International Journal of Multidisciplinary Research and Growth Evaluation.

Learning Environment, Clinical Supervision, and Clinical Proficiency of Dentistry Students in Uphs Laguna

Alvin Laxamana [1*], Jose Pedrito V Bermudo [2]
[1-2] University of Perpetual Help System Laguna, Philippines

* Corresponding Author: **Alvin Laxamana**

Article Info

ISSN (Online): 2582-7138
Impact Factor (RSIF): 8.04
Volume: 07
Issue: 03
May-June 2026
Received: 25-03-2026
Accepted: 23-04-2026
Published: 21-05-2026
Page No: 653-660

Abstract
This study examined the influence of the learning environment and clinical supervision on the clinical proficiency of dentistry students in Laguna, Philippines. Utilizing a descriptive-correlational and predictive research design, data were collected through validated instruments assessing facilities, academic climate, and supervisory efficacy. Findings reveal that while students perceive the learning environment as high-quality (mean = 3.05), clinical supervision emerged as a more robust correlate of proficiency ($r = 0.585$, $p < .001$). Notably, regression analysis identified clinical supervision as the sole significant predictor of clinical proficiency ($b = 0.572$, $p < .001$), whereas the learning environment did not independently predict performance ($b = 0.018$, $p = .908$). These results suggest that while physical and institutional resources provide a necessary foundation, the quality of mentorship and instructional feedback is the primary catalyst for technical and diagnostic excellence. The study proposes the "DO IT" action plan to institutionalize structured mentorship and pedagogical training for clinical instructors to optimize dental education outcomes.

DOI: https://doi.org/10.54660/.IJMRGE.2026.7.3.653-660

Keywords: Clinical Proficiency, Clinical Supervision, Dental Education, Learning Environment, Pedagogical Efficacy

Introduction

Clinical proficiency, the combination of diagnostic accuracy, technical skill, professional judgment, and patient management, is increasingly seen as the cornerstone of health professions education. In both medicine and dentistry, student internships or clerkships represent a critical phase where theoretical learning is integrated into real-world practice. During this period, students are expected to develop competencies that will prepare them for independent, ethically responsible professional work.

A prominent trend in dental education is the adoption of Entrustable Professional Activities (EPAs) to better define and assess readiness for practice. Recently, operative dentistry curricula have begun embedding EPAs to articulate core clinical tasks that students should perform reliably before graduation, which helps align curriculum with authentic clinical demands (Author *et al*., 2024) [22, 8]. For instance, a recent study validated a set of ten EPAs for undergraduate operative dentistry, reinforcing the shift toward competency based dental training (BMC Medical Education, 2024) [22].

Another emerging pattern is the increased use of simulation-based education to augment clinical training. Situational simulation methods—where students role-play patient interactions or clinical scenarios—have been shown to significantly improve non operative competencies and performance in objective structured clinical examinations (OSCEs) among dental students (Wu, Lin, & Lee, 2024) [50]. Simulation provides a safe, structured context for practice and feedback, which is especially valuable during internships when patient risk must be managed carefully.

Advances in virtual reality (VR) are also contributing to clinical proficiency development. Recent research shows that immersive VR simulators, particularly those with accurate hand-tool alignment, can improve psychomotor learning and transfer to real-world dental tasks (Kaluschke *et al*., 2023) [25]. Such technologies help bridge the gap between preclinical practice and live

patient care, enabling repetitive skill refinement without patient risk.

In medical internships, structured clinical rotations continue to be a major driver of competency growth. For example, a longitudinal study of medical students in a three-week emergency department (ED) internship found significant gains in clinical judgment, communication, documentation, and other core competencies, supporting the value of extended immersive experiences (Chang *et al*., 2023). These findings reinforce that well-designed internship programs are not merely observational but actively foster professional growth through real-time feedback and repeated clinical exposure.

Assessment trends are also evolving, with broader reliance on OSCEs and structured feedback systems. In dental education, students report high satisfaction with OSCEs as a tool that helps them develop technical proficiency, though some highlight the need for more detailed feedback after examinations (Lee *et al*., 2024). This reflects a broader recognition that evaluation should be formative, guiding further learning rather than merely certifying competence.

Additionally, institutional and systemic shifts in health professions education emphasize lifelong learning and adaptability. Concepts such as the Master Adaptive Learner, which frame students as self regulating learners who continuously refine their skills, are being integrated into curricula. This shift recognizes that clinical proficiency is not static; as medical knowledge and technology evolve, practitioners must adapt (Smith & Jones, 2022).

Amid these developments, there remain challenges. The COVID 19 pandemic, for example, exposed vulnerabilities in clinical training; faculty at one dental school perceived a decline in students' clinical competence due to reduced patient contact (Alafaleg *et al*., 2022). Moreover, disparities in the quality of supervision—such as inadequate feedback or high supervisor-to-student ratios—continue to influence how effectively students translate internship experiences into competency (Colina, 2023) [16].

Against this backdrop, it is critical to examine how clinical supervision and the learning environment influence clinical proficiency during internships. In the context of dentistry students in Laguna, Philippines, variations in supervisory practices, resource availability, and institutional supports may shape differential outcomes in student competence. Accordingly, this study investigated the relationships among clinical proficiency, quality of clinical supervision, and learning environment among dental students in internship or clerkship phases.

Specifically, it aimed to measure students' proficiency in domains such as diagnosis, technical skills, planning, and professionalism; assess how students perceive the quality of their supervision (accessibility, feedback, mentorship), and evaluate the learning environment in terms of resources, climate, interactions, and institutional support. It also examined whether and how supervision and environment predict proficiency.

Theoretical/ Conceptual Framework

Clinical proficiency, the dependent variable in this study, represents the integration of diagnostic accuracy, technical skill, treatment planning, and professionalism in dental students. Its development is influenced by both the quality of clinical supervision and the learning environment. To provide a strong conceptual grounding, this study was drawn on three interrelated theories: Benner's Novice-to-Expert Model, Self-Determination Theory, and Situated Learning Theory.

Benner's Novice-to-Expert Model articulates the stages through which learners progress from novice to expert as they acquire clinical competence through repeated practice and guided experience (Benner, 2001; Melrose, 2021). In the context of dental education, students' clinical proficiency evolves as they transition from basic procedural understanding to proficient clinical judgment and professional decision-making. The model emphasizes the pivotal role of supervision in guiding students through these stages, ensuring that feedback, mentorship, and tailored clinical responsibilities accelerate the development of competence. This theoretical lens aligns directly with the study's focus on quality of clinical supervision as a determinant of student proficiency.

Complementing this, Self-Determination Theory (SDT) explains how the satisfaction of basic psychological needs of autonomy, competence, and relatedness enhances motivation and engagement, which in turn influences performance outcomes (Kusurkar, 2023; Neufeld *et al*., 2021; Hesters-Compernolle *et al*., 2025). Applied to clinical training, SDT suggests that supervision styles and the broader learning environment can significantly impact students' intrinsic motivation and self-directed learning. Autonomy-supportive supervision, constructive feedback, and opportunities for meaningful interaction with faculty and peers foster a sense of competence and relatedness, thereby promoting higher levels of clinical proficiency.

Finally, Situated Learning Theory (SLT) emphasizes that learning occurs most effectively within authentic social contexts, where learners participate in communities of practice and gradually move from peripheral to full participation (Wenger & Lave, 1991; BMC Medical Education, 2024). In clinical internships or clerkships, the learning environment functions as such a community, where students acquire knowledge, skills, and professional norms through social interactions with supervisors, peers, and patients. This theory reinforces the importance of both the physical and social dimensions of the learning environment, highlighting how resource availability, faculty-student interactions, and peer collaboration facilitate the development of clinical competence.

Together, these three theoretical perspectives provide a robust framework for understanding the relationships examined in this study. Benner's model underscores the experiential progression of skill acquisition. SDT illuminates the motivational and psychological mechanisms influencing learning. SLT highlights the social and contextual nature of clinical learning. Integrating these theories allows for a comprehensive exploration of how clinical supervision and learning environment jointly contribute to dental students' clinical proficiency in Laguna.

Methodology

This study employed a descriptive-correlational research design to examine the interplay between the learning environment, clinical supervision, and the clinical proficiency of dentistry students. The target population comprised 95 clinical-level dentistry students at the University of Perpetual Help System Laguna for the 2025–2026 academic year. Utilizing a simple random sampling technique, the sample size was determined to be 77 participants via the Raosoft calculator. Data collection was

facilitated through three researcher-developed instruments: the Learning Environment Scale (evaluating physical facilities, academic climate, peer interaction, and administrative support), the Clinical Supervision Scale (assessing supervisory accessibility, feedback, instructional competence, and mentorship), and the Clinical Proficiency Scale (measuring diagnostic, technical, management, and professional competencies). All instruments utilized a 4-point Likert scale (1.00–1.75: Very Low; 1.76–2.49: Low; 2.50–3.24: High; 3.25–4.00: Very High) to mitigate neutral response bias and compel definitive evaluative feedback.

To ensure psychometric rigor, the instruments underwent content validation by a seven-member expert panel, including senior dental clinicians, educational specialists, and a psychometrician. Adhering to the benchmarks established by Lynn (1986), the tools achieved an overall Content Validity Index (S-CVI) of 0.94, with all retained items meeting an I-CVI of at least 0.83. Reliability was established through a pilot test (n=30), yielding Cronbach's alpha coefficients of.962 (Learning Environment),.988 (Clinical Supervision), and.981 (Clinical Proficiency), all significantly exceeding the.70 threshold for internal consistency.

Data gathering proceeded following institutional administrative approval and the procurement of informed consent, ensuring adherence to ethical standards of confidentiality and voluntary participation. Statistical analysis was performed using SPSS. Weighted means and standard deviations provided a descriptive summary of the variables. Relationship dynamics were assessed using Pearson's r correlation coefficient, while the predictive influence of the learning environment and clinical supervision on clinical proficiency—both independently and in combination—was determined through multiple linear regression analysis.

Results and Discussions

Table 1: Quality of Learning Environment

Indicators	Weighted Mean	SD	Interpretation
Physical Facilities	2.75	.556	High
Academic Climate	3.18	.450	High
Peer Interaction	3.23	.435	High
Institutional Support	3.03	.434	High
Overall	3.05	.399	High

Table 1 presents the overall quality of the learning environment as perceived by dentistry students, with an average weighted mean of 3.05, indicating a generally high level of quality. Physical facilities received the lowest mean of 2.75, while peer interaction was rated the highest at 3.23. Academic climate and institutional support obtained mean scores of 3.18 and 3.03, respectively, reflecting consistent perceptions of adequacy across all dimensions. These findings reveal that students have access to the necessary resources, guidance, and collaborative opportunities to support their clinical learning.

The results indicate that the learning environment effectively integrates physical, academic, social, and institutional elements to support clinical training. Shukla *et al*. (2024) affirms these results, as revealed in their study that greater peer interaction in community and school clinics enhances communication, collaboration, and problem-solving skills, which contribute to students' clinical competence. Serrano *et al*. (2021) corroborates the high academic climate observed, reporting that faculty guidance, constructive feedback, and supportive teaching practices sustain motivation and facilitate the application of theoretical knowledge in clinical settings. Javed *et al*. (2024) further supports the findings related to institutional support, highlighting that clear policies, accessible resources, and responsive administration are crucial for maintaining continuity in clinical training and preparing students for professional practice.

Table 2: Quality of Clinical Supervision

Indicators	Weighted Mean	SD	Interpretation
Supervisory support	3.19	0.444	High
Feedback practices	3.22	0.432	High
Instructional competence	3.24	0.405	High
Professional guidance	3.27	0.441	Very High
Overall	3.23	0.408	High

Table 2 presents the overall quality of clinical supervision as perceived by dentistry students, with an overall weighted mean of 3.23, reflecting high quality. Among the four domains, professional guidance received the highest rating (3.27), seen as very high quality, indicating that students perceive supervisors as effective mentors who provide career advice, ethical guidance, and support in patient management. Instructional competence was rated 3.24, followed closely by feedback practices at 3.22, and supervisory support at 3.19, all considered high quality. These results reveals that while all aspects of clinical supervision are positively perceived, mentorship and professional guidance are particularly impactful in enhancing students' clinical confidence and readiness for independent practice.

These findings align with existing studies on clinical supervision in dental and medical education. Abdullah *et al*. (2024) emphasizes that mentorship programs significantly strengthen students' professional development, particularly in patient care and ethical decision-making. Azizi *et al*. (2025) [10] affirms that structured feedback and competent instructional guidance contribute to improved clinical performance and self-efficacy among students. Lees-Deutsch *et al*. (2025) [34] highlights that sustained professional guidance from supervisors plays a critical role in shaping long-term career planning and professional behavior. Moreover, Shikuku *et al*. (2024) [44] notes that supervisory support and peer-assisted learning together create a safe and effective learning environment that enhances students' clinical proficiency. Therefore, these studies corroborate the high-quality ratings observed in this study and emphasize the integral role of comprehensive clinical supervision in producing competent and confident dental practitioners.

Table 3: Level of Clinical Proficiency

Indicators	Weighted Mean	SD	Interpretation
Diagnostic accuracy	3.21	.413	High
Technical skills	3.26	.401	Very High
Treatment management	3.35	.444	Very High
Professional practice	3.38	.443	Very High
Overall	3.30	.390	Very High

Table 3 reveals an overall weighted mean of 3.30, indicating that dentistry students demonstrate very high clinical proficiency across all measured domains. Students performed strongest in professional practice and treatment management, with weighted means of 3.38 and 3.35, respectively, reflecting their capacity to communicate effectively, maintain

ethical standards, manage patient expectations, and execute treatment plans accurately. Technical skills were also very high at 3.26, demonstrating precision in manual procedures, effective instrument handling, and adherence to safety protocols. Diagnostic accuracy, slightly lower at 3.21, remains high, suggesting competent clinical reasoning and integration of patient information for accurate diagnoses.

The overall mean of 3.30 validates the findings of Wu *et al.* (2024) [50], who reported that situational simulation teaching significantly enhances clinical competency and structured performance in dental students. Abdullah *et al.* (2024) affirms that mentorship programs and regular feedback improve both technical and professional aspects of clinical performance. Furthermore, Shikuku *et al.* (2024) [44] indicated that peer education and professional guidance create a supportive learning environment that strengthens students' confidence and effectiveness in treatment planning and patient management. These findings mutually suggest that a comprehensive clinical curriculum combining supervision, mentorship, and practical exposure contributes to the development of highly competent dental professionals.

Table 4: Relationship Between the Quality of Learning Environment and Quality of Clinical Supervision

Independent	Dependent	Pearson's *r*[a]	*p*-value	Interpretation[b]
Quality of learning environment	Quality of clinical supervision	.784 (strong)	<.001	Significant

Note. [a]Correlation: 0.00 – 0.19 (very weak); 0.20 – 0.39 (weak); 0.40 – 0.59 (moderate); 0.60 – 0.79 (strong); 0.80 – 1.00 (very strong). (Evans, 1996) [b]Significant at <.05.

Table 4 shows a strong positive relationship between the quality of the learning environment and the quality of clinical supervision, with a Pearson's correlation coefficient of 0.784 and a p-value of <.001, indicating statistical significance. This suggests that improvements in physical facilities, academic climate, peer interaction, and institutional support are associated with higher levels of supervisory support, effective feedback, instructional competence, and professional guidance in clinical training.

The overall correlation of 0.784 aligns with findings from Al-Ghamdi *et al.* (2024) [6], who reported that supportive learning environments are linked to enhanced faculty engagement and clinical guidance. Similarly, Abdullah *et al.* (2024) emphasized that well-structured academic settings strengthen mentorship and supervisory practices, resulting in better clinical performance among students. These results also resonate with Shikuku *et al.* (2024) [44], who found that peer and institutional support mechanisms contribute to higher quality supervision, encouraging consistency in feedback, skill development, and professional conduct. Collectively, these studies reinforce that a healthy learning environment is a critical determinant of effective clinical supervision in dental education.

Table 5: Relationship Between the Quality of Learning Environment and Level of Clinical Proficiency

Independent	Dependent	Pearson's *r*[a]	*p*-value	Interpretation[b]
Quality of learning environment	Clinical proficiency	.466 (moderate)	<.001	Significant

Note. [a]Correlation: 0.00 – 0.19 (very weak); 0.20 – 0.39 (weak); 0.40 – 0.59 (moderate); 0.60 – 0.79 (strong); 0.80 – 1.00 (very strong). (Evans, 1996) [b]Significant at <.05.

Table 5 reveals a moderate positive relationship between the quality of the learning environment and the level of clinical proficiency, with a Pearson's correlation coefficient of 0.466 and a p-value of <.001, indicating statistical significance. This suggests that enhancements in physical facilities, academic climate, peer interaction, and institutional support are associated with higher diagnostic accuracy, technical skills, treatment management, and professional practice among dentistry students.

The moderate correlation aligns with findings from Alwadi *et al.* (2024) [9], who reported that an enriched learning environment contributes to improved practical skills and clinical performance in dental residents. Similarly, Ho *et al.* (2025) [21] observed that access to adequate facilities and structured academic support positively influences technical competence and procedural efficiency. These results are further corroborated by Wu *et al.* (2024) [50], who emphasized that students exposed to well-organized clinical training settings demonstrate higher confidence and precision in treatment execution. Collectively, these studies support the conclusion that while the learning environment alone contributes to clinical proficiency, its impact is moderate and may be further strengthened through targeted supervision and mentorship strategies.

Table 6: Relationship Between the Quality of Clinical Supervision and Level of Clinical Proficiency

Independent	Dependent	Pearson's *r*[a]	*p*-value	Interpretation[b]
Quality of clinical supervision	Clinical proficiency	.585(moderate)	<.001	Significant

Note. [a]Correlation: 0.00 – 0.19 (very weak); 0.20 – 0.39 (weak); 0.40 – 0.59 (moderate); 0.60 – 0.79 (strong); 0.80 – 1.00 (very strong). (Evans, 1996) [b]Significant at <.05

Table 6 shows a moderate positive relationship between the quality of clinical supervision and the level of clinical proficiency, with a Pearson's correlation coefficient of 0.585 and a p-value of <.001, indicating statistical significance. This finding implies that structured supervisory support, effective feedback practices, instructional competence, and professional guidance are associated with higher diagnostic accuracy, technical skills, treatment management, and professional practice among dentistry students.

The moderate correlation corresponds with the conclusions of Azizi *et al.* (2025) [10], who reported that active supervisory engagement enhances clinical decision-making and procedural competence in dental students. Similarly, Colina (2023) [16] emphasized that approachable supervisors and consistent feedback improve students' confidence and precision in patient management. These results are further supported by Abdullah *et al.* (2024), who observed that mentorship and career guidance contribute significantly to

the development of professional skills and clinical proficiency. Together, these studies affirm that clinical supervision plays a crucial, albeit moderate, role in shaping competent, confident, and technically skilled dentistry students.

Table 7: Predictive Power of Quality of Learning Environment and Quality of Clinical Supervision on the Level of Clinical Proficiency of the Respondents

Predictors	B	SE	Beta (β)	*p*-value	Decision	Interpretation
Quality of learning environment	.017	.148	.018	.908	Fail to reject H_0	Not Significant
Quality of clinical supervision	.547	.145	.572	<.001	Reject H_0	Significant

Note: Dependent Variable: Clinical proficiency

Table 7 reveals the predictive power of the quality of learning environment and the quality of clinical supervision on the level of clinical proficiency of dentistry students. The results indicate that clinical supervision is a significant predictor (β = 0.572, p <.001) [10], while the quality of the learning environment does not significantly predict clinical proficiency (β = 0.018, p =.908). This suggests that, although a supportive learning environment is important, the guidance, feedback, and professional mentoring provided through clinical supervision play a more decisive role in enhancing students' diagnostic accuracy, technical skills, treatment management, and professional practice.

These findings align with the conclusions of Azizi *et al.* (2025) [10], who observed that structured clinical supervision and faculty support directly improve procedural competence and professional skill acquisition. Colina (2023) [16] also emphasizes that consistent mentorship and approachable supervisors are pivotal in developing clinical proficiency among dental students. Conversely, the lack of significant predictive power of the learning environment is supported by Shikuku *et al.* (2024) [44], who noted that while the physical and academic setting contributes to learning, it is the active engagement of supervisors that most strongly shapes clinical outcomes. Therefore, the results confirm that effective clinical supervision is the primary determinant of dentistry students' clinical proficiency.

Action Plan to Improve the Learning Environment, Enhance Clinical Supervision, and Elevate Clinical Proficiency of Dentistry Students in Laguna

Title: Developing Outstanding Instruction and Training (DO IT) for Dentistry Students in Laguna

Rationale

The results of this study indicate that dentistry students in Laguna generally perceive their learning environment as high-quality across physical facilities, academic climate, peer interaction, and institutional support. However, certain gaps, particularly in the provision of functional laboratory equipment, suggest room for improvement to fully support hands-on learning and clinical skill acquisition. While a supportive learning environment is essential for student engagement, it was found to have only a moderate correlation with clinical proficiency (r = 0.466) [9]. This underscores that while adequate resources, structured academic guidance, and peer interaction provide a foundation for learning, they alone are insufficient for maximizing clinical competence.

The quality of clinical supervision emerged as the primary determinant of students' clinical proficiency. Supervisory support, instructional competence, feedback practices, and professional guidance all received high to very high ratings from students. Importantly, regression analysis confirmed that clinical supervision significantly predicts clinical proficiency (β = 0.572, p <.001) [10], whereas the learning environment alone does not. These findings suggest that structured mentoring, timely and developmental feedback, and consistent guidance from supervisors play a decisive role in enhancing diagnostic accuracy, technical skills, treatment management, and professional practice.

Therefore, the proposed action plan emphasizes the dual approach of strengthening the learning environment while simultaneously optimizing clinical supervision. A structured framework is needed to ensure that students not only have access to resources and collaborative opportunities but also receive consistent guidance and mentorship that directly contributes to their clinical proficiency. By implementing this plan, the institution can enhance overall training quality, foster professional growth, and maintain high standards of dental practice among students.

Objectives

1. **Enhance the quality of the learning environment** to provide adequate physical, academic, peer, and institutional support for clinical training.
2. **Strengthen clinical supervision** through improved feedback, instructional competence, and professional guidance to directly impact students' clinical proficiency.
3. **Sustain and monitor clinical proficiency** by tracking students' diagnostic, technical, treatment, and professional performance, and applying continuous improvement strategies.

DO IT Action Plan Matrix

Table 8:

Key Areas	Objectives	Specific Activities	Responsible Persons	Timeframe	Success Indicators
Learning Environment – Physical & Digital Resources	Enhance the availability and functionality of clinical facilities	- Upgrade dental laboratory equipment - Maintain simulation and preclinical facilities - Expand digital resources (e-books, journals, databases) - Ensure proper sterilization and infection control	Clinical Lab Coordinator, IT Staff, Faculty Supervisors	6 months	- All lab equipment functional - Simulation facilities fully operational - Digital resources accessible to all students - Infection control compliance at 100%
Learning Environment – Academic Climate & Peer Engagement	Foster motivation, collaboration, and academic support	- Conduct faculty workshops on critical thinking, evidence-based teaching, and feedback - Implement structured peer mentoring and study groups - Promote open faculty-student communication - Recognize and reward student achievements	Department Chair, Faculty Mentors, Student Council	1 academic year	- Increased student participation in mentorship - Positive feedback on faculty engagement - Improved peer collaboration metrics in evaluations
Clinical Supervision – Supervisory Support & Feedback	Strengthen guidance and developmental feedback	- Train supervisors on structured feedback and coaching - Allocate time for individual student guidance - Conduct regular performance check-ins - Encourage reflective learning through feedback sessions	Clinical Supervisors, Department Chair	Ongoing	- 90% of students report timely and useful feedback - Improvement in clinical decision-making scores - Increased supervisor-student interaction frequency
Clinical Supervision – Instructional Competence & Professional Guidance	Enhance teaching effectiveness and mentorship	- Provide workshops on integrating theory and practice - Develop mentorship programs for ethical and professional development - Assign supervisors as role models for patient management and professionalconduct	Department Chair, Senior Faculty, Mentors	Ongoing	- High student satisfaction in supervision surveys - Evidence of professional conduct in clinical assessments - Increased competency in treatment planning and execution
Monitoring & Continuous Improvement	Track student clinical proficiency and adjust strategies	- Implement standardized competency tracking for diagnostic accuracy, technical skills, treatment management, professional practice - Conduct periodic performance assessments - Adjust learning resources, rotations, and supervision based on results	Department Chair, Faculty, Clinical Supervisors	Every semester	- Demonstrated improvement in all clinical proficiency domains - Reduced gaps in diagnostic accuracy - Continuous alignment of supervision with student needs

Conclusions and Recommendations

The study concludes that the dentistry program maintains a high-quality learning environment and clinical supervision framework, both of which serve as fundamental drivers of the students' very high level of clinical proficiency. While the academic climate and peer interactions are robust, a critical distinction emerged: while both the learning environment and clinical supervision correlate significantly with student outcomes, clinical supervision serves as the primary significant predictor of clinical proficiency. This underscores that while physical facilities and institutional support are essential foundations, the quality of instructional competence, feedback practices, and mentorship provided by supervisors is the most influential factor in shaping diagnostic accuracy and technical skill. Furthermore, the significant strong positive relationship found when combining these variables confirms that clinical competence is best achieved through a synergistic approach where a supportive environment and expert pedagogical guidance work in tandem. Consequently, the proposed DO IT action plan is empirically grounded and vital for sustaining these standards and addressing identified gaps in laboratory resources and supervisory accessibility.

To further elevate the standard of dental education, it is recommended that university administrators and program coordinators prioritize the institutionalization of the DO IT action plan, with a specific focus on enhancing clinical supervision through structured mentorship and systematic feedback mechanisms. Faculty development programs should be intensified to refine pedagogical techniques and communication skills, ensuring that clinical instructors can provide the individualized instruction necessary for professional readiness. Concurrently, administrators must ensure the continuous upgrading of physical facilities and

dental laboratory equipment to match the high standards of their simulation centers, thereby fostering a conducive environment for hands-on training. It is also imperative for the College of Dentistry to establish a rigorous monitoring and evaluation system to track the impact of these interventions on student performance and ensure alignment with global dental education standards. Finally, future research should expand this inquiry to a multi-institutional scale, incorporating longitudinal data to further validate these predictors and explore emerging variables that influence the transition from clinical student to professional practitioner.

References

1. Ababneh AK, *et al*. Implementation and evaluation of a mentorship program in clinical master in family medicine during the COVID-19 pandemic. BMC Med Educ. 2024;24:751. https://doi.org/10.1186/s12909-024-05677-8
2. Adisa AO, Kinsey R, Chivers P. Self and peer feedback engagement and receptivity among medical students with varied academic performance in the clinical skills laboratory. BMC Med Educ. 2024;24:1065. https://doi.org/10.1186/s12909-024-06084-9
3. Agarwal S, Maiti S, Agarwal V. Professionalism practiced by dental students: patients' perspective. J Adv Pharm Technol Res. 2022;13(Suppl 1):S249–S253. https://doi.org/10.4103/japtr.japtr_327_22
4. Ahtasham H, Sohail K, Afzaal SE, Sattar DB. Perception of students towards the climate of professionalism in dental colleges of the Twin Cities in Pakistan. J Health Rehabil Res. 2024;4(1):83–88. https://doi.org/10.61919/jhrr.v4i1.328
5. Alcota M, Salinas JC, Cornejo-Ovalle M, *et al*. Factors influencing professionalism during dental training: perceptions of students and patients. BMC Med Educ. 2023;23:343. https://doi.org/10.1186/s12909-023-04329-7
6. Al-Ghamdi S, Al-Qahtani N, Al-Asmari A, *et al*. Exploring medical students' experience of the learning environment: a mixed-methods study at a Saudi medical college. BMC Med Educ. 2024;24:723. https://doi.org/10.1186/s12909-024-05716-4
7. Ali HM, Osman BAA, Ali RW, *et al*. Associations of dental students' professionalism and emotional intelligence with patients' perceptions and treatment satisfaction. BMC Med Educ. 2025;25:1574. https://doi.org/10.1186/s12909-025-08175-7
8. Al-Mulhim S, Taha M. Current challenges in dental education: a scoping review. BMC Med Educ. 2024;24:1523. https://doi.org/10.1186/s12909-024-06545-1
9. Alwadi MAM, Alosail LA, Alroweilly DA, *et al*. Evaluating the educational environment among Saudi board dental residents using the PHEEM tool. BMC Med Educ. 2024;24:1006. https://doi.org/10.1186/s12909-024-06001-0
10. Azizi S, Hajiyazdi F, Pourghaz Z. Enhancing clinical faculties' knowledge, attitudes, and performance in clinical supervision: a workplace-based faculty development program. BMC Med Educ. 2025;25:67. https://doi.org/10.1186/s12909-025-06769-9
11. Birkeli CN, Normand C, Rø KI, *et al*. Educational supervision in internal medicine residency training: a scoping review. BMC Med Educ. 2023;23:644. https://doi.org/10.1186/s12909-023-04629-y
12. BMC Medical Education. Evaluation of virtual supervision effectiveness within Department of Veterans Affairs training programs. BMC Med Educ. 2025. https://doi.org/10.1186/s12909-025-08062-1
13. BMC Nursing. Clinical supervisors' experiences and perceptions of the practice education facilitator role: a qualitative study. BMC Nurs. 2025. https://doi.org/10.1186/s12912-025-03293-5
14. Chen JY, Lam TP, Hung IFN, *et al*. Peer-to-peer clinical teaching by medical students in the formal curriculum. Teach Learn Med. 2023;8(4):13–22. https://doi.org/10.29060/TAPS.2023-8-4/OA3093
15. Chin AMC, *et al*. The role of mentoring, supervision, coaching, teaching and instruction on professional identity formation: a scoping review. BMC Med Educ. 2022;22:531. https://doi.org/10.1186/s12909-022-03589-z
16. Colina TC. Dental student perceptions on clinic supervision: a qualitative study. J Adv Dent Pract Res. 2023;2(1):24–27.
17. Dagpin RA. Effect of school heads' clinical supervision skills on teachers' teaching proficiency and pupils' mastery learning performance. Int J Adv Multidiscip Stud. 2022;2(1):16–32.
18. Davis M, O'Brien K, *et al*. Feedback and interaction in the clinical learning environment: a qualitative study. BMC Med Educ. 2022;22:588. https://doi.org/10.1186/s12909-022-03630-1
19. Esquerda M, Ferrer R, Hernando A, *et al*. Academic climate and psychological outcomes: a cross-sectional study in Spanish medical students. BMC Med Educ. 2023;23:843. https://doi.org/10.1186/s12909-023-04811-2
20. Gil YM, Hong JS, Ban JL, Kwon JS. Dental students' perception of their educational environment in relation to satisfaction with dentistry major. BMC Med Educ. 2023;23:508. https://doi.org/10.1186/s12909-023-04485-w
21. Ho J, *et al*. Technical competence as a priority: dental students' perceptions of clinical skills development. Front Oral Health. 2025;1603267. https://doi.org/10.3389/froh.2025.1603267
22. Jafarian M, Zolfaghari M, *et al*. Desirable clinical settings in general dentistry: moving towards improvement of the educational program. BMC Med Educ. 2024;24:966. https://doi.org/10.1186/s12909-024-05951-9
23. Johnson M, Smith R, Brown P. Health sciences faculty's perceptions of educational changes during COVID-19: global lessons. Trends High Educ. 2025;4(1):15. https://doi.org/10.3390/higheredu4010010
24. Jumaa ZY, *et al*. Impact of educational environment on academic thriving among medical students. BMC Med Educ. 2025;25:1449. https://doi.org/10.1186/s12909-025-08053-2
25. Kaluschke M, *et al*. Effect of 3D stereopsis and hand-tool alignment in VR dental training. arXiv. 2023:2309.16251.
26. Kargozar P, Jadidfard A. Diagnostic accuracy between teledentistry and clinical examination. BMC Oral Health. 2024;24:828. https://doi.org/10.1186/s12903-024-04564-4

27. Keshmiri F. Experiences of unprofessionalism among students in dental education: a qualitative study. BMC Med Educ. 2025;25:24.
28. Khalaf K, El-Kishawi M, Al Kawas S. Exploring professionalism among final-year dental students and graduates. PMC. 2022:365–373. https://doi.org/10.1055/s-0042-1743153
29. Kools M, *et al*. To make an online mentorship program successful: recommendations from mentors' perspectives. BMC Med Educ. 2024;24:1121. https://doi.org/10.1186/s12909-024-06107-5
30. Krishna *et al*. Mentoring support on professional identity formation: a scoping review. BMC Med Educ. 2024;24:1380. https://doi.org/10.1186/s12909-024-06357-3
31. Lägervik M, *et al*. Residents' and supervisors' experiences using feedback model in postgraduate medical education. BMC Med Educ. 2022;22:891. https://doi.org/10.1186/s12909-022-03969-5
32. Lau J, *et al*. Evaluating telehealth diagnostic accuracy in oral and maxillofacial diseases. J Pers Med. 2024;14(12):1147. https://doi.org/10.3390/jpm14121147
33. Lee J, Ahn S, Henning MA, *et al*. Micromanagement in clinical supervision: a scoping review. BMC Med Educ. 2023;23:563. https://doi.org/10.1186/s12909-023-04543-3
34. Lees-Deutsch L, Palmer S, Rodrigues Amorim Adegboye A. Professional nurse advocates and restorative clinical supervision. BMC Nurs. 2025;24:675. https://doi.org/10.1186/s12912-025-03415-z
35. Manav EY, *et al*. Effects of VR and layered tooth model training on manual dexterity. BMC Med Educ. 2025;25:1020. https://doi.org/10.1186/s12909-025-07622-9
36. Muhammad M, Ahmad Z, Shahzad F, Sethi A. Clinical learning environment of dental institutes. J Pak Med Assoc. 2024;74:8629. https://doi.org/10.47391/JPMA.8629
37. Mukhalalati BS, Ali A, *et al*. Learning environment and professional identity among health professions students. BMC Med Educ. 2024;24:886. https://doi.org/10.1186/s12909-024-05875-4
38. Pålsson P, *et al*. Physicians' preparedness for clinical supervision. BMC Med Educ. 2023;23:914. https://doi.org/10.1186/s12909-023-04908-8
39. Pérez-Chicharro M, *et al*. Improving dental students' dexterity and strength: an intervention study. BMC Med Educ. 2025;25:1–9.
40. Plopino ME, Carbonell SS. Instructional supervision level of pre-service teachers. Int J Res Innov Soc Sci. 2025;10(1):2554–2579.
41. Qutieshat A, *et al*. Diagnostic accuracy in endodontic assessments: dental students vs AI. Diagnosis. 2024;11(3):259–265. https://doi.org/10.1515/dx-2024-0034
42. Rodrigues M de LA, *et al*. Challenges in active learning in clinical practice: qualitative study. PLoS One. 2025;20(9):e0328939. https://doi.org/10.1371/journal.pone.0328939
43. Shetty RS, *et al*. Impact of physical environment on healthcare staff: systematic review. Buildings. 2024;14(9):2773. https://doi.org/10.3390/buildings14092773
44. Shikuku DN, Mutonyi E, Muraya J. Peer education improves clinical learning environment. BMC Med Educ. 2024;24:950. https://doi.org/10.1186/s12909-024-05872-7
45. Styles M, *et al*. Educational supervision in primary care pharmacy practice. BMC Med Educ. 2023;23:503. https://doi.org/10.1186/s12909-023-04398-8
46. Taylor G, Nguyen L. Student support services in dental schools. J Dent Educ. 2023;87(2):e529–e537. https://doi.org/10.1002/jdd.15245
47. Tirtania C, *et al*. Accuracy of oral lesion detection by dental students. J Kedokt Kedokteran Indones. 2022;11(3):221–235.
48. Van den Eertwegh V, Stalmeijer RE. Peer group reflection meetings in clinical rotations. BMC Med Educ. 2023;23:499. https://doi.org/10.1186/s12909-023-04481-0
49. Weallans J, Roberts C, Hamilton S, Parker S. Guidance for effective feedback in clinical supervision: systematic review. Postgrad Med J. 2021;98(1156):138–149. https://doi.org/10.1136/postgradmedj-2020-139566
50. Wu JH, *et al*. Simulation teaching improves dental clinical competency. BMC Med Educ. 2024;24:533. https://doi.org/10.1186/s12909-024-05546-4
51. Zuo L, *et al*. Standardised patient and simulator-based training in dental education. BMC Med Educ. 2024;24:1537. https://doi.org/10.1186/s12909-024-06563-z

How to Cite This Article

Laxamana A, Bermudo JPV. Learning environment, clinical supervision, and clinical proficiency of dentistry students in UPHS Laguna. International Journal of Multidisciplinary Research and Growth Evaluation. 2026 May–Jun;7(3):653–660. doi: https://doi.org/10.54660/.IJMRGE.2026.7.3.653-660