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Management of Dental Professional Education at Sam Ratulangi University Dental Hospital

Pritartha S. Anindita[1]*, Harol R. Lumapow[1], Joulanda A.M. Rawis[1], Jeffry S. J. Lengkong[1]

[1]Doctoral Program in Educational Management, Postgraduate School, Universitas Negeri Manado, Indonesia

*Corresponding author: pritarthaanindita@gmail.com

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ABSTRACT

Dental professional education requires a management system that can integrate academic standards, clinical service obligations, patient safety, and resource availability. This article analyzes the management effectiveness of dental professional education in a university dental and oral hospital through the interaction of four classical management functions: Planning, Organizing, Actuating, and Controlling (POAC, with six management resources: Man, Money, Material, Machine, Method, and Market (6M). A descriptive qualitative approach was used, drawing on interviews, document review, and field observation involving hospital management, program leadership, clinical supervisors, administrative personnel, and co-assistant students. The findings show that the management system performs unevenly across the POAC functions. Human-resource planning for clinical supervisors is relatively effective because minimum qualification standards and continuing-study strategies are recognized. However, planning for co-assistant intake, management structure, financing, materials, equipment, and patient supply remains weak. Organizing is strongest in student rotation and clinical-supervisor placement, but weak in financial authority and hospital management activation. Actuating is supported by clinical supervision procedures and curriculum implementation, yet is disrupted by limited dental units, delayed consumables, centralized finance, and insufficient patient cases. Controlling demonstrates strong patient-safety orientation and accountable financial documentation, but remains weak in clinical-supervisor calibration, material-equipment monitoring, and curriculum feedback. The study proposes a 6M-based POACE model by adding Evaluation as an autonomous management function. The model positions evaluation not merely as monitoring, but as an evidence-based feedback mechanism that recalibrates planning, organization, implementation, and control in order to improve clinical education quality, timely completion, and institutional accountability.

Keywords: 6M resources, clinical supervision, dental professional education, educational management, POAC, POACE, quality assurance.

INTRODUCTION

Dental professional education occupies a distinctive position within higher education because it is simultaneously an academic program, a clinical learning process, and a health-service activity. Unlike ordinary classroom-based programs, professional dental education requires students to learn through direct clinical procedures under supervision, while every learning activity must protect patients and comply with clinical, legal, and ethical standards. This dual mandate makes educational management in a dental hospital more complex than management in a conventional academic unit. The educational process is not only determined by curriculum documents and teaching schedules, but also by patient availability, dental-chair capacity, clinical-supervisor readiness, consumable materials, instruments, financing flows, and the governance relationship between the study program, the university, and the hospital.

The central problem addressed in this article is the gap between ideal management standards and operational reality in dental professional education. The study context shows a persistent concern regarding long study duration and the difficulty of completing clinical requirements on time. Such conditions cannot be explained by student performance alone. They reflect a broader management ecosystem in which co-assistant students depend on clinical supervisors, patient cases, functioning dental equipment, consumables, and a curriculum-operational system that allows them to progress. When one resource element is delayed or poorly coordinated, the delay spreads across the entire clinical education process. For that reason, this article uses an integrated management lens rather than treating each obstacle as an isolated administrative problem.

The article applies the classical POAC framework: Planning, Organizing, Actuating, and Controlling, because these functions remain highly relevant for analyzing educational institutions that operate in service-intensive environments. Planning concerns the ability to set goals, allocate resources, anticipate needs, and prepare strategies. Organizing concerns the arrangement of tasks, authority, personnel, facilities, and workflows. Actuating concerns the ability to mobilize people and resources into effective action. Controlling concerns the monitoring of compliance, quality, safety, and achievement. However, in a clinical education setting, POAC must be applied to concrete resource elements. Therefore, this article combines POAC with the 6M resource framework: Man, Money, Material, Machine, Method, and Market. In this context, Man refers to clinical supervisors, staff, and students; Money refers to financing and budget authority; Material refers to drugs and consumables; Machine refers to dental units and equipment; Method refers to curriculum, SOPs, and learning procedures; and Market refers to patients and clinical cases as the primary substrate of learning.

The argument developed in this article is that POAC remains useful but insufficient when it is treated as a linear cycle. The findings show that controlling activities can detect problems, but they do not necessarily generate systemic correction when evaluation is not institutionally independent. When questionnaire feedback, direct monitoring, or routine reports are attached only to control, they may identify surface symptoms without recalibrating future planning, staffing, budgeting, logistics, curriculum delivery, and patient-flow strategies. This is why a POACE model: Planning, Organizing, Actuating, Controlling, and Evaluating is proposed. Evaluation is positioned as a distinct function that interprets evidence, compares actual outcomes with standards, and transforms feedback into managerial decisions. The proposed model aims to strengthen the educational management of dental professional education under resource constraints.

This article contributes to educational management scholarship by showing how a hospital-based professional education program must be governed as an integrated resource system. It also

contributes practically by identifying which combinations of POAC and 6M are relatively effective and which combinations require structural correction. The intended contribution is not merely a description of problems, but a management model that supports institutional resilience, clinical learning quality, patient safety, and timely completion of professional dental education.

THEORETICAL FRAMEWORK

Educational management is commonly understood as the systematic process of using institutional resources to achieve educational goals effectively and efficiently. In professional education, this concept becomes more demanding because the educational process must produce competence, professional judgment, and ethical behavior. Lumapow (2011) emphasizes that professional human resources require adequate education supported by professional management. This view is highly relevant for dental professional education because the competence of clinical supervisors and co-assistant students depends on how the institution plans, organizes, mobilizes, and monitors its resources. Professionalism in clinical education is therefore not a spontaneous outcome; it is produced by a coordinated management system.

The POAC framework provides the basic managerial architecture for this article. Planning determines what must be achieved and what resources are required. Organizing translates plans into roles, structures, and responsibilities. Actuating moves people and resources into implementation. Controlling ensures that implementation remains aligned with standards. In a dental hospital, POAC cannot be separated from the reality of clinical work. Every planning decision affects patient flow and clinical opportunity; every organizing decision affects supervision and responsibility; every actuating decision affects safety and student progress; and every controlling decision affects the quality of evidence available for improvement. Thus, POAC is not a generic administrative checklist but an applied educational-clinical governance system.

The 6M framework complements POAC by clarifying the resource dimensions that must be managed. Man includes clinical supervisors, directors, health and non-health staff, and students. Money includes institutional budget, operational costs, revenue mechanisms, and financial authority. Material includes medical consumables, drugs, personal protective equipment, and other clinical supplies. Machine includes dental units, radiographic devices, sterilization instruments, and other clinical equipment. Method includes curriculum, standard operating procedures, clinical guidelines, logbooks, and assessment systems. Market includes patients, clinical case availability, and community trust. In dental professional education, the Market element is particularly important because patients are not passive customers; they are also a learning substrate whose safety, consent, and welfare must be protected.

The management of human resources is especially central. Rawis, Tambingon, and Lengkong (2024) argue that human resources are essential to the sustainability of educational organizations, particularly when leadership is expected to improve engagement and productivity. This theoretical point supports the need to manage clinical supervisors not only as available staff but as professional educators whose qualification, motivation, workload, and engagement directly shape student learning. Similarly, Lengkong, Pontoh, Kaparang, and Kumajas (2024) emphasize the importance of competence as an internal capacity that influences performance behavior. This supports the argument that clinical-supervisor planning must move beyond numeric staffing and focus on competence alignment, specialization, and continuing professional development.

Quality culture is another crucial theoretical pillar. Umbase (2023) states that higher education institutions managed effectively and efficiently can build a strong quality culture. This concept helps explain why dental professional education requires more than compliance with

regulations. A quality culture is created when planning, organization, implementation, control, and evaluation are integrated into daily practice. If the hospital has documents but the personnel are inactive, or if the curriculum exists but patient cases are scarce, quality culture remains weak. Conversely, when every element of 6M is aligned with educational standards and patient safety, quality becomes embedded in the institution rather than dependent on individual improvisation.

In addition to POAC and 6M, the article uses a systems perspective. A professional education hospital is a system in which input, process, output, and outcome interact continuously. Inputs include supervisors, students, funds, facilities, materials, curriculum, and patients. Processes include supervision, rotation, clinical action, assessment, and patient-care workflow. Outputs include completed requirements, documented competencies, and safe clinical services. Outcomes include timely graduation, professional readiness, and institutional credibility. A weakness in one subsystem can produce delays in another. For example, centralized budgeting may delay consumable procurement; delayed consumables may interrupt clinical actions; interrupted clinical actions may delay student requirements; delayed requirements may prolong study duration. The systems perspective is therefore necessary to interpret the cross-functional findings.

The final theoretical element is evaluation. In many institutions, evaluation is treated as part of control. However, evaluation has a different purpose. Control asks whether activities comply with standards; evaluation asks why outcomes occur, what evidence means, and what decisions must be changed. In professional education, evaluation must examine not only student results but also the effectiveness of curriculum delivery, supervision patterns, patient availability, equipment readiness, and resource allocation. Therefore, the POACE model proposed in this article adds Evaluating as a distinct function. Evaluation is not a ceremonial end-of-year activity; it is a structured mechanism for learning from data and transforming that learning into institutional correction.

METHOD

This article is based on a descriptive qualitative design. The qualitative approach is appropriate because the object of analysis is not merely the number of students, supervisors, or facilities, but the meaning and effectiveness of management functions as experienced by institutional actors. Data were drawn from in-depth interviews, document review, and field observation. These techniques made it possible to compare formal regulations and institutional documents with actual practices in the clinical education environment. The use of multiple data sources strengthened the credibility of the findings because management effectiveness could be interpreted through both official procedures and the lived experiences of actors.

The participants represented key positions in the clinical education system. They included hospital leadership, program leadership, clinical supervisors, administrative staff, and co-assistant students. This range of informants allowed the study to capture different perspectives across the management hierarchy. Hospital leadership provided insight into governance, budgeting, logistics, and institutional authority. Program leadership described curriculum, student flow, and academic requirements. Clinical supervisors explained supervision, clinical procedures, and patient safety. Administrative staff described operational documentation and support processes. Co-assistant students described the practical effects of management on their clinical progress.

Data analysis followed the qualitative sequence of data reduction, data display, and conclusion drawing. Interview transcripts and field notes were reduced into themes corresponding to POAC functions and 6M resources. The data were then displayed in matrices to compare findings across informants and resource dimensions. The final conclusions were drawn by identifying patterns of

effectiveness, partial effectiveness, and ineffectiveness. Triangulation was used by comparing interviews with documentation and observation. The analysis did not aim to rank individuals but to understand how the institutional management system works and where it produces bottlenecks.

Ethically, the article presents the findings at an institutional and functional level rather than as personal judgments about named individuals. Because the purpose is to improve educational management, the analysis focuses on resource alignment, decision authority, clinical education workflow, and quality assurance. The article also avoids presenting raw confidential statements in ways that could identify particular participants. Instead, it summarizes the meaning of the data as management evidence.

RESULTS AND DISCUSSION

Implementation Process of Extracurricular Programs

The findings demonstrate that dental professional education management is uneven across POAC functions and 6M resources. Some elements show meaningful managerial effectiveness, particularly when standards are clear and authority is close to the operational unit. Other elements are weak because authority is centralized outside the hospital, resources are delayed, or feedback mechanisms do not have the power to recalibrate future decisions. The most important pattern is that human-resource planning for clinical supervisors and patient-safety control are relatively strong, while financial authority, consumables, equipment, co-assistant intake, and patient availability remain the most persistent bottlenecks.

The study also reveals that the problems are interdependent. For example, student intake is planned primarily by the academic program, while the hospital bears the operational burden of providing dental units, supervisors, consumables, and patient cases. When student numbers fluctuate without a firm capacity-based ceiling, the hospital becomes crowded and clinical completion becomes slower. Similarly, materials and equipment depend on procurement and budget decisions that are not fully controlled by the hospital. As a result, the hospital can identify what is needed but cannot always guarantee timely availability. This explains why the management system may appear formally organized but still underperform operationally. See figure 1 and 2.

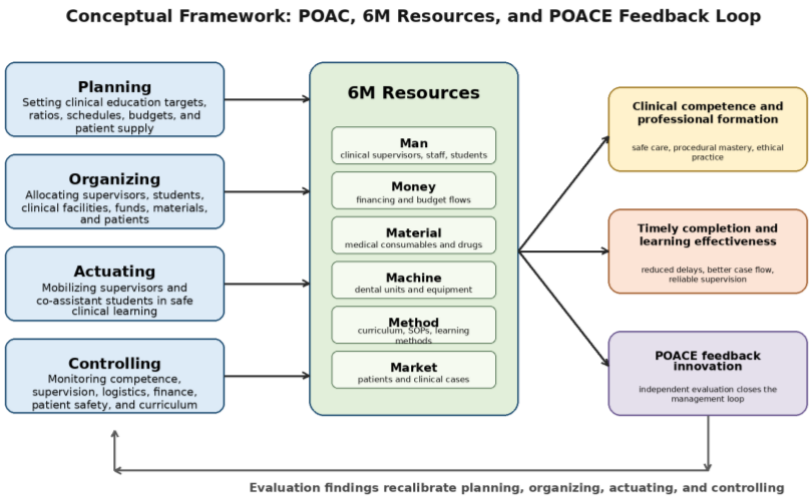

Figure 1. Conceptual framework connecting POAC functions, 6M resources, educational effectiveness, and POACE feedback.

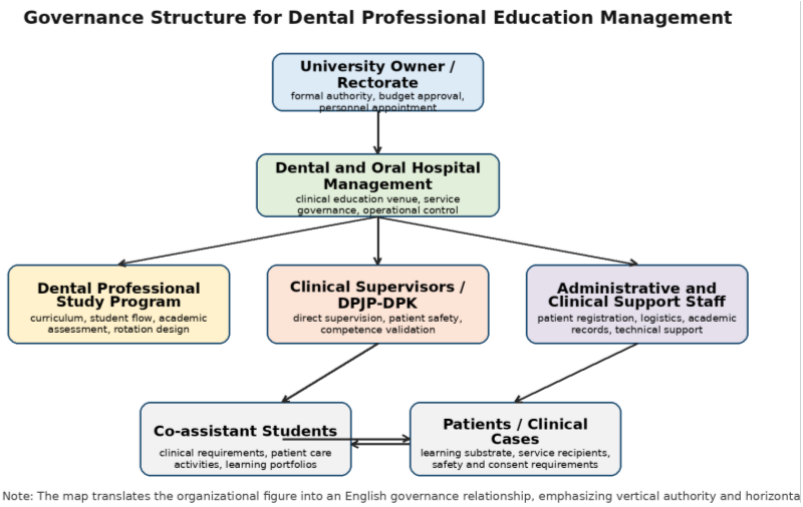

Figure 2. The governance structure of dental professional education management in a university dental and oral hospital.

Informant and Data-Source Profile

The data sources reflected the key management layers of clinical education. Their distribution is summarized below to show that the analysis covered strategic, operational, supervisory, administrative, and student perspectives. See table 1.

Table 1. Informant and data-source profile.

Category	Role in the education system	Analytical contribution
Hospital leadership	Medical and education direction within the dental hospital	Governance, resource authority, budget, logistics, patient safety, and operational constraints
Study-program leadership	Academic coordination of professional dental education	Curriculum, rotations, student flow, academic monitoring, and graduation requirements
Clinical supervisors	Direct clinical teaching and patient-care supervision	Supervision quality, clinical SOP compliance, competence validation, and student performance
Administrative and clinical staff	Support for logistics, documents, patient administration, and clinical workflow	Operational evidence, material-equipment flow, and implementation barriers
Co-assistant students	Primary learners in clinical professional education	Effects of resource availability on clinical requirement completion and learning experience

Planning Effectiveness

Planning was relatively effective when the object was clinical-supervisor qualification. Management recognized the minimum requirement that supervisors should have a master's qualification or specialist competence, and it responded to existing gaps by encouraging further study. This demonstrates an adaptive human-resource planning pattern. However, planning became less effective when the object required inter-unit coordination or financial authority. Co-assistant intake was not fully synchronized with dental-unit capacity and supervisor ratios; hospital management personnel were appointed through a top-down mechanism without sufficient workload analysis; financing, materials, and equipment planning depended heavily on the

university owner; and patient planning was weak because the hospital could not consistently generate enough general patients for student requirements. See table 2.

Table 2. Planning effectiveness across 6M resources.

Planning domain	Effectiveness pattern	Main evidence and implication
Clinical supervisors (Man)	Effective but still transitional	Qualification standards are recognized and further study is encouraged; the remaining challenge is completing qualification alignment for all supervisors.
Health/non-health staff (Man)	Effective on paper, constrained in realization	Needs are mapped from curriculum and accreditation demands, but specialist staff supply is limited in the regional labor market.
Co-assistant students (Man)	Not yet effective	Student intake follows academic-program flow more than hospital capacity; lack of a firm maximum quota creates crowding and delayed clinical work.
Hospital management (Man)	Not yet effective	Top-down appointment and double workload reduce functional activation of management roles; incentive planning is insufficient.
Finance, materials, equipment (Money, Material, Machine)	Not effective	Budgeting, consumables, and equipment procurement depend on centralized owner authority; annual purchase planning is not agile enough for clinical education needs.
Curriculum (Method)	Quite effective	The curriculum exists and is aligned with professional standards, but operational delivery depends on patient, equipment, and supervision readiness.
Patients (Market)	Not effective	Most patients are brought by students; limited general-patient attraction weakens the clinical-case supply required for timely completion.

Organizing Effectiveness

Organizing showed a mixed pattern. The placement of clinical supervisors was moderately effective because specialization and academic interest were considered, although formal authority was shaped by employment status. Student organization was one of the strongest elements because co-assistant students were divided into small groups and rotations were scheduled. However, hospital management organization was weak because formal structures and appointment letters did not automatically translate into active role performance. Financial organization was not effective because the hospital did not have autonomous budget management. Material and equipment organization had a basic one-door flow through internal pharmacy and technical units, but external vendor delays and centralized procurement weakened responsiveness. Patient organization was weak because student-sourced patients dominated the case supply and general patients were not effectively integrated into learning allocation. See table 3.

Table 3. Organizing effectiveness across 6M resources.

Organizing domain	Effectiveness pattern	Main evidence and implication
Clinical supervisors (Man)	Moderately effective	Placement considers specialization and academic interest, but delegation of formal roles is limited by employment status and workload.
Hospital management (Man)	Not effective	The structure exists formally, but many roles are not functionally active due to dual workload and limited incentives.

Co-assistant students (Man/Method)	Very effective	Small-group organization and rotation scheduling support workflow, although capacity pressure persists.
Finance (Money)	Not effective	The absence of autonomous hospital-level finance prevents flexible operational decisions.
Materials and equipment (Material/Machine)	Partly effective	Internal distribution is structured, but procurement delay and equipment shortage remain critical.
Patients (Market)	Not effective	Case allocation is not yet supported by a strong institutional patient-management system; reliance on students remains high.

Actuating Effectiveness

Actuating refers to the conversion of plans and structures into real clinical education activity. The strongest element was the implementation of clinical supervision, because students were required to report to supervisors and patient examination had to be verified before treatment. This pattern supports patient safety and learning discipline. Curriculum implementation was also moderately effective because supervisors and program structures attempted to maintain clinical requirements. However, actuating was disrupted by the same resource gaps already found in planning and organizing. Centralized finance made the hospital a passive recipient of goods rather than an agile operator. Limited dental units and delayed consumables produced competition among students. Patient implementation was not effective because students often preferred patients they brought themselves and were less willing to accept unfamiliar general patients, which weakened the hospital's potential to develop a broader patient-flow system. See table 4.

Table 4. Actuating effectiveness across 6M resources.

Actuating domain	Effectiveness pattern	Main evidence and implication
Clinical supervisors (Man/Method)	Moderately effective	Clinical actions follow supervisor verification and SOPs; learning is protected by direct supervision.
Finance/materials/equipment (Money, Material, Machine)	Not effective	The hospital does not manage operational cash flow and often waits for goods and tools; clinical learning is interrupted when logistics lag.
Curriculum (Method)	Moderately effective	Learning content and requirements are implemented, but crowded conditions and facility competition reduce efficiency.
Patients (Market)	Not effective	General-patient utilization is limited and student preference for self-sourced patients disrupts institutional patient-case management.

Controlling Effectiveness

Controlling was effective in some narrowly defined areas but weak in systemic feedback. Financial documentation was highly accountable because revenue moved through formal digital payment and centralized institutional accounts. Patient-safety control was also strong because informed consent, supervisor verification, and safety orientation were emphasized. However, control over clinical-supervisor calibration, curriculum implementation, and material-equipment availability was less effective. Calibration existed but was infrequent. Academic monitoring was supported by digital portals and section coordinators, yet the data did not consistently lead to timely resource correction. Material and equipment control could identify shortages, but it did not have sufficient authority to solve them quickly. These findings show the limit of controlling when it is not coupled with an independent evaluation function. See table 5.

Table 5. Controlling effectiveness across 6M resources.

Controlling domain	Effectiveness pattern	Main evidence and implication
Clinical supervisors (Man/Method)	Partly effective	Schedules and calibration mechanisms exist, but calibration is irregular and enforcement varies.
Finance (Money)	Very effective and accountable	Centralized financial flow supports accountability, but it reduces local flexibility.
Materials and equipment (Material/Machine)	Not effective	Monitoring identifies technical and stock problems, but follow-up depends on higher authority and vendor response.
Curriculum (Method)	Not yet effective	Digital academic monitoring and section coordination exist, but calibration and improvement cycles are weak.
Patients (Market)	Very effective for safety	Consent, safety orientation, and supervisor authorization are strongly emphasized; this is a core quality strength.

Cross-Functional Effectiveness Matrix

The matrix below condenses the findings into a cross-functional pattern. It shows that the greatest weaknesses cluster around Money, Material, Machine, and Market, while human-resource and method-related elements are more often partially effective. The pattern also shows that control can be strong in accountability and patient safety while still weak in operational correction. This is the basis for the POACE recommendation. See table 6 and figure 3.

Table 6. Overall cross-functional effectiveness matrix.

Function	Strongest elements	Critical weaknesses	Management interpretation
Planning	Supervisor qualification and curriculum documents	Student intake, finance, materials, equipment, patient supply	Planning is fragmented when authority and operational responsibility are separated.
Organizing	Student rotation and supervisor grouping	Management activation, finance autonomy, patient-case allocation	Structures exist, but not all roles and resource flows are functionally activated.
Actuating	Clinical SOP and supervisor authorization	Delayed logistics, limited dental units, weak general-patient integration	Implementation depends heavily on resource availability and student-case access.
Controlling	Financial accountability and patient safety	Irregular calibration, weak material-equipment correction, limited curriculum feedback	Control detects problems but needs evaluation authority to transform findings into decisions.

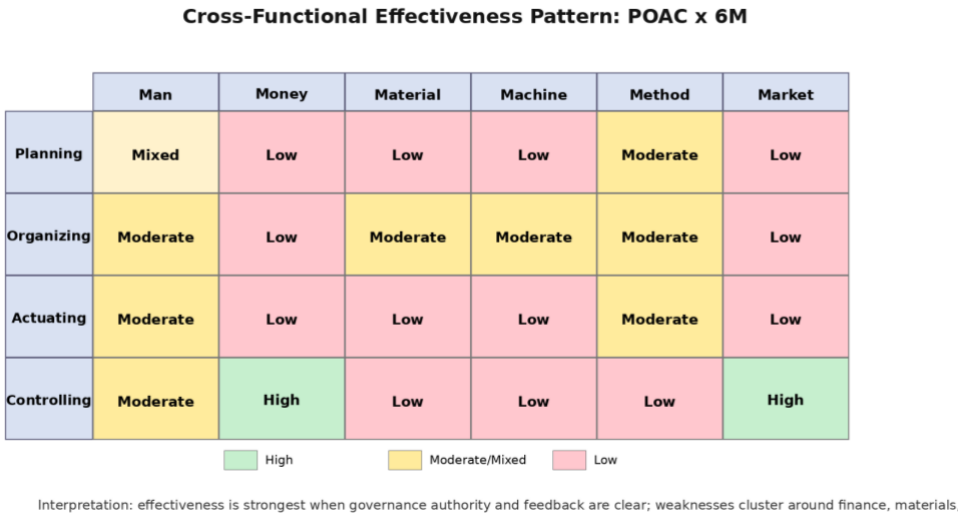

Figure 3. English heatmap of the POAC x 6M effectiveness pattern based on synthesized findings.

The findings show that the effectiveness of dental professional education management cannot be judged by the existence of documents alone. The hospital has curriculum documents, an organizational structure, SOPs, patient-safety procedures, and mechanisms for clinical supervision. Nevertheless, operational effectiveness remains uneven because the documents do not always control the most important resource flows. This distinction is central in educational management. Formal compliance may satisfy administrative requirements, but clinical education quality depends on whether students can access supervisors, tools, materials, and patients at the right time. The core management issue is therefore not the absence of procedures but the limited integration of authority, resources, and feedback.

The planning findings illustrate this point clearly. Planning for clinical-supervisor qualification is relatively effective because the standard is explicit and the pathway for correction, further study or specialist qualification is identifiable. This aligns with Lumapow's (2011) view that professional human resources must be supported by adequate education and professional management. In contrast, planning for finance, materials, equipment, and patient availability is weak because these elements require coordination beyond the immediate control of the hospital. The hospital can propose purchases and identify needs, but if procurement is centralized and slow, planning becomes aspirational rather than operational. Similarly, the hospital can recognize the need for patient cases, but without strong market-building strategies and community service integration, patient supply remains unstable.

The organizing findings reveal the difference between structural organization and functional organization. A formal chart or appointment letter does not ensure active performance when appointed personnel carry heavy duties elsewhere. This is particularly relevant in a university hospital where lecturers, clinicians, and managers often perform multiple roles. Rawis et al. (2024) stress that human resources are central to organizational sustainability. This means that role allocation must be accompanied by workload analysis, incentives, and leadership engagement. Without these elements, human resources may be present nominally but absent functionally. The most effective organizing element was student rotation because it involved a concrete schedule and clear learning movement. This suggests that organizing becomes effective when roles, timelines, and operational routines are explicit.

The actuating findings demonstrate that clinical education is highly vulnerable to resource interruption. Supervisors may be committed, and students may be motivated, but learning cannot proceed when dental units are insufficient, materials are delayed, or patient cases are unavailable. The finding challenges any assumption that professional education can be improved only through curriculum revision. Curriculum reform is necessary but not enough. Competence development requires an environment where students repeatedly perform supervised clinical procedures on real patients. Lengkong et al. (2024) emphasize competence as an internal capacity expressed through performance behavior. In dental professional education, such performance behavior is built through repeated, supervised, ethical, and well-equipped practice. Therefore, competence-based education must be supported by resource-based management.

Controlling was strongest in financial accountability and patient safety. This is important because the clinical education process involves direct patient care by students under supervision. The presence of informed consent, supervisor verification, and safety orientation indicates that the hospital recognizes patient protection as a non-negotiable standard. However, control becomes less effective when it encounters systemic issues requiring resource correction. For example, monitoring may show that calibration is infrequent or that materials are insufficient, but monitoring itself cannot change staffing, budgeting, procurement, or patient-flow strategies. This limitation explains why evaluation must be separated from routine control. Evaluation should have the authority to interpret monitoring evidence and influence the next planning cycle.

The proposed POACE model adds Evaluation as an autonomous function because the observed system contains a feedback gap. In the current pattern, activities interpreted as evaluation, such as questionnaires or direct monitoring, remain attached to control. They provide information but do not necessarily generate policy revision. A real evaluation function should ask: Why did students fail to complete requirements on time? Which 6M element caused delay? Which resource is repeatedly underperforming? What authority is needed to correct the problem? How should the next cycle of planning be changed? By answering these questions, evaluation becomes a strategic learning function. It prevents the organization from repeating the same POAC cycle without systemic correction.

The POACE model is also consistent with quality-culture theory. Umbase (2023) argues that effective and efficient higher education management can create a strong quality culture. A quality culture is not created by control alone; it is created when evidence is used for improvement. In this model, evaluation transforms evidence into institutional learning. It links supervisor performance data, student progress data, logistics data, patient-flow data, and curriculum data into a decision cycle. The model therefore encourages the hospital and study program to move from reactive problem-solving to proactive quality assurance.

From a management perspective, several implications emerge. First, student intake should be planned through a written capacity agreement between the academic program and the dental hospital, based on dental-unit capacity, supervisor ratio, and patient-case projection. Second, hospital management roles should be redesigned with workload analysis, incentives, and functional accountability. Third, consumables and equipment procurement should be made more responsive to clinical education cycles, possibly through minimum stock levels, emergency procurement pathways, and equipment-readiness dashboards. Fourth, patient management should be treated as an educational resource strategy, not merely as a service function. Community outreach, referral cooperation, patient information systems, and public trust-building should be integrated with student requirement planning. Fifth, evaluation should be

institutionalized through periodic POACE meetings that compare planned targets, actual resource availability, student progress, patient safety, and completion outcomes.

The proposed model does not remove the value of POAC. Instead, it strengthens POAC by giving it a feedback function strong enough to correct structural problems. Planning becomes more realistic because it is informed by evaluation evidence. Organizing becomes more functional because it is corrected when roles are inactive. Actuating becomes more reliable because resource delays are identified as system problems rather than individual failures. Controlling becomes more meaningful because its findings are not stored as reports but converted into improvement decisions. Evaluation, therefore, closes the loop between management functions and educational outcomes. See figure 4 and table 7.

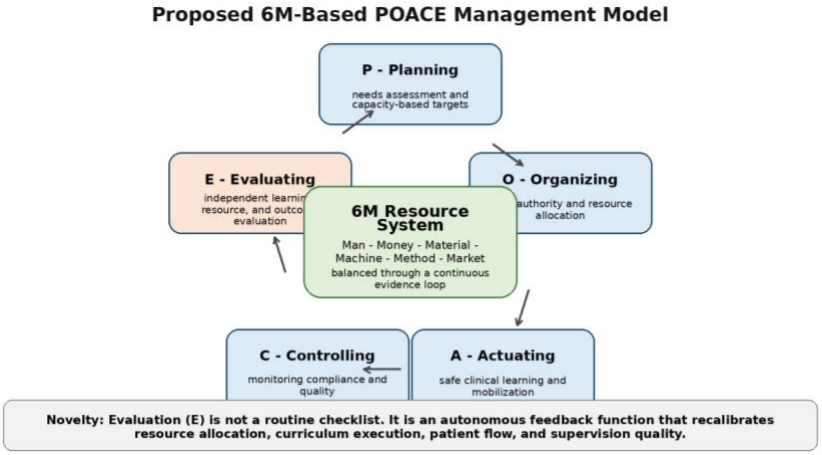

Figure 4. Proposed 6M-based POACE model for dental professional education management.

Table 7. Operational design of the 6M-based POACE model.

POACE component	Operational meaning in dental professional education	Strategic indicator
Planning	Capacity-based target setting for supervisors, students, budget, materials, equipment, curriculum, and patients	Documented plan linked to dental-unit capacity, supervisor ratio, material stock, and patient-case projection
Organizing	Functional role allocation and resource-flow coordination across university, hospital, program, supervisors, staff, and students	Active role performance, clear authority, rotation schedule, logistics flow, and patient allocation
Actuating	Mobilization of clinical education through SOP-based supervision, patient care, and curriculum implementation	Students can perform required procedures safely with available supervisors, equipment, materials, and patients
Controlling	Monitoring compliance, safety, finance, equipment, materials, curriculum progress, and patient consent	Routine reports, logbooks, safety checks, digital monitoring, and accountable financial documentation
Evaluating	Independent interpretation of evidence to recalibrate the next management cycle	Periodic evaluation decisions that revise intake, budget priority, procurement, staffing, calibration, curriculum, and patient strategy

Practical Implementation Roadmap for Institutional Strengthening

The POACE model will only become useful if it is translated into operational routines. The first practical step is the development of a capacity-based intake policy for co-assistant students. Student admission into the clinical phase should not be determined by academic readiness alone. It must also be linked to the number of functioning dental units, the number and qualification of supervisors, the availability of consumables, and the projected number of patient cases. A written agreement between the professional study program and the dental hospital is needed so that each incoming cohort is matched with a realistic clinical capacity. Such an agreement would prevent sudden crowding and reduce competition among students for chairs, supervisors, and cases. It would also create a clearer basis for predicting study completion time.

The second step is the strengthening of human-resource governance. Clinical supervisors are the core of professional dental education because they transform curriculum requirements into safe patient-care learning. However, supervisors often perform multiple duties as lecturers, clinicians, committee members, and hospital managers. The management system should therefore conduct a workload analysis that distinguishes academic teaching, clinical service, supervision, administrative duties, and hospital governance responsibilities. Where dual roles cannot be avoided, the institution should create compensation, workload reduction, or recognition mechanisms. This is important because professional engagement cannot be sustained by formal appointment alone. Leadership must ensure that each appointed actor has time, motivation, and authority to perform the assigned role.

The third step is the development of a responsive finance and procurement mechanism. The finding that budget and procurement authority is centralized does not necessarily mean centralization is wrong. Centralization can strengthen accountability and reduce misuse of funds. However, clinical education requires responsiveness because consumables and equipment are not optional inputs; they are the material conditions of learning. A minimum-stock system should be established for high-frequency consumables. The hospital should also maintain a procurement calendar aligned with student rotation and clinical requirement cycles. Emergency procurement procedures should be defined for materials that directly affect patient safety or prevent students from completing clinical actions. This would balance accountability with operational agility.

The fourth step is the creation of an equipment-readiness dashboard. Machines, especially dental units, are central to clinical education. The dashboard should report the number of units available, units under repair, average usage time, and the ratio between students and functioning units. It should also document maintenance frequency and repair duration. This information should be reviewed in POACE evaluation meetings, not only by technicians but also by program leadership and hospital management. By linking equipment data to student-progress data, the institution can identify whether study delays are caused by learning behavior, patient availability, equipment shortage, or scheduling problems. Without such integration, equipment issues may be treated as technical matters even when they have major educational consequences.

The fifth step is the institutionalization of patient-flow management as an educational strategy. Dental professional education cannot rely primarily on students bringing their own patients. Although student-sourced patients may help fulfill requirements, the practice can create unequal learning opportunities and weaken institutional responsibility. The hospital should build community outreach programs, referral networks with primary health facilities, patient education campaigns, and service packages that attract general patients. Patient registration should be linked with case classification so that cases can be distributed fairly to students according to curriculum

needs. At the same time, patient rights and consent must remain central. Patients should understand that care is provided in a teaching hospital under supervisor control, and students should be trained to communicate professionally with unfamiliar patients.

The sixth step concerns curriculum and supervision calibration. Curriculum documents may already exist, but they require periodic interpretation by supervisors so that standards are applied consistently. Calibration meetings should not be rare or ceremonial. They should be scheduled, documented, and linked to actual student cases. Supervisors need to discuss assessment rubrics, minimum clinical standards, risk management, feedback methods, and case acceptance criteria. This is especially important when several departments or sections supervise different procedures. Calibration protects students from inconsistent expectations and protects patients from inconsistent clinical decisions. It also strengthens the quality culture described in the theoretical framework because shared standards become part of daily clinical practice.

The seventh step is the creation of a formal POACE evaluation forum. This forum should meet periodically and review evidence from all 6M elements. The forum should not merely listen to reports; it should produce decisions. A basic evaluation agenda may include student cohort size, supervisor availability, case distribution, dental-unit readiness, consumable stock, budget realization, patient-safety incidents, student requirement progress, and completion delays. Each agenda item should lead to an action plan, responsible actor, deadline, and monitoring indicator. In this way, evaluation becomes a managerial function that changes institutional behavior, not a passive archive of complaints and observations.

The final step is the development of a continuous quality-improvement culture. The POACE model requires leaders to treat problems as system signals rather than personal failures. If students are delayed, the first question should not be who is at fault, but which resource element is blocking learning. If supervisors are absent, the question should include workload, incentives, and schedule design. If materials are unavailable, the question should include procurement cycle, minimum stock, and budget authority. If patients are scarce, the question should include marketing, community trust, referral relations, and service affordability. A quality culture emerges when the institution repeatedly uses evidence to improve the system. This is the essence of the proposed model: management becomes a learning process, and learning becomes a basis for institutional change. See table 8.

Table 8. Practical implementation roadmap for the POACE management model.

Roadmap area	Main action	Expected improvement
Student intake	Match cohort size with dental units, supervisors, materials, and patient-case projections	Reduced overcrowding and more predictable completion time
Human resources	Apply workload analysis, supervisor qualification plans, incentives, and role clarity	More active supervision and functional management performance
Finance and procurement	Use minimum stock, procurement calendar, and emergency pathways for critical materials	Better clinical-learning continuity and lower disruption risk
Equipment readiness	Create dashboard for dental-unit availability, maintenance, and repair duration	More accurate planning and fairer access to clinical facilities
Patient flow	Develop outreach, referral networks, case classification, and fair allocation	Stronger case availability and reduced dependence on student-sourced patients
Curriculum calibration	Hold regular supervisor calibration based on cases, rubrics, and logbook evidence	More consistent assessment and stronger quality assurance

Evaluation forum	Review 6M evidence and produce action plans with responsible actors and deadlines	Continuous improvement and stronger institutional accountability

Theoretical and Practical Contributions

The theoretical contribution of this article lies in the integration of POAC and 6M into a single analytical matrix for professional dental education. Many educational management studies describe planning, organizing, implementation, and control in general terms. This article shows that these functions become much more precise when they are connected to resource categories. Planning is not only curriculum planning; it is also patient planning, equipment planning, supervisor planning, and material planning. Organizing is not only the arrangement of people; it is also the arrangement of authority, clinical cases, dental units, procurement flows, and student rotations. Actuating is not only motivating staff; it is the mobilization of the entire clinical-educational system. Controlling is not only checking documents; it is the monitoring of safety, competence, finance, and learning continuity. This integrated lens helps explain why a program can appear administratively complete while still struggling operationally.

The article also contributes by distinguishing control from evaluation. In many institutions, control and evaluation are used interchangeably. The findings indicate that this is a serious limitation. Control can identify whether supervisors follow schedules, whether patients sign consent forms, or whether materials are available. Evaluation, however, asks whether the management design itself is working and whether the next cycle must be changed. By adding Evaluation to POAC, the article expands the management framework into POACE. This does not reject classical management theory; rather, it updates it for a resource-constrained clinical education environment where feedback must influence decision-making authority.

Practically, the article provides a diagnostic tool that can be used by dental hospitals and professional study programs. The POAC x 6M matrix allows managers to locate the exact source of dysfunction. If completion delays occur, the institution can examine whether the problem lies in student planning, patient flow, supervisor availability, equipment readiness, material procurement, or curriculum monitoring. This prevents oversimplified explanations and supports evidence-based improvement. The model is also useful for accreditation preparation because it connects governance evidence with educational outcomes and patient-safety requirements.

For professional education more broadly, the study highlights that clinical learning is a shared institutional product. Students, supervisors, hospitals, universities, patients, and support staff all participate in competence formation. Therefore, management improvement must be collaborative rather than sectoral. The university owner should not only approve budgets; it should understand the consequences of procurement delays for clinical learning. The study program should not only send students; it should coordinate intake with hospital capacity. Supervisors should not only teach procedures; they should participate in calibration and evaluation. Students should not only complete requirements; they should learn to work with assigned patients in a professional manner. Patients should not only be seen as case numbers; they should be protected as rights-bearing participants in teaching services.

These contributions suggest that the future of dental professional education management depends on institutional learning capacity. A dental hospital can survive resource constraints when it has a strong feedback culture, but it will remain vulnerable if it repeatedly identifies problems without changing its management cycle. The POACE model therefore provides a practical pathway toward resilience: plan based on evidence, organize with authority clarity, actuate with adequate

resources, control with reliable monitoring, and evaluate with the courage to revise policy and practice.

CONCLUSION

The management of dental professional education in a university dental and oral hospital shows varied effectiveness across POAC functions and 6M resources. Planning is relatively effective in clinical-supervisor qualification and curriculum documentation, but weak in co-assistant intake, hospital management personnel, finance, materials, equipment, and patient supply. Organizing is strong in student rotation and moderately effective in supervisor placement, but weak in management activation, financial autonomy, and patient-case organization. Actuating is supported by clinical supervision and SOP-based learning, yet disrupted by centralized finance, delayed consumables, limited equipment, and unstable patient availability. Controlling is strong in patient safety and financial accountability, but weak in systematic calibration, curriculum feedback, and material-equipment correction. The central conclusion is that the clinical education system cannot be improved by managing POAC functions separately. Dental professional education requires integrated management of Man, Money, Material, Machine, Method, and Market. Weaknesses in any of these elements create cumulative delay and reduce educational effectiveness. The most persistent bottlenecks are not merely academic; they are structural and operational. They include centralized budget authority, limited resource responsiveness, crowded student flow, insufficient patient cases, and weak conversion of monitoring data into strategic correction.

The proposed 6M-based POACE model offers a practical and theoretical solution. By adding Evaluation as an autonomous function, the model transforms monitoring information into institutional learning and decision recalibration. Evaluation should not be reduced to questionnaires or informal supervision; it must become a formal mechanism that influences planning, organizing, actuating, and controlling. When evaluation is institutionalized, dental professional education can move toward stronger quality assurance, more reliable clinical learning, safer patient care, and better student completion outcomes. The article recommends that university dental hospitals develop capacity-based student intake agreements, strengthen full-time or incentive-supported management roles, improve procurement responsiveness, implement regular supervisor calibration, build patient-flow strategies, and establish a periodic POACE evaluation forum. These actions will help create a quality culture where professional competence is not left to individual effort alone but is supported by a resilient and evidence-based educational management system.

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