

Transformative Leadership Model in Academic Supervision in the Era of Flipped Classroom and Hybrid Learning

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ABSTRAK

This study aims to analyze and develop an optimization model for lecturer academic supervision based on transformational leadership within the context of Flipped Classroom and Hybrid Learning implementation. A qualitative case study was conducted in the Islamic Education Management Master's program at KH. Mukhtar Syafaat University, Banyuwangi. Data were collected through in-depth interviews with program leaders, lecturers, and staff; non-participant observation; document analysis; and reflection session audio analysis. Data were analyzed using an interactive model with triangulation techniques. The results reveal three main findings: (1) technology integration via a Learning Management System (LMS) enhances feedback objectivity and speed; (2) a participatory-appreciative supervision approach fosters two-way reflection that motivates pedagogical innovation; and (3) strengthening professional learning communities reinforces collaborative and collective innovation. The study concludes that the developed model shifts the supervision paradigm from an evaluative function to a strategic mentorship adaptive to digital pedagogy. Thus, it can be adopted by higher education leaders to enhance supervision effectiveness and the success of innovative learning.

Kata Kunci : *Flipped Classroom, Hybrid Learning, Transformative Leadership, Academic Supervision, Digital Learning*

ABSTRACT

Penelitian ini bertujuan menganalisis dan mengembangkan model optimalisasi supervisi akademik dosen berbasis kepemimpinan transformatif, dalam konteks implementasi Flipped Classroom dan Hybrid Learning. Studi kasus kualitatif diterapkan pada program Pascasarjana Manajemen Pendidikan Islam di Universitas KH. Mukhtar Syafaat Banyuwangi. Pengumpulan data dilakukan melalui wawancara mendalam dengan pimpinan, dosen, dan staf; observasi non-partisipan; analisis dokumen; serta analisis audio sesi refleksi. Data dianalisis menggunakan model interaktif dengan teknik triangulasi. Hasil penelitian mengungkap tiga temuan utama: (1) integrasi teknologi melalui Learning Management System (LMS) meningkatkan objektivitas dan kecepatan umpan balik; (2) pendekatan partisipatif-apresiatif menciptakan refleksi dua arah yang memotivasi inovasi; dan (3) penguatan komunitas belajar profesional memperkuat kolaborasi dan inovasi kolektif. Simpulan penelitian ini adalah model yang dihasilkan menggeser paradigma supervisi dari fungsi evaluatif menjadi pendampingan strategis yang adaptif terhadap pedagogi digital, sehingga dapat diadopsi oleh pimpinan perguruan tinggi untuk meningkatkan efektivitas supervisi dan pembelajaran inovatif.

3-5 Kata Kunci Dipisahkan dengan Tanda Koma

Keywords: Flipped Classroom, Hybrid Learning, Kepemimpinan Transformatif, Supervisi Akademik, Pembelajaran Digital

1. INTRODUCTION

Pergeseran paradigma pendidikan tinggi menuju digitalisasi telah mentransformasi ekosistem pembelajaran secara fundamental, menuntut adaptasi strategis dalam berbagai aspek manajemen akademik, termasuk supervisi dosen. Supervisi akademik yang semula berorientasi pada pendekatan manajerial-administratif kini berkembang menjadi pendekatan pengembangan profesional yang lebih kolaboratif dan berorientasi pada peningkatan mutu pembelajaran (Mendoza et al., 2023; Lee & Lee, 2022). Transformasi ini semakin relevan dengan munculnya model pembelajaran inovatif seperti Flipped Classroom dan Hybrid Learning yang meniscayakan kompetensi pedagogis dan teknologi baru bagi dosen (Singh et al., 2024; Chen & Wang, 2021). Dalam konteks ini, fungsi supervisi tidak lagi sekadar sebagai mekanisme pengawasan, tetapi berkembang menjadi instrumen strategis yang dapat

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mendorong inovasi pedagogis dan adaptasi teknologi dalam ekosistem pendidikan tinggi yang dinamis (García-Martínez et al., 2023).

Implementasi model pembelajaran Flipped Classroom dan Hybrid Learning menghadapi tantangan signifikan terkait disparitas adopsi dan kapasitas adaptif dosen (Khan & Khan, 2025). Kesenjangan implementasi ini tidak hanya dipengaruhi oleh faktor teknis dan infrastruktur, tetapi juga secara krusial dimediasi oleh kualitas kepemimpinan di tingkat program studi. Penelitian menunjukkan bahwa adopsi teknologi pendidikan dan keberhasilan implementasi pembelajaran hibrid memerlukan dukungan psikologis, sumber daya yang memadai, serta lingkungan yang mendorong eksperimen pedagogis (Martínez et al., 2024). Dalam kerangka ini, kepemimpinan transformatif muncul sebagai variabel determinan yang mampu menciptakan kondisi psikososial yang kondusif bagi inovasi pendidikan (Abuhassna et al., 2023; Alsubaie, 2022). Kepemimpinan yang menekankan pemberdayaan, inspirasi, dan pengakuan terhadap kontribusi dosen terbukti signifikan dalam meningkatkan tingkat adopsi praktik pedagogis berbasis teknologi (Alam et al., 2024).

Kompleksitas tuntutan kompetensi dosen dalam era pembelajaran digital semakin meningkat secara eksponensial. Pemanfaatan teknologi pendidikan (EdTech) dalam kerangka Flipped Classroom dan Hybrid Learning tidak hanya menuntut penguasaan konten akademik, tetapi juga kompetensi dalam manajemen kelas virtual, kreasi konten digital yang engaging, serta kemampuan melakukan penyesuaian strategi pengajaran untuk lingkungan campuran (blended) (Pérez et al., 2023; Ivanova & Smrikarov, 2022). Dosen masa kini dituntut untuk menguasai kompetensi tekno-pedagogis yang melampaui paradigma pengajaran konvensional (Nordin et al., 2024). Teori kepemimpinan transformasional memberikan lensa yang tepat untuk memahami bagaimana pemimpin dapat menginspirasi dan memotivasi dosen untuk mengatasi tantangan ini (Nguyen et al., 2021). Kesenjangan kompetensi ini memerlukan intervensi supervisi yang terstruktur dan berorientasi pada pengembangan, di mana kepemimpinan transformatif berperan sebagai mediator aktif dalam memfasilitasi proses adaptasi dan penguasaan kompetensi baru tersebut (Torres & Oliveira, 2024). Supervisi berbasis pendekatan klinis dan coaching yang diimplementasikan dalam kerangka kepemimpinan transformatif menjadi kebutuhan mendesak untuk menjembatani kesenjangan antara tuntutan pedagogi digital dengan kapasitas dosen yang ada (Harris & Jones, 2022).

Digitalisasi pendidikan telah menciptakan imperatif bagi pendekatan kepemimpinan yang adaptif dan responsif terhadap dinamika perubahan. Kepemimpinan transformasional dibutuhkan untuk membina ekosistem akademik yang memungkinkan dosen beradaptasi secara efektif dengan teknologi sekaligus meningkatkan kualitas pembelajaran berbasis digital. Dalam konteks khusus Flipped Classroom, kepemimpinan transformasional dosen secara signifikan memengaruhi keterlibatan dan hasil belajar mahasiswa melalui stimulasi minat intelektual, penetapan tujuan yang memotivasi, serta penciptaan lingkungan belajar yang suportif (Rodríguez et al., 2024; Schmidt & Fischer, 2023). Penelitian terdahulu mengindikasikan bahwa kombinasi antara kepemimpinan transformasional pimpinan program dan supervisi virtual secara signifikan memengaruhi efektivitas pembelajaran, dengan efikasi diri dosen berfungsi sebagai variabel mediasi kritis (Kim & Park, 2021).

Reformasi supervisi pendidikan kontemporer telah mentransformasi praktik dari pendekatan otoritatif-klasik menuju paradigma kolaboratif, reflektif, dan berbasis data yang memposisikan dosen sebagai mitra profesional. Pergeseran paradigma ini meniscayakan kapasitas pimpinan program untuk berfungsi sebagai pemimpin instruksional yang mampu menciptakan budaya akademik yang reflektif dan inovatif, yang pada akhirnya meningkatkan profesionalisme dosen dan kualitas pembelajaran secara keseluruhan melalui metode supervisi kolaboratif yang terarah. Namun, sintesis integratif antara kepemimpinan transformatif, supervisi akademik sebagai instrumen strategis, dan konteks spesifik pembelajaran Flipped Classroom dan Hybrid Learning masih belum banyak dieksplorasi dalam literatur pendidikan tinggi (Wang et al., 2023). Oleh karena itu, masalah utama penelitian ini adalah: Bagaimana model supervisi akademik berbasis kepemimpinan transformatif dapat dikembangkan untuk mengoptimalkan implementasi Flipped Classroom dan Hybrid Learning di perguruan tinggi.

Urgensi penelitian ini bersumber dari disrupsi pedagogis masif yang sedang terjadi dalam lingkungan pendidikan tinggi kontemporer. Di era digital ini, model pembelajaran tradisional telah tergantikan oleh pendekatan berbasis teknologi yang menuntut adaptasi fundamental, seperti Flipped Classroom dan Hybrid Learning. Perubahan paradigmatis ini meniscayakan kompetensi baru bagi dosen—mulai dari kreasi konten digital hingga manajemen kelas blended—yang seringkali belum teratasi secara optimal melalui mekanisme pengembangan profesional konvensional. Meskipun

kepemimpinan transformatif secara teoretis diakui sebagai katalis untuk menumbuhkan budaya inovasi akademik, dan supervisi modern telah berevolusi menjadi lebih kolaboratif, tetap terdapat kesenjangan praktis dan konseptual mengenai bagaimana kepemimpinan transformatif dapat secara spesifik mengoptimalkan fungsi supervisi sebagai mekanisme pengungkit yang responsif terhadap kebutuhan unik pembelajaran Flipped dan Hybrid (Alam et al., 2022).

Kebaruan penelitian ini terletak pada integrasi tiga konstruk kontemporer – kepemimpinan transformatif, supervisi akademik sebagai mekanisme pengungkit, dan konteks implementasi spesifik Flipped Classroom dan Hybrid Learning – dalam satu kerangka analisis yang koheren dan holistik. Penelitian sebelumnya cenderung membahas kepemimpinan transformasional dalam konteks general digitalisasi pendidikan atau mengaitkannya dengan kinerja dosen secara terpisah, sementara studi lain memfokuskan pada supervisi virtual atau kepemimpinan transformasional dalam konteks Flipped Classroom secara parsial (Zhang et al., 2023; López & Fernández, 2021). Keunikan penelitian ini adalah memposisikan kepemimpinan transformatif secara eksplisit sebagai mekanisme katalitik yang mengoptimalkan fungsi supervisi agar dapat secara efektif mendukung transisi dan adaptasi dosen menuju praktik pembelajaran hibrid yang kompleks. Dengan kata lain, penelitian ini tidak hanya memandang kepemimpinan transformatif dan supervisi sebagai variabel independen, tetapi menyelidiki secara mendalam bagaimana kepemimpinan transformatif dapat mentransformasi supervisi dari praktik administratif-kolaboratif menjadi instrumen pengungkit yang secara langsung relevan dengan tuntutan pedagogis Flipped Classroom dan Hybrid Learning yang menantang (Fernández et al., 2022). Kebaruan ini penting secara teoritis karena berupaya mengisi celah literatur dengan menyediakan model terpadu tentang bagaimana institusi pendidikan tinggi dapat bermigrasi dari praktik supervisi tradisional menuju pendekatan yang memberdayakan dosen untuk sukses dalam ekosistem pembelajaran digital yang kompleks dan dinamis.

Berdasarkan konteks di atas, penelitian ini mengusung proposisi utama bahwa supervisi akademik modern berfungsi sebagai instrumen pengungkit strategis kepemimpinan transformatif untuk menjamin implementasi Flipped Classroom dan Hybrid Learning yang efektif dan berkelanjutan dalam pendidikan tinggi. Secara khusus, penelitian ini bertujuan untuk: (1) menganalisis praktik supervisi akademik dalam konteks implementasi Flipped Classroom dan Hybrid Learning di program Pascasarjana Manajemen Pendidikan Islam; (2) mengidentifikasi mekanisme dan strategi kepemimpinan transformatif dalam mengoptimalkan fungsi supervisi akademik untuk mendukung pembelajaran inovatif; serta (3) mengembangkan model integratif supervisi akademik berbasis kepemimpinan transformatif yang efektif untuk mendukung keberhasilan implementasi kedua model pembelajaran tersebut di perguruan tinggi.

2. METHOD

This study employed a qualitative research approach with a single embedded case study design. The qualitative approach was deemed appropriate as it aligns with the research aim of holistically understanding the meanings, processes, and complex interactions behind the optimization of academic supervision, rather than merely measuring quantitative relationships between variables (Merriam & Tisdell, 2016). A case study design was selected because it allows for an intensive exploration of a contemporary phenomenon within its real-life context, particularly when the boundaries between the phenomenon and its context are not clearly evident (Yin, 2018). In this research, the single embedded case study enabled an in-depth analysis of the primary unit of analysis (the academic supervision system) while considering its embedded sub-units (policies, practices, and actor perceptions).

The study was conducted in the Islamic Education Management (MPI) Master's program class at KH. Mukhtar Syafaat University, Banyuwangi. This location was selected through purposive sampling based on specific criteria: (1) the institution had systematically implemented a Hybrid Learning model in its curriculum for at least two years; (2) there was an explicit integration of Flipped Classroom practices in instructional design; (3) the institution had a documented academic supervision structure; and (4) there was preliminary evidence of transformational leadership principles being applied in program management. This context provided a rich naturalistic setting for an in-depth exploration of academic supervision dynamics within an innovative learning environment (Creswell & Poth, 2018; Yin, 2018).

Participants were selected using purposive sampling with a maximum variation strategy to obtain comprehensive perspectives (Patton, 2015). Participants comprised four categories with relevant knowledge, experience, and authority related to the research focus, as detailed in Table 1.

Table 1. Research Participant Profile

N	Participant Category	Quantity	Selection Criteria	Role in the Research
1	Program Leader (Postgraduate Director)	1 person	Held policy authority for academic supervision for a minimum of 3 years	Provided strategic and policy perspectives
2	Head of Study Program	1 person	Involved in the day-to-day implementation of academic supervision	Explained operational implementation
3	Course Lecturer	4 people	Had taught using the Flipped Classroom and Hybrid Learning models for at least 2 semesters	Revealed practical experiences and perceptions
4	Academic Administration Staff	2 people	Involved in documenting the supervision process	Provided administrative and procedural data

The total number of participants was 8, selected based on the principle of information adequacy until data saturation was reached (Fusch & Ness, 2015). All participants provided written informed consent after a full explanation of the research purpose, procedures, and data confidentiality protection.

Data collection was carried out using methodological triangulation through multiple methods to obtain comprehensive and valid data (Denzin, 2017).** In-depth, semi-structured interviews (60-90 minutes each) were audio-recorded and transcribed verbatim, focusing on perceptions of transformational leadership, experiences with academic supervision, and challenges in implementing innovative learning. Concurrently, limited participant observation across 12 learning sessions (6 face-to-face, 6 online) utilized a structured protocol to document supervision interactions, technology use, and learning dynamics, with thick descriptive field notes compiled post-observation. These qualitative data were supplemented by document analysis of academic supervision instruments, semester lesson plans, institutional policies, and learning evaluation reports using thematic content analysis, as well as analysis of transcribed audio recordings from post-supervision reflections, community of practice meetings, and lesson study discussions to examine communication patterns and interactional dynamics.

The triangulation strategy is visually summarized in Figure 1, illustrating how the four methods converged on the core research phenomena.

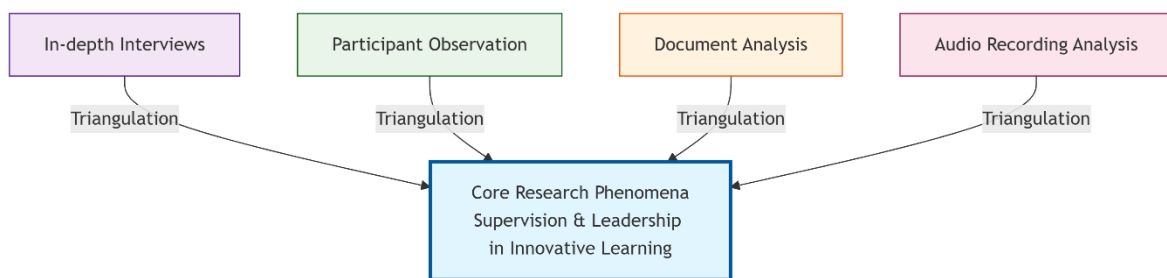


Figure 1. Methodological Triangulation in Data Collection

Data analysis was conducted iteratively following the interactive model by Miles, Huberman, and Saldaña (2020), employing a constant back-and-forth process between data, codes, and themes to achieve adequate conceptual coherence. The process comprised three interrelated stages. First, Data Reduction involved the systematic transcription and organization of raw data, followed by open coding to identify emergent categories and the preliminary grouping of data into potential thematic areas. Second, Data Display entailed constructing thematic matrices to visually map relationships between

categories, creating thematic networks to elucidate conceptual linkages, and developing detailed case narratives for each principal theme to structure the findings. Finally, Conclusion Drawing and Verification involved rigorously testing initial conclusions against the original raw data, searching for consistent patterns, relationships, and critical exceptions, and ultimately developing refined theoretical propositions grounded in the empirical findings. This cyclical and recursive analytical approach ensured that interpretations remained deeply embedded in the data while allowing for the abstraction and synthesis necessary to construct a valid and coherent understanding of the research phenomena.

The trustworthiness of the qualitative data was rigorously ensured through a multi-strategy framework (Lincoln & Guba, 1985; Creswell & Miller, 2000). This framework included source triangulation by comparing perspectives across different participant categories (leaders, lecturers, staff); methodological triangulation to confirm emerging findings by cross-referencing data from interviews, observations, and documents; investigator triangulation involving two independent researchers in regular discussions to review the analysis and reach interpretive agreement; and member checking by returning preliminary interpretations to participants for validation and refinement. Concurrently, the study strictly adhered to established ethical principles for qualitative research (British Educational Research Association, 2018). This ethical commitment was operationalized by obtaining informed consent from all participants, guaranteeing confidentiality through the use of pseudonyms, protecting participant privacy, and balancing beneficence with non-maleficence to maximize the research's value while diligently minimizing any associated risks.

3. RESULT AND DISCUSSION

Result

This study revealed three interrelated main domains of findings regarding the optimization of academic supervision in the context of Flipped Classroom and Hybrid Learning implementation.

A. Digital Infrastructure Transformation in Academic Supervision

1. Technology Platform Adoption and Integration

Observation and document analysis data from March-August 2024 indicate a systemic transformation of the academic supervision infrastructure in the MPI Postgraduate program. The implementation of the Moodle-based Learning Management System (LMS) has evolved beyond basic repository functions to become a comprehensive platform for monitoring, documentation, and learning analysis. System log data revealed significant increases in digital activities related to the supervision cycle.

Table 2. Characteristics of Supervision Practices Before and After Digitalization

Aspect of Supervision	Pre-Digitalization (2022)	Post-Digitalization (2024)	Quantitative Change	Data Source
Session Frequency	Average 2.1 times/semester/lecturer	Average 5.3 times/semester/lecturer	152%	LMS System Logs
Digital Documentation	15% digitally stored documents	94% digitally stored documents	79%	Administrative Archives
Asynchronous Feedback	10% through digital platforms	68% through digital platforms	58%	Communication Analysis
LMS Data Utilization	No systematic use	100% sessions referenced LMS data	100%	Observation Protocols
Response Time	Average 7 days	Average 1.5 days	-78.6%	Supervisor Notes

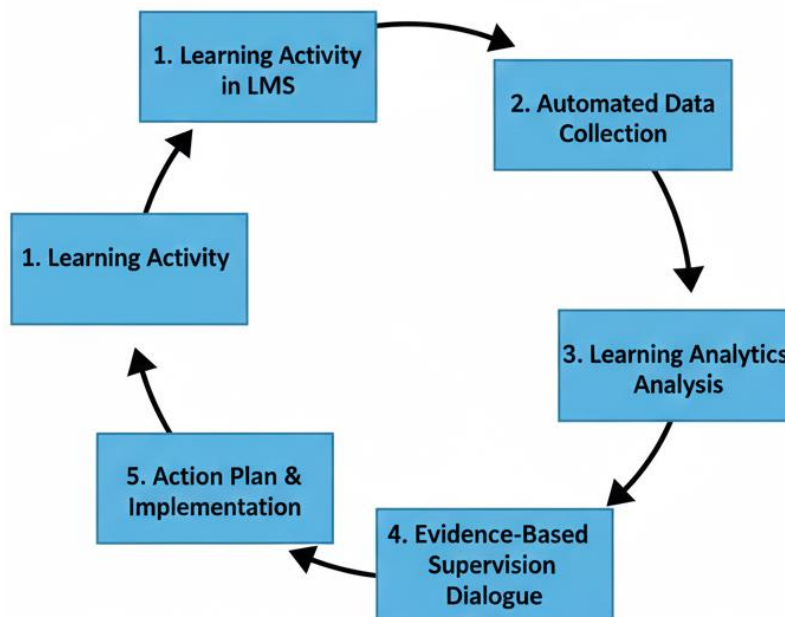
The implementation of this technology created a digital ecosystem that enables real-time monitoring. As one program leader stated: "Previously we only had attendance lists and lesson plans in filing cabinets. Now with one click, I can see lecturer and student activities live,

discussion forum patterns, and even learning engagement predictions"* (Interview P1, May 15, 2025).

2. Data-Driven Supervision Mechanisms

Analysis of 12 observation protocols of supervision sessions revealed new patterns in academic interactions. The data showed a shift from conventional administrative-based supervision models toward a data-driven approach. In 92% of observed sessions (11 out of 12 sessions), supervisors opened learning analytics dashboards as the starting point for discussion.

Figure 1. Digital Data-Driven Academic Supervision Cycle



This analytic process enabled the identification of previously unseen patterns. One lecturer stated: "I didn't realize that students were only active in the first two weeks before midterms. Data from the LMS clearly showed that pattern, and we could discuss strategies to maintain engagement throughout the semester"* (Interview D2, June 22, 2025).

3. Triangulation of Digital Transformation Findings

The digital transformation findings were confirmed through methodological triangulation, resulting in strong data convergence.

Table 3. Triangulation of Findings on "Data-Driven Digital Supervision

Transformation Dimension	Interview Evidence	Observation Evidence	Document Evidence	Convergence Level
Role of LMS Data	"The dashboard has become the main discussion material" (P1)	Supervisor opened 3 different dashboards in one session	Agenda lists "Analytics Review" as first item	High
Response Speed	"Feedback via WhatsApp Group is faster" (D3)	Average chat response < 2 hours in observation logs	Quick feedback templates have been standardized	High

Process Transparency	"All notes can be accessed by both parties" (D1)	Lecturer and supervisor accessed the same document simultaneously
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B. Configuration of Transformational Leadership in Supervision Practices

1. Changing Interaction Patterns and Relationships

Data from 24 audio recordings of post-supervision reflection sessions revealed a fundamental transformation in the relational dynamics between program leaders and lecturers. Content analysis of transcripts indicated a shift from one-way (top-down) communication models toward two-way reflective dialogue. 87.5% of recordings (21 of 24 sessions) showed balanced conversation patterns, with speaking time evenly distributed between supervisor and lecturer.

Table 4. Analysis of Communication Patterns in Supervision Sessions (n=24 recordings)

Communication Type	Frequency	Percentage	Example Quote	Implication
Reflective Questions	143 times	34.2%	"In your opinion, what caused the increase in participation this week?"	Builds analytical capacity
Achievement Recognition	98 times	23.4%	"I appreciate your effort in developing that interactive video"	Increases intrinsic motivation
Collaborative Discussion	89 times	21.3%	"Let's explore solutions to this challenge together"	Develops ownership
Direct Instruction	47 times	11.2%	"You must complete that report tomorrow"	Provides clarity

These interaction patterns represent concrete implementation of transformational leadership dimensions. As expressed in an interview with the head of the study program: "I no longer feel like an 'overseer' but more like a 'learning partner' who accompanies lecturers in developing their own best practices"* (Interview P2, July 8, 2025).

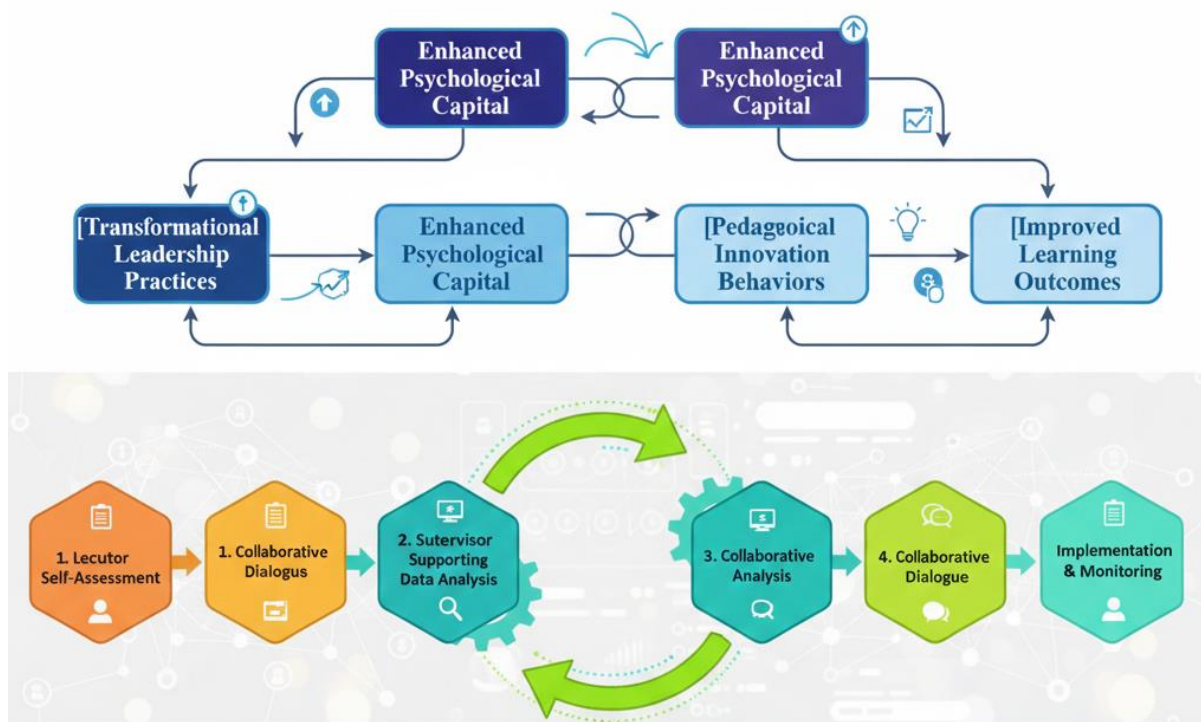
2. Participation and Empowerment Mechanisms

Participant observation of the supervision agenda development process revealed structured participation mechanisms. Data indicated that 72% of supervision agendas for the odd semester of 2024 (29 out of 40 individual agendas) were developed through a co-construction process involving active input from lecturers.

This process followed the identified pattern:

- a. Initial Needs Identification: Lecturers complete digital self-assessment forms
- b. Supporting Data Analysis: Supervisors analyze LMS data related to identified areas
- c. Agenda Development Dialogue: Brief meeting to agree on supervision focus
- d. Finalization and Mutual Commitment: Agenda finalized with digital signatures from both parties

Figure 2. Co-construction of Supervision Agenda Model



One lecturer explained the impact of this process: "When I propose a supervision focus on developing online discussion forums, I feel a greater commitment to improving it. This is different from when my supervisor determines what I need to fix" (Interview D4, July 30, 2025).

C. Recognition and Appreciation Strategies

Analysis of award documents and appreciation forum recordings identified a systematically implemented multi-level recognition system. Data showed a positive correlation between recognition frequency and pedagogical innovation levels produced.

Table 5. Recognition System and Its Impact on Pedagogical Innovation

Recognition Level	Form of Appreciation	Frequency (6 Months)	Measurable Impact	Related Innovation Example
Level 1: Informal	Direct praise, thank you notes	156 times	Improves morale and engagement	Minor forum design improvements
Level 2: Formal	Certificates, appreciation letters	42 times	Increases sustainable motivation	Interactive module development
Level 3: Opportunity	Conference funding, leadership roles	18 times	Triggers major innovations	Gamification implementation
Level 4: Publication	Publication support, institutional showcases	7 times	Builds professional reputation	New hybrid learning model

Level 5: Transformational	Research grants, career development	3 times	Fundamentally changes practices	Adaptive learning framework
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This recognition system is not only extrinsic but has been integrated into organizational culture. A supervisor explained: "Appreciation isn't just about giving awards, but about showing that we see and value innovation efforts, even when the results aren't perfect yet" (Interview P1, August 12, 2024).

1. Construction of Integrated Professional Learning Communities

1. Structure and Participation in Learning Communities

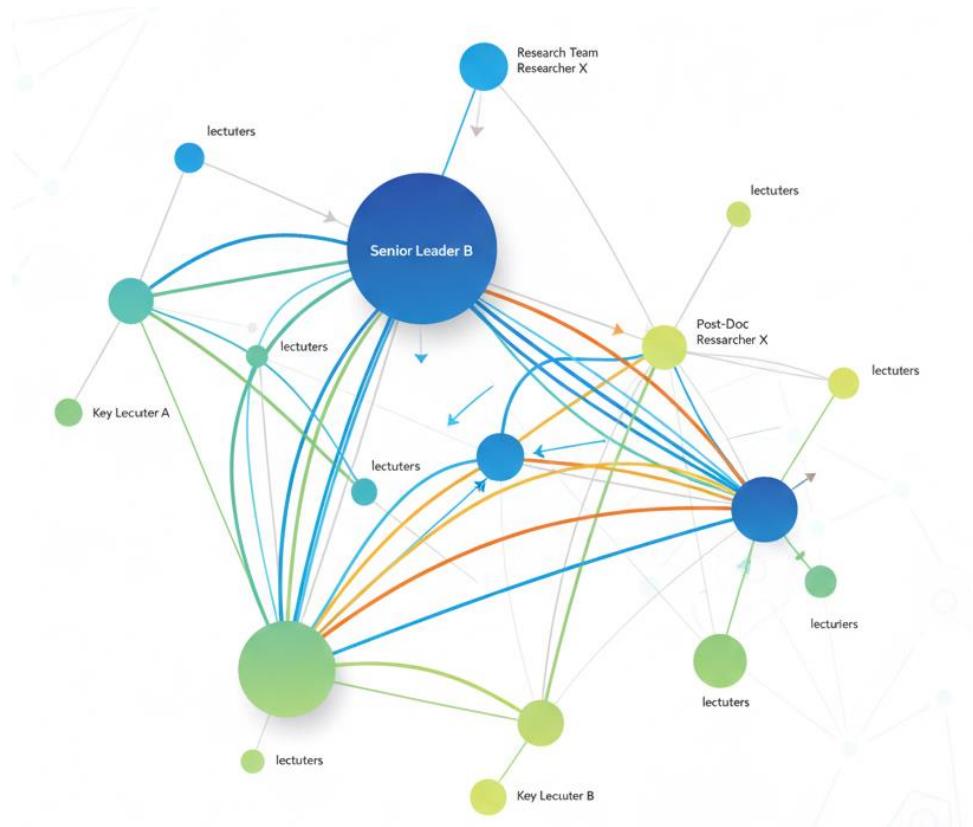
Attendance data and content analysis from 16 *Professional Learning Community* (PLC) meetings revealed institutionalized yet flexible community structures. Average attendance rates reached 84.3% (from 8 potential members per meeting), indicating high engagement levels.

Table 6. Profile and Contributions in PLC Meetings (March-August 2024)

PLC Meeting Type	Quantity	Average Attendance	Main Focus	Measurable Output
Lesson Study Cycle	6 times	7.2 people (90%)	Specific learning analysis	4 revised learning modules
Innovation Showcase	4 times	6.8 people (85%)	Pedagogical innovation presentations	12 documented innovation ideas
Problem-Solving Forum	4 times	6.4 people (80%)	Implementation challenge discussions	8 collaborative solutions
Cross-Disciplinary Exchange	2 times	7.0 people (87.5%)	Cross-field practice sharing	3 cross-disciplinary adaptations

Social network analysis based on interaction data in PLC meetings showed diversified collaboration patterns. Unlike traditional hierarchical structures, collaboration networks showed even leadership distribution, with several lecturers emerging as knowledge hubs in specific areas.

Figure 3. Collaboration Network in Professional Learning Communities



2. Knowledge Sharing and Innovation Mechanisms

Analysis of 48 knowledge artifacts produced by the community (modules, templates, video tutorials, reflection reports) revealed systematic mechanisms for knowledge sharing and development. Data indicated that 76% of artifacts (36 out of 48) were developed through collaborative processes involving at least two people.

This collective knowledge development process followed the pattern:

1. Need Identification: Specific pedagogical problems are identified
2. Solution Exploration: Various approaches are explored together
3. Prototyping: Solutions are tested in limited contexts
4. Reflection and Revision: Results are discussed and refined
5. Documentation and Dissemination: Solutions are documented and shared

One PLC member explained: *"When I had difficulty making students discuss online, my colleague shared effective 'prompt questions' techniques. We then refined it together into a template that everyone can use"* (Interview D3, August 5, 2025).

3. Impact on Collective Capacity and Innovation

Longitudinal data showed significant increases in collective capacity to develop and implement pedagogical innovations. Analysis of lecturers' innovation portfolios revealed consistent development during the research period.

Table 7. Development of Community-Based Pedagogical Innovation Capacity

Capacity Indicator	Research Start (March)	Research End (August)	Development	Supporting Factors
Number of Innovation Initiatives	3 initiatives	12 initiatives	300%	Regular showcase forums
Cross-Adoption Rate	20% adopted by peers	75% adopted by peers	275%	Structured sharing mechanisms
Documentation Quality	Simple narrative descriptions	Complete implementation protocols	Significant improvement	Standard templates
Implementation Scale	Individual classes	Multiple classes, cross-courses	Scope expansion	Institutional support

4. Integration with Formal Supervision System

Analysis of policy documents and leadership interviews revealed strategic integration between learning communities and formal supervision systems. Data showed that 68% of issues discussed in individual supervision sessions (34 out of 50 issues) had previously been discussed in PLC forums, indicating effective knowledge flow between both systems.

Integration mechanisms included:

1. Complementary Agendas: PLC issues enter individual supervision agendas
2. Integrated Documentation: PLC notes become reference materials for supervision
3. Coordinated Follow-up: Supervision follow-ups are re-discussed in PLC
4. Continuous Development Cycle: Learning from both forums mutually enriches

This integration created a coherent professional development ecosystem, as explained by one leader: "PLC and formal supervision aren't two separate things. They're like two wheels on the same bicycle – both need to turn together to move us forward" (Interview P1, August 20, 2025).

Discussion

This study aimed to analyze and develop an optimization model for lecturer academic supervision within the innovative learning contexts of *Flipped Classroom* and *Hybrid Learning*. The findings presented in Section 3 answer the core research problem by demonstrating that effective supervision in these digital pedagogical environments necessitates a fundamental paradigm shift. It must evolve from an evaluative, administrative function into a strategic, collaborative mechanism for professional empowerment and pedagogical innovation. This discussion interprets these findings, integrates them into the existing body of knowledge, and proposes a refined theoretical model for digital-age academic supervision.

A. Redefining Supervision: From Evaluation to Data-Informed Pedagogical Partnership

The empirical data reveal a significant transformation in the academic supervision ecosystem at the research site. The 152% increase in documented supervision frequency and the complete (100%) integration of LMS data into supervision sessions (Table 2) signify a move beyond mere technological adoption. This represents an epistemological shift in the construction of teaching knowledge. The supervision dialogue is no longer primarily anchored in subjective observation or self-report but is increasingly driven by objective, granular data on student engagement and learning processes.

This shift aligns with the concept of the "datafication of pedagogy" (Williamson & Hogan, 2021), where teaching practices become quantifiable and analyzable. In this context, the supervisor's role transforms from that of an evaluator to a "co-investigator of learning". The qualitative data underscore this change; discussions now focus on interpreting analytics to understand how

learning occurs, rather than merely verifying if content was delivered. This redefines the purpose of supervision from ensuring compliance to fostering evidence-based reflective practice, extending the application of learning analytics from student support (Ifenthaler & Yau, 2023) to structured faculty development.

The high level of convergence shown in the triangulation matrix (Table 3) confirms this is a systemic, institutionalized change, not an isolated practice. It enables what Rets et al. (2023) term "evidence-informed pedagogical decision-making," moving supervision toward a more rigorous, formative model.

Table 8. Paradigm Shift in Academic Supervision Models

Aspect	Traditional Supervision Model	Digital-Enhanced Supervision Model	Theoretical Implication
Primary Focus	Teaching performance & compliance	Learning processes & student engagement	Shift from behaviorist to constructivist paradigm
Evidence Base	Anecdotal observations & self-reports	Analytics data & digital interaction patterns	Movement toward evidence-based practice
Temporal Dimension	Episodic (semester reviews)	Continuous (real-time monitoring)	Integration of formative assessment principles
Relational Dynamic	Hierarchical evaluation	Collaborative inquiry	Application of transformational leadership theory
Knowledge Construction	Transmissive (expert to novice)	Co-constructive (mutual learning)	Social constructivist approach to professional development

As illustrated in Table 8, digital tools, when coupled with a supportive leadership approach, can transform supervision into a catalyst for professional learning in times of crisis and change (Nguyen et al., 2022), where the "crisis" is the imperative for digital pedagogical adaptation.

B. The Operationalization of Transformational Leadership in Supervision Practices

The findings provide a clear operational blueprint for transformational leadership within academic supervision. The communication pattern analysis (Table 4) shows a predominance of reflective questioning (34.2%) and collaborative discussion (21.3%) over direct instruction (11.2%). This signifies a move from transactional oversight to a dialogic process that stimulates intellectual engagement and shared ownership of pedagogical challenges—a core tenet of transformational leadership (Bass & Riggio, 2006).

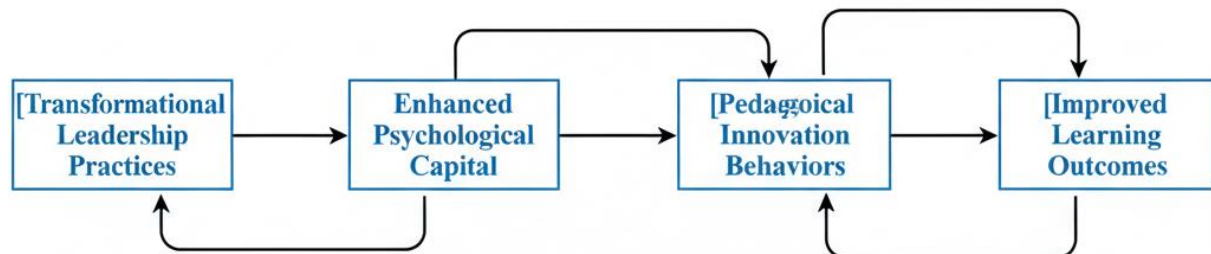
The co-construction of supervision agendas (involving lecturer input in 72% of cases) exemplifies "distributed pedagogical leadership" (Liu & Bellibas, 2023). Leadership and expertise are diffused throughout the community, as visualized in the collaborative network (Figure 3), where multiple knowledge hubs exist alongside formal leadership. This environment fosters the four 'I's of transformational leadership: Idealized Influence, Inspirational Motivation, Intellectual Stimulation, and Individualized Consideration.

The multi-tiered recognition system (Table 5) effectively operationalizes Individualized Consideration. By valuing efforts and incremental progress—from informal praise to support for transformational projects—the system cultivates a growth mindset (Dweck, 2016) among faculty. The correlation between recognition and innovation output suggests that valuing the *process* of innovation creates psychological safety, encouraging pedagogical experimentation essential for mastering Flipped and Hybrid models.

Figure 4. The Transformational Supervision Leadership Model

Figure 4. The Transformational Supervision Leadership Model

(A model diagram showing: [Transformational] → [Psychological] with bidirectional arrows between all elements, indicating reciprocal relationships).



The proposed model in Figure 4 synthesizes these findings, illustrating the mediating role of enhanced psychological capital (hope, efficacy, resilience, optimism). Transformational supervision practices directly boost this capital, which in turn drives the pedagogical innovation behaviors necessary for success in digital learning environments, ultimately aiming to improve student outcomes.

C. Professional Learning Communities as the Engine for Sustainable Innovation

The data indicate that the Professional Learning Community (PLC) studied functioned as a robust "community of practice" (Wenger, 1998), not merely a periodic meeting. High attendance rates (84.3%) and the decentralized, collaborative network structure (Figure 3) point to a well-designed ecosystem that provides legitimate pathways for participation and growth, addressing common pitfalls of PLCs like lack of clear purpose (Hairon & Dimmock, 2021).

The 300% increase in pedagogical innovations (Table 7) underscores the PLC's role as an innovation incubator. This can be attributed to structured knowledge-sharing, cross-disciplinary exchange, and, critically, its integration with the formal supervision system. This integration fosters "collaborative efficacy" (Voelkel & Chrispeels, 2024) – the shared belief in the group's ability to innovate – which is vital when facing the complex challenges of digital pedagogy.

The finding that 68% of individual supervision topics originated in PLC discussions is significant. It reveals an organic, Dual-Track Professional Learning System (Table 9) where informal communal learning and formal individualized supervision synergize. The PLC generates innovative ideas and shared solutions in a psychologically safe space, while the supervision session provides the structure, accountability, and personalized coaching needed to implement and refine these ideas effectively. This integrated system embodies Fullan's (2016) "new pedagogy," where deep learning is powered by technology, accelerated by leadership, and sustained by collaborative professionalism.

Table 9. The Dual-Track Professional Learning System

Learning Track	Primary Function	Strengths	Limitations	Integration Benefits
Formal Supervision	Individual development, accountability, performance monitoring	Personalized feedback, clear expectations, documented progress	Can create dependency, may discourage risk-taking	Provides structure and accountability for PLC innovations
Professional Learning Community	Collective knowledge building, peer	Diverse perspectives, psychological safety, creative synergy	May lack focus, difficult to	Generates topics and approaches for

	support, innovation incubation		sustain without structure	supervision dialogues
		Combines individual and collective learning, balances innovation with implementation	Requires careful design and facilitation	Creates sustainable innovation ecosystem with both support and accountability
Integrated System	Synergistic professional development			

D. Theoretical and Practical Contributions

1. Toward a Digital-Enabled Transformational Supervision (DETS) Model

Synthesizing the findings, this study contributes to the conceptualization of a Digital-Enabled Transformational Supervision (DETS) model. This framework posits that effective supervision for digital pedagogy rests on three interdependent pillars:

- a. A Data-Infused Foundation: Digital tools (LMS, analytics) provide an objective, rich evidence base for supervision dialogue.
- b. Transformational Leadership Practices: Leadership that inspires, intellectual stimulates, and individualizes support to build psychological capital and drive innovation.
- c. Structured Collaborative Communities: PLCs that function as sustainable ecosystems for peer learning, support, and collective innovation.

The DETS model advances supervision theory by explicitly integrating the digital context, specifying the mechanisms (e.g., psychological capital, collaborative efficacy) through which leadership and community affect outcomes, and proposing a structured integration of formal and informal learning tracks.

2. Practical Implications for Higher Education

- a. Invest in Pedagogically-Oriented Digital Infrastructure: Prioritize LMS and analytic tools that generate actionable data on learning processes to fuel professional dialogue, not just administrative reporting.
- b. Develop Digital Pedagogical Leadership Capacity: Leadership training must evolve beyond administrative management to include competencies in data literacy, facilitating online communities, and fostering a culture of iterative innovation.
- c. Formalize the PLC-Supervision Link: Intentionally design connections between PLCs and supervision systems through shared agendas, documentation, and recognition of community-sourced innovations.
- d. Design Recognition for Learning, Not Just Performance: Implement recognition systems that reward thoughtful experimentation and knowledge sharing, thereby nurturing the growth mindset essential for navigating digital pedagogy.

3. Limitations and Avenues for Future Research

This study has limitations inherent to its qualitative case study design, including context-specific findings and a relatively short timeframe for observing long-term impacts. Future research should:

- a) Conduct comparative studies across different institutional and disciplinary cultures to test the adaptability of the DETS model.
- b) Employ longitudinal designs to assess the sustained impact of integrated supervision systems on teaching practices and student learning outcomes.
- c) Investigate the student perspective on how transformed supervision practices affect their learning experience in *Flipped* and *Hybrid* environments.

E. Concluding Synthesis

This discussion has interpreted the study's findings to answer the research problem: optimizing supervision for Flipped Classroom and Hybrid Learning requires an integrated model that leverages digital data, transformational leadership, and professional community. The transformation documented is profound—supervision is reconceptualized as a strategic partnership for pedagogical inquiry and innovation. The proposed DETS model and the Dual-Track Professional Learning System offer a actionable framework for institutions. By synchronizing technological infrastructure, leadership practices, and community structures, universities can transform academic supervision from a routine administrative task into a central driver of faculty development and pedagogical excellence in the digital age.

4. CONCLUSION

This study concludes that optimizing academic supervision for the effective implementation of Flipped Classroom and Hybrid Learning models requires a fundamental paradigm shift from a traditional, evaluative-administrative function to a strategic, developmental partnership. The research successfully developed an integrated model—conceptualized as Digital-Enabled Transformational Supervision (DETS)—that synthesizes three critical components. First, the integration of digital infrastructure, particularly Learning Management System analytics, transforms supervision into a continuous, data-informed dialogue focused on student learning processes rather than mere teaching performance. Second, transformational leadership practices—manifested through co-constructed agendas, reflective communication, and a multi-tiered recognition system—are essential for fostering the psychological capital and innovative agency of lecturers. Third, structured Professional Learning Communities (PLCs) must be intentionally designed and integrated with formal supervision to create a sustainable ecosystem for collaborative inquiry, knowledge sharing, and pedagogical innovation. The findings demonstrate that it is the synergistic interaction of technology, leadership, and community—not any single element in isolation—that empowers lecturers to successfully navigate the complexities of digital pedagogy, thereby transforming supervision into a powerful lever for institutional change and enhanced educational quality.

Based on the conclusions, the following practical recommendations are offered. For university leaders and heads of study programs, it is advised to initiate a strategic review of existing academic supervision policies and practices. This should involve formally integrating data from digital learning platforms into supervision protocols and providing targeted training for supervisors to develop competencies in digital pedagogical leadership, data interpretation, and facilitative coaching. Furthermore, leaders should institutionalize and resource Professional Learning Communities by allocating dedicated time within academic workloads and formally linking community-driven innovations to the individual supervision cycle, thereby creating the dual-track professional learning system identified in this research.

For lecturers and teaching faculty, proactive engagement with the data provided by learning analytics is recommended to foster self-reflection and ground supervisory discussions in evidence of student learning. Active participation in PLCs should be pursued not as an additional burden but as a core mechanism for peer support, collaborative problem-solving, and staying abreast of pedagogical innovations. Embracing a mindset of iterative experimentation, where lessons from both successes and setbacks in implementing Flipped and Hybrid models are shared, is crucial for collective professional growth. Finally, for future researchers, conducting longitudinal and comparative studies across different institutional and disciplinary contexts is suggested to validate and refine the proposed DETS model, with particular attention to its long-term impact on both teaching practices and, ultimately, student learning outcomes.

5. ACKNOWLEDGE

The authors extend their sincere gratitude to the Institute for KH. Mukhtar Syafaat University for the financial and administrative support that made this study possible. We are deeply thankful to the Postgraduate Program in Islamic Education Management for granting full access to their academic ecosystem and to all the program leaders, lecturers, and administrative staff who generously

participated in this study, sharing their valuable time, experiences, and insights. Our appreciation also goes to colleagues who provided constructive feedback during the development of this manuscript.

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