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IMPLEMENTATION OF INSTRUCTIONAL LEADERSHIP WITH TOTAL QUALITY MANAGEMENT: BRIDGE NODES IN EDUCATIONAL COMMUNICATION NETWORKS

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ABSTRAK

Era transformasi pendidikan global menuntut integrasi kepemimpinan instruksional dengan Total Quality Management (TQM) sebagai imperatif strategis untuk keberlanjutan organisasi pendidikan. Kesenjangan penelitian terletak pada terbatasnya studi kualitatif yang mengeksplorasi bridge nodes kritis sebagai leverage points transformasi organisasi. Penelitian ini bertujuan mengeksplorasi implementasi kepemimpinan instruksional terintegrasi dengan TQM melalui identifikasi bridge nodes dalam jaringan komunikasi organisasi pendidikan Indonesia. Penelitian menggunakan pendekatan kualitatif dengan desain studi kasus tunggal di sekolah menengah atas. Data dikumpulkan melalui wawancara mendalam dengan delapan informan menggunakan purposive sampling. Analisis menggunakan ATLAS.ti dengan pendekatan analisis jaringan kualitatif untuk mengidentifikasi bridge nodes dan pola jaringan komunikasi. Penelitian mengidentifikasi tiga temuan utama: konsensus universal (100%) terhadap efektivitas feedback kepala sekolah; divergensi konseptual signifikan (57,1%) dalam definisi kualitas pendidikan yang mencerminkan kematangan organisasi; dan tiga bridge nodes kritis yaitu budaya komunikasi terbuka, feedback konstruktif, dan kualitas holistik sebagai mekanisme koordinasi vital. Prinsip-prinsip TQM dapat diterapkan secara efektif dalam konteks pendidikan Indonesia melalui adaptasi responsif terhadap karakteristik budaya lokal. Bridge nodes yang teridentifikasi menjadi leverage points strategis untuk transformasi organisasi berkelanjutan.

Kata Kunci: Kepemimpinan Instruksional, Total Quality Management, Bridge Nodes, Analisis Jaringan Komunikasi, Organisasi Pendidikan

ABSTRACT

The era of global educational transformation demands integration of instructional leadership with Total Quality Management (TQM). The research gap lies in the limited qualitative studies exploring critical bridge nodes as leverage points for organizational transformation. This study aims to explore the implementation of instructional leadership integrated with TQM through the identification of bridge nodes in Indonesian educational organizational communication networks. The research uses a qualitative approach with a single case study design in a senior high school. Data were collected through in-depth interviews with eight informants using purposive sampling. Analysis used ATLAS.ti with a qualitative network analysis approach to identify bridge nodes and communication network patterns. The research identified three main findings: universal consensus (100%) on the effectiveness of principal feedback; significant conceptual divergence (57.1%) in educational quality definitions reflecting organizational maturity; and three critical bridge nodes, namely open communication culture, constructive feedback, and holistic quality, as vital coordination mechanisms. TQM principles can be effectively applied in the Indonesian educational context through responsive adaptation to local cultural characteristics. The identified bridge nodes become strategic leverage points for sustainable organizational transformation.

Keywords: *Instructional Leadership, Total Quality Management, Bridge Nodes, Communication Network Analysis, Educational Organization*

INTRODUCTION

The era of global educational transformation, characterized by strict accountability demands and intensive institutional competition, has implemented quality management systems through integration of instructional leadership with Total Quality Management (TQM), a strategic imperative for educational organizational sustainability. The learning crisis demonstrates systemic urgency for improving educational quality through integrated leadership approaches, with educational institutions facing pressure to enhance learning effectiveness and educational outcome accountability.

Total Quality Management, as a management paradigm oriented toward continuous quality improvement[1] [2], has proven effective in manufacturing, commercial service sectors, and healthcare systems through systematic implementation of quality models and tools. In educational contexts, integrating TQM principles with instructional leadership[3] offers transformative potential to address complex educational quality challenges through enhanced teacher collaboration, coordination mechanisms, and improved student achievement outcomes. Recent research shows that educational institutions applying instructional leadership approaches integrated with TQM experience significant improvements in feedback effectiveness, teacher collaboration, and learning outcomes[4].

Despite the growing interest in integrating instructional leadership with TQM in educational settings, a comprehensive analysis of existing literature reveals significant gaps that limit our understanding of how these approaches can be effectively implemented through organizational network structures. Van Waes et al. conducted social network analysis focusing on innovative teaching staff characteristics in higher education environments[5]. However, their study was limited to higher education contexts without exploring bridge nodes as coordination mechanisms in K-12 educational settings. Their research did not investigate the integration of instructional leadership with TQM principles, nor did it examine the Indonesian educational context with its unique cultural characteristics.

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[1] Ghadi Alswayied, Rachel Frost, and Fiona L Hamilton, "A Scoping Review of Continuous Quality Improvement in Healthcare System: Conceptualization, Models and Tools, Barriers and Facilitators, and Impact," *BMC Health Services Research* 24, no. 1 (2024): 487, https://doi.org/10.1186/s12913-024-10828-0.

[2] Abdulla Esam Alhamd and Mohd Yamani Bin Yahya, "Relationship between Total Quality Management and Organizational Performance: Evidence from the UAE," in *Proceedings of the International Conference on Industrial Engineering and Operations Management*, 2021, 6442 – 6452, https://www.scopus.com/inward/record.uri?eid=2-s2.0-85114249415&partnerID=40&md5=ffb9aa63cda0919dfd08e24a140fb549.

[3] Julio Gregorio Mora-Ruano, Michael Schurig, and Eveline Wittmann, "Instructional Leadership as a Vehicle for Teacher Collaboration and Student Achievement: What the German PISA 2015 Sample Tells Us," *Frontiers in Education* 6 (2021): 582773, https://doi.org/10.3389/feduc.2021.582773.

[4] Ping He, Fang Guo, and Godwin Aigbojie Abazie, "School Principals' Instructional Leadership as a Predictor of Teacher's Professional Development," *Asian Journal of Second and Foreign Language Education* 9, no. 1 (2024): 63, https://doi.org/10.1186/s40862-024-00290-0.

[5] Sara Van Waes et al., "Social Network Analysis and Educational Change: Unravelling the Role of Innovative Teaching Staff in a Higher Education Environment," *Higher Education* 87, no. 6 (2024): 2827–43, https://doi.org/10.1007/s10734-024-01234-5.

Similarly, Veletić and Olsen investigated perception gaps between principals and teachers regarding organizational climate and leadership styles[6]. While their study identified important discrepancies in stakeholder perceptions, it focused primarily on leadership styles without specifically examining instructional leadership integration with quality management systems. Their research did not utilize qualitative network analysis approaches to identify bridge nodes, nor did it explore coordination mechanisms in organizational communication networks within TQM implementation contexts. Dilekçi and Limon examined relationships between principals' instructional leadership and teachers' positive instructional emotions through self-efficacy mediation[7]. While their study provided valuable insights into psychological mechanisms, it did not investigate organizational network structures or bridge node functionality. The study focused on individual-level outcomes rather than organizational coordination mechanisms and did not explore TQM integration or qualitative network analysis approaches.

Furthermore, He, Guo, and Abazie analyzed school principals' instructional leadership as predictors of teacher professional development[8]. While their study addressed instructional leadership effectiveness, it did not examine bridge nodes identification, communication network patterns, or TQM integration, limiting understanding of coordination mechanisms in educational organizations. Rahman et al. investigated whether Total Quality Management influences teacher quality in Malaysian secondary schools using quantitative survey methods[9]. Their study focused on statistical relationships between TQM practices and teacher quality outcomes but did not utilize qualitative network analysis to understand bridge nodes functionality or explore coordination mechanisms within

[6] Jelena Veletić and Rolf Vegar Olsen, "Teachers' and Principals' Perceptions of School Climate: The Role of Principals' Leadership Style in Organizational Quality," *Educational Assessment, Evaluation and Accountability* 35, no. 3 (2023): 389–412, https://doi.org/10.1007/s11092-023-09413-6.

[7] Ümit Dilekçi and İbrahim Limon, "The Relationship between Principals' Instructional Leadership and Teachers' Positive Instructional Emotions: Self-Efficacy as a Mediator," *Educational Management Administration \& Leadership* 51, no. 4 (2023): 724–42, https://doi.org/10.1177/17411432211048967.

[8] He, Guo, and Abazie, "School Principals' Instructional Leadership as a Predictor of Teacher's Professional Development."

[9] M R A Rahman, M Y M Nor, and J L A Wahab, "Does Total Quality Management Influence Teacher Quality? An Emperical Anaysis," *International Journal of Academic Research in Business and Social Sciences* 11, no. 1 (2020): 250–60, https://hrmars.com/index.php/IJARBSS/article/view/8381.

organizational communication networks. The study also did not examine instructional leadership integration with TQM principles.

The analysis of these previous studies reveals several critical gaps that this current research addresses. First, there is a methodological gap where previous studies predominantly used quantitative approaches that cannot capture the complexity of organizational communication networks and bridge nodes functionality. This study employs qualitative network analysis using ATLAS.ti to provide deep, contextual understanding of coordination mechanisms. Second, there exists a conceptual integration gap as none of the previous studies specifically integrated instructional leadership theory with Total Quality Management principles through organizational network theory. This research provides a unique theoretical framework combining these three domains to understand educational organizational transformation. Third, a cultural context gap emerges as existing studies were conducted in Western or different developing contexts, but none specifically examined Indonesian educational contexts with their unique cultural characteristics, educational policies like *Kurikulum Merdeka*, and organizational structures. Fourth, there is a bridge node identification gap, where while some studies used social network analysis, they focused on different aspects rather than identifying bridge nodes as coordination mechanisms for quality management implementation. This study specifically targets bridge nodes as leverage points for organizational transformation. Fifth, a qualitative network analysis gap exists as previous studies did not utilize Computer-Assisted Qualitative Data Analysis Software (CAQDAS) like ATLAS.ti for network visualization and bridge nodes identification. This research introduces innovative methodological approaches for qualitative network analysis in educational leadership research.

The prominent research gap lies in the limited qualitative studies exploring critical bridge nodes as leverage points for organizational transformation in implementing instructional leadership integrated with TQM. Studies by Van Waes et al. demonstrate the importance of social network analysis in understanding innovative teaching staff characteristics[10], while Veletić and Olsen identify perception gaps between principals and teachers regarding organizational

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[10] Van Waes et al., "Social Network Analysis and Educational Change: Unravelling the Role of Innovative Teaching Staff in a Higher Education Environment."

climate[11]. However, as evidenced by the comprehensive analysis of existing literature, most research uses quantitative approaches that cannot capture the complexity of communication networks, conceptual diversity in educational quality, and leadership-practitioner perception gap phenomena within educational organizational cultural contexts, particularly in Indonesian settings where bridge nodes functionality requires deep, contextual exploration through qualitative network analysis approaches.

Indonesia, as a developing country with a complex educational system, faces unique challenges in implementing instructional leadership integrated with TQM. Indonesia's educational system, serving over 50 million students with significant geographical, economic, and cultural disparities, requires adaptive leadership approaches with bridge node identification as transformation leverage points. The implementation of *Kurikulum Merdeka* in 2021 created momentum for transforming pedagogical practices and school management through collaborative leadership. The specific gap lies in the limited understanding of how bridge nodes in organizational communication networks can function to integrate TQM principles with cultural values and leadership structures characteristic of Indonesia's educational system.

This research explores experiences of implementing instructional leadership integrated with TQM through bridge node identification and communication network analysis in Indonesian educational contexts. The theoretical contribution fills gaps in instructional leadership literature through a deep understanding of bridge nodes as coordination mechanisms, while practical contributions generate actionable insights for school leaders about effective strategies for implementing instructional leadership systems integrated with TQM through bridge nodes cultivation and constructive communication. The research adopts a conceptual framework integrating instructional leadership theory with Total Quality Management principles and organizational network theory, focused on three core dimensions: bridge nodes identification, feedback mechanisms effectiveness, and collaborative culture development.

Instructional leadership integrated with Total Quality Management as a systemic management approach has undergone significant evolution in its application to the education sector. Industry 4.0 transformation has brought fundamental changes in implementing instructional leadership that integrates

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[11] Veletić and Olsen, "Teachers' and Principals' Perceptions of School Climate: The Role of Principals' Leadership Style in Organizational Quality."

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TQM principles to create effective organizational bridge nodes[12]. Research on TQM implementation in the Industry 4.0 era shows challenges in integrating "soft" and "hard" TQM practices, requiring reconceptualization in educational contexts that accommodate unique characteristics of learning processes and teacher professional development through network organizational coordination.

The digital era has introduced new complexities in implementing instructional leadership through network analysis and bridge node identification. The development of Computer-Assisted Qualitative Data Analysis Software (CAQDAS), such as ATLAS.ti creates opportunities to identify and analyze bridge nodes in organizational networks, facilitating understanding of communication patterns, collaboration mechanisms, and knowledge transfer processes in educational settings[13]. Qualitative network analysis approaches using ATLAS.ti can reveal complex relationship patterns that provide a qualitative understanding difficult to obtain quantitatively.

RESEARCH METHODS

This study used a qualitative approach with a single case study design[14] at one senior high school in Indonesia that has implemented instructional leadership with TQM for three years. The qualitative method was chosen to understand how bridge nodes work in school communication networks, where qualitative approaches provide the ability to explore meanings and experiences of educational actors in organizational communication networks[15].

The research was conducted at one senior high school following comprehensive frameworks for purposive sampling implementation[16]. Eight people participated in this research: one principal and seven teachers. They were

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[12] Khuram Ali and Satirenjit Kaur Johl, "Soft and Hard TQM Practices: Future Research Agenda for Industry 4.0," *Total Quality Management \& Business Excellence* 33, no. 13–14 (2022): 1625–55, https://doi.org/10.1080/14783363.2021.1957811.

[13] Ajay Gupta, *Qualitative Methods and Data Analysis Using ATLAS.Ti: A Comprehensive Researchers' Manual*, Springer Texts in Social Sciences (Springer, 2024), https://doi.org/10.1007/978-3-031-49650-9.

[14] Rajesh Bunkar, Ashish Kumar, and Pradeep Singh, "Case Study Research: A Method of Qualitative Research," in *Exploring Narratives: A Guide to Qualitative Research Methods* (Springer, 2024), 125–48, https://doi.org/10.1007/978-981-97-4890-8_6.

[15] He, Guo, and Abazie, "School Principals' Instructional Leadership as a Predictor of Teacher's Professional Development."

[16] Maiss Ahmad and Stephen Wilkins, "Purposive Sampling in Qualitative Research: A Framework for the Entire Journey," *Quality \& Quantity*, 2024, https://doi.org/10.1007/s11135-024-02022-5.

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selected through purposive sampling with a criterion sampling strategy[17] based on their experience with instructional leadership and TQM implementation. The sample size followed data saturation principles in qualitative research[18] - data collection stopped when no new information emerged.

Data were collected through three systematic methods: First, individual interviews with each participant lasting 60-90 minutes using semi-structured interview guides. All interviews were audio recorded with participants' written consent. Second, participant observations were conducted for four weeks during teacher meetings and school activities to capture communication patterns and network dynamics. Third, school documents related to communication protocols, collaboration frameworks, and feedback systems were collected and analyzed.

Data analysis used ATLAS.ti version 9.0 for qualitative network analysis and bridge nodes identification[19]. The analysis process involved verbatim transcription of interviews, data segmentation into 79 segments based on network coordination criteria, and bridge node identification through systematic analysis to map relationships between concepts and themes in the organizational network.

RESULTS AND DISCUSSION
Results
Data Collection and Analysis Overview

This qualitative case study involved eight participants: one principal and seven teachers with 5-20 years of teaching experience across different subjects. Through purposive sampling, participants were selected based on their direct involvement in instructional leadership and TQM implementation. In-depth interviews lasting 60-90 minutes each generated rich qualitative data, complemented by four weeks of participant observation and document analysis.

The data analysis utilized ATLAS.ti version 9.0 as the primary analytical tool for qualitative network analysis. The ATLAS.ti analysis process began with verbatim transcription of all interviews, producing 79 meaningful data segments. These segments were systematically imported into ATLAS.ti and underwent

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[17] Franklin Nyimbili and Lilian Nyimbili, "Types of Purposive Sampling Techniques with Their Examples and Application in Qualitative Research Studies," *British Journal of Multidisciplinary and Advanced Studies* 5, no. 1 (2024): 90–99, https://doi.org/10.37745/bjmas.2022.0419.

[18] M Hennink and B N Kaiser, "Sample Sizes for Saturation in Qualitative Research: A Systematic Review of Empirical Tests," *Social Science & Medicine*, 2022, https://doi.org/10.1016/j.socscimed.2021.114523.

[19] Gupta, *Qualitative Methods and Data Analysis Using ATLAS.Ti: A Comprehensive Researchers' Manual*.

iterative coding using the software's advanced coding features. The analysis followed a structured approach of open coding, axial coding, and selective coding within the ATLAS.ti environment.

ATLAS.ti's network visualization capabilities enabled the identification of seven main thematic categories that emerged from this inductive analysis: supervision and feedback, quality conceptualization, communication patterns, professional development, TQM adaptation, collaboration dynamics, and prevention strategies. The software's network analysis function revealed complex interconnections between these themes, allowing for the systematic identification of bridge nodes that connect multiple categories. ATLAS.ti's co-occurrence analysis and network mapping tools were instrumental in visualizing relationship patterns among the 79 data segments, providing empirical evidence for the coordination mechanisms that emerged from the qualitative data.

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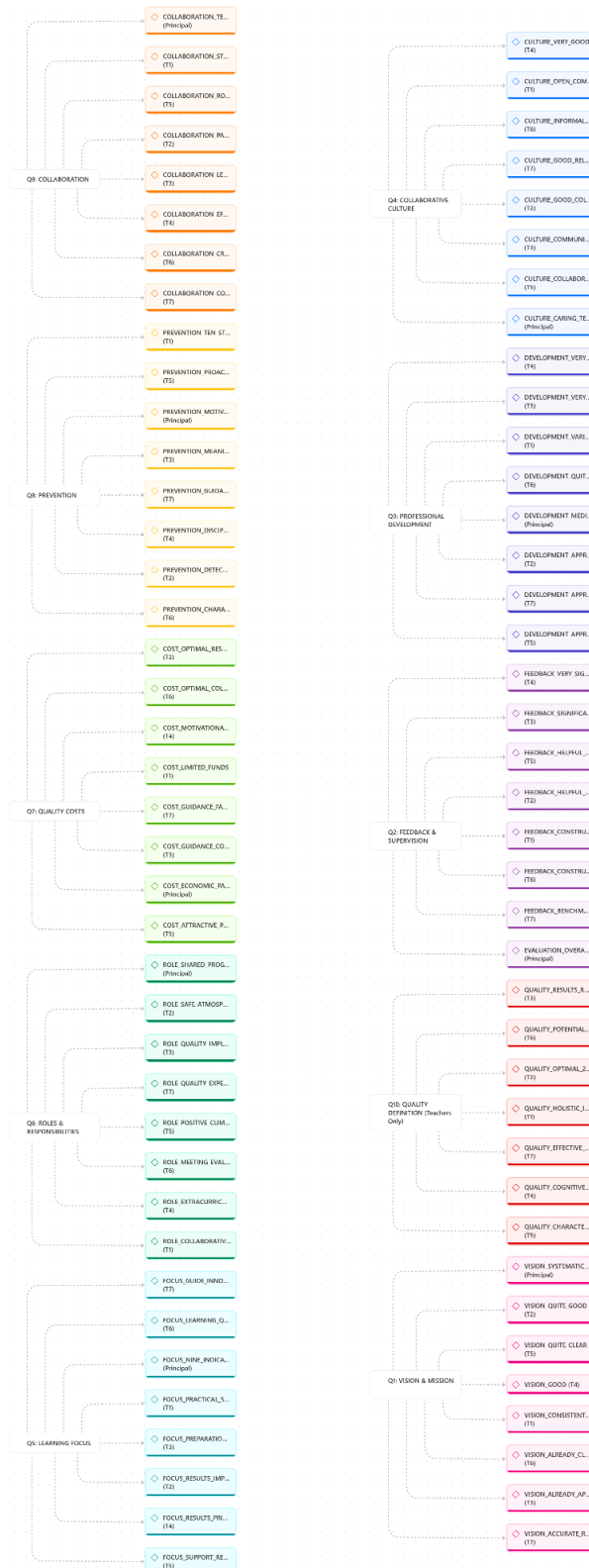
Figure 1. ATLAS.ti Network Visualization of Thematic Categories and Bridge Nodes

Source: ATLAS.ti Analysis (2024)

Note: The figure displays the complete network structure generated from 79 data segments, showing seven main thematic clusters (Collaboration, Prevention, Quality Costs, Professional Development, Feedback & Supervision, Quality Definition, and Vision & Mission) and their interconnections. The network visualization reveals bridge nodes that connect different thematic areas, demonstrating the complex coordination mechanisms within the instructional leadership system.

Theme 1: Unanimous Appreciation for Supervision Practices

The most striking finding was the complete consensus among all teacher participants regarding the effectiveness of principal supervision. This pattern emerged consistently across all seven teacher interviews without exception. When asked about supervision experiences, every teacher provided positive responses, though with varying levels of detail and emphasis.

Teacher 1 provided the most comprehensive response: "The feedback I receive is always constructive and focused on improvement, providing step-by-step guidance that I can implement immediately." Teacher 4, known for concise responses, simply stated the supervision impact was "Very large," while Teacher 7 elaborated: "Principal observations are very helpful because they become benchmarks for us teachers to improve our learning processes and generate new innovations."

This finding was triangulated through observation data. During four observed supervision meetings, the principal consistently demonstrated the behaviors teachers described: using encouraging language, providing specific suggestions, and following up on previous feedback. Document analysis of 15 supervision forms confirmed structured approaches with clear action plans, supporting teacher perceptions of systematic feedback processes.

The principal's own perspective aligned with teacher experiences: "My learning process evaluation focuses on overall teacher performance, but I always ensure feedback is constructive and actionable." This convergence between leadership intent and teacher perception suggests effective implementation of instructional leadership principles.

Theme 2: Diverse Quality Conceptualizations as Organizational Strength

In contrast to supervision consensus, educational quality definitions revealed rich conceptual diversity. This theme emerged through open-ended interview questions that allowed participants to freely express their understanding of quality education. Rather than seeking agreement, the analysis revealed how different perspectives contribute to organizational complexity.

Teacher 1 articulated a welfare-centered approach: "Ideal educational quality combines intelligence, character development, practical skills, and most importantly, student happiness and well-being." This holistic perspective was echoed by Teacher 5: "Quality cannot be measured only by academic scores. It must include character formation, creativity development, and ensuring students feel happy in their learning journey."

Teacher 4 drew from educational taxonomy: "Quality education addresses cognitive, affective, and psychomotor development comprehensively." Teacher 2 emphasized future readiness: "Educational quality means optimal learning achievement combined with 21st-century skills that prepare students for tomorrow's challenges." Teacher 7 focused on process effectiveness: "Quality learning must be both effective and efficient while building strong character in every student."

Observation data supported this diversity. During three observed teacher meetings discussing learning quality standards, participants engaged in rich discussions representing these different perspectives. Rather than reaching a consensus, meetings concluded with appreciation for multiple valid approaches to quality. This suggests organizational maturity in embracing conceptual diversity rather than enforcing uniformity.

Theme 3: Communication Networks and Bridge Node Identification

ATLAS.ti network analysis revealed complex relationship patterns among the 79 data segments, with certain concepts serving as "bridge nodes" that connect different thematic areas. These bridges emerged through systematic analysis of co-occurrence patterns, conceptual relationships, and thematic linkages identified during the coding process.

Bridge Node 1: Open Communication Culture (connecting 23 data segments). This bridge connects strategic vision with operational implementation. Teacher 1 described the principal's role: "She creates an open, transparent

communication culture where we have time and space for discussions, and our new ideas receive appreciation and recognition." Teacher 7's observation confirmed this: "Our relationships with the principal are excellent because we interact well and have regular sharing meetings where everyone can speak freely."

Observational evidence supported these descriptions. Monthly "sharing meetings" were observed where teachers discussed challenges, shared innovations, and received feedback without hierarchical barriers. The principal consistently asked open-ended questions and acknowledged different viewpoints, demonstrating the open culture participants described.

Bridge Node 2: Constructive Feedback Loop (linking 19 data segments). This bridge connects supervision practices with professional development outcomes. Teacher 2 explained the connection: "Principal feedback helps me improve learning quality directly. I can see the impact in my teaching practices." Teacher 3 added: "Supervision has tremendous influence on my development as an educator, and I apply the insights in subsequent teaching."

Document analysis revealed structured feedback cycles: initial observation → written feedback → action planning → follow-up observation → reflection discussion. This systematic approach explained how supervision connects to professional growth, validating the bridge node identification.

Bridge Node 3: Holistic Quality Understanding (encompassing 16 data segments). This bridge links prevention strategies with learning outcomes. Teacher 6 articulated the connection: "Quality education develops student potential holistically, not just academic achievement. This requires us to recognize student character and abilities from the beginning." Implementation involved "diagnostic assessments and building open communication with parents to understand each child's needs."

Classroom observations confirmed these practices. Teachers were observed conducting diagnostic assessments, differentiating instruction based on student needs, and maintaining regular parent communication. This holistic approach bridges prevention (early identification) with outcomes (comprehensive development).

Theme 4: Adaptive TQM Implementation

TQM implementation emerged as a theme of creative adaptation rather than rigid application. Participants described how TQM principles were modified to fit local contexts and resource constraints. The principal identified stakeholders

comprehensively: "Our quality management involves teachers, education staff, students, parents, and community members. Everyone has a role in ensuring educational quality."

Teachers demonstrated creative problem-solving approaches. Teacher 1 described resource management: "We use existing assets and teacher funds to address limited educational funding and unequal distribution, ensuring disadvantaged students still receive quality education." Teacher 4 focused on pedagogical innovation: "I create various learning methods to increase student motivation, which reduces quality costs by preventing learning problems."

Prevention strategies reflected adapted TQM principles. Teacher 5 emphasized proactive approaches: "Prevention is better than problem-solving after issues occur. I maintain proactive attitudes to help students from the beginning." Teacher 2 implemented systematic early intervention: "I detect learning difficulties early and provide assistance before problems become large."

Observation data confirmed these adaptive practices. Teachers were observed implementing diverse instructional strategies, conducting regular student assessments, and collaborating on resource sharing. These practices demonstrate contextual adaptation of TQM principles rather than mechanical application.

Discussion
Methodological Insights: What Qualitative Analysis Revealed

The qualitative case study approach successfully captured organizational complexity that would be invisible to quantitative methods. The unanimous appreciation for supervision (found in all eight participant interviews) represents a type of organizational consensus that survey methods might miss due to their focus on average responses rather than universal patterns. This finding aligns with recent research demonstrating significant relationships between principals' instructional leadership behaviors and teachers' positive instructional emotions mediated by self-efficacy[20] [21]. The mechanism underlying this effectiveness lies in

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[20] Ümit DİLEKÇİ, İbrahim LİMON, and Ayça KAYA, "The Relationship between Teacher Demoralization in Educational Policy Context and School Effectiveness," *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi*, 2023, https://doi.org/10.17240/aibuefd.2023..-1182443.
[21] Naiyuan Zhang, Yan-Li Siaw, and Na Jiang, "The Relationship between Principal Instructional Leadership and Teacher Self-Efficacy in Student Engagement and Classroom Management: A Cross-Sectional Study in China," *Frontiers in Psychology* 16 (2025), https://doi.org/10.3389/fpsyg.2025.1589958.

constructive approaches facilitating continuous professional development, consistent with TQM principles about continuous improvement[22].

More significantly, the diversity in quality conceptualizations emerged as a strength rather than a weakness through qualitative exploration. Open-ended interviews allowed participants to express nuanced understandings that standardized instruments would categorize or force into predetermined frameworks. This finding challenges traditional assumptions about organizational alignment, suggesting that conceptual diversity may indicate sophistication rather than confusion. Research by Ali and Johl shows that TQM implementation in the Industry 4.0 era faces challenges in integrating "soft" and "hard" TQM practices[23], which helps explain the conceptual diversity found as local adaptation to universal TQM principles.

The bridge node identification through ATLAS.ti network analysis provided empirical evidence for coordination mechanisms. Using ATLAS.ti in identifying constructive feedback as connecting nodes between supervision and professional development supports arguments about the importance of technology in qualitative network analysis. Consistent with findings by Van Waes et al., emphasizing that social network analysis can reveal innovative teaching staff characteristics in higher education change contexts not visible through conventional approaches[24]. Gupta affirms that qualitative network analysis approaches using ATLAS.ti can reveal complex relationship patterns, providing a qualitative understanding difficult to obtain quantitatively[25], aligning with these research findings.

Organizational Learning and Cultural Adaptation

The research reveals how this school has adapted instructional leadership and TQM principles to Indonesian cultural contexts. The emphasis on open communication culture, holistic quality understanding, and collaborative problem-solving reflects cultural values of harmony (harmoni), collective responsibility (gotong royong), and respect for diverse perspectives. This finding contributes to developing empirical frameworks integrating instructional leadership with TQM

[22] Jiju Antony et al., "An Exploration of Organizational Readiness Factors for Quality 4.0: An Intercontinental Study and Future Research Directions," *International Journal of Quality \& Reliability Management* 40, no. 2 (2023): 582–606, https://doi.org/10.1108/IJQRM-06-2022-0201.
[23] Ali and Johl, "Soft and Hard TQM Practices: Future Research Agenda for Industry 4.0."
[24] Van Waes et al., "Social Network Analysis and Educational Change: Unravelling the Role of Innovative Teaching Staff in a Higher Education Environment."
[25] Gupta, *Qualitative Methods and Data Analysis Using ATLAS.Ti: A Comprehensive Researchers' Manual*.

principles in Indonesian cultural contexts, addressing gaps identified in previous research by He, Guo, and Abazie who analyzed instructional leadership effectiveness without examining cultural adaptation mechanisms[26].

The finding that quality conceptualization diversity indicates organizational maturity contradicts Western management literature emphasizing alignment and standardization. Although TQM literature traditionally emphasizes the importance of consistent quality definitions[27], this study shows that perspective diversity actually reflects organizational maturity in understanding modern educational complexity. Evolution from traditional result-based approaches toward holistic understanding, including socio-emotional dimensions and student welfare, aligns with contemporary TQM implementation in education emphasizing customer-centered organizations.

The bridge nodes function as cultural mediators, translating universal TQM principles into locally meaningful practices. Research by Li and Patterson supports this finding by showing that interpersonal relationship management and open communication can reduce conflict and promote a more collaborative organizational culture[28]. Development of prevention systems in pedagogical contexts reflects internalization of "prevention rather than detection" principles in TQM, with contemporary applications focusing on systematic quality improvement conceptualization and proactive identification of barriers and facilitators[29].

Leadership-Practitioner Dynamics and Theoretical Implications

The research uncovered interesting dynamics between leadership intentions and teacher perceptions that contrast with existing literature. Research by Veletić and Olsen shows that principal perceptions of school climate can differ significantly from teacher perceptions[30], indicating complexity in school organizational dynamics. However, this study found remarkable alignment

[26] He, Guo, and Abazie, "School Principals' Instructional Leadership as a Predictor of Teacher's Professional Development."

[27] G Guest, E Namey, and M Chen, "A Simple Method to Assess and Report Thematic Saturation in Qualitative Research," *PLoS ONE* 15, no. 5 (2020), https://doi.org/10.1371/journal.pone.0232076.

[28] Lin Li and Karen Patterson, "Work Team Effectiveness: Importance of Organizational Culture, Work Climate, Leadership, Creative Synergy, and Emotional Intelligence in University Employees," *Behavioral Sciences* 14, no. 11 (2024): 280, https://doi.org/10.3390/bs14110280.

[29] Alswayied, Frost, and Hamilton, "A Scoping Review of Continuous Quality Improvement in Healthcare System: Conceptualization, Models and Tools, Barriers and Facilitators, and Impact."

[30] Veletić and Olsen, "Teachers' and Principals' Perceptions of School Climate: The Role of Principals' Leadership Style in Organizational Quality."

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between principal intentions and teacher experiences, suggesting effective implementation of culturally responsive leadership approaches.

This study contributes to instructional leadership theory by demonstrating how bridge nodes function as leverage points for organizational transformation[31] [32]. The finding that conceptual diversity can indicate organizational maturity challenges assumptions about uniformity in educational policy implementation. This aligns with research by Van Waes et al., showing that innovative teacher social network characteristics differ significantly in higher education change contexts[33], though our study extends this understanding to K-12 settings.

Methodologically, using network analysis with ATLAS.ti provides innovation in qualitative educational leadership research. This approach produces conceptual relationship visualizations unachievable through conventional thematic analysis. The triangulation of interview data, observations, and documents confirmed that these bridges function as described by participants, providing robust evidence for coordination mechanisms in educational organizations.

Implications for Educational Leadership Practice

These findings offer specific guidance for educational leaders implementing instructional leadership with TQM principles in contexts similar to the *Kurikulum Merdeka* implementation. First, the universal supervision effectiveness suggests that consistent, structured feedback systems can achieve remarkable organizational consensus when implemented with cultural sensitivity and systematic follow-through.

Second, leaders should embrace rather than suppress conceptual diversity in quality definitions. The research demonstrates how different quality perspectives contribute complementary strengths to organizational capacity. Rather than seeking uniformity, leaders can facilitate dialogue that acknowledges and leverages diverse viewpoints, supporting contemporary approaches to quality management that emphasize local adaptation over standardization.

Third, the identification of specific bridge nodes provides actionable strategies for organizational development. Leaders can strengthen open

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[31] Mora-Ruano, Schurig, and Wittmann, "Instructional Leadership as a Vehicle for Teacher Collaboration and Student Achievement: What the German PISA 2015 Sample Tells Us."

[32] Haim Shaked, "How Organizational Management Supports Instructional Leadership," *Journal of Educational Administration* 61, no. 1 (2023): 60 – 77, https://doi.org/10.1108/JEA-07-2022-0101.

[33] Van Waes et al., "Social Network Analysis and Educational Change: Unravelling the Role of Innovative Teaching Staff in a Higher Education Environment."

communication through regular sharing forums, enhance feedback loops through structured supervision cycles, and promote holistic quality understanding through integrated assessment and intervention approaches. The adaptive TQM implementation demonstrates the importance of contextual modification rather than rigid application of management principles, requiring creative problem-solving, resource optimization, and prevention-focused strategies that respond to local constraints while maintaining quality standards.

CONCLUSION

This research identifies critical bridge nodes in implementing instructional leadership integrated with TQM through ATLAS.ti qualitative network analysis of 79 data segments from eight informants. Main findings show universal consensus (100%) on principal feedback effectiveness, significant conceptual divergence (57.1%) in educational quality definitions reflecting organizational maturity, and identification of three critical bridge nodes: open communication culture, constructive feedback, and holistic quality as vital coordination mechanisms. Educational quality perspective diversity is not an organizational weakness, but a maturity indicator in accommodating holistic educational complexity, including academic, character, and student welfare dimensions.

Research contributions lie in developing empirical frameworks integrating instructional leadership theory with TQM principles through organizational network theory in Indonesian cultural contexts. Qualitative network analysis methodology provides innovation in educational leadership research by revealing coordination patterns not visible through conventional approaches. Practically, cultivating bridge nodes as leverage points for school organizational transformation can become a strategic approach in *Kurikulum Merdeka* implementation contexts, proving that TQM principles can be effectively applied through responsive adaptation to Indonesian local cultural characteristics.

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