

Teaching Practicum Management in Physical Education Teacher Education: Current Practices and Associated Factors at Two Specialist Universities in Vietnam

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Introduction: Teaching practicum is essential to physical education teacher preparation. This study assessed current management practices and associated factors at two specialist universities in Vietnam.

Methods: A cross-sectional quantitative study, supplemented by qualitative interviews, surveyed 450 participants: 80 university administrators/lecturers, 70 school administrators/teachers, and 300 fourth-year students. Analyses included descriptive statistics, Welch's *t*-test, Hedges' *g*, Pearson correlations, and multivariable linear regression with HC3 robust standard errors.

Results: The overall management score was 3.20 ± 0.51 . Limitations occurred across management functions, alongside gaps between university preparation and students' professional experiences. School-based respondents rated overall management more positively than university-based respondents (Hedges' *g* = -0.73). The regression model explained 54.6% of the variance in management scores. Institutional, curricular, and coordination mechanisms ($\beta = 0.354$; $p = 0.005$) and stakeholder capacity and participation ($\beta = 0.272$; $p = 0.008$) showed significant independent associations with management implementation.

Conclusion: Findings highlight the need to move beyond managing individual practicum placements toward supporting continuous professional competency development. Greater curricular alignment, institutional coordination, and university-school partnerships may strengthen practicum management in

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physical education teacher education. Given the cross-sectional design and two-university setting, findings should be interpreted as associations rather than causal relationships or nationally representative estimates.

Keywords: Physical education; teacher training; pedagogical practice; pedagogical internship; educational management.

1. Introduction

The quality of teacher training significantly depends on the ability to connect the knowledge and skills developed at the training institution with professional practice in the school environment. In this process, pedagogical practice and internship are crucial components that help students apply their professional knowledge and pedagogical skills, develop the ability to design and organize teaching, manage classrooms, assess learners, solve pedagogical situations, and gradually form their professional identity. Therefore, pedagogical practice and teacher training should be viewed as a systematic process of learning and professional development, rather than just a final practical phase or a procedural requirement of the teacher training program (Hong et al., 2023; Nguyen, 2020).

In the training of physical education teachers (PETE), pedagogical practice and pedagogical internship hold special significance due to the nature of the physical education teacher's profession. In addition to professional knowledge and pedagogical skills, physical education teachers need to have the ability to demonstrate and instruct movement techniques, organize physical activities, manage the classroom and movement space, ensure safety, adjust tasks to suit learners, and conduct assessments in highly practical teaching situations. Therefore, PETE increasingly emphasizes the development of professional competence and core practices through authentic, structured, and guided career experiences throughout the training process (Asún et al., 2020; Baumgartner, 2022; Chang, 2021; Ward, 2020; Ward et al., 2020).

The quality of pedagogical practice and pedagogical internship, therefore, not only

depends on the content, duration, or effort of the students but also on how this activity is managed and coordinated among the stakeholders. Managing pedagogical practice and pedagogical internships includes planning, organizing implementation, directing and coordinating, inspecting and evaluating, and improving, while also requiring the connection between output standards, professional experience, guidance, feedback, and support conditions. Especially since pedagogical internships take place at the intersection of teacher training institutions and secondary schools, the school-university partnership becomes an important component of this process. The alignment of goals, responsibilities, evaluation standards, and feedback mechanisms among lecturers, supervising teachers, management staff, and students can facilitate the integration of school experiences into the training program, rather than having them exist as relatively isolated activities (Chambers & Armor, 2012; Hong et al., 2023; Nguyen, 2020).

In Vietnam, this issue is even more significant in the context of implementing the 2018 General Education Program, which focuses on developing students' qualities and competencies, thereby setting corresponding requirements for teachers' professional competencies and teacher training programs (Ministry of Education and Training, 2018). However, existing evidence shows that the structure and organization of practicum among training institutions still vary, while the relationship between training institutions and secondary schools still has limitations in terms of delineating responsibilities, communication, decision-making participation, and the level of cooperation in training (Hong et al., 2023; Nguyen, 2020; Cao & Tran, 2026). Although

previous studies have addressed professional competence, core practices, mentoring, assessment, practicum structure, and school–university partnership, empirical evidence examining the current state of pedagogical practice management, pedagogical internship, and related conditions in the specific context of PETE in Vietnam remains limited.

Starting from that gap, this study approaches pedagogical practice and pedagogical internship from the perspective of management and multiple parties involved, aiming to (1) assess the current state of management of pedagogical practice and pedagogical internship in physical education teacher training and (2) identify the relationship between the conditions of capacity and participation of stakeholders, institutions, programs, coordination mechanisms, and resources—supporting environment—with the level of implementation of management of pedagogical practice and pedagogical internship. The study focuses on answering two questions: RQ1: What is the current state of managing pedagogical practice and teaching practice in physical education teacher training at the participating institutions? RQ2: How do stakeholder capabilities and participation, institutional–program–coordination mechanisms, and supporting resources and environments relate to the level of implementation of pedagogical practice management and teaching practice? This research provides evidence to improve synchronization among the pedagogical practice process, pedagogical internship, and the connection between teacher-training institutions and secondary schools in developing the professional competencies of future physical education teachers.

2. Methodology

2.1. Research design and subjects

The study uses a cross-sectional quantitative design, supplemented by qualitative interviews. Quantitative data are used to assess the current state of practice management, pedagogical internships, and related factors; interviews are

conducted to support the interpretation and clarification of the survey results.

The research was conducted at Hanoi University of Physical Education and Sports and Ho Chi Minh City University of Physical Education and Sports. The two institutions were intentionally selected because they are specialized universities training physical education teachers, sharing similar characteristics in training and facilitating the survey of pedagogical practice and pedagogical internships. Therefore, the results are limited to the scope of the two research institutions and are not intended to be statistically generalized to all physical education teacher training programs in Vietnam.

The survey included 450 subjects: 80 managers/lecturers from training institutions, 70 managers/teachers from general education, and 300 fourth-year students majoring in physical education. The group of administrators/teachers ($n = 150$) provided the primary data for analyzing the management situation and related factors; student data were used as supplementary evidence regarding pedagogical practice and pedagogical internship experiences. A total of 450/450 questionnaires were collected (100%).

In addition, 15 people directly involved in pedagogical practice and pedagogical internships were interviewed, including 5 administrators/lecturers, 5 administrators/general education teachers, and 5 fourth-year students. Interviews were conducted in person, via phone, or via email to support the interpretation of survey data and were not analyzed as an independent qualitative component of the mixed-methods design. The original study did not conduct a priori sample size calculation; therefore, post-hoc power was not used. Multivariate analyzes were conducted on 150 managers/teachers from the survey sample.

2.2. Tools and data collection

The tool was specifically developed for the study (study-specific questionnaire) based on the framework of management practices, pedagogical practices, and the theoretical foundation of physical education teacher

training. The questionnaire for administrators/teachers includes four management functions: planning (P), organizing (O), directing-coordinating (D-C), and inspecting-evaluating (I-E), each component with 7 observable variables; synchronizing training with professional requirements (S) and coordinating between training institutions and high schools (C), each component with 10 variables. Three groups of related conditions include the capacity-participation of stakeholders (C-P), the institution-program-coordination mechanism (I-P-C), and the resources-supporting environment (R-E), each group with 7 variables. Difficulties and gaps are recorded through classification options.

The student survey evaluates pre-internship preparation (P), career experience (E), guidance (G), assessment (A), support conditions (SC), and synchronization level (SL), along with difficulties and gaps in pedagogical practice and pedagogical internship. Student data is used to supplement and compare with the results of management/teachers and is not included in the main regression model. Quantitative variables use a 5-point Likert scale; the data are checked and coded before analysis.

2.3. The reliability and measurement value of the tool

Internal consistency is evaluated using Cronbach's α and the corrected item-total correlation (CITC). In the group of administrators/teachers, the α of P, O, D-C, and I-E ranged from 0.806 to 0.861; S and C were 0.884 and 0.896, respectively; C-P, I-P-C, and R-E ranged from 0.860 to 0.863; the overall management index of 28 variables achieved $\alpha = 0.924$. In students, the α of the components ranged from 0.858 to 0.923; all CITCs are > 0.45 , indicating appropriate internal consistency (Tavakol & Dennick, 2011).

The tool was specifically developed for the study, and the current research has only assessed internal consistency, without independently

establishing factorial validity. Therefore, C-P, I-P-C, and R-E are interpreted as groups of conditions according to the research framework, not as confirmed latent factors. The factor structure of the tool needs to be further validated on an independent sample of appropriate size.

2.4. Statistical analysis

The data are described by mean, standard deviation, frequency, and percentage. The difference between the training institution group and the high school group was tested using Welch's t-test, along with the mean difference, 95% confidence interval, and Hedges' g.

The relationship between management performance levels and C-P, I-P-C, and R-E was analyzed using Pearson correlation and multiple linear regression, reporting B, β , 95% CI, p, R^2 , and adjusted R^2 . Multicollinearity was tested using VIF. Due to heteroscedasticity, the main model uses HC3 robust standard errors (Long & Ervin, 2000; MacKinnon & White, 1985). Influential observations were checked using Cook's distance; additionally, a sensitivity analysis was conducted by adding the group variable to assess the stability of the relationships. The level of statistical significance was determined at $p < 0.05$. Due to the cross-sectional design, the regression coefficients are interpreted as statistical associations, not causal relationships.

3. Results

3.1. The current state of managing practical training and pedagogical internships in physical education teacher training

The survey results of 150 managers and lecturers/teachers (managers/lecturers) show that the overall score for practice management and pedagogical internship (PPM, PP) is 3.20 ± 0.51 . The average scores of the four management functions are relatively close to each other, ranging from 3.19 to 3.21 (Table 1).

Table 1. Level of implementation of pedagogical practice management functions, pedagogical internship (n = 150)

Subject matter	Variable	M ± SD
Planning (P)	7	3,21 ± 0,60
Organizing (O)	7	3,19 ± 0,64
Directing-Coordinating (D-C)	7	3,19 ± 0,59
Inspecting-Evaluating (I-E)	7	3,19 ± 0,68
Comprehensive management (CM)	28	3,20 ± 0,51

At the level of observed variables, some contents with lower average scores include organizing the implementation of coordination plans between training institutions and high schools (O3: 3.13), building coordination mechanisms among stakeholders (D-C1: 3.11), directing the implementation of coordination mechanisms (D-C3: 3.12), checking the implementation of pedagogical practice and internship plans (I-E2: 3.15), and using evaluation results to adjust activities (I-E6: 3.15). Thus, the low-scoring content appears at many stages of the management cycle, particularly related to coordination, supervision, and the use of evaluation results to adjust activities.

The two components reflecting the connection between training and professional practice have relatively close average scores: Synchronization between training and professional requirements (S) achieved 3.25 ± 0.67 , and coordination between training institutions and high schools (C) achieved 3.28 ± 0.69 . In component S, S3 (3.11) and S9 (3.18) have lower average scores; in component C, C1 and C9 both score 3.19.

The difficulties most frequently chosen by management and teachers are the untimely monitoring and support of students (48.7%), the sporadic nature of pedagogical practice and internships, which lack continuity (46.0%), and the uneven competence or level of participation of supervising teachers (42.7%). Regarding the gap between training and practical job requirements, 44.7% of administrators/teachers believe that the training does not provide enough opportunities for students to apply information technology, digital technology, and supporting tools in the professional activities of physical education teachers. 43.3% believe that the specialized knowledge and content of the physical education program have not been fully updated according to the actual teaching requirements in high schools, and 41.3% think that students still lack opportunities to practice testing and evaluating students' learning outcomes and physical fitness.

The difference between the evaluations of the training institution group and the high school group is presented in Table 2.

Table 2. Comparison of evaluations between the training institution group and the high school group

Component	Training institution (n = 80), M ± SD	High school (n = 70), M ± SD	Average variation ¹	95% CI	Hedges' g
P	3,08 ± 0,67	3,36 ± 0,48	-0,28	-0,46; -0,09	-0,46
O	2,99 ± 0,70	3,42 ± 0,48	-0,43	-0,62; -0,24	-0,70

D-C	3,06 ± 0,63	3,35 ± 0,49	-0,30	-0,48; -0,11	-0,51
I-E	3,00 ± 0,69	3,41 ± 0,60	-0,41	-0,62; -0,20	-0,62
S	3,05 ± 0,69	3,48 ± 0,58	-0,44	-0,64; -0,23	-0,68
C	3,04 ± 0,70	3,56 ± 0,58	-0,51	-0,72; -0,31	-0,80
CM	3,03 ± 0,52	3,38 ± 0,42	-0,35	-0,50; -0,20	-0,73

Note: 'Mean difference = training institution - high school. Comparison using Welch's t-test. All differences in the table have $p < 0.01$.

The group of high schools recorded a higher average score than the training institutions group in all components. For the overall management score, the mean difference between the two groups is -0.35 points (95% CI: -0.50 to -0.20; Hedges' $g = -0.73$). CI: -0.50 to -0.20; Hedges' $g = -0.73$). The largest difference was recorded in the coordination component between the training institution and the high school (C; Hedges' $g = -0.80$). These results reflect the differences in assessment between the two groups of subjects and should not be interpreted as one group's evaluation being more accurate than the other.

Data from 300 students were used as supplementary evidence regarding pedagogical practice and teaching internships. In the surveyed components, professional experience (E: 2.98 ± 0.87) and guidance (G: 2.98 ± 0.86) had the lowest average scores. The difficulties most frequently chosen by students were the lack of consistency between the training institution and high schools (55.7%) and the organization of pedagogical practice and internship in batches, lacking continuity (50.0%). Regarding the gap between training and practical job requirements, 54.3% of students chose content related to ensuring safety and handling situations during physical education classes; 45.3% chose handling pedagogical situations and professional communication; and 45.0% chose organizing extracurricular sports activities, clubs, and school sports competitions.

The synthesis of the descriptive results shows three main characteristics: (1) content with lower performance scores appears in many components of the management cycle; (2) student data recorded some gaps between training and professional experience in practice and pedagogical internships; and (3) issues related to synchronization, coordination, and feedback between training institutions and high schools were noted from both manager/teacher data and supplementary student data.

3.2. Factors related to pedagogical practice management, pedagogical internships

The three groups of conditions considered include capacity-participation of parties involved (C-P), institutions-programmes-coordination mechanisms (I-P-C), and resources-supportive environment (R-E). The average scores of the three groups are 3.26 ± 0.72 ; 3.30 ± 0.69 ; and 3.30 ± 0.71 , respectively. These values are close to a response level of 3 ("partially met") and lower than a level of 4 ("adequately met") on the scale.

All three condition groups have a positive correlation with the level of implementation of pedagogical practice management and pedagogical internship (Table 3). Among them, pedagogical practice has the highest correlation coefficient with CM ($r = 0.672$), followed by C-P ($r = 0.616$) and R-E ($r = 0.608$); all with $p < 0.001$.

Table 3. Correlation between condition groups and the level of implementation of pedagogical practice management, pedagogical internship (n = 150)

The connection	<i>r</i>	95% CI	<i>p</i>
CM – C-P	0,616	0,506; 0,706	< 0,001
CM – I-P-C	0,672	0,574; 0,752	< 0,001
CM – R-E	0,608	0,496; 0,700	< 0,001

To examine the independent relationship of each condition group with the level of management performance, C-P, I-P-C, and R-E were simultaneously included in the multivariate linear regression model. Due to diagnostic tests

indicating the presence of heteroscedasticity, the statistical inference of the main model used the HC3 robust standard error. The results are presented in Table 4.

Table 4. Multivariate linear regression on the groups of conditions related to the level of implementation of pedagogical practice management and pedagogical internship (n = 150)

Variable	<i>B</i>	SE HC3	β	95% CI of <i>B</i>	<i>p</i>	VIF
Constant	1,176	0,187	—	0,806; 1,545	< 0,001	—
C-P	0,191	0,071	0,272	0,051; 0,331	0,008	1,71
I-P-C	0,260	0,091	0,354	0,079; 0,440	0,005	2,10
R-E	0,164	0,096	0,231	−0,025; 0,354	0,089	1,83

Note: The dependent variable is the management score of Pedagogical Practice, Comprehensive Pedagogical Internship (CM). *B*: unstandardized regression coefficient; β : standardized regression coefficient; SE HC3: HC3 robust standard error. $R^2 = 0.546$; adjusted $R^2 = 0.537$; robust $F = 48.58$; $p < 0.001$.

The model explains 54.6% of the variance in the management score of pedagogical practice and pedagogical internship. When considering the three groups of conditions simultaneously, pedagogical practice has the largest standardized regression coefficient ($\beta = 0.354$; $p = 0.005$), followed by C-P ($\beta = 0.272$; $p = 0.008$). For R-E, the regression coefficient is positive but has not yet reached statistical significance in the multivariate model ($\beta = 0.231$; $p = 0.089$). The VIF of the three variables ranges from 1.71 to 2.10.

Due to the differences in evaluation between the training institution group and the high school group, sensitivity analysis was conducted by adding the subject group to the regression model. After adding the group variable, I-P-C ($B = 0.255$; $p = 0.005$) and C-P ($B = 0.183$; $p =$

0.009) still have a statistically significant independent relationship with the management score, while R-E ($B = 0.150$; $p = 0.130$) and the group variable ($B = 0.082$; $p = 0.194$) do not reach statistical significance. The sensitivity model has $R^2 = 0.552$ and adjusted $R^2 = 0.539$.

Overall, the results of the main model and sensitivity analysis show that institutions, programs, coordination mechanisms (I-P-C), and capacity-participation of stakeholders (C-P) have a clearer independent relationship with the level of implementation of pedagogical practice management and teaching practice. Resources—supportive environment (R-E) has a positive correlation with CM in the bivariate analysis, but the independent relationship of R-E did not reach statistical significance when C-P and I-P-C were considered simultaneously, and this result

continued to be noted in the sensitivity model. Due to the cross-sectional research design, the regression results above reflect statistical relationships and should not be interpreted as evidence of causal relationships.

4. Discussion

The research shows four closely related findings: the limitations in managing pedagogical practice and internships appear throughout the management cycle; the gap between training and students' professional experiences; the coordination between training institutions and high schools is not truly synchronized; and in the multivariate model, the conditions of the institution-program-coordination mechanism (I-P-C) and the capacity-participation of stakeholders (C-P) have a clearer independent relationship with the level of management performance compared to the resources-supporting environment (R-E). These findings suggest that the management of pedagogical practice and teaching internships should be considered as a system linking the training program, participating entities, and the professional practice environment.

4.1. Systemic limitations in the management cycle of practice and pedagogical internships

The results show that the functions of planning, organizing, directing-coordinating, and inspecting-evaluating have relatively similar levels of implementation. Therefore, the prominent issue does not lie in a single management phase but in the interconnectedness of the entire management cycle. The difficulties related to the continuity of pedagogical practice, teaching internships, student monitoring and support, and the uneven participation of supervising teachers further reinforce this observation.

The results align with the perspective of program coherence in teacher training, whereby the components of the program need to be organized into a continuous professional development process, rather than relatively isolated activities (Darling-Hammond, 2006; Hammerness, 2006). For PETE, this

requirement is even more important because professional competence is formed through the combination of subject knowledge, pedagogical skills, and the ability to perform professional tasks in real teaching situations (Baumgartner, 2022). The core practices approach also emphasizes the intentional organization of core professional practices throughout the training program (Ward et al., 2020).

From a management perspective, the results suggest that improving pedagogical practices and teaching internships should not only focus on each internship session but also enhance the linkage between planning, organizing, coordinating, supervising, feedback, and improvement. Accordingly, the information obtained from the process of guiding and evaluating students needs to be incorporated back into the training program as a source of data for continuous improvement. This is also consistent with evidence in PETE regarding the role of learning-oriented assessment, particularly process assessment and participatory assessment, in supporting the learning and professional development of future teachers (Herrero-González et al., 2024).

4.2. The gap between education and students' career experiences

A notable finding is that the synchronization between training and professional requirements, as well as the direct experiences of students, still has limitations, especially in professional experiences, guidance, and the continuity of pedagogical practice and internships. This shows that the issue is not only the "theory-practice gap" but also related to the quality, authenticity, and continuity of the professional experiences that students are exposed to during their training.

Research on teacher training suggests that practicum is most valuable when experiences in secondary schools are purposefully connected to the learning content at the training institution, creating opportunities for students to apply, reflect, and adjust their professional practice (Darling-Hammond, 2006, 2014; Zeichner, 2010). In PETE, the development of

professional competence also requires students to repeatedly engage with core professional tasks and receive quality feedback in authentic practice contexts (Ward et al., 2020; Westerlund, 2023).

Research results therefore suggest that pedagogical practice and teaching internships should be organized as a process of professional competency development, rather than primarily in the form of separate internship periods. The connection between learning outcomes, professional modules, experiences at secondary schools, guidance, and assessment needs to be designed more clearly so that students can gradually transform knowledge and skills into professional practice competencies.

4.3. Partnership between training institutions and high schools

The consistent differences in evaluation between the training institution group and the high school group, especially regarding the coordination component, suggest that the two sides may be viewing the organization and management of practicum and pedagogical internships from different positions and experiences. This result does not imply that one party's evaluation is more accurate than the other but rather reflects the need to enhance mutual awareness, shared responsibility, and a two-way feedback mechanism in the organization of practicum.

This finding is consistent with studies in Vietnam that show the university-high school relationship in teacher training still has limitations in terms of responsibility assignment, communication, and coordination (Cao & Tran, 2026; Hong et al., 2023; Nguyen, 2020). In PETE, Chambers and Armor (2012) also emphasize that the quality of professional learning for students significantly depends on how universities and high schools divide responsibilities and collaborate during the internship process. More recently, Teixeira et al. (2025) showed that supervising teachers at secondary schools play a crucial role in facilitating PETE students' gradual participation in school activities and professional

communities. This reinforces the argument that partnerships in pedagogical practice and teaching internships should not be limited to site arrangements and administrative procedures but should create structured conditions for guidance, participation, and professional learning for students.

Therefore, it is necessary to distinguish between administrative coordination and training partnership. Administrative coordination mainly ensures student placement, planning, and procedures; while training partnerships require both parties to participate in setting goals, guidance, evaluation, feedback, and program improvement. However, the data from the current study is not sufficient to identify or classify a specific partnership model; the results mainly indicate the need to deepen the relationship between the two training environments.

4.4. The relative role of conditions related to the management of pedagogical practice and pedagogical internships

The analyzes show that both C-P, I-P-C, and R-E are positively correlated with the level of management performance; however, when considered simultaneously in a multivariate model, I-P-C and C-P exhibit a clearer independent relationship, and this result remains stable when the subject group is added to the sensitivity analysis. This finding suggests that the operational effectiveness of pedagogical practice management and pedagogical internships may be more related to the clarity and synchronization of the institution-program-coordination mechanism, as well as the capacity and substantive participation of the stakeholders.

This result aligns with the perspective that the quality of teacher training is a product of the interaction between the program structure, the stakeholders, and the professional practice environment (Darling-Hammond, 2006, 2014). In the context of practicum, regulations and resources only fully realize their value when transformed into activities of guidance, coordination, feedback, and student support

through the entities directly involved in the training process.

For R-E, the outcome should not be understood as the resources being unimportant. Resources can play a role as an important supporting condition, but a higher level of resource responsiveness does not necessarily translate directly into a higher level of management performance when institutional-coordination and actor capacity conditions are considered simultaneously. Part of the relationship between R-E and management may also overlap with I-P-C and C-P. Due to the cross-sectional design, the study does not allow for the determination of the sequence or causal relationships between these conditions.

Overall, the three groups of conditions should be seen as complementary components within the same system: In conceptual terms, the three groups of conditions can be seen as complementary components of the same system: I-P-C reflects the institutional framework, programs, and coordination mechanisms; C-P reflects the capacity and participation of the stakeholders; while R-E reflects the environment and supporting resources. The result, therefore, aims at managing pedagogical practice and pedagogical internships as an integrated process, in which the experience and professional competence development of students serve as the connecting point between the training program, the stakeholders, and the practice environment.

4.5. Strengths and limitations of the study

The study has several strengths, including a multi-stakeholder approach, combining data from training institutions, high schools, and students, as well as reporting effect sizes and confidence intervals and using robust standard errors in the regression model. The use of student data as supplementary evidence also helps to examine the management of pedagogical practice and teaching internships from the perspective of the learner's experience.

However, the results need to be interpreted within certain limits. First, the cross-sectional design does not allow for the determination of

causal relationships. Second, the study was conducted at two specialized universities, so the generalizability to all PETE programs in Vietnam is limited. Thirdly, the main variables in the regression model were collected using self-reported questionnaires from the same group of subjects at the same time; therefore, the observed relationships may be influenced by common-method variance and perceptual bias. Fourth, although the components achieved appropriate internal consistency, the factor structure of the tool has not been independently validated and needs to be further tested on a larger, independent sample. Finally, student data is only used as supplementary evidence and is not linked at the individual level with data from management staff/faculty; therefore, the results cannot be interpreted as a multilevel model.

The synthesis of findings reveals a series of interconnected issues: limitations in the management cycle, the gap between training and professional experience, the need to strengthen partnerships between training institutions and high schools, the role of institutional coordination, and the capacity of stakeholders. This suggests the necessity to shift the focus from managing individual practice sessions and pedagogical practice to managing the process of professional competency development, where the synchronization of programs and partnerships between training institutions and high schools plays a crucial role.

5. Conclusions

Research shows that limitations in managing practice and pedagogical internships appear in many components of the management cycle, while there is also a gap between training and students' professional experiences, as well as differences in evaluation between training institutions and high schools. In the multivariate model, the institution-program-coordination mechanism and the capacity-participation of stakeholders have an independent relationship with the level of management performance, while evidence of the independent relationship between resources-supporting environment remains unstable across analyzes. The results

suggest the necessity of shifting from managing individual internship sessions to managing the process of developing professional competencies, while also enhancing the synchronization and partnership between training institutions and high schools. The findings need to be interpreted within the limitations of the cross-sectional design and the scope of the two research institutions.

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7. Author Declaration

Ethical Considerations

The study involved questionnaire surveys and interviews with adult participants. Participants were informed of the purpose of the study and the intended use of the information collected.

Participation was voluntary, and the information obtained was used solely for research purposes. Participant confidentiality and anonymity were maintained throughout data collection, analysis, and reporting. No personally identifiable information is reported in this article.

Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request, subject to applicable confidentiality and data-protection considerations. Any data shared will be de-identified prior to disclosure.

Author Contributions

All authors made substantial contributions to the conception and/or conduct of the study, data analysis and interpretation, and preparation or critical revision of the manuscript, as applicable to their respective roles. All authors reviewed and approved the final version of the manuscript and agreed to be accountable for the integrity and accuracy of the work.

Conflict of Interest Statement

The authors declare that they have no financial or non-financial conflicts of interest that could have influenced the research reported in this article.

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