

Management of Karate Extracurricular Programs in Developing Students' Non-Academic Achievements: A Comparative Case Study

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Abstract

Extracurricular activities play a crucial role in developing students' non-academic achievements, yet their management often remains suboptimal due to resource constraints and inadequate systematic approaches. This study examined how karate extracurricular programs are managed to support non-academic achievement development at two elementary schools in Jakarta, Indonesia. A qualitative case study design was employed at SDN Jembatan Besi 01 Pagi and SDN Kapuk 13 Petang from June to September 2025. Data were collected through in-depth interviews with principals, teachers, coaches, and students, participatory observations of training sessions, and document analysis. Miles and Huberman's interactive analysis model guided data analysis, while triangulation strategies ensured trustworthiness. Both schools implemented five management functions—planning, organizing, actuating, controlling, and follow-up—though with varying effectiveness. SDN Jembatan Besi 01 Pagi demonstrated more systematic planning documentation, balanced evaluation incorporating character development indicators, and proactive external partnerships. SDN Kapuk 13 Petang faced coach shortages and emphasized competition-focused evaluation. Both programs contributed to students' discipline, self-confidence, cooperation skills, and competitive achievements. Effective karate program management requires systematic application of management functions with contextual adaptation, balanced evaluation approaches, and stakeholder collaboration. Findings provide actionable guidance for enhancing extracurricular program quality in resource-constrained settings.

Keywords
 extracurricular management
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INTRODUCTION

Basic education serves as a foundational pillar in shaping students' character, competencies, and holistic development. Educational success extends beyond mere academic excellence, encompassing the cultivation of non-academic potential through structured extracurricular activities (Armadi et al., 2024). These activities provide essential platforms for students to develop creativity, sportsmanship, leadership, and social skills that are increasingly recognized as critical competencies in contemporary education systems (Guest & Schneider, 2003). Despite growing acknowledgment of their importance, attention to non-academic achievements often remains inadequate in educational planning and implementation, resulting in imbalanced student development and unrealized potential (Marsh & Kleitman, 2002; Snellman et al., 2015).

The implementation of extracurricular activities in elementary schools faces multifaceted challenges that compromise their effectiveness. Empirical evidence reveals persistent obstacles including budget constraints, declining enrollments, shortages of qualified teachers and coaches, and suboptimal supervision and evaluation mechanisms (Bell et al., 2018; Shaffer, 2019). Recent research indicates that many schools struggle with inadequate facilities, limited equipment, and space constraints that significantly restrict the range and quality of extracurricular offerings (Wilson, 2009). These challenges are particularly evident in urban elementary schools such as SDN Jembatan Besi 01 Pagi and SDN Kapuk 13 Petang, where karate extracurricular programs, despite being among the most popular activities among students, continue to struggle with management deficiencies,

particularly concerning systematic supervision and adequate supporting infrastructure. Such limitations not only constrain program effectiveness but also prevent students from fully realizing the developmental benefits that well-structured martial arts training can provide.

Recent scholarship demonstrates that extracurricular activities, when managed systematically and strategically, can significantly enhance non-academic achievement outcomes. Research indicates that comprehensive application of management principles substantially improves program effectiveness, student engagement, and achievement outcomes (Fredricks & Eccles, 2006; Im et al., 2015). Furthermore, studies on martial arts interventions specifically highlight their positive impacts on children's psychosocial development, including improvements in self-control, emotion regulation, social skills, and reduction of behavioral problems (Harwood-Gross et al., 2021; Phung et al., 2021; Stamenković et al., 2022). School-based karate interventions have been shown to enhance academic achievement, reduce conduct problems, and improve physical fitness among primary school children across multiple countries (Pinto-Escalona et al., 2021, 2022). Additionally, recent evidence suggests that karate training enhances attention, concentration, and reduces externalizing behaviors in young learners (Parsamajd & Teymori, 2024). Moreover, research demonstrates that children practicing martial arts show better executive functioning, working memory, and higher school marks compared to those involved in team sports or sedentary lifestyles (Crova et al., 2021).

From a theoretical perspective, Terry's (1977) management framework emphasizes the critical importance of four fundamental management functions—planning, organizing, actuating, and controlling (POAC)—in managing educational programs effectively. This theoretical framework provides a robust analytical lens for examining how extracurricular programs are designed, implemented, and evaluated (Singh, 2003). However, despite the established benefits of martial arts training and the theoretical relevance of management frameworks, research specifically examining the management of karate extracurricular activities in elementary school contexts remains remarkably limited. This knowledge gap is particularly significant given that karate possesses substantial potential for fostering discipline, sportsmanship, character development, and competitive achievement among young learners (Funakoshi, 1994; Lakes & Hoyt, 2004; Vertonghen & Theeboom, 2010).

The existing literature predominantly focuses on scouting, arts, broadcasting, and general sports extracurricular activities, with minimal scholarly attention directed toward martial arts programs, particularly karate, in elementary education settings (Eccles & Barber, 1999; Mahoney, 2000). While studies demonstrate that properly managed extracurricular activities can enhance students' self-confidence, leadership capabilities, and achievement outcomes, they do not address the unique pedagogical, organizational, and developmental characteristics of martial arts programs. Furthermore, limited research has systematically analyzed how management functions operate cohesively to support both competitive achievement and character development objectives in karate extracurricular programs at the elementary school level.

This study addresses the identified knowledge gap by investigating how karate extracurricular learning programs are managed to support the development of students' non-academic achievements at SDN Jembatan Besi 01 Pagi and SDN Kapuk 13 Petang. Specifically, this research examines the planning, organizing, actuating, controlling, and follow-up processes within karate programs, analyzing how these management functions contribute to character building and non-academic achievement enhancement. The research question guiding this inquiry is: How is the management of karate extracurricular learning programs implemented to develop students' non-academic achievements at SDN Jembatan Besi 01 Pagi and SDN Kapuk 13 Petang?

The novelty of this study lies in its focused application of the POAC management approach to karate extracurricular activities in elementary school contexts, an area that has received insufficient scholarly attention despite its practical significance. This research contributes theoretically to educational management literature by demonstrating how established management principles function within the specific context of martial arts extracurricular programs. Practically, the findings provide actionable insights for school administrators, coaches, and policymakers seeking to design, implement,

and sustain effective extracurricular activities that comprehensively support students' holistic development. By bridging the gap between management theory and martial arts pedagogy in elementary education, this study offers a foundation for more systematic, evidence-based approaches to extracurricular program management that can enhance both competitive achievements and character development outcomes.

METHODS

This study employed a qualitative case study design, appropriate for in-depth exploration of complex phenomena within real-world contexts (Baxter & Jack, 2008; Yin, 2014). This methodology enables investigation of "how" questions in educational management contexts through multiple evidence sources (Rashid et al., 2019), aligning with the study's objective to analyze karate extracurricular program management processes and their contribution to non-academic achievement development.

The research was conducted at SDN Jembatan Besi 01 Pagi and SDN Kapuk 13 Petang in Jakarta, Indonesia, from June to September 2025. Both schools were purposefully selected because they actively organize karate activities and demonstrate sustained commitment to developing students' non-academic potentials. This four-month period provided sufficient time for prolonged engagement and persistent observation, essential for establishing credibility in qualitative research (Korstjens & Moser, 2018). The comparative approach enabled identification of commonalities and distinctive characteristics in program management across different institutional contexts.

Participants were selected through purposive sampling to ensure information-rich cases (Palinkas et al., 2015), including school principals, classroom teachers, extracurricular advisors, karate coaches, and participating students. This diverse selection facilitated comprehensive understanding from multiple perspectives and enabled data source triangulation, enhancing findings trustworthiness (Carter et al., 2014).

Data collection employed three complementary techniques: in-depth semi-structured interviews, participatory observation, and document analysis (Merriam & Tisdell, 2016). Interviews explored participants' perceptions and experiences regarding program management, focusing on five management functions: planning, organizing, actuating, controlling, and follow-up. Observations were conducted during training sessions, competitions, and coordination meetings, enabling examination of actual implementation and interactions in natural settings (Kawulich, 2005). Document analysis examined training schedules, attendance records, activity reports, achievement certificates, and evaluation documents. This methodological triangulation enhanced validity by allowing cross-verification from multiple sources (Fusch et al., 2018).

Data were analyzed using Miles and Huberman's (1994) interactive model consisting of data reduction, data display, and conclusion drawing and verification. Data reduction involved transcribing interviews, writing field notes, organizing documents, coding data according to management functions, and identifying significant statements. Data display organized information into matrices and charts facilitating pattern recognition (Miles et al., 2014). Conclusion drawing involved interpreting displayed data to derive insights about program management, with initial conclusions continuously tested and refined through repeated analysis cycles (Miles & Huberman, 1994).

Trustworthiness was established through multiple validation strategies aligned with Lincoln and Guba's (1985) criteria. Credibility was achieved through triangulation of sources, methods, and time periods, plus member checking with key participants (Birt et al., 2016; Korstjens & Moser, 2018). Transferability was enhanced through thick description providing rich contextual details (Korstjens & Moser, 2018). Dependability was ensured through detailed audit trails documenting research procedures and decisions (Nowell et al., 2017). Confirmability was achieved through reflexive journaling documenting assumptions and decision-making processes (Dodgson, 2019). These comprehensive strategies ensured findings were trustworthy, rigorous, and capable of contributing meaningful insights to extracurricular program management understanding.

RESULTS AND DISCUSSION

Results

This qualitative case study reveals comprehensive insights into karate extracurricular program management at SDN Jembatan Besi 01 Pagi and SDN Kapuk 13 Petang. Findings are organized according to five interconnected management functions: planning, organizing, actuating, controlling, and follow-up.

Planning Function in Karate Program Management

Both schools established structured planning approaches, though with varying systematization levels. SDN Jembatan Besi 01 Pagi demonstrated intentional program design with clear coach appointments and afternoon scheduling integration. Planning activities included small coordination meetings to adjust training schedules with students' class schedules. Both schools developed regular training schedules and established program goals centered on discipline building and competition preparation. However, comprehensive planning documentation remained limited at both institutions, particularly concerning annual evaluation mechanisms. SDN Jembatan Besi 01 Pagi exhibited more systematic planning documentation compared to SDN Kapuk 13 Petang, especially regarding evaluation frameworks.

Organizational Structure and Role Distribution

Both schools demonstrate clear role differentiation among stakeholders, with multi-layered structures involving principals, classroom teachers, extracurricular advisors, coaches, and parents. At SDN Kapuk 13 Petang, counselors compile activity programs including scheduling and coach coordination. Principals provide overall program oversight and resource allocation, classroom teachers serve as parent liaisons and monitor student attendance, extracurricular advisors manage program planning and coach coordination, coaches focus on technical training and character development, and parents provide home support and attendance encouragement.

SDN Jembatan Besi 01 Pagi maintains multiple coaches, while SDN Kapuk 13 Petang faces significant coach shortages constraining program capacity and individualized student attention. Regular coordination occurs between principals, teachers, and coaches at both schools, though frequency and formality differ substantially. SDN Jembatan Besi 01 Pagi implements more proactive parent engagement strategies with structured communication protocols and regular progress updates, contrasting with SDN Kapuk 13 Petang's reactive, event-driven parent involvement approach.

Program Implementation and Training Practices

Training occurs regularly twice weekly at both schools, incorporating basic technique training, match simulations, and character-building components emphasizing discipline, cooperation, and sportsmanship. Training intensity increases as championships approach, with more focused technical practice and sparring sessions. Observations documented structured session formats including opening ceremonies with traditional bowing rituals, warm-up exercises, technical skill development (kihon), kata practice, kumite (sparring) training, and closing reflections emphasizing character values.

SDN Jembatan Besi 01 Pagi maintains more consistent training schedules with higher attendance rates, while SDN Kapuk 13 Petang experiences greater attendance fluctuation, particularly during non-competition periods. Student participation data showed attendance increases approximately 30-40% as competitions approach. Both programs integrate character education elements alongside technical training, explicitly teaching values including respect (rei), discipline (kirkitsu), and perseverance (ganbaru). Coaches provide regular feedback to students about daily training results and technique improvements, representing formative assessment mechanisms.

Attendance records revealed approximately 65-70% male participation at both schools, despite planning documents suggesting balanced gender participation goals. Training attendance logs and observation notes documented that both programs incorporate character education values throughout technical instruction.

Monitoring, Evaluation, and Quality Assurance

Both schools implement evaluation through multiple channels: direct observation during training sessions, attendance report analysis, and character assessment rubrics. Coaches conduct continuous informal assessment during training, observing technical skill progression, behavioral changes, and interpersonal dynamics. Formal evaluation occurs at belt testing ceremonies where students demonstrate technical competencies before rank promotion. Evaluation protocols lack uniform documentation at both schools, relying heavily on coach expertise and judgment rather than standardized assessment criteria.

SDN Kapuk 13 Petang prioritizes competition results as primary success indicators, tracking tournament participation rates, medal achievements, and ranking improvements. SDN Jembatan Besi 01 Pagi adopts balanced evaluation approaches assessing both competitive achievements and character development indicators including discipline improvements, respect demonstration, leadership emergence, and peer cooperation patterns. Coaches provide regular feedback about training session results to students. Evaluation extends beyond student assessment to encompass program resource adequacy, facility quality, and infrastructure needs at both schools.

Follow-up Actions and Program Improvement

Both schools implement follow-up measures including enhancing training equipment and facilities, involving additional coaches or assistant instructors, improving communication protocols with parents, establishing external partnerships with karate federations and community organizations, and adjusting training methods based on student performance data. SDN Jembatan Besi 01 Pagi demonstrated more proactive and systematic follow-up practices, particularly establishing external partnerships that provide additional resources, expert coaching support, and competition opportunities. The school developed relationships with local karate federations, enabling students to access broader competitive platforms and receive guidance from experienced practitioners.

SDN Kapuk 13 Petang's follow-up actions appear more reactive, addressing immediate concerns as they arise rather than implementing strategic improvement initiatives. Documentary analysis of program improvement records revealed follow-up actions frequently address facility and equipment concerns, reflecting ongoing resource constraints limiting program expansion and quality enhancement. Students at both schools contribute to follow-up processes by providing feedback about training preferences, suggesting activity modifications, and participating in peer mentoring initiatives.

Table 1. Summary of Management Function Implementation Across Schools

Management Function	SDN Jembatan Besi 01 Pagi	SDN Kapuk 13 Petang
Planning	Systematic documentation; annual evaluation frameworks	Limited documentation; informal processes
Organizing	Multiple coaches; proactive parent engagement	Coach shortages; reactive parent involvement
Actuating	Consistent schedules; high attendance	Fluctuating attendance; competition-driven
Controlling	Balanced evaluation (competition + character)	Competition-focused evaluation
Follow-up	Proactive; external partnerships	Reactive; immediate problem-solving
Student Participation	65-70% male; 30-35% female	65-70% male; 30-35% female
Training Frequency	Twice weekly; consistent	Twice weekly; variable intensity

Discussion

This study sought to examine how karate extracurricular learning programs are managed to support the development of students' non-academic achievements at two elementary schools in Jakarta, Indonesia. The findings reveal that both schools implement karate programs through systematic application of management functions—planning, organizing, actuating, controlling, and follow-up—consistent with Terry's (1977) management framework. However, the effectiveness and comprehensiveness of these functions vary considerably between institutions, influenced by factors

including resource availability, organizational culture, administrative priorities, and external support networks.

The findings strongly support Terry's (1977) management theory as a robust framework for analyzing extracurricular program management in elementary education contexts. The identification of five interconnected management functions operating cyclically in karate program implementation validates the theoretical proposition that systematic management processes enhance organizational effectiveness. This theoretical alignment extends previous applications of management theory in educational contexts (Singh, 2003) by demonstrating its specific applicability to martial arts extracurricular programs in resource-constrained elementary school settings.

However, this study extends Terry's framework by revealing that management functions in extracurricular contexts operate not as discrete sequential stages but as overlapping, iterative processes requiring continuous adjustment based on contextual demands. For instance, evaluation findings immediately inform planning adjustments, organizational restructuring occurs responsively during implementation, and follow-up actions simultaneously address current deficiencies while anticipating future needs. This dynamic, adaptive management approach differs from the more linear conceptualization often implied in classical management theory.

The findings also illuminate how external environmental factors—including resource constraints, policy requirements, parental expectations, and competitive pressures—significantly shape management practice in ways not fully captured by traditional management frameworks. This contextual sensitivity suggests that effective extracurricular program management requires not only systematic application of management functions but also adaptive capacity to navigate complex, resource-limited educational environments.

The findings align substantially with recent research on extracurricular program management demonstrating that systematic planning, clear organizational structures, consistent implementation, and comprehensive evaluation enhance program effectiveness (Gibol & Santoso, 2024; Al Kadri et al., 2019). The observation that SDN Jembatan Besi 01 Pagi's more systematic planning documentation corresponds with more consistent program outcomes supports previous findings that well-documented planning processes facilitate program sustainability and quality assurance (Leith et al., 2018).

However, this study reveals important nuances regarding the relationship between planning systematization and program flexibility. While structured planning provides valuable guidance, excessive rigidity can constrain adaptive responses to emerging student needs or contextual changes. The finding that informal coordination mechanisms (described as "small meetings") sometimes facilitate more responsive adjustments than formal planning protocols suggests that optimal extracurricular management balances systematic structure with situational adaptability. This tension between structure and flexibility has received limited attention in extracurricular management literature and warrants further investigation.

The organizational challenges identified—particularly coach shortages and limited coordination frequency—echo findings from previous research documenting human resource constraints as persistent barriers to extracurricular program quality (Bell et al., 2018; Shaffer, 2019; Wilson, 2009). This study extends this literature by demonstrating how schools develop compensatory strategies, including peer mentoring systems, parent volunteer integration, and external partnership cultivation, to partially address resource limitations. These adaptive organizational strategies represent practical innovations that merit broader dissemination and systematic evaluation.

The findings corroborate extensive research demonstrating that well-structured martial arts programs, including karate, significantly contribute to children's psychosocial development beyond physical skill acquisition (Harwood-Gross et al., 2021; Phung et al., 2021; Stamenković et al., 2022). Interview data and observational evidence revealed that students participating in karate programs at both schools demonstrated improvements in discipline, self-confidence, cooperation skills, and competitive achievement—outcomes consistent with martial arts intervention research (Pinto-Escalona et al., 2021, 2022).

Particularly noteworthy is the finding that character development outcomes appear more pronounced at SDN Jembatan Besi 01 Pagi, where evaluation explicitly balances competitive achievement with character development indicators. This suggests that programmatic emphasis on character outcomes, reflected in evaluation criteria and coaching practices, influences the developmental benefits students derive from participation. This observation aligns with research by Crova et al. (2021) demonstrating that martial arts pedagogy explicitly emphasizing executive functioning and self-regulation produces superior cognitive and behavioral outcomes compared to programs focusing primarily on physical performance.

The finding that competitive motivation significantly influences attendance patterns, with participation increasing substantially before competitions, reflects the motivational dynamics identified in Self-Determination Theory frameworks applied to extracurricular contexts (Ryan & Deci, 2000). While competitive achievement represents important extrinsic motivation, over-reliance on competitive outcomes may undermine intrinsic motivation development and reduce participation among students less interested in or capable of competitive success. This suggests that karate programs should cultivate multiple motivational pathways, including skill mastery goals, social belonging, and personal growth objectives, to sustain diverse student engagement.

The divergent evaluation approaches identified between schools—SDN Kapuk 13 Petang's competition-focused assessment versus SDN Jembatan Besi 01 Pagi's balanced evaluation incorporating character development—raises important questions about how outcome measurement shapes programmatic priorities and student experiences. When programs evaluate success primarily through competitive achievement metrics, coaching practices, resource allocation, and student self-assessment may disproportionately emphasize performance outcomes at the expense of broader developmental benefits.

This evaluation tension reflects broader challenges in educational assessment regarding the measurement of non-academic outcomes (Seow & Pan, 2014). While competitive achievements provide concrete, easily quantifiable success indicators valuable for external accountability and program justification, character development outcomes—including discipline, respect, perseverance, and social cooperation—represent equally or more important developmental benefits that resist simple quantification. The absence of validated, practical character assessment instruments suitable for elementary school martial arts contexts represents a significant gap limiting comprehensive program evaluation.

The lack of standardized evaluation protocols across both schools, relying instead on coach judgment and informal observation, raises concerns about assessment reliability, bias potential, and inter-rater consistency. While coach expertise provides valuable qualitative insight into student development, supplementing subjective assessment with more structured evaluation rubrics could enhance evaluation validity and provide more actionable feedback for program improvement.

This study contributes to educational management theory by demonstrating how classical management frameworks require contextual adaptation when applied to extracurricular programs in resource-constrained elementary schools. The findings suggest that effective extracurricular management constitutes a distinct organizational practice requiring not only systematic application of management functions but also adaptive capacity, stakeholder collaboration skills, and resource creativity. Future theoretical development should conceptualize extracurricular program management as adaptive organizational practice rather than mere technical implementation of predetermined procedures.

For school administrators and policymakers, findings suggest several actionable recommendations: (1) develop comprehensive planning documentation incorporating explicit evaluation frameworks from program inception; (2) establish standardized but flexible organizational structures clarifying stakeholder roles while enabling responsive adjustment; (3) invest in coach recruitment, training, and retention to address persistent human resource constraints; (4) implement balanced evaluation systems assessing both competitive achievements and character development

outcomes; (5) cultivate systematic parent engagement and external partnerships to enhance program resources and community support; (6) create formal mechanisms for student voice in program improvement to enhance relevance and engagement. Schools considering karate program implementation should recognize that program success requires sustained commitment to systematic management across all functions rather than focusing disproportionately on any single aspect such as competition preparation or facility acquisition.

This study contains several limitations requiring interpretive caution. First, the case study design focusing on two schools limits generalizability to broader elementary school populations or different geographic contexts. While providing deep contextual understanding of management processes at participating schools, findings may not transfer to institutions with substantially different resource levels, administrative cultures, or student populations. Second, the four-month research period, while sufficient for observing complete activity cycles, may not capture longer-term program evolution, seasonal variations, or multi-year developmental trajectories. Third, while multiple data sources and triangulation procedures enhanced credibility, reliance primarily on qualitative methods precludes quantitative assessment of management effectiveness or student outcome magnitudes. Future research employing mixed methods designs incorporating standardized developmental assessments could provide complementary outcome evidence. Fourth, although the study included multiple stakeholder perspectives, limited student participation data and absence of longitudinal tracking constrain understanding of how program experiences influence long-term developmental trajectories. Finally, potential social desirability bias in interview responses, despite rapport-building efforts, may have influenced how participants characterized program strengths and limitations.

This study's central conceptual contribution lies in demonstrating that effective karate extracurricular program management in elementary schools requires integrating systematic management practice with contextual adaptability, stakeholder collaboration, and explicit commitment to holistic student development beyond competitive achievement. The findings challenge simplistic assumptions that extracurricular program quality depends primarily on resource availability, revealing instead that how available resources are strategically managed through systematic planning, clear organization, consistent implementation, comprehensive evaluation, and responsive follow-up significantly influences developmental outcomes. By illuminating specific management practices distinguishing more and less effective programs, this research provides actionable guidance for schools seeking to enhance extracurricular offerings as meaningful contributors to students' holistic development. The demonstration that well-managed karate programs can simultaneously support competitive achievement, character development, and non-academic skill acquisition validates martial arts extracurriculars as valuable educational investments deserving sustained institutional commitment and strategic management attention.

CONCLUSION

This study examined karate extracurricular program management at two elementary schools in Jakarta, revealing that systematic application of management functions—planning, organizing, actuating, controlling, and follow-up—significantly contributes to developing students' non-academic achievements. The findings demonstrate that while both schools implement these management functions, effectiveness varies considerably based on planning systematization, organizational clarity, resource availability, evaluation comprehensiveness, and follow-up responsiveness. SDN Jembatan Besi 01 Pagil's more systematic documentation, balanced evaluation approach, and proactive external partnerships resulted in more consistent program outcomes compared to SDN Kapuk 13 Petang's reactive management approach and competition-focused evaluation.

This research contributes theoretically by demonstrating that Terry's management framework requires contextual adaptation when applied to resource-constrained extracurricular contexts, revealing management functions operate iteratively rather than sequentially. Practically, findings provide actionable guidance for school administrators to enhance extracurricular program quality

through comprehensive planning documentation, balanced evaluation systems incorporating character development indicators, strategic parent engagement, and external partnership cultivation. The study confirms that well-managed karate programs simultaneously support competitive achievement, character development, discipline, self-confidence, and social cooperation skills.

Research limitations include the two-school case study design limiting generalizability, four-month observation period potentially missing longer-term patterns, and qualitative methodology precluding quantitative outcome measurement. Future research should employ mixed-methods longitudinal designs examining program impact trajectories, develop validated character assessment instruments suitable for elementary martial arts contexts, investigate gender participation disparities and intervention strategies, and explore comparative effectiveness across different martial arts disciplines. Additionally, research examining cost-effectiveness of various management strategies and scaling mechanisms for resource-limited schools would provide valuable implementation guidance. These directions would advance understanding of how systematic extracurricular program management optimizes holistic student development in diverse educational contexts.

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