

2. Issues and Context

Educational supervision (ES) is recognized as a fundamental lever for teachers' professional development (PD) and improving the quality of learning, when it is part of an approach based on guidance, support, and continuing education, rather than control or inspection (Aminah et al., 2022). Several studies have also shown that active supervision contributes to reducing problematic behavior in schools and improving the learning environment (Gage et al., 2020).

In the Burundian context, SP is officially considered a strategic tool for improving the quality of education and student performance (MENRS, 2017; UNESCO, 2015a). However, in the context of the implementation of Agenda 2030, various reports have highlighted the existence of structural and organizational constraints that limit the effectiveness of this supervision in actual practice (UNESCO, 2021a). These constraints include the lack of specialized training for educational supervisors, the difficulties inherent in the exercise of their functions, the lack of consideration for teachers' professional needs, and the absence of effective partnerships between supervisors and teachers (Nzabonimpa, 2016).

In addition, other studies have highlighted the limited attention given to students' needs in educational decision-making processes (Ndayisenga & Sindayigaya, 2024a, 2024b), as well as the lack of material, infrastructural, and institutional support resources necessary for the implementation of effective supervision (Voulgre et al., 2015a). These constraints are more pronounced in rural areas of Burundi, where secondary school teachers work in conditions characterized by limited or even non-existent access to continuing education and pedagogical support, which affects their professional performance (Voulgre et al., 2015b).

More generally, the scientific literature repeatedly highlights the central role of initial and continuing training in the development of teachers' professional skills, as well as the importance of professional development programs designed around their real needs and based on increased collaboration between the various actors in the education system (Dumont et al., 2012; Voulgre et al., 2015a).

However, in the Burundian context, there is still little empirical research on professional development from the teachers' perspective. Moreover, it is mainly associated with training and support programs backed by international partnerships, particularly within the framework of the Francophone Initiative for Distance Teacher Training (IFADEM) and the SUPERE-RCF program (Voulgre & Netto, 2016; IFADEM, 2015; Lauwerier, 2019). Although these studies use data collected from teachers to document their perceptions of mentoring, pedagogical feedback, and local support, they rarely explicitly and systematically analyze formal PS practices as experienced by teachers, such as classroom observation, post-observation interviews, and structured professional follow-up.

Furthermore, the relationships between these supervision practices and the professional and contextual characteristics of teachers, such as seniority, level of training, status, location, or type of institution, remain largely undocumented. This gap is particularly problematic given that these characteristics are likely to influence both access to SP mechanisms and the way in which they are perceived and utilized by teachers. Thus, although PS is highly valued at the institutional level, understanding of the actual practices of supervisors and their reception by teachers remains limited, particularly in the educational contexts of low- and middle-income countries.

This study aims to analyze teaching supervision practices as experienced by secondary school teachers in Burundi and to examine their relationship with certain professional and contextual characteristics of teachers. By drawing on the perspectives of those directly involved, this research aims to contribute to filling a gap in empirical knowledge on pedagogical supervision in the Burundian context and, more broadly, in education systems that are still poorly documented at the international level.

3. Review of the Literature

Today, SP is a fundamental lever for optimizing teaching quality and teacher professional development (Zepeda, 2012). However, it can only reach its full potential if it is integrated into a structured support process based on collaboration, professional reflection, and peer exchange (Sergiovanni, 2017; Stronge, 2018). In this regard, the authors believe that the literature highlights the importance of constructive feedback, practice guidance, and the establishment of a school culture focused on continuous improvement, as well as support centered on the specific needs of teachers and the development of their skills, based on evidence (Sullivan, 2020; Zepeda, 2020).

Historically, PT has undergone significant changes. Initially conceived as a monitoring and evaluation activity, it has gradually transformed into a professional support process aimed at strengthening teaching practices and promoting the development of teacher leadership (Herrera Pérez et al., 2024). This transformation has led to the emergence of practices focused on improving pedagogical support, optimizing classroom organization, and strengthening professional responsibilities (Wei et al., 2023), as well as the adoption of pedagogical coaching as a lever for the development of teaching skills (Ramos Loredo et al., 2019). Effective supervision is thus defined by continuous support, modeling of expert practices, clarification of objectives, and the establishment of formative feedback (Milne & James, 2000).

With this in mind, various tools and reference frameworks have been developed to structure teaching supervision and evaluation practices. Some research has proposed analytical frameworks for identifying the characteristics of effective teachers (Stronge, 2018), while others have designed practical guides to guide supervisors' actions (Sullivan, 2014; Zepeda, 2019). In addition, competency profiles have been established to specify the knowledge, skills, and attitudes that supervisors need to mobilize in the performance of their duties (Bouchamma et al., 2017).

Finally, the pedagogical oversight of educators constitutes a multifaceted process that necessitates specialized competencies and thorough training on the part of supervisors (Schleicher, 2020). Contemporary research accentuates the significance of incorporating collaborative and action-oriented methodologies into supervisor training programs (Darling-Hammond et al., 2017), as well as the imperative for sustained support mechanisms to bolster teachers' professional development, particularly within higher education contexts (OECD, 2018). These insights underscore the critical need for the formulation of coherent, contextualized, and sustainable supervision frameworks to elevate teaching quality and foster enduring professional advancement.

3.1. Models of Pedagogical Supervision

The scientific literature distinguishes several models of PS that structure teacher support practices and support their PD. The clinical supervision model is the founding approach to pedagogical supervision. It is based on systematic cycles of classroom observation, feedback, and professional reflection aimed at improving teaching practices based on authentic teaching situations (Acheson & Gall, 2011; Glickman et al., 2018; Sullivan & Glanz, 2018). This approach emphasizes in-depth analysis of teaching practices and the development of professional reflexivity, contributing to the improvement of teaching and consideration of students' needs (Sergiovanni & Starratt, 2007).

From an evolutionary perspective, clinical supervision has been enriched by developmental and differentiated approaches that adapt supervision methods to teachers' level of autonomy and stage of professional development. These models aim to tailor support to teachers' professional needs and to support their commitment to a continuous process of improving their practices (Glickman et al., 2018).

In addition, collaborative supervision models have been developed, emphasizing collective professional learning, mutual feedback, and the co-construction of practices within professional communities. Peer supervision is part of this approach, promoting horizontal collaboration between teachers, enabling joint analysis of practices and strengthening the collective capacity to influence teaching (Showers & Joyce, 2002; Garmston & Wellman, 2017; Sergiovanni & Starratt, 2007).

Finally, more systemic approaches to PS have emerged, integrating multiple sources of feedback and a broader vision of educational leadership. 360-degree supervision and evaluation systems allow for the cross-referencing of perceptions among teachers, supervisors, and school administrators, thus providing a more comprehensive understanding of supervision practices and their effects on PD (Danielson, 2016; Marzano et al., 2016; Leithwood et al., 2017). In the French-speaking context, the 360-degree approach proposed by Kalulé and Bouchamma (2013) fits into this perspective by offering an integrative analytical framework that enriches the analysis of SP practices.

3.2. Phases of Instructional Supervision

Pedagogical supervision represents a methodical process that encompasses several pivotal phases: preparation (Zepeda, 2017), observation (Hill et al., 2019), and feedback (Hattie & Yates, 2017). The preparation phase is designed to elucidate the objectives of supervision (Glickman et al., 2018), while classroom observation affords valuable insights into instructional practices (Kane et al., 2018). Feedback constitutes a crucial stage, as it fosters the professional development of educators (Kyndt et al., 2018). Ultimately, supervision should culminate in concrete, improvement-oriented recommendations aimed at enhancing the quality of teaching and optimizing student learning outcomes.

3.3. Professional Development

Teacher professional development (PD) is a fundamental lever for enhancing the quality of teaching and optimizing student learning (Darling-Hammond et al., 2017; Zepeda, 2012). Indeed, the literature highlights that effective PD relies on structured support, integrating peer collaboration, professional reflexivity, and formative assessment of teaching practices (Sergiovanni, 2017; Stronge, 2018). Historically viewed as a simple form of control, supervision has gradually evolved towards approaches focused on support and the development of teaching skills (Herrera Pérez et al., 2024; Wei et al., 2023). Contemporary models, such as clinical or differentiated supervision, allow interventions to be tailored to the specific needs of teachers while clarifying objectives and providing constructive feedback (April & Bouchamma, 2015a; Lafortune et al., 2016). In addition, peer supervision and pedagogical coaching strengthen collaboration and individual accountability in PD (Costa, 2015; Showers, 2017). Finally, it is essential to put in place continuous and contextually appropriate mechanisms to ensure sustainable and effective PD (UNESCO, 2015b, 2021b; Bouchamma et al., 2017).

4. Conceptual Framework

Our conceptual framework considers the literature that served as the basis for developing the questionnaire used to collect data for this study. It is composed of three key concepts from the literature review: 1) models, 2) phases, and 3) PD, which we summarize in **Table 1**.

Table 1. Conceptual framework.

Models	Phases	Professional development
Some models	Phases in the supervision process	Link between SP and teachers' PD
• Clinical supervision • Differentiated supervision • 360˚ supervision • Peer supervision	• Preparation phase • Observation phase • Feedback phase	• Strengthening theoretical knowledge • Developing practical skills • Sharing best practices and expertise

5. The Theoretical Framework

This study is based on three conceptual foundations drawn from the scientific literature: (1) models of pedagogical supervision, (2) the phases of the supervision process, and (3) the professional development of teachers. Supervision models include clinical supervision, differentiated supervision, 360-degree supervision, and peer supervision (Sergiovanni & Starratt, 2007; Danielson, 2016). These approaches aim to promote professional reflexivity, adaptation to the specific needs of Burundian teachers, and peer collaboration. The phases of supervision are structured around a three-phase logic: preparation, observation, and feedback, which is deemed essential to ensure the coherence and effectiveness of the process (Zepeda, 2017; Hattie & Yates, 2017). Finally, PD is seen as a continuous process of acquiring skills and knowledge, supported by training, mentoring and formative feedback mechanisms (Darling-Hammond et al., 2017; Guskey, 2019). This theoretical framework allows for the analysis of teacher supervision practices in Burundi by placing them in a systemic perspective, linking pedagogical support and improvement of teaching practices.

6. Methodology

This research aims to analyze pedagogical supervision practices (models, phases, and activities of PS) as perceived by secondary school teachers in Burundi and examine their relationship with professional development as well as with the sociodemographic, professional, and institutional characteristics of teachers.

6.1. Sampling

The sample was constituted according to a two-level sampling strategy. In the first step, the educational establishments were selected using a stratified reasoned sampling in order to cover the diversity of institutional and regional contexts of the Burundian education system. The establishments were chosen based on their type (1 private, 10 public, and 8 publicly subsidized) and their location in five regions of the country (South, North, Center, West, and East). A total of 200 questionnaires were distributed to secondary school teachers, of which 187 were duly completed and returned, corresponding to a response rate of 94%. Among the 1,281 secondary schools surveyed, twenty were selected, of which nineteen actually participated in the study, in accordance with a logic of variation of contexts aimed at analytical rather than statistical generalization (Yin, 2018). This approach aims to deepen the theoretical understanding of pedagogical supervision practices and to ensure their transferability to comparable contexts, rather than to claim statistical representativeness of all Burundian teachers.

In a second step, the teachers were selected within the selected establishments using a systematic sampling, according to the procedure described by Blais and Durand (2019). This method is based on the determination of the sample size, the calculation of the selection interval and the selection of every nth teacher from a random starting point. Although the sample is not statistically representative of all secondary school teachers in Burundi, it allows a contextualized analysis of pedagogical supervision and professional development practices according to the types of establishments and regions, in line with the analytical objective of the study (Yin, 2018).

6.2. Instrument

The data were collected from teachers using the "Teacher Evaluation: Perception, Practices and Recommendations (TEPPR)" questionnaire (Bouchamma et al., 2017). This instrument, widely used in several national contexts (notably in Morocco, Romania, Haiti, Uganda and China), has been the subject of previous empirical validations. As part of this research, the questionnaire was also submitted to validation with Burundian teachers to ensure its contextual relevance. It was used in its entirety, with the exception of some items related to sociodemographic characteristics, which were adjusted to meet the requirements of the study.

The questionnaire administered to teachers.

A first section on general information includes five closed-ended items.

A second section comprising 61 items devoted to individual and collective SP practices, as well as teacher PD. Distributed as follows:

26 items on individual supervision practices;

26 items on collective supervision practices;

And nine items related to professional development.

The responses were collected using a 6-point Likert scale, ranging from "not at all" to "always".

Validity and reliability:

Content validity: the questionnaire has been validated in previous studies and has been the subject of a contextual adaptation to ensure its relevance in the Burundian education system.

Internal reliability: exploratory factor analyses (EFA) as well as Cronbach's alpha coefficients calculated for each dimension indicate high internal consistency: clinical supervision: $\alpha = 0.85$; peer supervision: $\alpha = 0.84$; supervision phases: $\alpha = 0.87$ and professional development: global $\alpha = 0.92$.

These results provide empirical support for the construct validity and reliability of the instrument.

6.3. Data Collection

Data collection was carried out using a questionnaire administered in person in the selected secondary schools. Teachers received clarification on the objectives of the study as well as the response modalities before proceeding to complete the questionnaire. The distribution and retrieval of the questionnaires were orchestrated by the researchers, thus ensuring a high return rate of 94%. Each teacher was given adequate time to respond autonomously, without external influence, in order to ensure the reliability of the responses.

6.4. Procedure

The data were first subjected to pre-processing, including a thorough verification of the completeness of the questionnaires, as well as the coding of responses on a 6-point Likert scale (N = 187). In order to identify pedagogical supervision practices, including models, phases, and professional development activities, exploratory factor analyses (EFA) were performed using the principal component extraction method, followed by a varimax rotation. This process shed light on the underlying dimensions of supervision practices and examined their factorial structure. The reliability of the retained factors was then evaluated by calculating Cronbach's alpha coefficients, which reveal satisfactory internal consistency for all the dimensions analyzed ($\alpha \geq 0.78$).

In a second step, in order to explore the relationships between pedagogical supervision practices and the sociodemographic, professional and institutional characteristics of teachers, several inferential statistical analyses were undertaken. Pearson correlations were used to examine associations between continuous variables. Independent samples t-tests allowed comparisons of groups by gender and professional status, while analyses of variance (ANOVA) were conducted to identify disparities by type of institution and region. All these analyses contributed to strengthening the construct validity and robustness of the results.

6.5. Ethical Considerations

The present study was carried out with scrupulous respect for the ethical principles in force in the field of educational research. The participation of the teachers was based on informed consent: they were duly informed of the objectives of the research, the nature of the questions asked, as well as their right to withdraw from the study at any time, without any detrimental consequences.

The confidentiality of the data was rigorously guaranteed. The questionnaires were anonymized, and no information allowing the identification of the participants was collected. The data collected were exclusively intended for scientific purposes and processed in accordance with the applicable standards for data protection. Furthermore, the research protocol was submitted for institutional approval by the scientific committee of Laval University, attesting to its compliance with the applicable international ethical standards for research involving human participants.

7. Results

7.1. Demographic and Professional Characteristics of Teachers

Of the 187 teachers surveyed, 73.8% were male (n = 138), with an average age of 42.0 years (SD = 5.83) and an average professional experience of 10.96 years (SD = 4.78). The classes had an average of 50.87 students (SD = 9.13).

7.2. Models of Pedagogical Supervision (Clinical and Peer-Based)

Table 2 presents the results of the exploratory factor analysis performed on the items relating to clinical supervision. This analysis identified seven factors corresponding to different dimensions of the clinical supervision model. Among these factors, only those meeting the usual statistical criteria for retention were retained. However, only those factors that met the usual statistical criteria for retention (adequate factor saturation, conceptual consistency, and sufficient number of items) were retained for interpretation.

Table 2. Rotation of the component matrix.

Clinical supervision model	Factor axes						
	Fact 1	Fact 2	Fact 3	Fact 4	Fact 5	Fact 6	Fact 7
1. He made me think about my practices.	0.09						
2. He agreed with me on the objectives to be achieved for the next supervision session.					0.73		
3. He met with me to establish the points on which his supervision would focus.						0.698	
4. He observed the aspects on which he had agreed with me.						0.801	
5. He interacted with me.	0.624						
6. He adapted his supervision to my needs.		0.69					
7. He adapted his supervision to my abilities.		0.741					
8. He adapted his supervision to my motivation.		0.734					
9. He adapted his supervision to my experience.			0.549				
10. He adapted his supervision to my working conditions.							-0.695
11. He clearly explained the objectives to be achieved.	0.652						
12. He guided the actions of team members by	0.674						
13. He set Clear objectives.	0.646						
14. He consulted team members when making certain decisions.	0.572						
15. He communicated each member's responsibilities to them.	0.727						
16. He helped team members for as long as they needed it.				0.592			
17. He treated each member according to their needs.				0.716			
18. He sets up working committees with specific mandates.				0.672			
19. He has led me to adjust my teaching methods to the requirements of the education system.							
20. He has written a report on teaching.					0.652		
21. He invites guest speakers.				0.48			
22. He finances our participation in activities (conferences, etc.).							0.694

The factors interpreted refer to central dimensions of clinical supervision, including reflection on professional practices, clarification of supervision objectives, adaptation of support to teachers' needs and skills, and relational dimensions related to communication and coordination within the teaching team. The table presents, for each of the selected factors, the questionnaire items associated with each factor, as well as their respective factor loadings, which allows for an assessment of each item's contribution to the identified factor structure.

This analysis aims to highlight the structure of clinical supervision practices as perceived by teachers, as well as to document the conceptual validity of the dimensions selected, in line with the theoretical framework of educational supervision and professional development.

7.2.1. Clinical Supervision

According to the results presented in Table 2, the exploratory factor analysis (EFA) performed on the items relating to clinical supervision practices revealed a structure composed of three latent factors, which reflect the main dimensions structuring teachers' perceptions.

Factor 1 (participative and goal-oriented supervision) accounts for 23.25% of the variance ($\alpha = 0.85$) and encompasses practices of clarifying expectations, setting objectives, and allocating responsibilities, thus constituting the organizational core of supervision. Factor 2 (individualization of support) explains 10.95% of the variance ($\alpha = 0.83$) and reflects a differentiated supervision, adapted to the needs, skills, and motivations of teachers. Factor 3 (formalization of the process), of a complementary nature, illuminates 6.12% of the variance ($\alpha = 0.78$) and consolidates procedural stability (extended support, equity, structuring of work). In total, these three factors account for 40.32% of the variance and present reliability levels consistent with the established standards for exploratory scales. For the presentation of the table, it is recommended to keep only the retained factors and to verify the direction of the items displaying negative loads on non-interpreted axes, in order to ensure the psychometric coherence of the whole.

The other factors initially extracted, which did not meet the statistical and conceptual criteria for retention, particularly due to an insufficient number of interpretable items, were not retained for analysis. Overall, these results indicate that the clinical supervision scale is based on a consistent and reliable factor structure, thus providing empirical support for the construct validity of the instrument.

7.2.2. Peer Supervision

Table 3 presents the results of the exploratory factor analysis (EFA) performed on items relating to peer supervision practices. This analysis revealed an underlying factor structure composed of two interpretable factors, which reflect the main dimensions associated with this mode of supervision.

The AFF indicates a two-factor structure for peer supervision. Factor 1 (collective participation and distributed leadership) explains 27.42% of the variance and has excellent reliability ($\alpha = 0.85$). It groups practices of initiative, transformation of teachers into agents of change, and sharing of strategic responsibilities. Factor 2 (promotion of mutual supervision and openness) explains 7.86% of the variance ($\alpha = 0.84$) and describes the encouragement of supervision among colleagues as well as the opening of practices to other educational stakeholders. Together, these two factors explain 35.28% of the total variance and have alphas greater than 0.80, indicating high reliability.

The other factors initially extracted, which did not meet the statistical and conceptual criteria for retention, particularly due to an insufficient number of interpretable items, were not retained for analysis. Overall, the results of the CFA suggest that peer supervision practices are organized around consistent dimensions, thus supporting a collaborative and participatory conception of PS.

Table 3. Component matrix rotation for the peer model.

Peer supervision model	Factor axes				
	Fact 1	Fact 2	Fact 3	Fact 4	Fact 5
1. It encourages teachers to supervise each other.				0.536	0.559
2. Other people can supervise teaching staff.				0.822	
3. It encourages the sharing of knowledge and practices.				0.449	
4. It gives working group members the opportunity to make their own decisions.	0.816				
5. It transforms certain members into true agents of change.	0.703				
6. He shares certain important responsibilities with team members.	0.724				
7. He delegates his authority.					0.722
8. He values change and innovation.	0.615				
9. He pays particular attention to new teachers.			0.707		
10. He provides us with opportunities for co-teaching and mentoring.		0.664			
11. He has led me to adjust my teaching practices to the requirements of the education system.			0.541		
12. He has written a report on teaching.			0.752		
13. He invite guest speakers.		0.791			
14. He funds our participation in activities (conferences, etc.).		0.736			

7.3. Phases of the Pedagogical Supervision Process

Table 4 presents the results of the exploratory factor analysis (EFA) carried out on the items relating to the phases of PS. This analysis revealed a coherent factor structure, based on two interpretable factors, reflecting the main stages of the supervision process as perceived by teachers.

The AFE confirmed a two-factor structure for the supervision phases: preparation/observation and feedback. The first factor explains 29.15% of the variance and displays high reliability (α = 0.87), highlighting the centrality of planning and clarification operations. The second factor organizes formative feedback (post-observation meeting, self-evaluation, objectives, follow-up). The overall reliability of the "phases" subscale (α = 0.87) attests to the consistency of the whole.

Table 4. Rotation of the phase component matrix.

Supervision phases		Axes factoriels		
		Fact 1	Fact 2	Fact 3
Before	1. Met with me to establish the points on which his supervision would focus.	0.759		
	2. Planned the timing of his visit with me.	0.802		
	3. Discussed the preparation with me.	0.719		
	4. Shared one or more grids with me to record his observations.	0.739		
During	5. Observed the aspects on which he had agreed with me.	0.530		
	6. Observed me discreetly.	0.483		
After	7. Met with me.			0.705
	8. During our meeting. He asked me to self-assess.		0.639	
	9. He indicated the objectives to be achieved for the next supervision session.		0.807	
	10. He agreed with me on the objectives to be achieved for the next supervision session.		0.763	
	11. He wrote a report on the teaching.			0.754

The articulation of these two factors suggests a sequential organization of the supervision process, which can be interpreted considering a three-phase logic before, during, and after observation, which is widely documented in clinical supervision models. Overall, these results indicate that the SP phase measurement tool is based on a coherent factorial structure, providing empirical support for construct validity and showing that the phases of supervision, as perceived by teachers, are part of a structured and orderly process.

7.4. Teachers' Professional Development Practices

Table 5 presents the results of the exploratory factor analysis (EFA) conducted on items relating to teachers' professional development (PD). This analysis revealed a largely unidimensional factor structure, dominated mainly by one interpretable latent factor.

The DP presents itself as a one-dimensional structure dominated by a main factor (individualized support), which explains 61.50% of the variance and shows exceptional reliability (α = 0.85). Two additional factors identified during the initial extraction were not retained due to scattered saturation and insufficient consistency. The overall α of the DP scale (α = 0.92) attests to the robustness of the tool to apprehend the perceived DP.

Table 5. Rotation of the DP component matrix.

Professional development	Factors axes		
	Fact 1	Fact 2	Fact 3
1. Informs educators about opportunities for professional growth.		0.821	
2. Selects continuing professional development activities that are in alignment with the institution's academic objectives.			0.476
3. Supports training requests that are directly pertinent to the school's educational goals.		0.68	
4. Distributes scholarly articles to faculty members.			0.813
5. Arranges for external experts to deliver presentations on pedagogy during faculty meetings.			0.709
6. Encourages educators to implement skills acquired through professional development courses within their classrooms.		0.769	
7. Schedules individual consultations to address pedagogical concerns with educators.	0.81		
8. Participates in teachers' professional development endeavors.	0.741		
9. Allocates time during faculty meetings to deliberate on teaching methodologies and professional development initiatives.	0.746		

Although two other factors emerged during the initial extraction, relating respectively to the promotion of continuing education and the dissemination of resources and external interventions, these were not retained for interpretation due to scattered factor saturations and insufficient internal consistency.

Furthermore, the overall consistency of the PD scale is supported by a high Cronbach's alpha value (overall $\alpha = 0.92$), which attests to the robustness of the instrument. Overall, these results suggest that teachers' professional development, as perceived by respondents, is based primarily on personalized support practices, supported by complementary training and resource dissemination initiatives.

A Pearson correlation analysis was conducted to examine the relationships between teachers' sociodemographic, professional, and institutional characteristics and their perceptions of SP practices. This analysis allows us to assess the direction and strength of the relationships between the variables studied, without establishing a causal link. More specifically, this analysis aimed to identify variables that may be associated with the different forms of supervision studied.

Table 6 presents the means, standard deviations, and bivariate correlations between teacher characteristics and multiple dimensions of supervision practices ($N = 187$). Gender ($M = 1.26$, $SD = 0.44$), age ($M = 41.80$, $SD = 5.83$), years of professional experience ($M = 10.96$, $SD = 4.78$), employment status ($M = 1.23$, $SD = 0.42$), number of students ($M = 50.87$, $SD = 9.13$), and most supervision dimensions show negligible to weak, non-significant correlations (all $|r| < 0.12$, $p > 0.05$). Notably, level of education ($M = 2.13$, $SD = 0.51$) exhibits a weak but statistically significant negative correlation with the preparation phase ($r = -0.157$, $p < 0.05$), indicating that more highly educated teachers perceive lower engagement in planning/anticipation activities. Similarly, school status (M = 2.40, SD = 0.60) demonstrates weak negative associations with clinical supervision ($r = -0.131$, $p < 0.05$), collaborative supervision ($r = -0.132$, $p < 0.05$), and a moderately stronger negative correlation with overall collaborative practices ($r = -0.190$, $p < 0.01$), suggesting teachers in higher-status schools engage somewhat less in these structured supervision approaches.

Overall, these results highlight the limited effect of teachers' individual characteristics on pedagogical supervision practices, while emphasizing the more significant role of institutional variables in the organization and the way these practices are perceived and implemented.

Table 6. Means, standard deviations, and correlations of supervision practices.

Independent variables	Clinical supervision	Peer supervision	Before phase	After phase	Directive	Collaborative	*M*	*SD*
Gender	−0.055	−0.075	0.089	−0.094	0.027	−0.024	1.26	0.439
Age	0.089	0.004	−0.061	−0.038	−0.108	−0.075	41.80	5.832
Years of experience	−0.039	0.095	−0.042	0.040	−0.069	−0.005	10.96	4.777
Employment status	−0.010	−0.118	0.022	−0.120	0.116	−0.036	1.23	0.422
Number of students	0.027	0.008	0.057	0.019	0.075	0.017	50.87	9.134
Level of education	−0.096	−0.081	-0.157^{*}	−0.033	−0.088	−0.055	2.13	0.513
School status	-0.131^{*}	−0.109	0.071	−0.046	-0.132^{*}	-0.190^{**}	2.40	0.600

N = 187, $^{***}p < 0.001$. $^{**}p < 0.01$. $^{*}p < 0.05$.

Table 7 & Table 8—T-tests (gender and status)

Independent sample t-tests were conducted to examine differences in instructional supervision (IS) and professional development (PD) practices based on gender (Table 7) and teacher employment status (Table 8). These analyses aimed to determine whether these sociodemographic variables were associated with significant variations in the practices studied. The results indicate that no statistically significant differences were observed between male and female teachers, or between permanent and temporary teachers, for any of the variables analyzed ($p > 0.05$). With regard to gender, the means observed are very similar for the different dimensions studied, particularly for the clinical supervision model (men: M = 3.80, SD = 0.78; women: M = 3.71, SD = 0.83) and for collaborative professional development (men: M = 4.22, SD = 1.25; women: M = 4.15, SD = 1.16), with t values ranging from −1.19 to 1.28. Similarly, comparisons based on employment status reveal comparable means between permanent and temporary teachers, both for the clinical supervision model (permanent: M = 3.78, SD = 0.78; temporary:

M = 3.76, SD = 0.85) and for collaborative professional development (permanent: M = 4.23, SD = 1.19; temporary: M = 4.12, SD = 1.35), with t values ranging from −1.59 to 1.65.

Overall, these results suggest that PT and PD practices do not differ significantly according to teachers' gender or employment status, indicating [/ADD] a relative homogeneity of these practices within the compared groups.

Table 7. T-test for independent samples: teacher gender.

Independent variables	Male (N = 139)		Female (N = 48)		T	df	P_value
	M	SD	M	SD			
Supervision model							
Clinical	3.80	0.78	3.71	0.83	0.74	185	0.46
Peer	3.76	0.91	3.62	0.76	1.00	185	0.32
Supervision phase							
Before phase	2.56	1.45	2.85	1.51	−1.19	185	0.24
After phase	4.44	1.23	4.17	1.22	1.28	185	0.20
Professional development							
Directive	3.42	1.19	3.49	0.96	−0.37	185	0.71
Collaborative	4.22	1.25	4.15	1.16	0.31	185	0.75

Table 8. Independent samples t-test: teacher status.

Independent variables	Permanent (N = 144)		Temporary (N = 43)		T	df	P_value
	M	SD	M	SD			
Supervision model							
Clinical	3.78	0.78	3.76	0.85	0.13	185	0.89
Peer	3.78	0.86	3.54	0.91	1.62	185	0.11
Supervision phase							
Before phase	2.61	1.48	2.69	1.41	−0.30	185	0.76
After Phase	4.45	1.18	4.10	1.36	1.65	185	0.10
Professional development							
Directive	3.36	1.10	3.67	1.22	−1.59	185	0.11
Collaborative	4.23	1.19	4.12	1.35	0.49	185	0.63

Note. *$p < 0.05$.

Tables 9-11—ANOVA

Analyses of variance (ANOVA) were conducted to examine differences in pedagogical supervision (PS) and professional development (PD) practices based on school status, teacher training level, and school location (Tables 9-11). These analyses aimed to identify the potential effects of institutional and contextual variables on the practices studied. The results indicate that, in general, clinical supervision and peer supervision practices do not vary significantly according to school status.

Table 9. ANOVA: supervision practices according to the status of the institution.

Independent variables	Private (N = 11)		Public (N = 90)		State-subsidized public (N = 86)		F	P_value
	M	SD	M	SD	M	SD		
Supervision model								
Clinical	4.15	0.66	3.82	0.71	3.69	0.88	**1.83**	**0.16**
Peer	4.04	0.5	3.77	0.8	3.64	0.98	**1.19**	**0.31**
Supervision phase								
Before Phase	2.59	1.31	2.51	1.41	2.76	1.54	**0.63**	**0.53**
After phase	4.62	1.23	4.38	1.18	4.33	1.29	**0.27**	**0.76**
Professional development								
Directive	4.49	0.71	3.36	1.08	3.38	1.17	**5.32**	**0.01**
Collaborative	4.64	1.05	4.38	1.11	3.96	1.32	**3.52**	**0.03**

Note. *$p < 0.05$.

Table 10. ANOVA: supervision practices by teachers' level of education.

Independent variables	IPA5 (N = 14)		Bachelor's Degree (N = 135)		Master's degree (N = 38)		**F**	**P_value**
	M	SD	M	SD	M	SD		
Supervision model								
Clinical	4.07	0.77	3.77	0.78	3.69	0.86	**1.16**	**0.31**
Peer	3.85	0.86	3.75	0.89	3.59	0.83	**0.62**	**0.54**
Supervision phase								
Before Phase	3.23	1.62	2.67	1.49	2.28	1.25	**2.38**	**0.1**
After phase	4.31	1.28	4.41	1.2	4.25	1.33	**0.27**	**0.76**
Professional development								
Directive	3.64	1.17	3.46	1.14	3.26	1.09	**0.71**	**0.49**
Collaborative	4.48	1.23	4.19	1.22	4.14	1.24	**0.42**	**0.65**

Note. *$p < 0.05$.

Table 11. ANOVA: supervision practices by school region.

Independent variables	Centrer (N = 50)		East (N = 30)		North (N = 45)		West (N = 35)		South (N = 27)		F	P_value
	M	SD	M	SD	M	SD	M	SD	M	SD		
Supervision model												
Clinical	3.68	0.78	3.9	0.78	3.61	0.85	3.89	0.77	3.96	0.76	**1.41**	**0.23**
Peer	3.58	0.88	3.85	0.83	3.54	0.91	3.79	0.85	4.07	0.83	**2.1**	**0.08**

Continued

Supervision phase												
Before phase	2.72	1.59	2.66	1.38	2.66	1.45	2.88	1.54	2.08	1.2	**1.25**	**0.29**
After phase	4.22	1.25	4.57	0.94	4.08	1.52	4.52	0.98	4.7	1.16	**1.65**	**0.16**
Professional development												
Directive	3.25	1.08	3.6	1.1	3.68	1.26	3.23	1.2	3.46	0.9	**1.3**	**0.27**
Collaborative	4.1	1.18	4.07	1.33	4.05	1.3	4.36	1.06	4.58	1.23	**1.16**	**0.33**

Note. $^*p < 0.05$.

However, statistically significant differences were observed for certain dimensions of PD. Directive and collaborative PD activities varied according to the status of the institution, with significant F values ($F = 5.32$, $p < 0.05$ for directive PD; $F = 3.52$, $p < 0.05$ for collaborative PD). Private institutions have higher averages for these two dimensions (directive PD: $M = 4.49$, $SD = 0.71$; collaborative PD: $M = 4.64$, $SD = 1.05$), compared to public and publicly funded institutions.

Furthermore, neither the level of teacher training nor the region in which the institutions are located shows a statistically significant effect on pedagogical supervision and professional development practices. However, for descriptive purposes, certain regional variations suggest a more marked emphasis on peer supervision in certain areas, although these differences do not reach statistical significance.

Overall, these results indicate that institutional variables, particularly the status of the institution, play a more significant role than individual or geographical variables in differentiating certain professional development practices, while PS practices appear to be relatively homogeneous across the contexts studied.

8. Discussion

This study aimed to identify the models of educational supervision (SP), the phases of SP and professional development (PD) activities, as well as to analyze the sociodemographic, socioprofessional and school characteristics that may influence the choice and implementation of supervision practices. In view of these objectives, it appears essential to situate the results obtained in relation to the existing theoretical frameworks in order to fully understand their scope and contributions.

In this respect, the results of this study are in line with the perspective of contemporary models of SP, which consider it as a process of professional support rooted in collaboration, reflexivity and formative regulation (Zepeda, 2012; Sergiovanni, 2017). Indeed, the structuring of clinical supervision practices around dimensions such as clarity of objectives, individualization of support and prolonged support reflects the principles of developmental approaches to supervision, according to which the teacher is considered as an actor engaged in his own

PD. Along the same lines, the emergence of distributed leadership in peer supervision echoes the work of Stronge (2018) and Glickman (2002), who highlight the importance of shared responsibilities and collaborative learning in the sustainable optimization of teaching practices. Thus, these results confirm that the supervision practices observed in Burundi are partially in line with international theoretical frameworks, while revealing specificities closely linked to the local educational context.

However, beyond this theoretical perspective, the results of this study show that SP cannot be thought of in a simple way. Indeed, it is deployed according to various models, changes according to the moments of the intervention and mobilizes multiple resources to support the PD of teachers. In this context, the differences observed according to the status of the establishment and the level of studies suggest the need to adjust the supervision mechanisms to the institutional contexts and the professional profiles of the teachers.

Nevertheless, the challenges associated with the implementation of SP remain significant. They refer in particular to the need to overcome various organizational and cultural obstacles through the development of collaborative structures and individualized support mechanisms (April & Bouchamma, 2015a). Furthermore, the deployment of supervision programs may encounter the resistance of certain supervisors, who perceive these devices as an intrusion into their private educational space (Manathunga, 2005).

Thus, in the context of this work, it appears fundamental to clarify certain key notions related to the professional development of teachers, to better understand the approaches and modalities of educational supervision. In this regard, the concepts of "directive" and "collaborative" are explicitly defined to specify their conceptual and analytical scope in the analysis of supervision practices and training mechanisms.

8.1. Definition of the Terms "Directive" and "Collaborative"

Within the framework of teachers' professional development, the notions of directive and collaboration, although generally understood, deserve to be explicitly defined in order to specify their conceptual and analytical scope. Directive professional development (PD) refers to a set of training and support practices primarily developed, organized, and directed by the institutional authority or by those responsible for pedagogical supervision. It is characterized by a top-down approach, in which the objectives, content, and modalities of professional development activities are previously defined according to the academic priorities of the institution and the requirements of the education system. In this context, teachers are essentially positioned as beneficiaries of the actions implemented, called upon to appropriate and apply prescribed orientations, resources, or competencies, from the perspective of aligning teaching practices with institutional norms.

Conversely, the collaborative dimension of professional development (PD) evokes practices rooted in the active participation of teachers, co-responsibility, and the co-construction of professional knowledge within educational teams. This modality favors mechanisms conducive to exchange, collective reflection, and mutual learning, such as peer supervision, co-teaching, mentoring, or structured moments of pedagogical discussion. Professional development is conceived as an interactive and continuous process, in which teachers are recognized as actors and resources in their own development, actively contributing to the improvement of teaching practices through the sharing of experiences, innovation, and collective problem-solving. These two modalities, although distinct at the conceptual level, are considered complementary in this research and shed light on the differences observed in professional development practices according to the institutional contexts analyzed by ANOVA.

8.2. Models of Instructional Supervision

Regarding SP models, exploratory factor analysis made it possible to identify the factors structuring the supervision practices mobilized by school administrators, while allowing to evaluate their internal consistency. In accordance with the methodological recommendations relating to measurement instruments in the social sciences, particularly the Cronbach's alpha acceptability thresholds for exploratory scales (Hair et al., 2006; DeVellis, 2003), the results highlight a reliable structure, within which the clinical supervision model appears as the most predominant form of supervision.

From a conceptual standpoint, clinical supervision is classically defined as a structured process based on the observation of practices, formative feedback, and professional reflection, in a logic of continuous improvement of teaching (Acheson & Gall, 2011; Glickman et al., 2018; Sullivan & Glanz, 2018). The results obtained confirm the centrality of this model, in line with the theoretical frameworks that conceive supervision as a professional support focused on the improvement of teaching practices (Sergiovanni & Starratt, 2007; Zepeda, 2012).

As an extension of this interpretation, the predominance of the clinical model observed in this study can also be interpreted in the light of the developmental approaches to supervision, which postulate that the effectiveness of supervision practices depends on their ability to adapt to the professional needs of teachers and to promote their reflective engagement in the analysis of their practices (Glickman et al., 2018). In this sense, the structuring of practices around dimensions such as the clarification of objectives, the individualization of support, and systematic feedback is consistent with the principles widely documented in the international literature on pedagogical supervision and educational leadership.

From an operational standpoint, these findings call for concrete recommendations. However, the interpretation of these results cannot be dissociated from the institutional and organizational context of the Burundian education system. In line with international analyses of the education systems of resource-constrained countries (UNESCO, 2015b, 2021a), the data suggest that, although some principles of developmental supervision are present, their implementation remains constrained by structural factors such as the training of supervisors, the availability of resources, and the working conditions of teachers. The differences observed according to the type of institution can thus be understood in the light of work in school organization and educational leadership, according to which institutional contexts with greater autonomy and resources tend to favor more structured and more systematic supervision practices (Leithwood et al., 2017).

Overall, these results show that SP in Burundi is part of the dominant international theoretical frameworks, while being deployed according to modalities strongly influenced by local organizational realities. Clinical supervision appears simultaneously as a central lever for professional development and as a space of tension between institutional prescriptions and the constraints of the local context.

8.3. Phases of Pedagogical Supervision

The analysis of the results related to the phases of pedagogical supervision highlights a structuring of the process around two key moments: a preparatory phase preceding the classroom observation and a feedback phase following this observation. This organization refers to a logic that is widely documented in clinical supervision models.

The phase prior to the observation corresponds to a joint planning time between the supervisor and the supervised teacher. It includes the determination of the timing of the classroom visit, the clarification of the supervision objectives, the sharing of observation criteria and tools, as well as an exchange on pedagogical preparation. The literature emphasizes that this phase is an essential condition for the effectiveness of supervision, insofar as it promotes the transparency of the process, the teacher's adherence and the alignment of expectations between the actors (Zepeda, 2012).

Following this preparatory phase, the post-observation phase focuses on formative feedback and reflective analysis of the observed practices. It is based on a structured approach including the teacher's self-assessment, the supervisor's feedback on the observations, the joint identification of strengths and areas for improvement, as well as the definition of progression objectives for future practices. Several studies show that the absence or weakening of one or other of these steps can undermine the perception of the legitimacy of supervision and reduce its effects on professional development (Zepeda, 2012; Stronge, 2018). These observations allow to empirically highlight the articulation between supervision models, supervision phases and their impact on the professional development of teachers.

The empirical results corroborate the relevance of the conceptual framework by demonstrating that supervision models, particularly clinical supervision and peer supervision, have a significant influence on the professional development of teachers through structured phases of preparation, observation and feedback. Clinical supervision, which predominates in this analysis, positions itself as a central lever by activating these essential phases: preparation enriches theoretical knowledge through the clarification of pedagogical objectives and criteria, while feedback refines practical skills and promotes the sharing of best practices through reflective analysis and the co-construction of pedagogical solutions. These observations concretely illustrate the link postulated in the conceptual framework between supervision models, process phases and dimensions of professional development.

Overall, the results obtained confirm that the phases of supervision, as perceived by teachers, are part of a structured and coherent process, in line with the theoretical frameworks of clinical supervision. However, the effectiveness of this process remains closely linked to the institutional conditions in which it is deployed. To further understand the disparities observed in the professional development of teachers according to the type of institution

8.4. Limits of the Study

The study presents several significant limitations to be considered. It is based on teachers' perceptions of supervisory practices, which may introduce a subjective bias and may not necessarily reflect actual practices or supervisors' intentions. Moreover, the sample, although varied in institutional and regional terms, is not statistically representative, which restricts the generalization of the results to all Burundian teachers and limits the scope of the conclusions to analytical generalization. The lack of data triangulation is another major constraint, as the study relies exclusively on a self-reported questionnaire, thus reducing the qualitative depth and validation of the reported practices. Furthermore, the observed disparities according to the status of the institutions (private vs. public) suggest a strong dependence on the institutional context, restricting the transferability of the results to other educational systems. Finally, although the exploratory factor analyses are robust, they require confirmatory validation to consolidate the reliability of the identified dimensions.

8.5. Future Research Directions

For further research, it would be relevant to adopt a methodological triangulation integrating classroom observations, semi-structured interviews, and documentary analysis to complement the perceptual data and strengthen external validity. Longitudinal studies would allow examining the evolution of supervision practices and their effects on teachers' professional development as well as on student performance over an extended period. Confirmatory validation, through confirmatory factor analyses and structural models, could consolidate the stability of the identified dimensions. It would also be relevant to broaden the comparison to other international contexts and measure the impact of targeted training programs for supervisors. Finally, the use of mixed and participatory approaches, such as action research involving teachers and supervisors, would promote the co-design of supervision arrangements adapted to local needs.

9. Conclusion

This study examined pedagogical supervision (SP) practices in Burundi by identifying the supervision models mobilized, the phases structuring the supervision process, and their links with teachers' professional development (PD). The results highlight the predominance of clinical supervision and peer supervision, organized around key preparation, observation and feedback phases that appear decisive in supporting the improvement of teaching practices and PD (Zepeda, 2012; Sergiovanni, 2017). However, it should be noted that these findings are based mainly on teachers' perceptions of the supervision practices they have encountered and may not perfectly match actual practices or supervisors' true intentions. This clarification encourages interpreting the results as a reflection of lived professional experience, rather than an objective evaluation of supervision mechanisms.

From this perspective, these results confirm the relevance of contemporary SP models, which conceive supervision as a structured process of professional support based on collaboration, reflexivity and formative regulation. They also emphasize the importance of supervision mechanisms explicitly oriented towards professional learning, particularly through formative feedback, differentiated support, and the development of collaborative practices within schools (Glickman et al., 2018; Stronge, 2018).

On an operational level, these empirical findings lead to concrete recommendations regarding the training and professionalization of supervision actors. At the institutional level, the results also highlight the urgent need for a more structuring policy framework to promote collaborative supervision, particularly in public schools. Considering these findings and to address the identified needs, it seems relevant to make recommendations to strengthen both pedagogical supervision and the professional development of teachers within public schools. It would be advisable to establish formal supervision frameworks, integrating joint planning, specific objectives for each teacher, and regular formative feedback. Moreover, the institutionalization of peer supervision and the implementation of internal mentoring mechanisms would foster professional collaboration, the sharing of best practices, and the strengthening of collective competencies. Clear and standardized protocols for pedagogical evaluation should also be developed, while offering supervisors continuous training to consolidate their skills in constructive feedback and differentiated support. Finally, the promotion of collaborative structures among teachers would also be desirable.

On a methodological level, although the sample was constructed to reflect the diversity of institutional and regional contexts within the Burundian education system, the results cannot be statistically generalized to the entire teaching population. This limitation is all the more important given that the findings are based on teachers' perceptions of supervision practices, which may not fully correspond to actual practices or supervisors' true intentions.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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