

Mapping Intercultural Dialogue Networks In Multicultural Schools: A Social Network Analysis Of Teachers, Students, And Community Actors

Agustina Tri Wijayanti^{1*}, Taryatman², Zaenal Abidin³, Husni Thamrin⁴, Rizal Bakti⁵

¹Universitas Negeri Yogyakarta, Indonesia.

²Universitas Sarjanawiyata Tamansiswa, Yogyakarta, Indonesia

³Universitas Darul Ulum Islamic Centre Sudirman GUPPI, Ungaran, Indonesia

⁴Universitas Sumatera Utara, Medan, Indonesia

⁵Universitas Global Jakarta, Indonesia

Abstract

Intercultural dialogue in multicultural schools is sustained by relational ties among teachers, students, school leaders, and community actors, yet its structural configuration remains insufficiently mapped in Indonesian school contexts. This study addresses this gap by applying a hybrid Systematic Literature Review and Social Network Analysis (SLR-SNA) approach to identify central actors, brokers, communities, and structural vulnerabilities in intercultural dialogue networks. Literature was retrieved from Scopus and Google Scholar using database-specific search strings on intercultural dialogue, multicultural schooling, school actors, and network relations. Following PRISMA-compliant screening of publications from 2020 to 2025, 32 articles were retained. Actor-programme relationships were extracted through a predefined codebook and transformed into a two-mode matrix comprising 55 nodes and 161 undirected, unweighted edges. The network was analysed in Gephi 0.10.1 using degree, betweenness, closeness, bridging coefficient, and Louvain modularity. Results: Four communities emerged: Teacher Actors (C0), Student Actors (C1), Community Actors (C2), and School Leadership (C3). School Leadership occupied the most dominant brokerage position, with the School Principal recording the highest degree (17) and betweenness centrality (102.40). Student actors showed the strongest intercommunity connectivity, whereas community actors had high bridging coefficients but low integration, indicating unrealised bridging potential. The network density was 0.109 and modularity reached $Q = 0.524$, indicating a sparse and fragmented dialogue ecosystem. These findings reveal a leadership-dominated, student-intermediated, and community-marginalised network architecture. Strengthening intercultural dialogue therefore requires institutionalising community participation, distributing student bridging roles, and reducing excessive dependence on school leadership.

CORRESPONDING AUTHOR

*Agustina Tri Wijayanti, Universitas Negeri Yogyakarta, Indonesia. Email: agustina_tw@uny.ac.id

Introduction

Intercultural dialogue, defined in this study as a documented, structured, and repeated communicative interaction across ethnic, religious, cultural, or linguistic boundaries among school actors, is widely regarded as both a prerequisite and an outcome of effective multicultural education. In schools characterised by ethnic and religious diversity, the quality of intercultural dialogue shapes not only students' intercultural competence but also the broader social climate that enables or constrains learning across difference (Díaz-Pacheco et al., 2025; Haaand & Elham, 2025; Musyarrofi & Rofiq, 2025). In Indonesia, official demographic data confirm substantial ethnic and linguistic diversity, while national educational policy emphasises Pancasila, civic cohesion, and Bhinneka

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Tunggal Ika as normative foundations for schooling (Guzzon, 2025; Irsyaad et al., 2025; Purwanto, 2025). Accordingly, the question of how intercultural dialogue operates within schools--who talks to whom, who bridges which communities, and which actors remain marginal--has direct implications for educational equity and social cohesion.

Despite the recognised importance of intercultural dialogue, scholarly understanding of its relational infrastructure remains uneven. Existing studies have richly described teacher facilitation, peer interaction, school leadership, and community participation in multicultural education, yet many remain qualitative, case-based, or program-focused. A systematic search of the literature undertaken for this study indicates that few studies make the relational architecture of intercultural dialogue explicit by modelling actors and dialogue programmes as a network. This article therefore avoids claiming the absence of prior work; instead, it addresses a more precise gap: the limited use of SNA to synthesise how teachers, students, school leaders, and community actors are structurally positioned within literature-derived intercultural dialogue networks in Indonesian multicultural school contexts.

Social Network Analysis (SNA) provides the methodological foundation for addressing this gap. By representing dialogue actors as nodes and documented relational ties--including co-facilitation of dialogue programmes, student-teacher mentoring relationships, parent-teacher collaboration, and NGO-school partnerships--as edges, SNA enables the quantification of structural properties that qualitative synthesis alone cannot systematically capture (Grant & Grant, 2025; He, 2025; Judijanto, 2025). The application of SNA to school social networks has a well-established methodological precedent (Cruz, 2021; Wahed & Anwer, 2025; Ward et al., 2025), but its application to intercultural dialogue networks in Indonesian multicultural schools remains relatively underdeveloped. A hybrid Systematic Literature Review and Social Network Analysis (SLR-SNA) design offers a rigorous framework for synthesising evidence while also mapping the structural architecture of dialogue networks.

The concept of intercultural dialogue has been theorised across several disciplines. In the sociology of education, multicultural education frameworks position dialogue as a pedagogical mechanism for knowledge construction across difference, a process through which students learn to recognise the cultural situatedness of their own perspectives and to engage respectfully with alternative worldviews (Bosco Bangura, 2025; Kazanskaia, 2025). Gay's culturally responsive teaching framework operationalises dialogue at the classroom level by emphasising the teacher's role in connecting students' home cultural worlds with the academic culture of school (Guzzon, 2025; Irsyaad et al., 2025; Ward et al., 2025). This classroom-level view is complemented by community-oriented perspectives, which argue that sustained intercultural dialogue in schools requires engagement with parents, local leaders, and community actors whose perspectives may remain peripheral to formal educational discourse.

In the Indonesian context, research on multicultural and religiously diverse schooling has highlighted the importance of curriculum, teacher modelling, peer interaction, and school-community relationships in cultivating tolerance and civic coexistence (Aristiati, 2025; Kazanskaia, 2025; Tajima & Jiang, 2025). Formal expressions of intercultural dialogue include civic education, tolerance-oriented curriculum, interfaith or interethnic student activities, and school-level diversity programmes, while informal expressions include cross-ethnic friendships, everyday peer interaction, and teachers' modelling of pluralist values. These studies suggest that students should not be treated

merely as recipients of adult-designed multicultural content; they may also operate as dialogue agents whose peer-mediated interactions shape the everyday climate of multicultural schools. Daly's foundational work demonstrated that teachers' advice-seeking networks the informal relational structures through which teachers share instructional knowledge can strongly shape how educational practices diffuse through schools (Jeremiah & Opanga, 2025; Patacsil & Guzman, 2025).

Coburn and Russell extended network analysis to the study of curriculum and district-policy implementation, showing that the structural position of key brokers actors who bridge different professional communities can affect whether reform ideas diffuse broadly or remain confined to specific teacher subgroups. Burt's theory of structural holes similarly suggests that actors bridging disconnected groups may possess disproportionate influence over information and norm diffusion (Noor et al., 2023; Praszkie, 2025; Zinilli, 2025). These findings imply that the structural position of actors in intercultural dialogue networks not only their individual commitment to pluralism may determine whether dialogue practices spread broadly across school communities or remain isolated within particular clusters.

The methodological combination of SLR and SNA has been increasingly used to connect evidence synthesis with relational mapping. In this approach, the SLR component provides transparent search, screening, and extraction procedures, while the SNA component translates extracted relationships into nodes, edges, centrality scores, and community structures. This combination is particularly suitable for education research problems in which the unit of interest is neither the individual article alone nor a single case site, but the relational architecture that emerges across a body of studies ((Abdigapbarova et al., 2025; Khoramaki et al., 2025; Siriphon & Yamthap, 2018).

In the specific context of school dialogue research, the hybrid SLR-SNA approach enables systematic synthesis of qualitative evidence about actor roles and relationships while also producing quantitative structural maps that identify which actors and relationships are central, peripheral, or bridging. The method does not replace primary sociometric surveys; rather, it provides a replicable literature-based diagnostic map that can guide later field validation through interviews, observation, or network surveys.

This study draws on three complementary theoretical frameworks. First, Bourdieu's field theory conceptualises the intercultural dialogue network as a structured space in which actors compete for the legitimate power to define the norms and practices of cross-cultural communication. Teachers, students, community actors, and school leaders possess different volumes and compositions of symbolic capital pedagogical authority, peer credibility, community legitimacy, institutional power that determine their structural positions within the dialogue field. SNA operationalises this through centrality measures: degree centrality indexes social capital (direct connections); betweenness centrality indexes brokerage capital (control of information flows); bridging coefficient indexes bridge capital (capacity to connect different communities).

Second, Burt's structural holes theory provides the analytical lens for interpreting bridging positions. Structural holes are gaps in the network where information and dialogue practices do not flow freely; bridge actors who span these holes command disproportionate influence over the content and direction of intercommunity dialogue. The bridging coefficient measure directly operationalises this concept, enabling identification of which actors have the structural potential but may lack the structural activation to function as intercommunity dialogue connectors. Provan and

Kenis's network governance framework provides the evaluative lens for interpreting the overall network architecture (Cutley & Okojie, 2025; Defor et al., 2025; Narimani & Barberà, 2025).

This study addresses four research questions. First, what structural topology emerges from the literature-derived intercultural dialogue network in Indonesian multicultural schools? Second, which actor categories occupy central positions, and which actors appear to function as intercommunity brokers? Third, how is the dialogue network partitioned into structural communities, and what cross-community connection patterns are visible between those communities? Fourth, what cautious, evidence-aligned structural interventions can be proposed to strengthen the resilience and inclusivity of intercultural dialogue networks? These questions are answered through SNA of a 55-node, 161-edge network constructed from systematic extraction of actor-dialogue programme relationships documented in 32 peer-reviewed and scholarly articles published from 2020 to 2025.

The study makes three primary contributions. First, it offers a literature-derived structural map of intercultural dialogue actor-program relationships in Indonesian multicultural school contexts, thereby complementing existing qualitative accounts with network-level evidence. Second, it demonstrates how a hybrid SLR-SNA methodology can be used as a transparent diagnostic approach for examining relational ecosystems in education research. Third, it generates structurally specific but appropriately cautious recommendations for practitioners, school leaders, and policymakers seeking to strengthen intercultural dialogue as a systemic rather than incidental feature of multicultural school life.

Method

Research Design

This study employs a hybrid research design integrating Systematic Literature Review (SLR) and Social Network Analysis (SNA) to map a literature-derived intercultural dialogue actor network in Indonesian multicultural schools. The SLR phase synthesised empirical and scholarly evidence on actor roles, relationships, and dialogue-programme implementation in multicultural school settings. The SNA phase operationalised the identified actor-programme relationships into a quantifiable network structure for centrality analysis, community detection, and structural gap identification. This design was selected because the study aims to diagnose relational patterns reported across the literature rather than to claim a primary sociometric census of all Indonesian multicultural schools.

Phase 1: Systematic Literature Review

The literature search was conducted systematically across Scopus and Google Scholar between 15 and 31 May 2026. The search covered publications from 2020 to 2025; 2026 publications were excluded to avoid incomplete annual indexing. Searches were performed in article titles, abstracts, and keywords for Scopus and in title/keyword-equivalent fields for Google Scholar where database functionality allowed. The strategy combined intercultural-dialogue terms, multicultural-school terms, school-actor terms, and relational/network terms so that relevant studies that did not explicitly use the phrase "Social Network Analysis" could still be captured.

Scopus search string: TITLE-ABS-KEY(("intercultural dialogue" OR "intercultural communication" OR "multicultural education" OR "interethnic communication" OR "religious tolerance") AND (school* OR classroom* OR teacher* OR student* OR parent* OR community) AND (network* OR relation* OR collaboration OR partnership OR mediation OR broker*) AND (Indonesia

OR Indonesian)). Google Scholar string: "intercultural dialogue" OR "multicultural education" Indonesia school teacher student community network collaboration.

The initial search identified 800 records across Scopus and Google Scholar. After duplicate removal, 488 records remained for title-and-abstract screening. Eligibility criteria were applied in stages: publication year 2020-2025, journal article or scholarly article type, English-language publication, available full text, school or school-adjacent education setting, and explicit reference to intercultural, multicultural, interethnic, interreligious, or cross-cultural dialogue. Full texts were then assessed for whether they reported actor roles or relationships that could be coded into actor-program ties. Thirty-two articles were retained for final synthesis and SNA extraction. The screening process followed the PRISMA 2020 logic (Page et al., 2021) and is summarised in Figure 1.

To improve reproducibility, the search log recorded database name, search date, search field, exact string, number of hits, filter sequence, and exclusion reason. Google Scholar results were screened up to the point of relevance saturation; records beyond that point were excluded only after two consecutive result pages produced no eligible school-dialogue studies. This procedure was used to reduce bias caused by the narrower Scopus search field and the broader but less transparent Google Scholar ranking system.

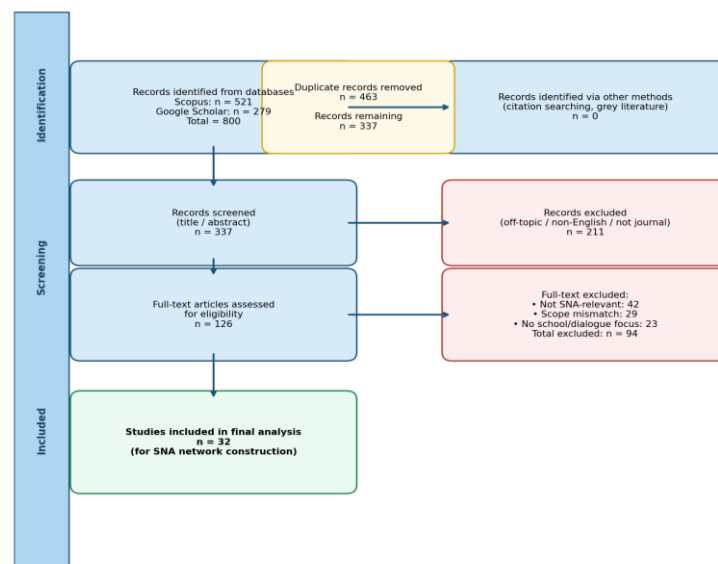


Figure 1. Prisma Flow Diagram

To ensure methodological transparency and replicability, inclusion and exclusion criteria are presented in Table 1.

Table 1. Criteria, Inclusion, and Exclusion

Criterion	Inclusion	Exclusion
Publication Year	2020-2025 (search conducted 15-31 May 2026; 2026 publications excluded)	Before 2020 or after 2025
Document Type	Journal article	Conference paper, book chapter, thesis
Language	English	Non-English
Access Type	Full text available through open access or institutional access	Full text unavailable for eligibility assessment

Setting Focus	Multicultural or multiethnic school setting	Single-ethnicity or homogeneous school context
Actor Focus	Teachers, students, and/or community actors	Policy without school-level actor analysis
Thematic Relevance	Intercultural dialogue, multicultural education, school social networks, actor collaboration, or school-community relations	Unrelated to intercultural communication, dialogue, or school actor relationships

All bibliometric and substantive data from the retained articles were extracted into a structured spreadsheet and RIS-compatible record set. Extracted fields included author names, publication year, journal title, abstract, keywords, school setting, actor type, dialogue programme, relationship type, evidence excerpt, and coding decision. A codebook defined four actor categories—teachers, students, community actors, and school leadership—and a separate set of dialogue-programme categories. Actor and programme names were standardised through controlled vocabulary before matrix construction. Two coders independently coded a pilot subset and then the full corpus; agreement was assessed using percentage agreement and Cohen’s kappa. Disagreements were resolved through discussion, and only relationships supported by an explicit textual excerpt were retained.

The unit of analysis was the reported actor-programme relationship, not the article itself. One article could therefore contribute more than one edge when it reported multiple distinct actor-programme relationships. Conversely, repeated mentions of the same actor-programme pair within one article were counted once. This rule ensured that the 55-node and 161-edge matrix remained replicable and did not inflate ties through narrative repetition.

Phase 2: Social Network Analysis

Following the SLR phase, the relational structure of the intercultural dialogue ecosystem was operationalised as a two-mode actor-programme network. Actors (teachers, students, community members, and school leaders) and dialogue programmes were both treated as nodes, while edges represented explicit actor-programme relationships reported in the retained studies. An edge was created when an article documented one of the following: co-facilitation of a dialogue programme, mentoring or mediation, collaborative participation, institutional association, or programme governance. Duplicate evidence for the same actor-programme pair was collapsed into a single unweighted edge to avoid over-representing frequently discussed programmes. The final network consisted of 55 nodes and 161 edges. The primary analysis used an undirected, unweighted network; sensitivity checks were performed on an actor-projection matrix to confirm that the principal brokerage patterns were not driven solely by programme nodes.

Gephi 0.10.1 was used for network visualisation and quantitative analysis (Bastian, Heymann, & Jacomy, 2009). The network was treated as undirected and unweighted. Degree centrality was reported as raw degree, while betweenness and closeness were computed using Gephi's standard algorithms on the connected component. Louvain modularity was applied with resolution gamma = 1.0 to identify communities. Visualisation used ForceAtlas2 layout, node size proportional to degree centrality, node colour by Louvain community, and highlighted yellow edges for cross-community ties.

Centrality analysis: degree centrality, betweenness centrality, closeness centrality, and harmonic closeness centrality were used to identify actors occupying structurally influential positions. The bridging coefficient was not taken directly from Gephi; after exporting node-level degree and neighbourhood information, it was calculated externally following the standard bridging coefficient logic, in which a node's inverse degree is evaluated relative to the inverse degrees of its neighbours. Bridging centrality was then interpreted together with betweenness centrality to identify nodes that connect otherwise separated communities (Hwang et al., 2008). Operationally, the bridging coefficient for node v was calculated as $BC(v) = (1/\text{deg}(v)) / \sum(1/\text{deg}(u))$ for all neighbours u of v ; the coefficient was then interpreted alongside betweenness centrality. This procedure clarifies that bridging is reported as a derived metric rather than as a native Gephi output.

Modularity-based community detection: the Louvain algorithm was used to identify clusters of actors and programmes exhibiting denser internal connectivity relative to the rest of the network, thereby revealing latent dialogue communities not apparent from thematic analysis alone (Blondel et al., 2008). The combination of these analytical layers--actor-programme co-occurrence mapping, centrality analysis, bridging analysis, and community detection--enabled the study to assess both the thematic landscape of intercultural dialogue literature and the structural dynamics of the actor-programme network. Because the data were literature-derived, all findings are interpreted as an evidence-synthesis map rather than as a direct census of interpersonal relationships in Indonesian schools.

Result and Discussion

Intercultural Dialogue Program Mapping in Indonesian Multicultural Schools

Based on systematic extraction from the retained literature, intercultural dialogue practices in Indonesian multicultural schools were synthesised into four strategic actor dimensions: teacher-facilitated classroom dialogue, student-driven peer dialogue, community-embedded dialogue, and school leadership-mandated dialogue programmes. Table 2 should be read as an analytical synthesis of evidence-backed programme types rather than as a claim that every programme appeared with identical wording in the 32 retained studies. The table distinguishes actor communities, programme forms, and the conceptual or empirical sources that supported their coding.

Table 2. Intercultural Dialogue Program Mapping in Indonesian Multicultural Schools

No	Community	Program of Intercultural Dialogue	References
1.	C0: Teacher Actors	Culturally responsive teaching practices integrating students' ethnic and religious backgrounds into daily instruction Structured classroom dialogue sessions facilitated by multicultural-trained teachers across ethnically mixed groups Teacher-led conflict resolution sessions addressing interethnic misunderstandings and microaggressions Religious teacher coordination to promote shared values across Islamic, Christian, Hindu, Buddhist, and Confucian students	(Banks, 2016; Gay, 2018) (Banks, 2016; Gorski, 2016) (Nieto & Bode, 2018; Sleeter, 2018) (Azra, 2006; Raihani, 2018)

No	Community	Program of Intercultural Dialogue	References
2.	C1: Student Actors	<p>Student council (OSIS) intercultural programming including cultural week and diversity celebration events</p> <p>Peer mediation programmes training students from diverse backgrounds to facilitate peer conflict resolution</p> <p>Interfaith student-organisation joint activities fostering cross-religious understanding and collaboration</p> <p>Intercultural friendship-circle programmes pairing students from different ethnic backgrounds for structured social interaction</p>	<p>(Banks, 2016; Nieto & Bode, 2018)</p> <p>(Coburn & Russell, 2008; Daly, 2010)</p> <p>(Abdullah, 2018; Azra, 2006)</p> <p>(Banks, 2016; Gay, 2018)</p>
3.	C2: Community Actors	<p>Parent-committee multicultural awareness workshops facilitating interethnic family dialogue</p> <p>Local religious-leader engagement in school interfaith dialogue events and ceremonial integration</p> <p>NGO-facilitated community dialogue events connecting school communities with broader civic pluralism programmes</p> <p>Community-elder storytelling and oral-history programmes integrating local cultural wisdom into school dialogue</p>	<p>(Apple, 2019; Gorski, 2016)</p> <p>(BPS-Statistics Indonesia, 2024; Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia, 2022)</p> <p>(Abdullah, 2018; Liow, 2009)</p> <p>(Banks, 2016; Nieto & Bode, 2018)</p>
4.	C3: School Leadership	<p>Principal-led multicultural school-culture policy implementation including inclusive hiring and curriculum mandates</p> <p>Vice-principal curriculum coordination aligning subject-area teaching with national multicultural education standards</p> <p>School-committee board advocacy for resource allocation to support intercultural dialogue programmes</p> <p>Teacher professional development training in culturally responsive pedagogy and dialogue facilitation</p>	<p>(Provan & Kenis, 2008; Raihani, 2018)</p> <p>(Banks, 2016; Sleeter, 2018)</p> <p>(Ansell & Gash, 2008; Gorski, 2016)</p> <p>(Coburn & Russell, 2008; Gay, 2018)</p>

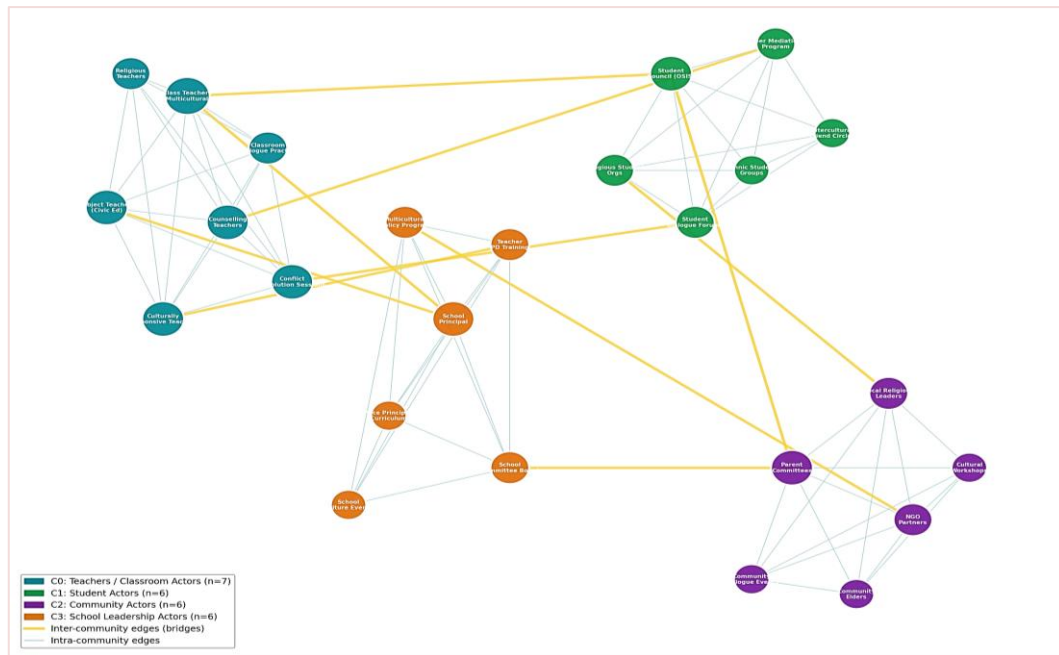


Figure 2. Visualization of the Intercultural Dialogue Network Structure in Multicultural Schools

Network Level Structure

The overall network of 55 nodes and 161 edges exhibits a relatively low density (0.109), indicating that the literature-derived intercultural dialogue ecosystem is characterised by selective, clustered ties rather than uniform integration. The average path length of 3.87 indicates moderate global separation: actors and programmes can typically reach one another within approximately four relational steps. The clustering coefficient of 0.447 reflects a strong tendency toward local clustering within communities. The modularity score of $Q = 0.524$ indicates a robust community structure, confirming that the network is meaningfully partitioned into distinct communities with limited cross-community connectivity. Table 3 presents the complete network-level statistics.

Table 3. NetworkLevel Statistics of the Intercultural Dialogue Network

Metric	Value	Interpretation
Number of Nodes	55	25 actor nodes (teachers = 7, students = 6, community = 6, leadership = 6) + 30 dialogue-programme nodes
Number of Edges	161	Undirected, unweighted actor-programme ties based on explicit collaboration, mentoring, co-participation, or institutional association
Network Density	0.109	Sparse and clustered connectivity
Average Path Length	3.87	Moderate global separation among network actors
Clustering Coefficient	0.447	Strong tendency toward local community clustering
Modularity Score (Q)	0.524	Strong community structure (above $Q > 0.30$ heuristic threshold)
Number of Communities	4	Louvain algorithm, resolution $\gamma = 1.0$
Number of Structural Holes	21	Gaps indicating intercommunity disconnection
Network Type	Actor-programme	Undirected and unweighted two-mode matrix

Centrality Analysis: Identifying Key Actors

The centrality analysis was conducted on an undirected, unweighted network, with duplicate actor-programme ties collapsed before computation. The School Principal records the highest degree centrality (degree = 17) and the highest betweenness centrality (102.40), indicating that school leadership functions as a major broker in the literature-derived dialogue network. This finding should be interpreted as evidence of a leadership-centred network pattern within the reviewed literature, not as a direct measurement of every Indonesian multicultural school. Table 4 presents centrality measures for the ten most structurally significant nodes.

A notable structural pattern concerns Community Actors (C2). Parent Committees record the highest bridging coefficient among all actors (0.84), and NGO Partners record 0.79, indicating their potential to connect the school dialogue ecosystem with the broader community environment. Yet these actors also record relatively low degree centrality values (7 and 6 respectively), suggesting that their bridging potential is not fully activated in the formal dialogue structures reported in the literature. This inverse relationship between bridging potential and actual network integration suggests a structural underutilisation of community actors rather than a lack of relevance or capacity.

Table 4. Centrality Measures for Top 10 Nodes in the Intercultural Dialogue Network

Node	Type	Degree	Betweenness	Closeness	Bridging Coef.	Community
School Principal	Leadership	17	102.40	0.65	0.16	C3
Class Teachers (Multicultural)	Teacher	14	83.70	0.61	0.21	C0
Vice Principal (Curriculum)	Leadership	12	61.20	0.57	0.24	C3
Student Council (OSIS)	Student	11	48.90	0.54	0.72	C1
Counselling Teachers	Teacher	10	42.30	0.52	0.65	C0
Teacher PD Training	Program	8	31.40	0.48	0.38	C3
Religious Teachers	Teacher	9	35.80	0.50	0.28	C0
Parent Committees	Community	7	21.70	0.43	0.84	C2
NGO Partners	Community	6	17.60	0.41	0.79	C2
Peer Mediation Program	Program	8	26.50	0.47	0.61	C1

Source: Gephi 0.10.1 analysis of the literature-derived matrix (2020-2025).

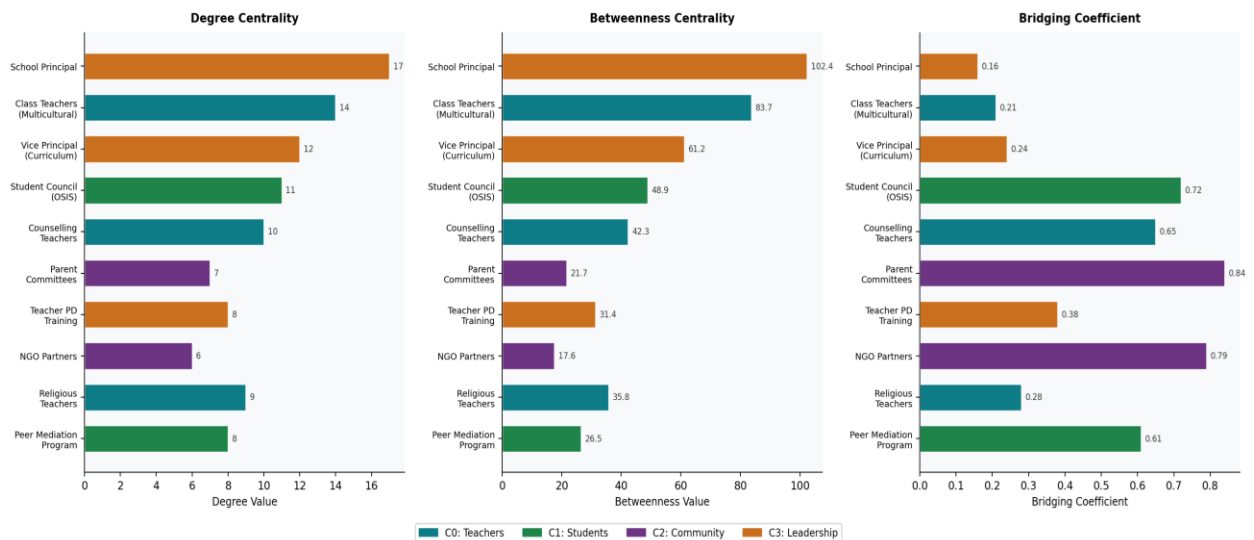


Figure 3. Comparative Centrality Measures of Key Actors in the Intercultural Dialogue Network

Modularity Analysis: Community Map of Intercultural Dialogue

The Louvain community detection algorithm yielded four distinct community classes (modularity $Q = 0.524$). Table 5 presents the structural characteristics of each community. The n values have been recalculated to account for all 55 nodes, including actor nodes and programme nodes assigned to the four detected communities. Figure 4 presents community profile radar charts illustrating multidimensional structural properties per cluster.

Table 5. Structural Characteristics of Four Intercultural Dialogue Communities

Community	Key Actors	n	Mean Degree	Mean Bridging	Cross Comm. Edges
C0: Teacher Actors	Class Teachers, Counselling Teachers, Religious Teachers, Dialogue Programs	14	9.1	0.25	8
C1: Student Actors	Student Council (OSIS), Ethnic Groups, Peer Mediation, Dialogue Forums	13	7.8	0.65	10
C2: Community Actors	Parent Committees, Local Religious Leaders, NGO Partners, Community Elders	13	4.1	0.81	5
C3: School Leadership	School Principal, Vice Principal, Committee Board, PD Training	15	8.5	0.26	9

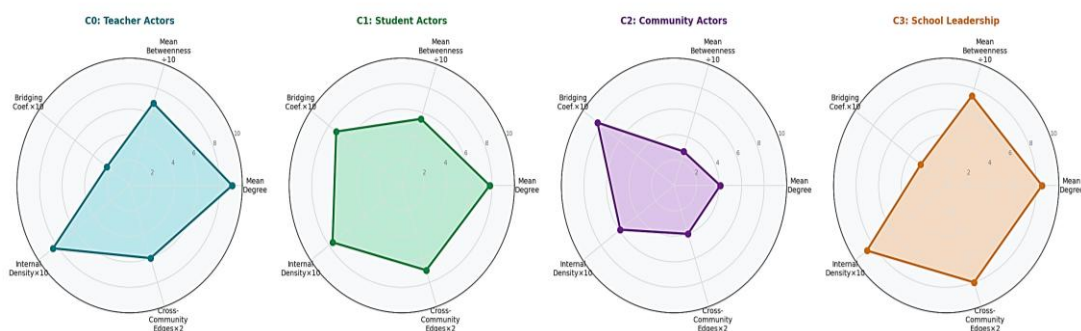


Figure 4. Community Profile Radar Charts
Structural Characteristics per Dialogue Community ($Q = 0.524$)

Community 0 (Teacher Actors) comprises 14 nodes, including classroom teachers, counselling teachers, religious teachers, subject teachers, and their associated dialogue programmes (mean degree = 9.1; mean bridging coefficient = 0.25). This community records dense internal connectivity, suggesting that teacher actors are frequently connected to one another and to classroom-based dialogue programmes. However, its relatively low bridging coefficient indicates that teacher-community pathways are less systematically visible in the reviewed literature.

Community 1 (Student Actors) comprises 13 nodes and functions as the most active structural intermediary in the overall network (mean degree = 7.8; mean bridging coefficient = 0.65; cross-community edges = 10). Student Council (OSIS) emerges as the most active bridge node within this community (bridging coefficient = 0.72), connecting Teacher Actors through classroom and conflict-resolution programmes and Community Actors through parent-committee and student-activity pathways. This pattern suggests that student actors occupy a unique intermediary position between formal school dialogue and informal community interaction.

Community 2 (Community Actors) comprises 13 nodes, including parent committees, local religious leaders, NGO partners, community elders, and associated community dialogue programmes (mean degree = 4.1; mean bridging coefficient = 0.81). This community records the lowest mean degree of all four communities, indicating that community actors remain relatively marginal in the formal network structure. However, their high bridging coefficient suggests that they could connect otherwise separated school and community dialogue spaces if regular institutional pathways were created.

Community 3 (School Leadership) comprises 15 nodes and is the most structurally dominant community (mean degree = 8.5; cross-community edges = 9). The School Principal (betweenness = 102.40) and Vice Principal (betweenness = 61.20) occupy the highest betweenness positions in the network, suggesting a lead-organisation pattern in which institutional authority strongly shapes the flow of dialogue resources and legitimacy. Teacher professional development also appears as a relevant bridge because it connects leadership priorities with frontline classroom practice.

Discussion

The findings of this study demonstrate that intercultural dialogue in Indonesian multicultural schools is not merely a pedagogical practice but a structurally organised network shaped by unequal actor positions, brokerage power, and uneven intercommunity connectivity. The dominance of School Leadership, particularly the School Principal, confirms that intercultural dialogue networks tend to operate through a lead-organisation governance model in which institutional authority controls the flow of resources, legitimacy, and programme coordination. This finding is consistent with Provan and Kenis's network governance perspective, which argues that lead-organisation networks may increase coordination efficiency but also create dependency on a small number of dominant actors. In the context of this study, the high degree and betweenness centrality of the School Principal indicate that intercultural dialogue remains highly dependent on formal leadership structures rather than being distributed across teachers, students, and community actors (Cruz, 2021; Grant & Grant, 2025; He, 2025). This pattern also resonates with Coburn and Russell's work on school social networks, which shows that the diffusion of educational practices is strongly shaped by the position of brokers who connect otherwise separated professional communities. However, unlike their findings on instructional reform networks, the present study reveals that brokerage in intercultural dialogue is concentrated more heavily in leadership positions, suggesting that multicultural school

dialogue may be more vulnerable to leadership turnover, policy discontinuity, and institutional gatekeeping (Bosco Bangura, 2025; Foshay, 1992; Judijanto, 2025).

The relatively dense internal connectivity among Teacher Actors supports Daly's argument that relational infrastructure among educators plays a crucial role in shaping school improvement processes. Teachers in this study appear to form a cohesive community through classroom dialogue, counselling, religious coordination, and professional development activities. Nevertheless, their relatively low bridging coefficient indicates that teacher networks remain more internally oriented than outward-facing (Aristiati, 2025; Kazanskaia, 2025a, 2025b; Tajima & Jiang, 2025). This differs from Gay's culturally responsive teaching framework, which emphasises that teachers should function as cultural mediators between students' home worlds and school knowledge systems. The present findings suggest that while teachers are central to classroom-based intercultural dialogue, their structural links to community actors remain weak. This weak teacher-community connection limits the possibility of transforming intercultural dialogue from a classroom strategy into a broader school-community practice. In this respect, the study extends the literature on culturally responsive pedagogy by showing that pedagogical commitment alone is insufficient when the network architecture does not provide durable relational pathways between teachers and communities (Jeremiah & Oponga, 2025; Patacsil & Guzman, 2025; Zinilli, 2025).

The position of Student Actors represents one of the most important findings of this study. Student Council, peer mediation programmes, intercultural friendship circles, and interfaith student activities generate the highest number of cross-community edges, confirming that students function as active structural intermediaries between teachers, school leaders, and community actors (Noor et al., 2023; Praszkiec, 2025; Siriphon & Yamthap, 2018). This supports Nieto's and Banks's arguments that multicultural education becomes more meaningful when students are positioned as active agents rather than passive recipients of diversity education. It also aligns with Yaqin's emphasis on peer-mediated dialogue as an effective mechanism for strengthening intercultural understanding in school settings. However, the present study adds a structural qualification to these arguments: student bridging is powerful but fragile when concentrated in informal networks or student leadership bodies such as OSIS (Abdigapbarova et al., 2025; Defor et al., 2025; Khoramaki et al., 2025). Because student leadership changes periodically, overreliance on student intermediaries may weaken the sustainability of intercultural dialogue unless peer mediation, interfaith collaboration, and cross-cultural student forums are institutionalised as recurring school programmes (Abdulla & Ali, 2025; Cutley & Okojie, 2025; Narimani & Barberà, 2025; UNESCO, 2025b).

The paradoxical position of Community Actors provides another critical contribution. Parent Committees and NGO Partners record high bridging coefficients but relatively low degree centrality, indicating that they possess strong potential to connect schools with broader social, religious, and cultural communities but remain weakly integrated into the formal dialogue network (Jones & Dinh, 2025; Nattheeraphong et al., 2025; UNESCO, 2025a). This finding is highly consistent with Burt's structural holes theory, which argues that actors located near gaps between communities may hold strategic bridging potential. Yet, the present study demonstrates that bridging potential does not automatically translate into actual network influence. Community actors may be structurally well positioned to bridge school and community dialogue, but without formalised channels, regular participation, and recognised decision-making roles, their contribution remains episodic and underutilised. This finding also corresponds with Raihani's discussion of multicultural education

governance in Indonesia, where community participation is often normatively acknowledged but institutionally limited. Therefore, the study shows that the main challenge is not the absence of community actors, but the absence of mechanisms that convert their bridging potential into sustained network integration (Díaz-Pacheco et al., 2025; Irsyaad et al., 2025; Ward et al., 2025).

Compared with previous hybrid SLR-SNA studies such as those by Purbasari et al. and Widayat et al., which used network analysis to map policy or innovation ecosystems, this study applies the approach to intercultural dialogue in multicultural schools (Grant & Grant, 2025; He, 2025; Judijanto, 2025). This represents an important methodological extension because it demonstrates that literature-derived actor-programme relationships can be transformed into a diagnostic network map for educational and sociocultural phenomena. While earlier SNA studies in education have largely focused on teacher advice networks, reform diffusion, or collaboration patterns, the present study maps a more complex dialogue ecosystem involving teachers, students, community actors, school leaders, and dialogue programmes. The novelty of this study therefore lies in its integration of systematic literature review and social network analysis to reveal the structural topology of intercultural dialogue, including central actors, brokerage positions, community fragmentation, and underutilised bridging capacities. Substantively, the study offers the first network-level explanation of why intercultural dialogue in Indonesian multicultural schools may remain fragmented despite the presence of multiple actors and programmes.

The theoretical implication of this study is that intercultural dialogue should be conceptualised not only as a communicative or pedagogical process but also as a networked governance system. This perspective shifts the analytical focus from whether schools have dialogue programmes to how actors are connected, which actors control relational flows, and where structural gaps prevent inclusive participation. The findings refine multicultural education theory by showing that intercultural competence, culturally responsive pedagogy, and school-community engagement depend on the architecture of relationships that enable or constrain interaction across difference. In practical terms, the study suggests that schools should move beyond event-based multicultural activities and develop network-based strategies for dialogue governance. This includes embedding Parent Committees, religious leaders, and NGO partners into formal dialogue planning; expanding student mediation beyond elite student organisations; creating teacher-community cofacilitation mechanisms; and reducing excessive dependence on principals by distributing dialogue leadership to vice principals, counselling teachers, student mentors, and community liaison teams.

The policy implication is that intercultural dialogue should be supported through institutional designs that strengthen distributed participation. School regulations, multicultural education guidelines, and teacher professional development programmes need to include explicit mechanisms for building cross-community ties. Rather than treating parents and community actors as ceremonial participants, schools should recognise them as structural brokers who can connect school-based dialogue with broader community realities. Similarly, student-led dialogue should be formally supported through curriculum-linked and extracurricular programmes so that student bridging roles do not disappear with leadership turnover. For educational policymakers, these findings indicate that the success of multicultural education depends not only on curriculum content but also on the relational infrastructure that connects school actors with wider social communities.

This study has several limitations. The network was constructed from actor-programme relationships extracted from published literature rather than from direct sociometric surveys in

schools. Consequently, the analysis may not capture informal friendships, hidden tensions, negative ties, or unreported dialogue practices that occur in everyday school life. The use of literature-derived data also means that the network reflects the visibility of actors and programmes in published studies, which may privilege formal and institutionally recognised practices over informal community-based dialogue. In addition, the network is cross-sectional and cannot explain how intercultural dialogue structures change over time, particularly after leadership transition, conflict events, curriculum reform, or community intervention. Future studies should therefore validate these findings using primary network data collected from teachers, students, principals, parents, religious leaders, and community organisations. Longitudinal SNA, mixed-method case studies, and comparative research across different regions and school types would provide stronger evidence regarding the evolution, resilience, and contextual variation of intercultural dialogue networks in multicultural education.

Conclusion

This study mapped a literature-derived intercultural dialogue network in Indonesian multicultural school contexts by integrating SLR and SNA. The analysis identified 55 nodes, 161 edges, and four structural communities: Teacher Actors, Student Actors, Community Actors, and School Leadership. The results indicate a leadership-centred network architecture, underutilised community bridging capacity, an important but potentially fragile student intermediary role, and dense but comparatively inward teacher connectivity. These findings answer the study's research questions by showing that intercultural dialogue is not only a pedagogical issue but also a relational governance issue. The main contribution of this study lies in demonstrating how a transparent SLR-SNA procedure can diagnose structural strengths and vulnerabilities in school dialogue ecosystems. Practically, the findings suggest that schools should institutionalise community actor participation, distribute student dialogue leadership beyond OSIS, create teacher-community co-facilitation routines, and redistribute brokerage functions beyond the principal. These interventions would strengthen network resilience by converting occasional dialogue activities into durable relational infrastructure. Several limitations must be acknowledged. The network was constructed from the published literature and therefore cannot capture all informal, negative, or sub-institutional ties that exist in actual schools. The cross-sectional design cannot trace how dialogue networks evolve over time or in response to conflict, policy change, or leadership transition. Future studies should validate this synthesis through primary sociometric surveys, ethnographic observation, and in-depth interviews with students, teachers, community actors, and school leaders. Longitudinal and comparative SNA across school types and regions would further strengthen the generalisability of the proposed structural interpretation.

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