

Beyond the classroom: a reflective commentary on systemic ‘leakage’ in Malaysian secondary schools through practicum teacher experiences and hydrological analogies

Abstract

This reflective commentary examines systemic challenges in Malaysian secondary schools through the lived experiences of ten practical training teachers (PTTs) placed across multiple institutions in Selangor (seven schools) and Putrajaya (three schools) in April 2026. This study represents a rare instance in which direct and unfiltered feedback was obtained from the PTTs following several weeks of immersion in real school environments. In contrast to conventional supervisory visits that emphasize formal teaching observation, these narratives by my PTTs reveal deeper structural conditions often overlooked in routine evaluations. Drawing from these grounded accounts, three major themes emerged: (a) weaknesses in institutional coordination, (b) declining student discipline and respect, and (c) unequal learning environments shaped by overcrowding and infrastructural constraints. The consistency of these patterns across different schools suggests the presence of systemic inefficiencies rather than isolated incidents. Using a hydrological metaphor, these challenges are interpreted as forms of “systemic leakage,” where disruptions in flow, loss of instructional continuity, and weak institutional linkages reduce the effectiveness of the educational system. This paper argues that such leakage reflects a misalignment between policy intentions, implementation practices, and the evolving realities of students. By integrating reflective academic insight with experiential field narratives, this commentary underscores that meaningful understanding must begin with direct observation and the authentic voices emerging from the ground.

Keywords: educational systems, student discipline, school management, reflective practice, Malaysia

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Introduction

For many years, my role as a university lecturer and supervisor has involved visiting schools to observe practical teaching sessions. These visits were structured, formal, and often limited to evaluating teaching performance within a short time frame. What I gradually came to realise is that such observations only capture the surface of what is happening in schools. They do not reveal the deeper realities that shape the daily experiences of teachers and students.

This reflection marks a significant turning point in my academic journey. For the first time, I received direct, honest, and unfiltered narratives from the practical training teachers (PTTs) who I supervised them at their schools, after several weeks of immersion in schools. These are not polished institutional reports. These are lived experiences. Through these voices, I began to understand what I had not been able to see during my previous supervisory visits. In truth, despite years of going to schools, I had never fully known the actual situations within them.

What emerged from these narratives was both consistent and revealing. Across different schools, with different environments and student demographics, the issues reported showed strong similarities. This convergence is not incidental. It reflects underlying systemic conditions. More importantly, these genuine accounts have provided a grounded explanation for a broader societal concern, namely the increasing social problems observed in our society. The roots of these issues are not detached from the education system; they are closely connected to it.

From a hydrological perspective, the education system can be understood as a flow-based system, where knowledge, values, discipline, and institutional support move through interconnected pathways. Ideally, this flow should be continuous, efficient, and well-regulated. However, when disruptions occur, whether through weak coordination, overcrowding, or breakdowns in discipline, the system begins to experience forms of “leakage.” These leakages represent losses of instructional time, diminished teacher effectiveness, and reduced student engagement. Similar to water systems where leakage reduces pressure and efficiency across the network, systemic weaknesses in schools lead to fragmented outcomes and uneven learning environments. This analogy provides a useful conceptual lens to interpret the observed challenges not as isolated incidents, but as interconnected failures within a broader system of flow and retention.

The objective of this reflective commentary paper is twofold. First, it aims to identify and synthesise the major systemic issues observed by the PTTs across multiple Malaysian secondary schools in Selangor and Putrajaya on their lived experiences. Second, it seeks to critically reflect on how these school-level realities contribute to broader social challenges, while reaffirming the importance of observation-based understanding as a foundation for meaningful educational improvement.

This perspective aligns with established views in educational change literature that meaningful reform must begin from real conditions rather than abstract assumptions.^{1,2} Similarly, in ecological

science, observation remains the starting point for understanding complex systems.³ In this paper, the voices of the PTTs are not treated as anecdotal inputs, but as critical field evidence that reveals the true state of the system.

Methodological reflection: a narrative-based qualitative approach

This study is grounded in a qualitative, narrative-based approach that draws upon the lived experiences of the PTTs at their schools. Unlike conventional empirical studies that rely on quantitative measurements and statistical analysis, this work is designed as a reflective commentary that prioritizes experiential insight and contextual understanding.

Ten PTTs who I supervised them at their schools were invited to identify and narrate three major issues observed in their respective schools after several weeks of teaching practice in April 2026. These PTTs were placed across secondary schools in Selangor (7 schools) and Putrajaya (3 schools), representing diverse institutional and demographic contexts. The narratives collected are not treated as anecdotal opinions but as field-based observations emerging from sustained engagement within the system.

The analytical approach is based on identifying recurring patterns across independent narratives. When similar issues emerge consistently across different schools and contexts, they indicate underlying systemic conditions rather than isolated incidents. This form of pattern recognition is widely accepted in qualitative inquiry and aligns with reflective practice frameworks,⁴ where understanding is derived from experience, interpretation, and critical reflection.

From an ecological systems perspective, observation remains a foundational method for understanding complex, interconnected systems.³ In this study, the convergence of PTTs narratives serves as a form of empirical grounding, allowing systemic issues to be interpreted through a structured reflective lens.

Therefore, statistical analysis is not applied, as the objective of this study is not to quantify relationships but to reveal systemic patterns, interpret lived realities, and provide insight into educational processes that are often not captured through numerical data.

Reflection of narratives

Despite these differences, the issues reported showed striking similarities. At first glance, this may appear informal. However, the strength of this approach lies in its authenticity. These PTTs are positioned within the system, experiencing it daily, without the filters that often shape formal reporting. Reflection is not merely thinking about action but understanding reality through experience.⁴ In the same way, these narratives function as field observations. When similar patterns emerge independently across different schools, they form a strong basis for identifying systemic issues. For me personally, this was a moment of realization. I have visited schools for years, yet I now recognise that I never truly knew the actual situations within them. It is through listening, not just observing, that understanding begins.

Below are the synthesis of narratives

Institutional coordination and management gaps in schools

Figure 1 presents a conceptual framework illustrating the interconnected systemic challenges within educational institutions that collectively influence the quality of teaching and learning. The

figure highlights key domains, including institutional coordination, student discipline, overcrowding, infrastructure limitations, and communication gaps, and shows how these factors interact rather than operate in isolation. Central to the framework is the role of educational personnel, particularly PTTs, who are positioned at the interface between institutional structures and classroom realities. Figure 1 emphasizes that weaknesses in leadership alignment, resource management, and policy implementation can cascade into classroom-level disruptions, affecting student engagement, instructional effectiveness, and overall school climate. By integrating these elements into a unified model, the figure underscores the need for holistic, system-level interventions rather than fragmented solutions.

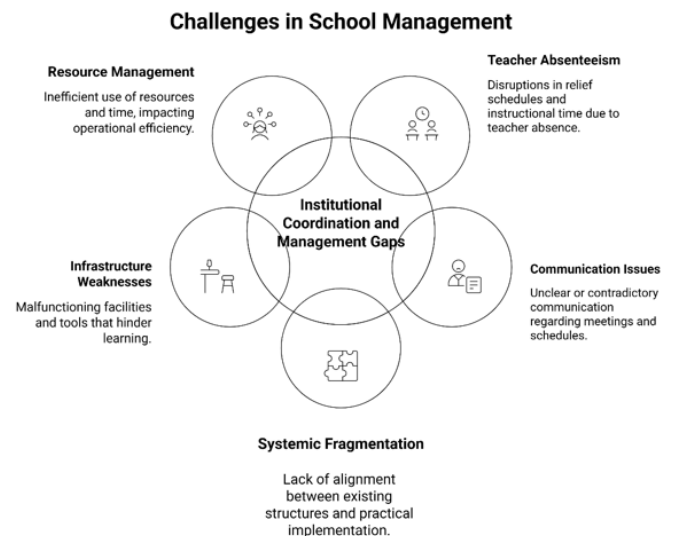


Figure 1 Conceptual Framework of Systemic Challenges Affecting Teaching and Learning Environments.

One of the most consistent patterns observed is the weakness in institutional coordination. Teacher absenteeism disrupts relief schedules, assemblies consume instructional time, and communication regarding meetings is often unclear or contradictory. These patterns point to broader issues of institutional leadership and governance, where coordination mechanisms exist but are not effectively translated into consistent practice.^{1,5}

These issues reflect systemic fragmentation, where structures exist but are not effectively aligned in practice.¹ The PTTs, in particular, experience this gap more intensely as they navigate unclear expectations and inconsistent instructions. Such challenges mirror findings that highlight the importance of cohesive leadership and collective action in ensuring effective role performance within educational institutions.⁵

Infrastructure challenges further reinforce this issue. Reports of blackout incidents, lack of water supply, inaccessible facilities, and malfunctioning teaching tools indicate deeper operational weaknesses. These are not isolated technical problems but are also reflective of broader institutional inefficiencies that undermine the creation of a conducive learning environment.⁶ From a systems perspective, this reflects inefficiency in resource and time management, similar to disrupted energy flow in ecological systems.³

Declining student discipline and respect in schools

Figure 2 illustrates the dynamic interaction between classroom-level constraints and teaching effectiveness across different school environments. Figure 2 also highlights how factors such as

overcrowded classrooms, student disengagement, language barriers, and limited instructional resources collectively influence the ability of teachers to deliver effective lessons. It emphasizes that these constraints are not isolated but mutually reinforcing, creating a cycle where reduced engagement leads to weakened classroom control, which in turn further diminishes learning outcomes. Figure 2 also positions teachers, particularly those undergoing practical teaching training, within this complex environment where they must continuously adapt to fluctuating conditions. By mapping these interrelationships, the figure underscores the importance of addressing both structural and pedagogical challenges simultaneously to improve overall educational quality.

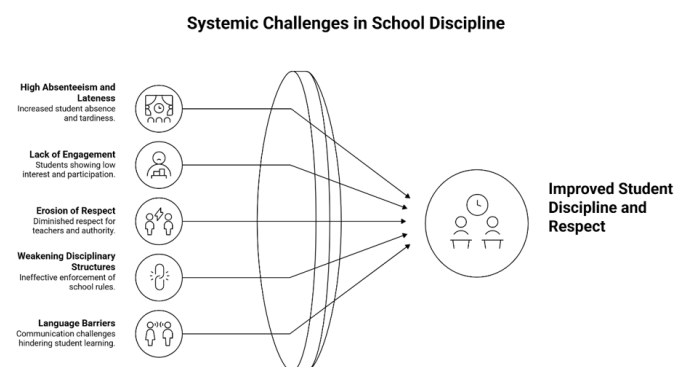


Figure 2 Interrelationship Between Classroom Constraints and Teaching Effectiveness in Diverse School Contexts.

The second major issue relates to student behaviour, discipline, and respect. High absenteeism, lateness, class skipping, and lack of engagement were consistently reported across schools. These patterns reflect not only individual student attitudes but also broader systemic barriers to learning that are often unaddressed within conventional school structures.⁷

More concerning is the erosion of respect towards teachers, especially the PTTs who are often perceived as peers rather than authority figures. Instances of verbal defiance, inappropriate language, and even harassment indicate a weakening of disciplinary structures. This situation aligns with earlier perspectives that emphasize the importance of coherent, school-wide management systems in addressing behavioural challenges, rather than fragmented or reactive approaches.⁸

This observation strongly resonates with broader concerns in educational research, where school climate and discipline are closely linked to student behaviour outcomes.⁹ Language barriers further complicate the situation in certain schools. When students cannot understand the language of instruction, disengagement becomes inevitable. As Vygotsky¹⁰ highlighted, language is central to learning. Without comprehension, meaningful participation cannot occur.

These issues are not isolated behavioural problems. They are indicators of deeper systemic misalignment between expectations, communication, and enforcement, requiring integrated institutional responses that go beyond classroom-level interventions.

Overcrowding and unequal learning environments in schools

Figure 3 presents a systems-based feedback model illustrating how institutional constraints, classroom realities, and student outcomes are interconnected through continuous cycles of influence and response. Figure 3 highlights how challenges such as weak coordination, overcrowding, limited resources, and behavioural

issues initiate pressures at the classroom level, which then shape teaching strategies and student engagement. These responses, in turn, feed back into the institutional system, either reinforcing existing weaknesses or prompting adaptive changes. The model emphasizes that teaching is not a static process but a dynamic adjustment to environmental stressors, particularly for PTTs navigating real-world school conditions. By framing these interactions as a feedback loop, the figure underscores the need for systemic alignment and sustained intervention to break negative cycles and support a more conducive and resilient learning environment.

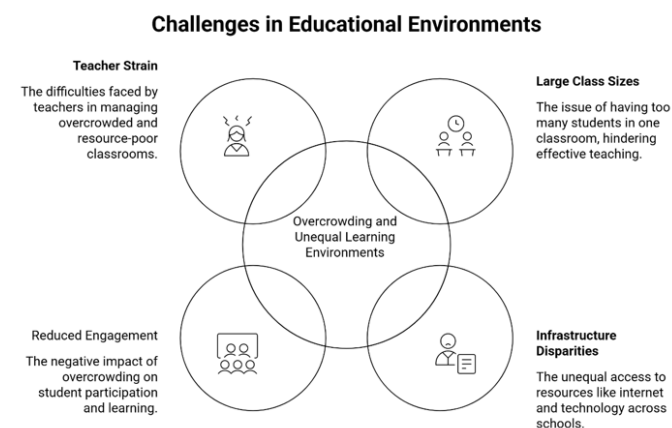


Figure 3 System-Level Feedback Loop Linking Institutional Constraints to Student Outcomes and Teaching Adaptation.

The third major issue is the inequality in learning environments. Large class sizes, sometimes reaching 45 students, significantly limit effective teaching and classroom control. Research has consistently shown that overcrowded classrooms reduce engagement and hinder learning outcomes.^{11,12} In such conditions, even experienced teachers struggle to maintain focus and provide individual attention, while student-teachers often face heightened difficulties in managing classroom dynamics and delivering effective instruction.¹³

At the same time, disparities in infrastructure further widen this gap. Lack of internet access, malfunctioning smart devices, and confusing classroom arrangements reduce teaching efficiency. These conditions vary across schools, creating unequal educational experiences within the same system. Such inequalities reinforce the challenges posed by overcrowding, where both physical limitations and resource constraints collectively undermine the quality of teaching and learning.

From school reality to societal reflections

What makes these findings powerful is their consistency. Different schools, different contexts, yet the same patterns appear. This is not coincidence. This is systemic. At a deeper level, these observations provide a direct explanation for broader social issues. When students experience weak discipline, inconsistent authority, fragmented systems, and disengaged learning environments, these patterns do not remain within school boundaries. They extend into society.

For me, this realization is clear and undeniable. The voices of my PTTs have answered, with full honesty, why we are seeing increasing social problems in our community. These are not abstract theories. These are lived realities.

The agreement from colleagues and observers further reinforces this point. When others respond with "Totally agreed", it reflects a

shared recognition of these issues across the academic and educational community.

From a systems perspective, this resembles a stressed ecosystem approaching instability, where multiple pressures interact to reduce resilience.¹⁴ In education, when management, discipline, and infrastructure simultaneously weaken, the system struggles to sustain its core function.

Hydrological flow analogies for interpreting educational systemic leakage

Figure 4 provides a visual representation of how hydrological principles can be applied to interpret educational systemic leakage. Figure 4 is structured into three thematic areas that correspond to different hydrological concepts. The first section, "Hydrological Flow & Leakage Analogy," illustrates the parallel between water loss in compromised natural systems¹⁵ and the loss of intended educational outcomes due to system disruptions like poor coordination and communication. The diagram highlights how these disruptions create hidden "points of leakage," reducing overall effectiveness even if not visible in formal assessments.

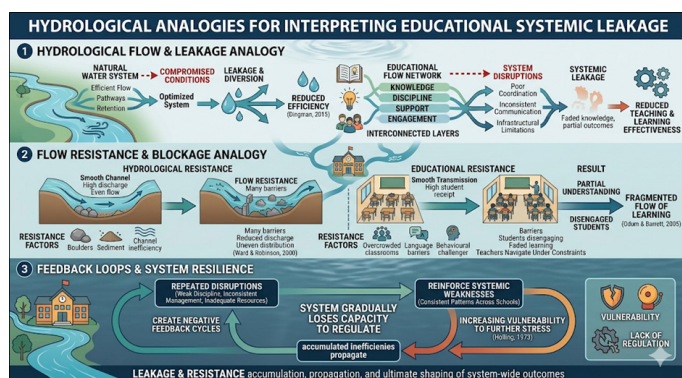


Figure 4 A Hydrological Framework for Educational Systemic Leakage, Resistance, and Feedback Loops. Note: This diagram is generated using Google Gemini.

The central part of the framework in Figure 4, "Flow Resistance & Blockage Analogy," compares physical barriers in hydrology¹⁶ to educational impediments such as overcrowded classrooms and language barriers. These factors create "educational resistance," resulting in a fragmented flow of learning³ where teachers must navigate constrained conditions, often leading to uneven knowledge distribution and student disengagement. Finally, the "Feedback Loops & System Resilience" section depicts how persistent inefficiencies create negative feedback cycles that gradually erode the system's capacity for self-regulation, increasing its vulnerability to future stress.¹⁴

From a hydrological perspective, any system functions through the movement, storage, and regulation of flow. In natural water systems, efficient flow depends on well-connected pathways, minimal obstruction, and strong retention capacity. When these conditions are compromised, water is lost through leakage, diversion, or unregulated runoff, reducing the overall efficiency of the system.¹⁵

In a similar way, the education system described in this study can be understood as a flow network where knowledge, discipline, institutional support, and student engagement move across interconnected layers. The narratives presented in this paper reveal that disruptions such as poor coordination, inconsistent communication, and infrastructural

limitations function as points of "leakage," where intended outcomes are partially lost before reaching students. These losses are not always visible in formal assessments, but they significantly reduce the effectiveness of teaching and learning processes.

A second useful analogy lies in the concept of flow resistance and blockage. In hydrology, flow can be slowed or redirected by physical barriers, sediment accumulation, or channel inefficiencies, leading to reduced discharge and uneven distribution across the system.¹⁶ Translating this into the educational context, overcrowded classrooms, language barriers, and behavioural challenges act as forms of resistance that impede the smooth transmission of knowledge. Teachers, particularly those undergoing practicum teaching training, must constantly navigate these resistances, often adjusting their teaching strategies under constrained conditions. The result is a fragmented flow of learning, where some students receive partial understanding while others disengage entirely. This aligns with ecological system perspectives, where disruptions in flow lead to imbalances that affect the stability and functioning of the entire system.³

Finally, hydrological systems emphasize the importance of feedback loops and system resilience. When leakage, resistance, and inefficiencies persist, the system gradually loses its capacity to regulate itself, increasing vulnerability to further stress.¹⁴⁻¹⁶ In the educational setting, repeated disruptions such as weak discipline, inconsistent management, and inadequate resources create negative feedback cycles that reinforce systemic weaknesses. These cycles are evident in the consistent patterns reported across different schools, where similar issues continue to emerge despite differences in context. Without intervention, such leakage not only affects immediate learning outcomes but also contributes to broader societal challenges by weakening the foundational role of education. Therefore, viewing schools through a hydrological lens does not merely serve as a metaphor; it provides a structured way to understand how inefficiencies accumulate, propagate, and ultimately shape system-wide outcomes.

Conclusion

This reflection marks an important shift in understanding. It is not based on assumptions, reports, or metrics. It is based on voices. For the first time, I have truly listened to the experiences of my PTTs in schools. And through their narratives, I have come to understand realities that were previously unseen. The findings are clear. Institutional coordination needs strengthening, disciplinary frameworks require reinforcement, and learning environments must be improved. More importantly, educational reform must begin from honest, ground-level observations. As in ecology, where understanding begins with careful observation, education must return to its foundations. Only then can meaningful and sustainable change be achieved.

Declaration on the use of artificial intelligence

The authors declare that generative artificial intelligence tools were used in a supportive capacity during the preparation of this manuscript. These tools assisted with language refinement, structural organisation, and stylistic clarity of the text. All ideas, interpretations, arguments, and conclusions presented in this paper are the authors' own and are grounded in personal experience and scholarly judgment. The authors retain full responsibility for the content, accuracy, originality, and integrity of the manuscript.

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Conflicts of interest

The author declares there is no conflict of interest.

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