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ENHANCING PEER COOPERATION THROUGH TRADITIONAL GAMES AMONG GROUP B CHILDREN: A SYSTEMATIC REVIEW FOR TK PERTIWI KOTO TINGGI

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Abstrak

Kerja sama antarteman sebaya merupakan capaian sosial penting bagi anak Kelompok B (5–6 tahun), tetapi bukti tentang permainan tradisional sebagai sarana pengembangannya masih tersebar. Kajian ini menyintesis bukti empiris tersebut dan menurunkan implikasinya bagi TK Pertiwi Koto Tinggi, Kabupaten Lima Puluh Kota. Tinjauan pustaka sistematis mengikuti pedoman PRISMA 2020. Pencarian dilakukan melalui basis data OpenAlex dan penelusuran web terarah untuk artikel jurnal terbitan 2021–2026. Dari 127 rekaman basis data dan 20 laporan tambahan, 22 studi memenuhi kriteria kelayakan dan dianalisis secara tematik. Studi didominasi desain pra-eksperimen (9), kualitatif (5), kuasi-eksperimen (4), PTK (3), dan metode campuran (1). Permainan yang paling sering diteliti adalah bakiak, disusul bentengan, kucing dan tikus, serta engklek. Seluruh studi melaporkan perubahan positif pada kerja sama atau keterampilan sosial yang terkait. Sintesis menghasilkan lima kelompok mekanisme permainan: gerak tim yang sinkron, strategi tim, peran melindungi, giliran dan aturan, serta permainan kelompok lain dan program multipermainan. Mutu bukti masih terbatas karena sampel kecil dan sedikitnya kelompok kontrol. Untuk TK Pertiwi Koto Tinggi, kajian ini menyarankan permainan Minangkabau dan permainan tim yang dirancang dengan tujuan bersama, pembagian peran, bimbingan guru, dan penilaian berbasis indikator.
Kata kunci: Kerja sama teman sebaya, Permainan Tradisional, Anak Usia Dini, Kelompok B, Tinjauan Pustaka Sistematis

Abstract

Peer cooperation is a key social achievement for Group B children (aged 5–6), yet evidence on traditional games as a means of developing it remains scattered. This review synthesised that evidence and derived implications for TK Pertiwi Koto Tinggi, Lima Puluh Kota Regency, West Sumatra. A systematic literature review was conducted following PRISMA 2020. Journal articles published in 2021–2026 were searched in OpenAlex and through targeted web searching. From 127 database records and 20 additional reports, 22 studies met the eligibility criteria and were analysed thematically. Most studies used pre-experimental (9), qualitative (5), quasi-experimental (4), classroom action (3), or mixed-methods (1) designs. Bakiak was the most frequently studied game, followed by bentengan, kucing dan tikus, and engklek. All studies reported positive changes in cooperation or related social skills. The synthesis identified five clusters of game mechanisms: synchronised team movement, team strategy, protective roles, turn-taking and rules, and other group games and multi-game programmes. The quality of evidence was limited by small samples and the scarcity of control groups. For TK Pertiwi Koto Tinggi, the review recommends Minangkabau and team games designed around shared goals, role division, teacher scaffolding, and indicator-based assessment.
***Keywords**: Peer cooperation, traditional games, early childhood, Group B, systematic literature review.*

INTRODUCTION

Cooperation with peers is one of the most important social achievements of the kindergarten years. Between the ages of five and six, children increasingly pursue shared goals, divide roles, help one another, and coordinate their actions with those of others, and these capacities lay the foundation for later friendship, learning, and citizenship (Bukowski et al., 2018; Kostelnik et al., 2018; Tomasello, 2019). Developmental theory regards such cooperation as rooted in shared intentionality, the ability to form joint goals and to feel mutually obligated to partners (Tomasello, 2016). Educational frameworks have likewise placed collaboration

among the core competencies that children need to thrive (Golinkoff & Hirsh-Pasek, 2016). In Indonesia, national competency standards for early childhood education frame children's learning outcomes within the Pancasila Student Profile, in which *gotong royong* (mutual cooperation) is a central dimension (Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi, 2022). Developing peer cooperation is therefore not an optional extra but a core task of Group B classrooms.

Play is the main context in which young children practise cooperation. Rule-governed group play requires children to agree on rules, take turns, accept roles, and manage conflict, which makes it a natural setting for social learning (Fleer, 2021; Smith & Roopnarine, 2018; Whitebread et al., 2019). Traditional games occupy a special place within this repertoire. They are transmitted across generations, are usually played in groups, rely on simple and inexpensive materials, and carry the language and values of the communities that play them (Bruce et al., 2017; Lancy, 2022). In Indonesia, games such as *bakiak*, *bentengan*, *gobak sodor*, *engklek*, and *kucing dan tikus* are widely known (Mulyani, 2016), while West Sumatra has its own repertoire, including *cik mancik*, *cak bur*, and *sipak tekong*, which also carry Minangkabau language and culture (Velini & Suryadi, 2023). Minangkabau families have long used chants, songs, and simple games in child-rearing, a practice supported by the shared caregiving of the matrilineal extended family (Wirdanengsih & Wita, 2025).

Recent studies suggest that traditional games can strengthen cooperation and related social skills in early childhood. Classroom action research has reported rising levels of cooperation among children who played *bakiak* (Setyaningsih et al., 2022) and *cuk-cuk bimbi* (Isnaniah et al., 2026). Experimental and quasi-experimental studies have reported gains after *bakiak* (Lestari et al., 2023; Susanti et al., 2023), *kucing dan tikus* (Durrotunnisa et al., 2026; Kemba et al., 2026), and packages of several group games (Napiqoh & Wirdasari, 2026). Qualitative studies have described how *bentengan*, *gobak sodor*, *lompat karet*, and *engklek* create occasions for teamwork, turn-taking, and conflict resolution (Darmawanti & Oktaviana, 2024; Febyarum & Ichsan, 2023; Hurri et al., 2026; Safitri, 2024). International evidence points in the same direction: in Türkiye, a programme of traditional child games improved the social-emotional skills of preschoolers, including refugee children and children with disabilities (Özcan & Sakız, 2025).

Despite this growing body of work, the evidence remains fragmented. Most studies are small, single-site projects published in national journals, and they use different games, designs, and instruments. Some measure cooperation directly, whereas others report broader constructs such as social skills, prosocial behaviour, or character, in which cooperation is only one indicator (Ambarwati et al., 2026; Durrotunnisa et al., 2026; Siregar & Nabila, 2022). Systematic reviews have become an established way of consolidating such scattered evidence in Indonesian education research (Idham et al., 2026; Manaf et al., 2026), but no review has yet synthesised the evidence on traditional games and peer cooperation for children aged five to six. Teachers who wish to use traditional games purposefully therefore have little guidance on which games to choose, which features of the games matter, and how to assess cooperation.

This gap is felt at the level of individual kindergartens. TK Pertiwi Koto Tinggi, a kindergarten in Lima Puluh Kota Regency, West Sumatra, serves Group B children in a Minangkabau setting where traditional games remain part of the local culture. A kindergarten in such a setting is well placed to use local games for social learning, but planning that use responsibly requires an overview of what the evidence shows. Rather than reporting a

classroom intervention, this article therefore reviews the existing evidence systematically and applies the synthesis to the TK Pertiwi Koto Tinggi setting.

The review addresses three questions. First, what are the characteristics of empirical studies published between 2021 and 2026 on traditional games and peer cooperation among children aged about five to six? Second, what outcomes do these studies report, and through which game features do traditional games appear to support cooperation? Third, what implications follow for designing traditional-game activities to enhance peer cooperation among Group B children at TK Pertiwi Koto Tinggi? The unit of analysis is the published study.

The remainder of the article is organised as follows. The Research Method section describes the review protocol, information sources, eligibility criteria, screening, data extraction, appraisal, and synthesis. The Results and Discussion section presents the characteristics of the included studies, the reported outcomes, the game mechanisms identified, the quality of the evidence, and the implications for TK Pertiwi Koto Tinggi. The Conclusion summarises the answers to the review questions and outlines directions for further research.

RESEARCH METHOD

This study used a systematic literature review design reported in accordance with the PRISMA 2020 statement (Page et al., 2021). A systematic review was chosen because the aim was to identify, appraise, and synthesise all eligible empirical studies on a clearly defined question rather than to select studies selectively (Booth et al., 2022; Gough et al., 2017). The review combined a descriptive mapping of study characteristics with a thematic synthesis of findings, an approach suited to a body of evidence that mixes quantitative, qualitative, and classroom action research designs (Braun & Clarke, 2022). The searches, screening decisions, and reasons for exclusion were recorded in a search log, which serves as an audit trail for the review.

The review question was framed with the PICOS elements. The population was children in early childhood education aged about four to six years, with priority given to Group B (five to six years). The intervention or phenomenon of interest was the use of traditional games, defined as games transmitted within a community and recognised as part of a local or national play tradition. No comparison was required. The outcomes were peer cooperation or closely related social outcomes in which cooperation is an explicit indicator or a component, such as social skills, prosocial behaviour, social-emotional development, and social development. Eligible study designs were empirical studies of any type, including experimental, quasi-experimental, pre-experimental, classroom action, qualitative, and mixed-methods research. The eligibility criteria are summarised in Table 1.

Table 1. Eligibility criteria of the review

Criterion	Inclusion	Exclusion
Population	Children in early childhood education aged about 4–6 years, with priority on Group B (5–6 years)	Primary, secondary, or university students; adults
Intervention	Traditional games recognised as part of a local or national play tradition	Non-traditional games, dance, role play, digital games
Outcome	Peer cooperation, or a social outcome in which cooperation is an indicator or component	Motor, language, cognitive, creativity, or nationalism outcomes only

Criterion	Inclusion	Exclusion
Design	Empirical studies of any design (experimental, quasi- or pre-experimental, classroom action, qualitative, mixed)	Conceptual papers, literature reviews, community service reports
Publication	Peer-reviewed journal articles published 2021–2026 in Indonesian or English	Theses, proceedings, and articles published before 2021

Source: Review protocol of the present study.

Table 1 shows that the criteria were deliberately inclusive with respect to design but strict with respect to population, intervention, and publication type. Including classroom action research and qualitative studies was necessary because much of the Indonesian evidence on early childhood play is produced in these designs. At the same time, the restriction to peer-reviewed journal articles published in 2021–2026 kept the review focused on recent and publicly accessible evidence, and studies of school-aged children were excluded because the developmental meaning of cooperation differs from that in kindergarten.

The main information source was OpenAlex, an open bibliographic database that indexes journal articles registered with DOIs, including a large number of Indonesian journals published through Open Journal Systems. The database search was conducted on 19 October 2026 using the terms *permainan tradisional* and *kerjasama* in titles and abstracts, filtered to journal articles published from 2021 to 2026. This search returned 127 records. Because the retrieval limit of the database interface was reached during export, 100 records were available for screening and 27 records could not be exported. To reduce the risk of missing relevant studies, the database search was supplemented by targeted web searching, which used Indonesian and English search strings combining traditional games with cooperation, social skills, prosocial behaviour, kindergarten, Group B, and children aged five to six, as well as searches for the full titles of records whose landing pages could not be opened. These searches identified 20 additional reports.

Screening took place in two stages. In the first stage, the titles and, where needed, the abstracts of the 100 database records were screened against the eligibility criteria. Records concerning primary or secondary school pupils, university students, community service activities, and outcomes unrelated to social development, such as motor skills, language, creativity, or nationalism, were excluded at this stage. In the second stage, the full reports of the remaining records and of the additional reports were sought and assessed for eligibility. Reports whose landing pages or full texts could not be accessed were recorded as not retrieved. Each exclusion at the second stage was assigned a single main reason.

Data were extracted into a structured form covering bibliographic details, research design, sample size and age, setting, the traditional game used, the outcome measured, the instrument, and the main findings. Most information was extracted from the abstracts and article pages of the journals, and full texts were used where they were accessible. Numerical results were recorded exactly as reported by the original authors. Where the reported statistics were incomplete or internally inconsistent, this was noted rather than corrected, so that the synthesis would not overstate the strength of the evidence.

The quality of the included studies was appraised with design-specific questions adapted from common appraisal practice in mixed-methods reviews (Booth et al., 2022). For quantitative studies, the questions concerned the presence of a control group, sample size, the description of the cooperation instrument, and the completeness of the statistical reporting. For

classroom action research, they concerned the description of cycles, indicators, and criteria for success. For qualitative studies, they concerned the description of participants, data sources, and analysis. The appraisal was used to judge the strength of the evidence, not to exclude studies.

The synthesis proceeded in three steps. First, the characteristics of the studies were tabulated and counted by year, design, game, and outcome. Second, the findings and the cooperation indicators reported in each study were coded and grouped into themes, following the reflexive phases of familiarisation, coding, theme development, and review (Braun & Clarke, 2022). Third, the games were grouped into clusters according to the main way in which they require children to coordinate with one another, and the clusters were related to the cooperation indicators reported in the studies (Krippendorff, 2018; Kuckartz & Rädiker, 2023). The trustworthiness of the synthesis was supported by the explicit criteria, the search log, the exact recording of reported results, and the comparison of findings across designs (Creswell & Poth, 2018; Denzin & Lincoln, 2018). Finally, the synthesis was applied to the setting of TK Pertiwi Koto Tinggi to derive design implications, which are presented as recommendations grounded in the reviewed evidence rather than as findings from that kindergarten. The flow of records through the review is shown in Figure 1.

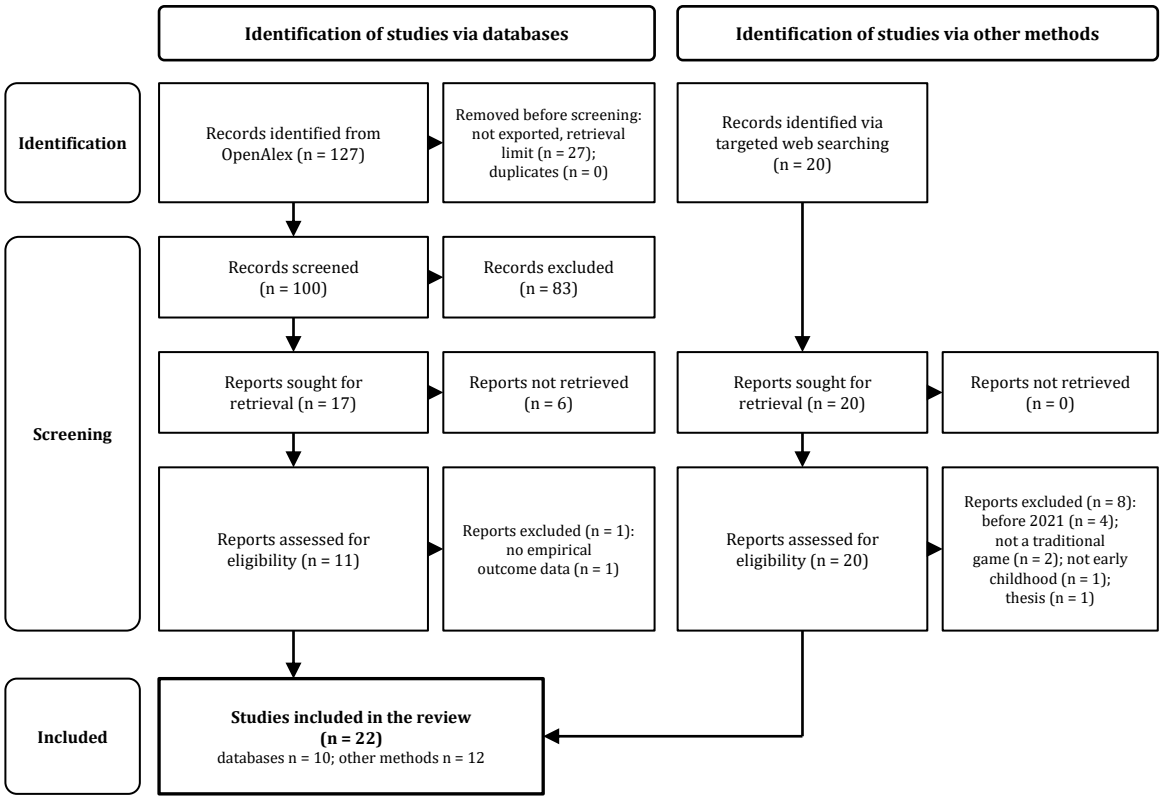


Figure 1. PRISMA 2020 flow diagram of study selection

Source: Adapted from Page et al. (2021), with data from the present review.

Figure 1 summarises the selection process. In the database stream, 17 of the 100 screened records were judged potentially eligible, six of which could not be retrieved, and one of the 11 assessed reports was excluded because it contained no empirical data, leaving 10 studies. In the web-searching stream, 8 of the 20 assessed reports were excluded, most often because they were published before 2021 or because the activity studied was not a traditional game, leaving 12 studies. In total, 22 studies were included in the synthesis. The figure also makes visible a

limitation of the search, namely the 27 database records that could not be exported, which is taken into account in the interpretation of the findings.

RESULTS AND DISCUSSION

Characteristics of the Included Studies

The 22 included studies were published between 2022 and 2026, and no eligible study from 2021 was identified. Twenty-one studies were conducted in Indonesia and one in Türkiye. Four studies were conducted in West Sumatra, three of them in Padang (Busty et al., 2026; Delima et al., 2022; Yisa & Yaswinda, 2024) and one in Dharmasraya (Novitasari et al., 2024), which makes them particularly relevant to the context of Lima Puluh Kota. Sixteen studies explicitly involved Group B children or children aged five to six, while the others involved preschool children in a wider or unspecified age range. Table 2 summarises the characteristics and main findings of all included studies.

Table 2. Characteristics and main findings of the included studies (n = 22)

Study	Design	Participants and setting	Game	Outcome and main finding
Delima et al. (2022)	One-group pre–post	123 preschool children; Kuranji, Padang	Minangkabau traditional game book	Psychosocial development; children in the abnormal category fell from 35.8% to 13%
Setyaningsih et al. (2022)	Classroom action (2 cycles)	15 children aged 5–6; Abepura, Papua	*Bakiak*	Cooperation level rose from 50.55% to 81.10%
Siregar & Nabila (2022)	Quasi-experiment	60 children aged 5–6 (Group B)	*Tarompah*	Prosocial behaviour incl. cooperation; experimental 78.30 vs control 39.70
Tasnim et al. (2022)	Pre-experiment	8 children aged 5–6; Bulukumba	*Mallogo*	Social development mean 25.6 to 54.9
Fajri & Aini (2023)	Qualitative descriptive	Kindergarten children; Probolinggo (n not reported)	*Bentengan*	Cooperation, mutual help, and respect improved; 88% effectiveness by observation
Febyarum & Ichsan (2023)	Qualitative descriptive	10 children; Sidoharjo village	*Gobak sodor*	Teamwork towards shared goals
Lestari et al. (2023)	Pre-experiment (8 sessions)	10 Group B children aged 5–6; Karawang	*Bakiak*	Cooperation mean 36.5 to 56.9
Susanti et al. (2023)	Pre-experiment	8 children aged 5–6; Gowa	*Bakiak*	Cooperation mean 26.6 to 42.5 (p = .012)
Darmawanti & Oktaviana (2024)	Qualitative descriptive	24 Class B children aged 5–6	*Bentengan*	Cooperation indicators met
Novitasari et al. (2024)	One-shot case study	Children aged 5–6; Sungai Rumbai, Dharmasraya	*Bakiak*	16 children showed emerging *gotong royong*, 3 did not
Safitri (2024)	Qualitative case study	Children aged 5–6 and 5 parents; Dukuh Sewelut	*Lompat karet*	Positive cooperative attitudes (no numerical data)
Yabu et al. (2024)	Pre-experiment	15 children aged 5–6; Gorontalo	*Balap karung*	Prosocial behaviour improved (p < .001)

Study	Design	Participants and setting	Game	Outcome and main finding
Yisa & Yaswinda (2024)	Quasi-experiment	24 Group B children; Padang	*Bakiak*	Cooperation post-test 20.5 vs 18.6; inconsistent significance values
Özcan & Sakız (2025)	Mixed methods	Preschoolers incl. refugee children and children with disabilities; Türkiye	Traditional child games	Gains in social skills and communication
Rahayu et al. (2025)	Classroom action (2 cycles)	13 children aged 5–6; TK Pertiwi Karangkemiri	*Engklek*	Discipline, patience, and cooperation improved (no numerical data)
Ambarwati et al. (2026)	Pre-experiment	Group B children (n not reported)	*Bola bekel*	Social skills; "very well developed" 0% to 38.3%
Busty et al. (2026)	Quasi-experiment	32 Group B children; Padang	*Sepak tekong*	Social development mean 23.9 to 41.9 (experimental group)
Durrotunnisa et al. (2026)	Quasi-experiment	30 Group B children	*Kucing dan tikus*	Character incl. cooperation 43.9% to 84.4%; effect size 0.79
Hurri et al. (2026)	Qualitative case study	17 children aged 4–6; Sukabumi	*Engklek*	Collaboration, communication, turn-taking, and conflict resolution
Isnaniah et al. (2026)	Classroom action (2 cycles)	15 Group B children aged 5–6; Banjar, South Kalimantan	*Cuk-cuk bimbi*	Children at expected level or above rose from 33.3% to 100%
Kemba et al. (2026)	Pre-experiment	7 Group B children aged 5–6; Ketapang	*Kucing dan tikus*	Cooperation mean 67.1 to 82.9
Napiqoh & Wirdasari (2026)	Pre-experiment (8 sessions)	36 children; TK Negeri 48 Bukit Makmur	Six group games	Social skills mean 58.6 to 80.6

Source: Data extracted from the included studies.

Table 2 shows that most studies examined a single game with a small group of children over a short period. Sample sizes ranged from seven children (Kemba et al., 2026) to 123 children (Delima et al., 2022), and several studies involved fewer than 15 children. Eleven studies measured cooperation directly, five treated cooperation as one component of a broader construct such as character, prosocial behaviour, social-emotional ability, or social skills, and six reported broader social outcomes without a separate cooperation score. The table also shows that the games studied were overwhelmingly team or group games, and that *bakiak* alone was examined in five studies. The distribution of the studies by year and by research design is shown in Figure 2.

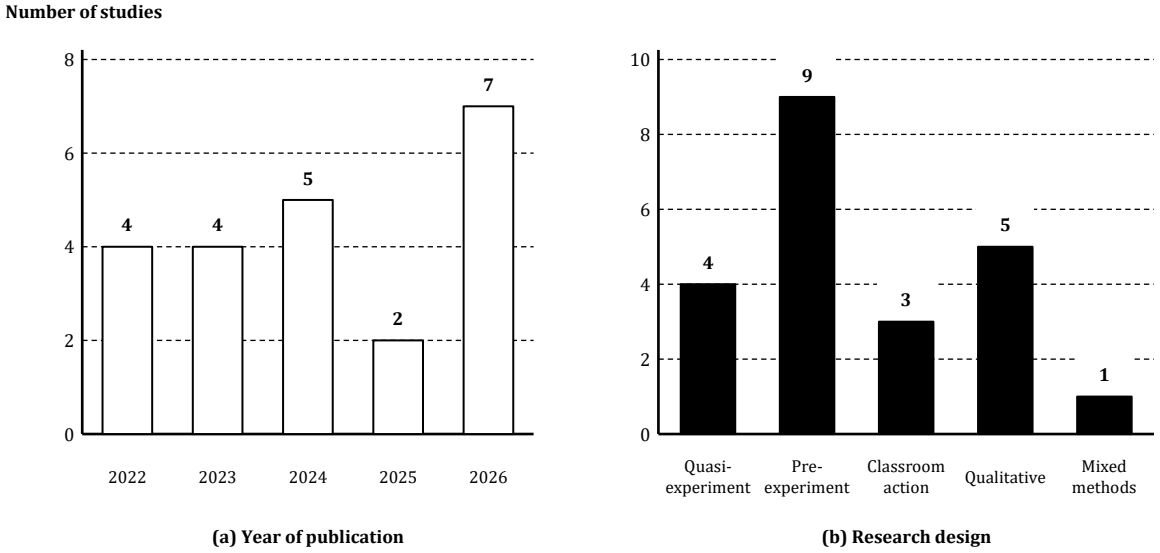


Figure 2. Distribution of the included studies by year of publication and research design (n = 22)

Source: Data extracted from the included studies (see Table 2).

Figure 2 shows two clear patterns. The first panel indicates that research on this topic has accelerated recently, with seven of the 22 studies published in 2026. The second panel shows that pre-experimental one-group designs dominate the evidence base, followed by qualitative studies, whereas quasi-experimental studies with a control group remain few. This pattern matters for interpretation, because a design without a control group cannot separate the effect of the game from the effects of maturation, repeated observation, or the novelty of the activity. The predominance of recent, small-scale, single-group studies thus describes an evidence base that is promising but still at an early stage.

Reported Effects on Peer Cooperation and Related Social Skills

All 22 studies reported positive changes in cooperation or related social outcomes after children played traditional games. In the classroom action studies, the proportion of children reaching the expected level of cooperation rose across cycles. In the study at TK Pertiwi Ranting Martapura, the proportion of Group B children whose cooperation and social interaction were developing as expected or very well rose from one third before the action to all 15 children at the end of the second cycle (Isnaniah et al., 2026), and the mean cooperation level in a Papuan kindergarten rose steadily over two cycles of *bakiak* (Setyaningsih et al., 2022). The engklek study at TK Pertiwi Karangkemiri likewise reported improvements in discipline, patience, and cooperation, although without numerical results (Rahayu et al., 2025).

The pre-experimental and quasi-experimental studies reported higher post-test than pre-test scores, and most reported statistically significant differences. Gains in cooperation were reported after *bakiak* (Lestari et al., 2023; Susanti et al., 2023), *kucing dan tikus* (Kemba et al., 2026), and a package of six group games (Napiqoh & Wirdasari, 2026). Studies of broader outcomes reported gains in social development after *mallogo* (Tasnim et al., 2022) and *sepak tekong* (Busty et al., 2026), in social skills after *bola bekel* (Ambarwati et al., 2026), in prosocial behaviour after *balap karung* (Yabu et al., 2024) and *tarompah* (Siregar & Nabila, 2022), in character, including cooperation, after *kucing dan tikus* (Durrotunnisa et al., 2026), and in psychosocial development after the use of a Minangkabau traditional game book (Delima et al.,

2022). The qualitative studies complemented these results by describing what cooperation looked like during play: children worked towards shared goals, helped one another, respected friends, communicated, took turns, and resolved disagreements (Darmawanti & Oktaviana, 2024; Fajri & Aini, 2023; Febyarum & Ichsan, 2023; Hurri et al., 2026; Safitri, 2024).

The studies operationalised cooperation in different ways, which affects how their results can be compared. Most quantitative and classroom action studies used observation sheets developed for the study, with indicators such as cooperating with friends, following rules, helping, communicating, and playing without quarrelling (Isnaniah et al., 2026), or active participation, shared goals, role division, rule adherence, and organised social interaction (Kemba et al., 2026). Several studies scored these indicators on the four-level developmental scale used in Indonesian kindergartens, from not yet developed to very well developed, and then reported percentages of children at each level (Ambarwati et al., 2026; Isnaniah et al., 2026), whereas others summed the ratings into a score and compared means before and after the games (Lestari et al., 2023; Susanti et al., 2023). The studies of broader outcomes relied on instruments in which cooperation was only one item or subscale, such as character indicators that combined rule following, resilience, and cooperation (Durrotunnisa et al., 2026) or a social skills sheet covering cooperation, communication, sharing, rule compliance, self-control, and empathy (Napiqoh & Wirdasari, 2026). Only the Turkish study combined quantitative social skills assessments with observations and interviews with educators (Özcan & Sakız, 2025). This diversity means that the reviewed studies agree on the direction of change but do not yet share a common definition or measure of peer cooperation.

The consistency of the direction of these findings across games, regions, and designs is notable. It agrees with developmental accounts that place rule-governed group play at the centre of social learning in the early years (Bukowski et al., 2018; Smith & Roopnarine, 2018) and with the international finding that traditional child games can strengthen communication, emotional regulation, and social interaction among preschoolers in an inclusive setting (Özcan & Sakız, 2025). At the same time, the consistency should not be read as a precise estimate of effect. Because almost all studies used single-group designs, small samples, and instruments developed for the study, the size of the effects cannot be compared across studies, and publication bias towards positive results cannot be excluded.

Game Mechanisms that Support Cooperation

The games examined differ in the way they require children to coordinate with one another. Grouping them according to this feature produced five clusters. Table 3 presents the clusters, the studies in each, the cooperation indicators reported, and the mechanism through which each cluster appears to support cooperation.

Table 3. Clusters of traditional games and the cooperation indicators reported

Cluster and games	Studies	Cooperation indicators reported	Mechanism
Synchronised team movement: *bakiak*	Lestari et al. (2023); Novitasari et al. (2024); Setyaningsih et al. (2022); Susanti et al. (2023); Yisa & Yaswinda (2024)	Working together, *gotong royong*, responsibility, peer interaction	Team success depends on the coordinated steps of every member
Team strategy: *bentengan*, *gobak sodor*	Darmawanti & Oktaviana (2024); Fajri & Aini (2023); Febyarum & Ichsan (2023)	Shared goals, mutual help, respect, teamwork	Roles such as guarding and attacking are divided, and a strategy must be agreed
Protective roles: *kucing dan tikus*	Durrotunnisa et al. (2026); Kemba et al. (2026)	Shared goals, role division, rule adherence, organised interaction	Children protect a peer together, and roles rotate
Turn-taking and rules: *engklek*, *lompat karet*, *bola bekel*, *mallogo*, *balap karung*	Ambarwati et al. (2026); Hurri et al. (2026); Rahayu et al. (2025); Safitri (2024); Tasnim et al. (2022); Yabu et al. (2024)	Turn-taking, rule compliance, patience, communication, conflict resolution, prosocial behaviour	Waiting, monitoring, and enforcing shared rules build the preconditions of cooperation
Other group games and multi-game programmes: *cuk-cuk bimbi*, *tarompah*, *sepak tekong*, game packages	Busty et al. (2026); Delima et al. (2022); Isnaniah et al. (2026); Napiqoh & Wirdasari (2026); Özcan & Sakız (2025); Siregar & Nabila (2022)	Cooperating, helping, communicating, sharing, empathy, playing without quarrelling, social development	Group participation, variety, and repetition across sessions

Source: Authors' synthesis of the included studies.

Table 3 indicates that the clusters differ in how directly they demand cooperation. In synchronised team-movement games such as *bakiak*, several children must step together, so that the success of the team depends on the coordination of all its members; it is therefore unsurprising that this cluster contains the largest number of studies measuring cooperation directly. Team strategy games such as *bentengan* and *gobak sodor* add a cognitive layer, because children must divide roles such as guarding and attacking and agree on a strategy, which matches the shared goals, mutual help, and respect reported in these studies (Darmawanti & Oktaviana, 2024; Fajri & Aini, 2023; Febyarum & Ichsan, 2023). Circle games with protective roles such as *kucing dan tikus* require children to protect a peer collectively, and the indicators reported, namely shared goals, role division, and rule adherence (Kemba et al., 2026), fit this demand closely.

In the fourth cluster, turn-taking and rule-based games such as *engklek*, *lompat karet*, *bola bekel*, and *mallogo* are less obviously cooperative because children often play individually in turn. The studies nevertheless show that these games exercise the preconditions of cooperation, including waiting, following and enforcing shared rules, communicating, and resolving disputes (Ambarwati et al., 2026; Hurri et al., 2026; Safitri, 2024; Tasnim et al., 2022).

This finding is consistent with the view that cooperation in early childhood depends on the ability to commit to shared norms and to hold partners to them (Tomasello, 2016). The fifth cluster, which brings together other group games and multi-game programmes, is the most heterogeneous. It suggests that variety and repetition may matter as much as the choice of a single game: the six-game package delivered over eight sessions reported a gain across cooperation, communication, sharing, rule compliance, self-control, and empathy (Napiqoh & Wirdasari, 2026), and the Turkish programme combined several games within an inclusive classroom (Özcan & Sakız, 2025).

The relationships among game features, cooperation indicators, and design implications are summarised in the conceptual model in Figure 3.

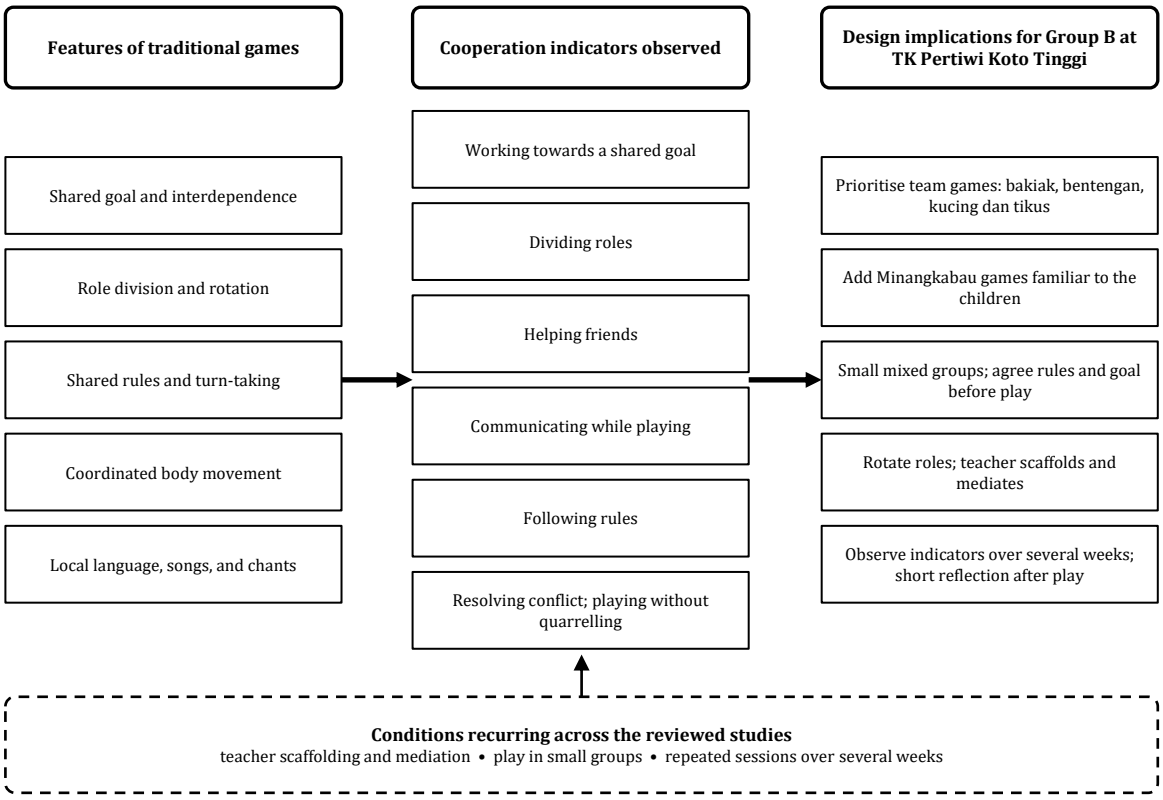


Figure 3. Conceptual model linking traditional game features, cooperation indicators, and design implications for Group B at TK Pertiwi Koto Tinggi

Source: Authors' synthesis of the review findings.

Figure 3 should be read from left to right. The left column lists the features of traditional games identified in the synthesis, namely shared goals and interdependence, role division, shared rules and turn-taking, coordinated movement, and local language and songs. The middle column lists the cooperation indicators most often observed in the reviewed studies. The right column translates these links into design principles for Group B at TK Pertiwi Koto Tinggi. The band at the bottom represents conditions that recur across the reviewed studies, namely teacher scaffolding, play in small groups, and repeated sessions. The model is a synthesis of the reviewed evidence, and its links are hypotheses to be tested rather than established causal paths.

The Role of Teachers and Learning Conditions

A consistent theme across the studies is that games do not teach cooperation on their own. In the classroom action study at TK Pertiwi Ranting Martapura, the improvement was attributed to teacher scaffolding through examples, directions, motivation, and positive reinforcement, although the study could not separate the contribution of scaffolding from that of the game (Isnaniah et al., 2026). The qualitative studies likewise describe teachers explaining rules, forming groups, and mediating conflicts during play (Darmawanti & Oktaviana, 2024; Hurri et al., 2026). This pattern agrees with the view that the developmental value of play depends on the quality of adult support and on the balance between child initiative and guidance (Bruce et al., 2017; Saracho, 2021; Whitebread et al., 2019).

Repetition and dosage also appear to matter. The studies that reported the clearest gains involved several sessions, such as eight treatment sessions of *bakiak* (Lestari et al., 2023), eight sessions of a multi-game package (Napiqoh & Wirdasari, 2026), and two cycles of classroom action (Isnaniah et al., 2026; Setyaningsih et al., 2022). Cooperation is a disposition built through repeated experience rather than a skill acquired in a single activity, which is consistent with research on how social care is internalised through sustained programmes rather than one-off events (Ummah et al., 2025). The finding also offers a contrast with research on digital gamification, which has shown benefits for literacy in Indonesian primary schools (Ardiansyah et al., 2026). Traditional games achieve their social effect through face-to-face coordination with peers, something that screen-based games for individual learners do not usually require.

Cooperation as a Cultural as well as a Developmental Achievement

The reviewed studies also suggest that cooperation in traditional games is learned within a cultural frame. Several Indonesian studies explicitly linked the games to *gotong royong*, the value of mutual cooperation that is part of the national educational profile (Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi, 2022), and one study measured the *gotong royong* dimension directly after children played *bakiak* (Novitasari et al., 2024). Others emphasised that traditional games preserve local culture while supporting social development (Hurri et al., 2026). Anthropological work on childhood shows that children's games in many societies are a primary medium through which children learn the social expectations of their communities, often with little direct adult instruction (Lancy, 2022). From this perspective, traditional games do not only exercise a general developmental skill; they also introduce children to the forms of cooperation valued in their own culture.

This cultural dimension is particularly relevant to West Sumatra. Minangkabau child-rearing has long relied on songs, chants, and simple games, and the matrilineal extended family shares responsibility for early childhood care (Wirdanengsih & Wita, 2025). Traditional games played in Padang also carry Minangkabau words and expressions, so that playing them supports the maintenance of the local language (Velini & Suryadi, 2023). When a kindergarten in a Minangkabau setting uses such games, children may learn to cooperate in a language and through practices that they also meet at home and in the nagari. The reviewed studies did not test whether this cultural familiarity strengthens the effect on cooperation, but the combination of developmental and cultural relevance offers a reason to give local games a place in the Group B curriculum. It also agrees with the broader observation that play-based learning is most meaningful when it connects with children's everyday cultural experience (Bruce et al., 2017; Smith & Roopnarine, 2018).

Quality and Limitations of the Evidence

The appraisal revealed several weaknesses that limit the strength of the conclusions. Only four studies included a control group (Busty et al., 2026; Durrotunnisa et al., 2026; Siregar & Nabila, 2022; Yisa & Yaswinda, 2024), and none reported random assignment. Samples were small, and two studies did not report the number of participants (Ambarwati et al., 2026; Fajri & Aini, 2023). Instruments were usually observation sheets developed by the researchers, and evidence of their reliability was rarely reported. Several studies reported incomplete or inconsistent statistics. In one quasi-experiment, two different significance values were reported for the same comparison, one below and one above the conventional threshold (Yisa & Yaswinda, 2024). In another study, the very large reported effect size, together with an unreported cooperation subscale, makes the magnitude of change difficult to interpret (Napiqoh & Wirdasari, 2026). In a third, the number of children was not explicitly stated and had to be inferred from the results (Novitasari et al., 2024).

These weaknesses do not cancel the consistent direction of the findings, but they mean that the evidence is better described as promising than as conclusive. The pattern is common in early childhood research in Indonesia, where classroom action research and small pre-experiments are often the most feasible designs for practising teachers. Systematic reviews in other areas of Indonesian education have reached similar conclusions about the need for stronger designs and clearer reporting (Idham et al., 2026; Manaf et al., 2026). Future studies would make a greater contribution if they used comparison groups, larger samples drawn from several kindergartens, validated cooperation instruments, and complete statistical reporting, including effect sizes.

Implications for Group B at TK Pertiwi Koto Tinggi

The synthesis suggests several implications for enhancing peer cooperation among Group B children at TK Pertiwi Koto Tinggi. First, teachers can give priority to games that make cooperation necessary rather than optional. Synchronised team games such as *bakiak*, team strategy games such as *bentengan*, and protective-role games such as *kucing dan tikus* have the most direct evidence of improving cooperation among children aged five to six (Kemba et al., 2026; Lestari et al., 2023; Susanti et al., 2023). Turn-taking games such as *engklek* and *lompat karet* can complement them by building rule following and patience. Several of these games are already studied in West Sumatran kindergartens (Novitasari et al., 2024; Yisa & Yaswinda, 2024).

Second, the Minangkabau setting of the kindergarten offers resources that the reviewed studies have only begun to use. The study of a Minangkabau traditional game book reported gains in the psychosocial development of preschool children in Padang (Delima et al., 2022). The quasi-experiment on *sepak tekong*, a game also recognised as part of Minangkabau play culture (Velini & Suryadi, 2023), reported gains in social development (Busty et al., 2026). Using games that children may already know from home and their nagari, and that carry Minangkabau words and songs, may make participation easier and link kindergarten learning with family practices of shared caregiving (Wirdanengsih & Wita, 2025). Whether local games are more effective than games from other regions, however, has not yet been tested.

Third, teachers can plan the activity rather than simply allowing free play, in line with the principle of intentional teaching in early childhood education (Bredekamp, 2019). On the basis of the reviewed evidence, a sequence for Group B could involve forming small mixed groups,

explaining and agreeing on the rules and the shared goal before play, assigning and rotating roles, observing the children during play, and holding a short reflection afterwards in which the children talk about how they helped one another. Teachers can then adjust group composition and the difficulty of the game across sessions. Fourth, cooperation can be assessed with observation indicators already used in the reviewed studies, such as working towards a shared goal, dividing roles, helping friends, communicating, following rules, and playing without quarrelling (Isnaniah et al., 2026; Kemba et al., 2026), scored on the developmental scale used in Indonesian kindergartens. Repeating the observation over several weeks would allow teachers at TK Pertiwi Koto Tinggi to document change in their own Group B children and to contribute local evidence that the current literature lacks.

Theoretical Contribution and Limitations of the Review

This review contributes to the literature in two ways. Empirically, it brings together for the first time the recent evidence on traditional games and peer cooperation among kindergarten children, showing a consistent positive direction of findings alongside a weak evidential base. Conceptually, it proposes that the cooperative value of a traditional game depends on the way the game structures interdependence among players, a proposition that links the descriptive literature on traditional games with developmental accounts of shared intentionality and peer relationships (Bukowski et al., 2018; Tomasello, 2019). The five clusters and the conceptual model in Figure 3 offer a framework that teachers can use to select games and that researchers can use to formulate testable hypotheses.

The review also has limitations. The database search relied on a single bibliographic database, and 27 of its records could not be exported; supplementary web searching reduced but could not remove the risk that relevant studies were missed. Several potentially eligible reports could not be retrieved. Data were extracted mainly from abstracts and article pages, so details reported only in full texts may have been missed. The search was limited to Indonesian and English terms and to journal articles, which excludes theses and reports that may contain relevant evidence. Finally, the implications for TK Pertiwi Koto Tinggi are derived from studies conducted elsewhere and need to be tested in the kindergarten itself.

CONCLUSION

This systematic review of 22 studies published between 2022 and 2026 found that traditional games are consistently associated with positive changes in peer cooperation and related social skills among kindergarten children, most of them in Group B. The evidence base is recent and growing, but it is dominated by small single-group studies with researcher-made instruments, so the findings should be treated as promising rather than conclusive. The synthesis showed that games differ in how directly they demand cooperation: synchronised team-movement games such as *bakiak*, team strategy games such as *bentengan* and *gobak sodor*, and protective-role games such as *kucing dan tikus* require children to pursue shared goals and divide roles, while turn-taking games such as *engklek* and *lompat karet* build the rule following, patience, and communication on which cooperation depends. The effect of these games appears to depend on teacher scaffolding, small-group organisation, and repeated sessions. For Group B at TK Pertiwi Koto Tinggi, Lima Puluh Kota Regency, the review recommends a planned programme that combines cooperative team games with Minangkabau games familiar to the children, sets shared goals and rotating roles, includes guided reflection, and assesses cooperation with clear observation indicators over several weeks. Future research

should test such a programme in the kindergarten itself, compare local and non-local games, and use comparison groups, larger samples from several kindergartens, and validated instruments in order to establish more firmly how and for whom traditional games strengthen peer cooperation.

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