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Structural Capacity Gap and Student Overload: A Structural Constraint in The Implementation of Outcome-Based Education in Medical Professional Education

Chrisyanto Tri Pamungkas
Master of Public Administration Program, Faculty of Social and Political Sciences, Hang Tuah University

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Abstract

Structural Capacity Gap and Student Overload: A Structural Constraint in The Implementation of Outcome-Based Education in Medical Professional Education. Outcome-Based Education (OBE) emphasizes measurable competency attainment as the primary objective of higher education. In medical professional education, effective OBE implementation requires alignment between policy standards, student enrollment, and clinical training capacity. However, mismatches between these elements may generate structural constraints that affect the effectiveness of policy implementation. This study investigates how the structural imbalance between clerkship student numbers and hospital training capacity constrains the implementation of Outcome-Based Education (OBE). A qualitative case study was conducted at the Faculty of Medicine, Universitas Hang Tuah. Data were collected through in-depth interviews, observation, and institutional documentation, and analyzed using the interactive model of Miles, Huberman, and Saldaña (2014). The analytical framework draws on the policy implementation model developed by Van Meter and Van Horn (1975). The findings indicate a significant imbalance between 490 clerkship students and the ideal capacity of the main teaching hospital, RSPAL dr. Ramelan (approximately 300 students). This disparity contributes to an extended average completion duration of 104 weeks (range 94–107 weeks), exceeding the normative standard of approximately 80 weeks. Although implementers demonstrate strong professional commitment, resource limitations emerge as the dominant determinant influencing policy performance. The study concludes that the effectiveness of OBE implementation in medical professional education is structurally dependent on the alignment between student intake and institutional clinical training capacity, rather than solely on the disposition of policy implementers.

Corresponding Author:
Chrisyanto Tri Pamungkas
Master of Public Administration Program, Faculty of Social and Political Sciences, Hang Tuah University
Email Coresspondent: chrischrisyanto@gmail.com

1. INTRODUCTION

Outcome-Based Education (OBE) represents a paradigm shift in higher education by focusing on clearly defined learning outcomes and measurable competencies (Spady, 1994). Within medical professional education, OBE requires structured clinical exposure, supervision quality, and proportional access to patient cases to ensure competency attainment.

Policy implementation, however, often encounters structural challenges. According to the framework developed by Donald Van Meter and Carl Van Horn (1975), implementation

effectiveness is influenced by six variables: policy standards and objectives, resources, inter-organizational communication, characteristics of implementing agencies, disposition of implementers, and socio-economic environment.

In the context of the Faculty of Medicine, Universitas Hang Tuah, institutional records indicate that the average completion time for medical clerkship reaches 104 weeks (range 94–107 weeks), exceeding the normative duration of approximately 80 weeks. Simultaneously, the total number of clerkship students (490) surpasses the estimated ideal capacity of the primary teaching hospital, RSPAL dr. Ramelan, which accommodates approximately 300 students.

This study investigates how this structural imbalance influences OBE policy implementation in medical professional education.

2. RESEARCH METHODS

This study employs a qualitative case study approach to examine the implementation of Outcome-Based Education (OBE) policy in medical professional education. The research was conducted at the Faculty of Medicine, Universitas Hang Tuah, which implements OBE within its medical clerkship program.

Informants were selected using purposive sampling to ensure that participants possessed direct knowledge and experience related to the implementation of clinical education. A total of 8 key informants participated in this study, consisting of faculty leaders, program coordinators, clinical supervisors, administrative staff, and clerkship students. The selection criteria included individuals who were directly involved in managing, supervising, or participating in the clerkship program.

Data were collected through three main techniques. First**,** in-depth interviews were conducted with faculty leaders, clinical coordinators, clinical supervisors, and clerkship students to explore their experiences and perspectives regarding the implementation of OBE. Second, direct observations were carried out during clinical rotation activities to understand the actual learning environment and supervision practices. Third, institutional documents were analyzed, including academic performance reports, curriculum documents, and institutional policy records related to the clerkship program.

Data analysis followed the interactive model of Miles, Huberman, and Saldaña (2014)**,** which consists of three stages: data condensation, data display, and conclusion drawing. This process allowed the researcher to systematically organize qualitative evidence and identify patterns related to policy implementation.

To enhance research credibility, data triangulation was applied by comparing information obtained from interviews, observations, and institutional documents. In addition, triangulation across informant groups was conducted to ensure consistency of findings. All informant identities were anonymized to maintain confidentiality and ethical research standards.

3. RESULTS AND DISCUSSION

3.1.Policy Standards and Objectives

Normatively, Outcome-Based Education (OBE) in medical professional education is designed to ensure that graduates achieve nationally defined competency standards. These standards emphasize measurable clinical competencies, professional ethics, and procedural skills required for medical practice. Institutional policy documents at the Faculty of Medicine, Universitas Hang Tuah formally adopt OBE principles, aligning curriculum structure and assessment methods with competency-based outcomes.

Document analysis confirms that the clerkship program is structured to meet the normative duration of approximately 80 weeks, consistent with national professional

standards. However, empirical data reveal that the average completion time reaches 104 weeks (range 94–107 weeks). This discrepancy indicates a gap between policy objectives and operational reality.

In the framework of Donald Van Meter and Carl Van Horn (1975), unclear or unrealistic standards may weaken implementation performance. In this case, while the objectives are clearly defined and institutionally adopted, their realization is constrained by structural capacity limitations, particularly within clinical training resources.

3.2.Resource Constraints

Institutional records indicate that 490 clerkship students are distributed across three cohorts, as presented in Table 1.

Table 1. Clerkship student distribution and completion duration.

Cohort	Students	Average Duration (Weeks)	Range (Weeks)
47	158	104	94–107
48	165	104	94–107
49	167	104	94–107
Total	490	104	94–107

Source: Compiled and analyzed from the Institutional Performance Report of the Faculty of Medicine, Universitas Hang Tuah (2024).

Normatively, the clerkship phase is designed to be completed within approximately 80 weeks. However, empirical data demonstrate an average completion duration of 104 weeks, reflecting a deviation of 24 weeks beyond the expected timeframe. This extension indicates cumulative operational strain within the clinical education system rather than incidental delay.

The imbalance becomes more evident when compared with the estimated ideal capacity of the main teaching hospital, RSPAL dr. Ramelan.

Table 2. Capacity gap in clinical training.

Component	**Number**
Total Clerkship Students	490
Ideal Hospital Capacity	±300
Estimated Overcapacity	±190

Source: Compiled and analyzed from the Institutional Performance Report of the Faculty of Medicine, Universitas Hang Tuah (2024).

The estimated overcapacity of approximately 190 students represents a structural overload of roughly 63% above the hospital's optimal training capacity. Such excess demand inevitably affects rotation scheduling, case distribution, supervision intensity, and student access to clinical exposure.

Further analysis of supervisory resources indicates additional strain. The ideal supervisor–student ratio is 1:5, whereas the empirical ratio reaches approximately 1:8.3. This reflects an overload of nearly 66% per clinical supervisor, intensifying workload pressures and reducing individualized supervision time. Although supervision continues to be conducted in accordance with OBE standards, the density of students per rotation constrains the depth and frequency of competency-based assessment.

A clinical supervisor explained: "The number of students exceeds the hospital's ideal capacity. Rotations must be tightly arranged, and delays sometimes occur." (Clinical Supervisor).

Document analysis confirms that rotation congestion contributes to prolonged waiting periods between clinical placements. Field observations further revealed dense scheduling patterns, limited patient case variation during peak periods, and compressed assessment sessions. These conditions potentially weaken the alignment between competency targets and authentic clinical learning opportunities—an essential principle of Outcome-Based Education.

Within the framework of Donald Van Meter and Carl Van Horn (1975), resource adequacy constitutes a central determinant of policy implementation performance. Resources encompass not only financial and human capital but also physical infrastructure, service capacity, and supervisory availability. When policy demands exceed available structural capacity, implementation effectiveness declines despite clear standards and positive implementer disposition.

In this case, the empirical evidence illustrates a pattern of structural constraint implementation: institutional commitment to OBE remains evident, yet operational realization is systematically limited by disproportionate alignment between student intake and clinical training capacity. The prolonged completion duration therefore represents not merely administrative delay, but a measurable manifestation of structural resource imbalance within the implementation process.

3.3.Inter-Organizational Communication

Formal coordination mechanisms exist between faculty management and hospital authorities, particularly concerning rotation scheduling, supervisor assignment, and clinical case allocation. Regular meetings and administrative correspondence indicate that communication channels are institutionally established.

However, communication appears to be operational rather than strategic. While short-term coordination regarding student placement is conducted routinely, long-term forecasting related to increasing student enrollment has not been systematically integrated into hospital capacity planning.

A program coordinator noted: "Coordination is in place, but long-term projections of student growth have not been systematically aligned with hospital capacity." (Program Coordinator).

Document review shows that annual student intake decisions are primarily determined at the faculty level, whereas hospital capacity adjustments follow existing infrastructure limits. This indicates partial institutional misalignment between educational policy expansion and service capacity.

Field observation further suggests that communication processes are largely reactive. Adjustments to rotation schedules are often made after capacity strain becomes visible rather than through anticipatory planning.

According to the framework of Donald Van Meter and Carl Van Horn (1975), effective policy implementation requires clear, consistent, and coordinated

communication across implementing units. In this case, although communication channels formally function, the absence of integrated long-term planning weakens implementation coherence.

Thus, communication in this context serves as a facilitating variable but lacks the strategic alignment necessary to mitigate structural overload. The limitation does not lie in the absence of coordination, but in the limited integration between enrollment policy and clinical service capacity planning.

3.4. Organizational Characteristics

The implementing organization exhibits a formally structured and hierarchical governance system. Roles and responsibilities within the faculty and teaching hospital are clearly delineated, particularly regarding academic administration, clinical supervision, and rotation scheduling. This procedural clarity contributes to administrative stability and ensures compliance with institutional regulations.

However, the organizational structure also reflects a centralized decision-making pattern. Strategic decisions related to student intake are primarily determined at the faculty leadership level, while adjustments in clinical capacity depend on hospital administrative approval and infrastructure availability. This dual authority structure creates limited flexibility in responding to rapid increases in student enrollment.

Document analysis indicates that expansion of clinical capacity requires bureaucratic coordination across multiple administrative levels, including hospital management and affiliated departments. Such layered approval processes slow adaptive responses to enrollment growth.

Field observations further suggest that when student numbers increase, the institution relies more on schedule redistribution rather than structural capacity expansion. Instead of increasing supervision units or diversifying training sites proportionally, the organization adjusts rotation timing within existing constraints.

Within the framework of Donald Van Meter and Carl Van Horn (1975), the characteristics of implementing agencies—including bureaucratic structure, authority distribution, and institutional norms—directly influence policy performance. Organizations with rigid hierarchical structures may ensure procedural compliance but can struggle with adaptive implementation under conditions of structural strain.

In this case, organizational stability functions as a strength in maintaining procedural order, yet simultaneously limits rapid structural adaptation to increasing student demand. Consequently, organizational characteristics contribute indirectly to the persistence of resource constraints affecting OBE implementation.

3.5. Implementer Disposition

Despite evident structural constraints, implementers demonstrate a consistently positive disposition toward OBE implementation. Interviews indicate strong professional commitment among clinical supervisors and academic managers to maintain educational quality despite increased workload pressures.

A clinical education manager stated: “We strive to maintain supervision quality even with a large number of students.” (Clinical Education Manager).

This statement reflects normative alignment between institutional policy goals and implementer attitudes. Clinical supervisors continue to conduct case discussions, bedside teaching, and competency-based assessments in accordance with OBE principles, even when rotation density increases.

Field observations further suggest that supervisors frequently extend informal consultation time and adjust teaching strategies to accommodate high student numbers.

These adaptive practices illustrate professional responsibility and institutional loyalty, reinforcing the internal commitment to policy execution.

To substantiate these qualitative findings, institutional performance indicators were analyzed. The results are presented in Table 3.

Table 3. Performance indicators of clinical education implementation.

No	Performance Indicator	Target	Empirical Achievement	Performance Level
1	Clinical Supervisor Attendance Commitment	100%	98%	Very Good
2	Timeliness of Clinical Examination	100%	92%	Good
3	OBE Logbook Completion	100%	85%	Moderate
4	Student Satisfaction Index	High	Very High	Very Good
	Average Institutional Achievement:			**96%**

Source: Compiled and analyzed from the Institutional Performance Report of the Faculty of Medicine, Universitas Hang Tuah (2024).

As shown in Table 3, the average institutional achievement reached 96%, indicating high operational discipline and commitment among clinical supervisors and academic managers. Attendance rates and examination timeliness remain close to target, while student satisfaction levels are reported as very high. Although logbook completion is slightly lower (85%), it still reflects substantial adherence to OBE documentation standards.

Within the framework of Donald Van Meter and Carl Van Horn (1975), implementer disposition refers to the degree of acceptance, understanding, and commitment toward policy objectives. Positive disposition generally strengthens implementation by reducing resistance and fostering compliance.

However, in this case, strong implementer commitment does not fully offset structural inadequacy. While supervisors strive to preserve supervision standards, limited clinical exposure, rotation congestion, and supervisory overload remain beyond individual control. The consistently high performance indicators therefore suggest that implementation strain does not originate from weak professional attitudes but from structural capacity imbalance.

Thus, although attitudinal support for OBE is demonstrably strong, implementation effectiveness remains structurally constrained. Policy success in medical professional education depends not only on implementer commitment but also on proportional alignment between policy demands and institutional resource capacity.

3.6.Theoretical Implication

The findings of this study reinforce the central proposition of Donald Van Meter and Carl Van Horn (1975) that resource adequacy constitutes a decisive determinant in policy implementation performance. Although the model conceptualizes implementation as an interaction among six interrelated variables, the present case demonstrates that resource capacity may function as the dominant structural constraint when policy demands exceed institutional infrastructure.

Empirical evidence indicates that policy standards are clearly articulated and formally institutionalized. Inter-organizational communication mechanisms are operational, organizational roles are procedurally defined, and implementers

demonstrate strong professional commitment. However, despite these favorable conditions, implementation effectiveness remains constrained due to a significant mismatch between student intake and clinical training capacity.

This pattern suggests a hierarchical influence among implementation variables in service-based policy environments. In professional medical education—where competency attainment depends directly on access to clinical infrastructure, patient cases, and supervision availability—resource variables may exert stronger explanatory power than attitudinal or communicative factors.

The case therefore illustrates a condition of structural constraint implementation, in which normative alignment with competency goals exists but operational realization is limited by systemic capacity shortages. This refines the application of the Van Meter and Van Horn framework by highlighting the conditional dominance of resource variables in capacity-intensive policy settings.

To synthesize these findings, Table 4 presents an integrated assessment of all implementation variables.

Table 4. Synthesis of policy implementation variables.

Implementation Variable	Analytical Status	Empirical Evidence	Implementation Impact
Policy Standards & Objectives	Strong	Formal adoption of OBE through Dean Decree and documented curriculum framework	Normative clarity achieved
Resources	Weak (Dominant Constraint)	63% hospital overload; 66% supervisor strain; 104-week average completion	Structural bottleneck affecting duration and clinical exposure
Inter-organizational Communication	Moderate	Coordination exists but long-term enrollment planning not fully integrated	Limited anticipatory capacity management
Organizational Characteristics	Structurally Stable but Rigid	Clear hierarchical governance; centralized intake decision	Limited adaptive flexibility
Implementer Disposition	Very Strong	High professional commitment; 96% institutional performance achievement	Stabilizes policy but cannot offset resource gap
Socio-Political Environment	Supportive	Strong endorsement from university and hospital leadership	Political legitimacy maintained

Source: Compiled and analyzed from the Institutional Performance Report of the Faculty of Medicine, Universitas Hang Tuah (2024).

As shown in Table 4, the implementation environment is characterized by strong normative, organizational, and attitudinal conditions. However, resource limitations emerge as the primary constraining factor. This imbalance explains why policy standards remain administratively strong while operational performance experiences measurable strain, particularly reflected in extended completion duration and clinical rotation congestion.

4. CONCLUSION

This study demonstrates that the imbalance between 490 clerkship students and an estimated hospital training capacity of approximately 300 constitutes a structural constraint in the implementation of Outcome-Based Education (OBE) within medical professional education. The extended average completion duration of 104 weeks (range 94–107 weeks) provides measurable evidence of the operational impact of this capacity gap. Although institutional policy standards are clearly articulated, coordination mechanisms formally established, and implementers demonstrate strong professional commitment, implementation effectiveness remains structurally limited. Within the analytical framework of Donald Van Meter and Carl Van Horn, the findings indicate that resource adequacy emerges as the dominant determinant influencing policy performance in capacity-intensive service environments. The study highlights that positive implementer disposition and organizational compliance cannot fully compensate for disproportionate structural capacity. In professional education systems where competency achievement depends directly on access to clinical exposure, alignment between student intake policy and training infrastructure becomes a prerequisite for effective policy realization. Therefore, sustainable implementation of OBE requires strategic integration between enrollment planning, clinical resource allocation, and long-term capacity forecasting. Without structural proportionality, even well-designed competency-based educational reforms risk diminished operational effectiveness.

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