

Practice of Advancing Health Education through School–Family–Community–Medical Collaboration from the Perspective of the Overlapping Spheres of Influence

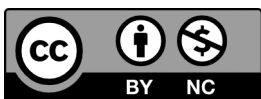
— A Case Study of Rencheng Experimental Primary School in Jining City

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Abstract: Based on the theory of overlapping spheres of influence, constructing a collaborative “school–family–community–medical” education model is an inevitable choice for advancing students’ health education and addressing the practical dilemmas of collaboration. Taking Rencheng Experimental Primary School in Jining City as a case, this study systematically elaborates the three major barriers currently facing school–family–community–medical collaboration: barriers of consensus, collaboration, and accountability. To respond to these challenges, the study adopts the theory of overlapping spheres of influence as its theoretical foundation and constructs a collaborative model for students’ health education centered on internal and external structures. On this basis, five practical strategies are developed: establishing the institutionalized platform of the “Double Apricot Education Alliance”, implementing list-based accountability management, developing the “Parent–Child Academy” curriculum, designing practice pathways based on Epstein’s six types of involvement, and creating the data-driven evaluation toolkit known as the “Top Ten Families”. Practice demonstrates that this model effectively improves students’ health levels, significantly reduces the incidence of psychological problems and myopia, enhances the collaborative effectiveness of schools, families, communities, and medical institutions, and forms a replicable and promotable practical example, providing important reference for the construction of regional collaborative education mechanisms.

Keywords: Overlapping spheres of influence; School–family–community–medical collaboration; Health education; School–family cooperation



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Research/Funding project: This article is a phased achievement of the 2024 General Planning Project of Educational Research of the Chinese Society of Education, titled “Construction and Practice of an Integrated Home-School Learning Community for Early Childhood and Primary Education Based on the Theory of Overlapping Spheres of Influence” (Project No.: 202416294513B).

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Article Citation: Xu, S. Q., & Li, G. (2025). Practice of Advancing Health Education through School–Family–Community–Medical Collaboration from the Perspective of the Overlapping Spheres of Influence — A Case Study of Rencheng Experimental Primary School in Jining City. *Guide to Education Innovation*, 5(4), 236-245.

Students' development is the result of the joint influence of families, schools, and society. Joyce Epstein of Johns Hopkins University proposed the "theory of overlapping spheres of influence" (Epstein, 1996), which holds that schools, families, and society exert interactive and cumulative influences on children's growth. Since the reform and opening-up, the state has attached great importance to collaborative development in the field of education (Ministry of Education, 2023), successively issuing a series of policy documents such as the National Guidelines for Family Education and the Family Education Promotion Law of the People's Republic of China, while proactively promoting innovative initiatives such as the "education consortium" (jiaolianti). In recent years, China has actively promoted the school-family-society collaborative education, and has achieved some remarkable results. However, there are still some outstanding problems, such as the responsibilities are not clear, the collaborative mechanism is not sound, and the conditions are not in place (Ministry of Education, 2023). In recent years, the rising incidence of health problems among primary and secondary school students has become a major public health issue concerning the country's future. Constructing a collaborative "school-family-community-medical" education structure based on the theory of overlapping spheres of influence has therefore become an inevitable choice for advancing educational modernization and achieving high-quality educational development.

1 Practical Challenges in Collaborative Education Among Schools, Families, Communities, and Medical Institutions

1.1 Consensus Barrier: The Dilemma of Dispersed Educational Goals

The core premise of the Overlapping Influence Threshold Theory is that families, schools, and society should hold shared goals and expectations regarding children's development. However, in reality, each party exhibits significant differences in educational demands and action logic due to their distinct roles and positions, as if operating on parallel tracks, making it difficult to generate genuine "overlapping influences". Under the pressure of exam-oriented education, schools often focus primarily on academic achievement and knowledge transmission. Although "fivefold education" is promoted, the allocation of resources and systematic planning for health education often remains secondary. Families' demands are more diverse and individualized, as they hope for both their children's academic success and physical and mental well-being. Yet many parents either fully entrust educational responsibilities to schools or lack scientific knowledge and methods of nurturing, easily falling into the "emphasis on treatment, neglect of prevention" pitfall regarding health issues. Medical institutions follow clinical pathways and medical models, with their work centered on diagnosis and treatment; they lack intrinsic motivation and mechanisms to interface with and integrate an education-led preventive and developmental collaborative system. This misalignment of goal priorities causes each party to operate independently within their respective "influence thresholds", preventing the attainment of deep consensus and rendering collaborative education largely superficial.

1.2 Collaboration Barrier: Structural Misalignment of Participating Entities

The participation of families and schools in these activities inherently involves a "heterogeneous threshold" (Zhang, 2018), a concept that accurately reveals the structural misalignment in the collaborative process. Parents naturally tend

to engage in activities that take place at home, concern themselves with their own children, and lead their own lives. In contrast, teachers are more adept at organizing activities that occur at school, involve all students, and are school-led. This heterogeneity based on responsibilities and social functions causes cooperation between the two parties to operate at different levels, often resulting in the awkward situation where “schools organize grand events, but parents respond with minimal engagement”. The activity model of medical institutions differs markedly from those of schools and families; their professional discourse and work pace are difficult to seamlessly integrate into educational contexts. These institutional barriers to cross-sector collaboration make it difficult for valuable professional medical resources to be transformed into sustained and stable educational support.

1.3 Responsibility Barrier: Lack of Institutionalization for Cross-Sector Actions

Collaborative education is, by nature, a cross-sector activity that requires all parties to go beyond traditional responsibility boundaries and jointly assume duties within each other’s domains. However, clear boundaries of authority and long-term safeguarding mechanisms among schools, families, communities, and medical institutions are generally lacking, making the system prone to the “blame triangle” dilemma. As the legal guardians of children, parents bear primary responsibility for crisis intervention. Some parents, due to insufficient awareness, may experience “disease stigma” or, out of concern for academic performance, refuse to acknowledge problems or cooperate with school referral recommendations, leaving schools “walking on thin ice” and bearing safety risks that should not solely fall on them. Schools and medical institutions belong to separate educational and health systems, lacking a unified supervisory authority for coordination, which makes it easy for the two sides to shift responsibility. The rights, responsibilities, and obligations of all parties within the “overlapping threshold” are not clearly defined or guaranteed institutionally, causing beneficial cross-sector actions to face significant uncertainties and practical difficulties.

2 The “School-Family-Community-Medical” Collaborative Model for Student Health Education

Collaboration among schools, families, and communities is key to mobilizing educational resources and ensuring the consistency and continuity of educational activities. In the field of student health education, such collaboration is even more urgent, and it is essential to introduce “medical” professional expertise. Student health education concerns the coordinated development of body and mind as well as lifelong well-being, requiring a broad knowledge perspective, diverse role models, and rich practical support. Therefore, promoting multi-party collaboration among schools, families, communities, and medical institutions can effectively integrate family care, school guidance, social support, and professional medical resources, achieving functional complementarity and jointly enhancing the scientific basis and effectiveness of health education. Based on Epstein’s “Overlapping Influence Threshold” theory, which emphasizes the intentional creation of partnerships to support student success (Epstein, 2009), this paper attempts to construct a “School-Family-Community-Medical” collaborative model centered on student health and well-being, divided into internal and external models (Figure 1), aiming to eliminate interference with students’ healthy development caused by gaps in health knowledge, scarcity of professional resources, and weak social support.

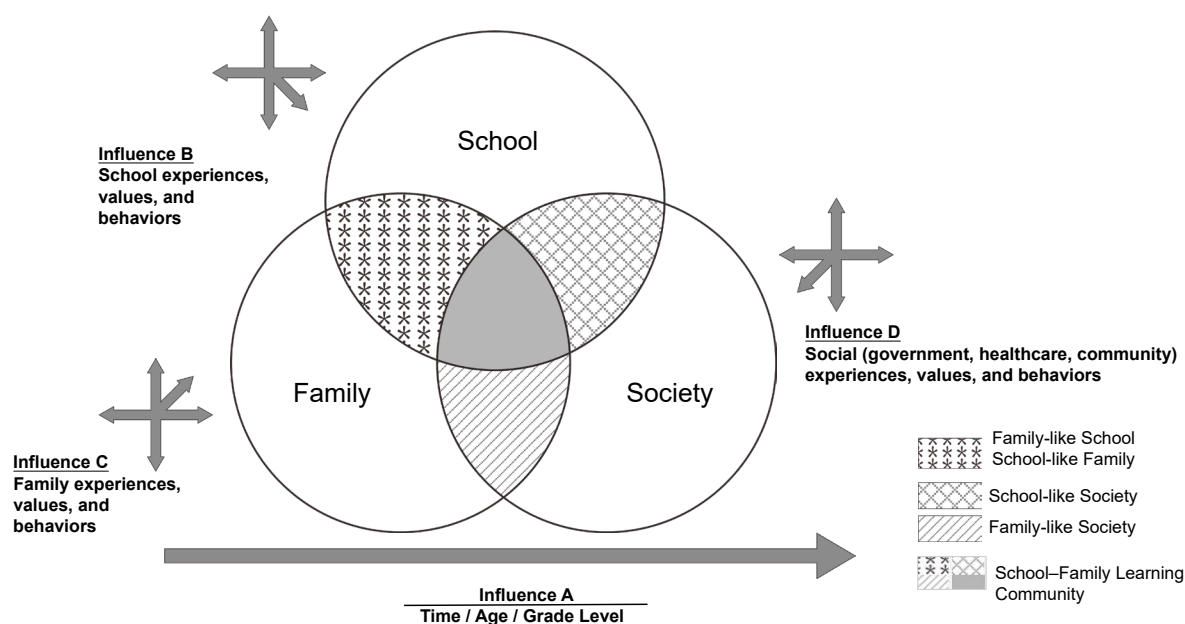


Figure 1 The External "School-Family-Community-Medical" Collaborative Model

2.1 External Model: Defining the Structural Relationships of the Four Major Entities

The external model clearly delineates the structural relationships among schools, families, communities, and medical institutions in influencing student health (see Figure 1). Schools (Influence B) serve as the main battlefield and leading force for implementing health education. They are responsible for systematically planning health education curricula, creating a healthy campus environment, and proactively establishing connections with families, communities, and medical institutions, coordinating resources across all parties. Families (Influence C) constitute the foundation and starting point of health education, providing students with initial health habits, values, and emotional support. Their health concepts and behavioral patterns exert profound and lasting effects on their children. Communities and medical institutions (Influence D) act as the resource base and professional support for health education. Society — including Centers for Disease Control, mental health centers, sports departments, and nonprofit organizations — provides practical venues and public services. At the same time, medical institutions deliver full-chain professional support ranging from popular science, screening, and assessment to diagnosis and intervention, serving as authoritative forces in addressing health crises. The influence of each entity operates both independently within its own domain and interactively with others, generating overlap and integration (shaded areas). This distribution dynamically changes depending on factors such as student grade levels from kindergarten to primary school, timing, and school differences (Influence A) (Yang et al., 2022).

2.2 Internal Model: Revealing the Operational Mechanisms of Collaborative Work

The internal model enlarges the overlapping areas depicted in the external model, revealing the collaborative mechanisms of multiple entities across different contexts, encompassing both the macro-level collaboration among schools, families, and communities, and the micro-level interactions among teachers, parents, and medical personnel (Figure 2). In this model, students are always placed at the center; they are not only the subjects of health education but

also active participants and crucial links connecting all parties.

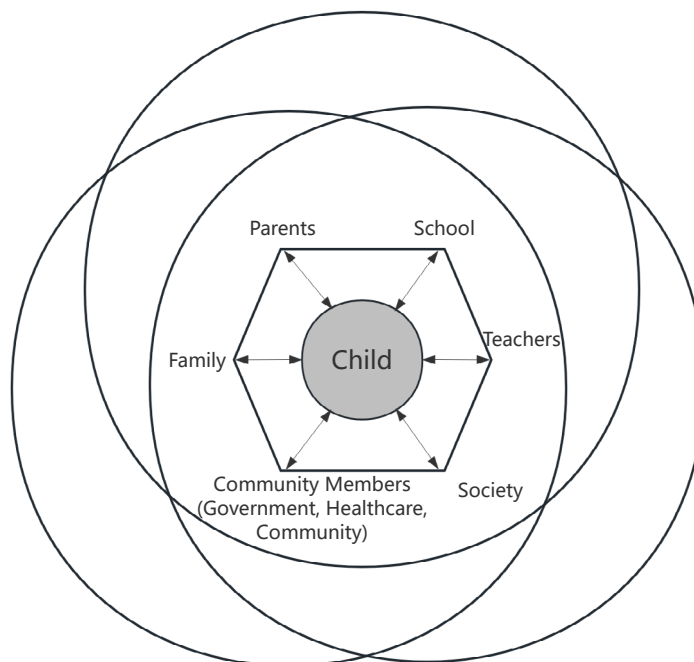


Figure 2 The Internal “School-Family-Community-Medical” Collaborative Model

3 Strategies for Promoting the “School-Family-Community-Medical” Collaboration in Health Education at Rencheng Experimental Primary School, Jining

To proactively address collaboration challenges and consolidate educational consensus, Rencheng Experimental Primary School in Jining has actively promoted the construction of a “Teaching Alliance”, integrating medical institutions and public health resources into the educational collaboration network. Through the establishment of institutionalized platforms, clarification of roles and responsibilities, development of integrated curricula, alignment of practical pathways, and creation of an incentive-based evaluation system, the school has successfully united the four main entities — schools, families, communities, and medical institutions — into a “health education community” with shared goals and complementary functions, achieving a systematic breakthrough from concept to practice.

3.1 Establishing an Institutionalized Platform for Cross-Sector Collaboration to Aggregate Collaborative Efforts in Education

The external model of the Overlapping Influence Threshold Theory emphasizes that overlaps among influence thresholds are not spontaneously formed but require institutionalized partnerships to be actively created and maintained. Based on this principle, the school has vigorously promoted the construction of the “Teaching Alliance, forming the “Shuangxing Education-Medical Alliance”. This initiative transforms the “medical” entity from a temporary, peripheral “consultant” into a stable, embedded “partner”, thereby providing scientific health

perspectives, professional intervention methods, and authoritative credibility, fundamentally reshaping the ecosystem of collaborative education.

To implement this concept, the school has established in-depth cooperative relationships with professional medical institutions across five major health domains. The specific collaboration framework is shown in Table 1.

Table 1 Framework for Promoting the “School-Family-Community-Medical” Collaboration in Student Health Education

Collaborative Domain	Professionalized Service Content	Educational Alliance
Physical Fitness and Health Management	Specialized screening for myopia, obesity, and scoliosis; dynamic data monitoring; science-based health interventions	Municipal Center for Disease Control and Prevention (CDC); Municipal Maternal and Child Health Hospital
Mental Health	Development of mental health curricula; psychological screening and assessment; crisis-intervention green channel; parental psychological support services	Municipal Mental Health Hospital
Traditional Nutrition and Health	Dietary and nutrition guidance; Baduanjin instruction; promotion and experiential learning of traditional Chinese medicine culture	Municipal Hospital of Traditional Chinese Medicine; Agricultural Science Institute
Emergency and Safety Literacy	Full-staff and full-student CPR training; Heimlich maneuver and other emergency first-aid skills training	Municipal Emergency Medical Center; Municipal Red Cross Society
Sports and Active Living	Guidance in professional sports programs; shared access to community sports facilities; organization of parent-child sports events	Bureau of Education and Sports; Professional Institutions

Within the alliance framework, the school further established a three-track support system comprising the “Expert Think Tank” “Family Guidance Teachers”, and “Parent Volunteers”. The expert team, composed of professionals from medical institutions, universities, and research institutes, is responsible for providing professional technical guidance, teacher training, and project evaluation. The teaching staff assumes the role of “Family Guidance Teachers”, tasked with translating professional knowledge on healthy lifestyle development into family practice plans that parents can understand and implement, while offering personalized behavioral guidance and emotional support to parents through daily communication. Parent volunteers, after systematic training, participate in organizing health activities and connecting with social resources. Additionally, through online platforms and hotlines, medical experts provide one-on-one professional interpretations and personalized advice to parents regarding screening results and health inquiries, effectively bridging the “last mile” between professional services and family needs. Together, these three forces constitute the supportive infrastructure of the collaborative network, effectively facilitating the precise delivery and deep integration of professional resources into grassroots educational contexts.

3.2 Clarifying the Boundaries of Authority and Responsibility within the “Overlapping Influence Threshold” and Implementing Checklist-Based Management

From the perspective of the overlapping influence threshold theory, the effectiveness of collaborative education does not lie in the mechanical superposition of each stakeholder’s responsibilities, but in whether effective interactive relationships can be established among them, thereby generating systemic functions that a single stakeholder cannot achieve. To address the common dilemmas of authority and responsibility in collaboration, schools draw on the “checklist system” in public administration, transforming the theoretically ambiguous “overlapping threshold” into a clear checklist of responsibilities. Schools, together with professional institutions such as the Municipal Center for Disease Control and Prevention and psychiatric hospitals, jointly formulate a series of documents, including the *Pilot Work Plan for the Comprehensive Prevention of Myopia and Overweight/Obesity Among Children and Adolescents*, clearly defining the division of responsibilities among the government, schools, families, and medical institutions within the

collaborative system.

Taking the “Silver Sea Project · Bright Action” myopia prevention “13550” pathway as an example, this pathway establishes a six-step closed-loop process: “preventive education → school screening → school doctor grading → home-school feedback → medical referral → joint home-school management”. Relying on the alliance platform, a student’s physical health database has been established to enable continuous monitoring of core indicators such as myopia and obesity, providing sustained data support for precise assessment and timely intervention. This process translates the ambiguous notion of “shared responsibility” into a clearly sequenced set of actions through the checklist of responsibilities, ensuring that every step — from education and screening to early warning, diagnosis, and intervention — has a clearly defined responsible party and operational protocol. In this way, the rights, responsibilities, and obligations within the “overlapping threshold” are institutionalized and clarified, guaranteeing that beneficial “cross-boundary actions” are conducted in an orderly and regulated manner.

3.3 Developing Parent–Child Academy Courses to Empower the Enhancement of Health Literacy

School curricula serve as the core vehicle for translating the macro-level concept of “school–family–community–medical collaboration” into micro-level practice. To realize the theoretical vision of creating a “school like a family” and a “family like a school,” the school has taken health lifestyle education as the main thread and established the “Encounter · Growth” Parent–Child Academy, developing a cluster of “healthy life” themed courses. Innovatively adopting a design logic of “one main line and three scenarios”, each topic follows the “knowledge — belief — practice” main line and simultaneously provides three progressive scenarios: school classroom, family classroom, and community classroom. The school classroom focuses on conceptual construction and cognitive enlightenment; the family classroom emphasizes behavioral transformation and habit formation; and the community classroom expands practical experience through real-life contexts, thus forming a complete educational closed loop of cognitive development, value identification, and practice deepening.

Meanwhile, the school has compiled the *Encounter · Growth Parent–Child Academy Action Manual*, integrated 30 thematic micro-courses into the *Parent–Child Academy Action Codebook*, and developed the *Health Family Education Energy Enhancement Cards* for 30 key health-raising issues, transforming professional health education content into concrete, understandable, and easy-to-implement actions for parents.

Under the course transformation mechanism of the Parent–Child Academy, the role of medical institutions shifts from the back-end “treatment provider” to a front-end “educational partner”, jointly shaping a health-supportive environment together with schools, families, and communities. When parents protect their children’s eyesight at home according to plans reviewed by medical experts, and when teachers organize emotional management activities in the classroom using strategies provided by psychologists, students receive highly consistent health information and behavioral expectations across the formerly separated domains of family, school, and medical institutions. This not only effectively fosters the development of healthy behaviors among students but also, at a deeper level, reconstructs the relational pattern between school and family — from one-way information transmission to a symbiotic mechanism centered on shared health goals and shared professional resources — ultimately achieving the ecological construction of “consistent experiences” advocated by the overlapping influence threshold theory.

3.4 Integrating Six Practical Pathways to Achieve Systemic Operation of Collaborative Education

Epstein systematically collected activities of school–family cooperation at various levels and, based on previous research, further consolidated and conceptualized them, proposing that all activities of school–family cooperation can be categorized into six forms of collaborative participation: parenting, communication, volunteering, learning at home, decision-making, and collaborating with the community (Wu et al., 2013). These six forms not only encompass cooperation pathways among families, schools, and society but also, through refined categories, offer operational guidance for schools to construct a multidimensional framework for collaborative education.

Drawing fully on this theoretical framework and integrating its own local practices of “school–family–community–medical collaboration”, Rencheng Experimental Primary School in Jining has creatively transformed and systematically enriched these six participation approaches, forming a set of school-based collaborative education practice pathways. The specific content is shown in Table 2.

Table 2 Six Collaborative Promotion Approaches for Student Health Education in the “School-Family-Community-Medical” Model with Macropanax Dispermus

No.	Mode of Collaboration	Main Content	Main Forms (Examples)
Mode 1	Parenting	Popularize scientific health knowledge, shift parents’ mindset from “treatment over prevention”, and guide parents to become the primary role models and responsible persons for their children’s healthy lifestyle	“Meeting Growth” Parent–Child Academy Expert Lectures; Healthy Family Workshops; Healthy Family Education Empowerment Cards “13550” Myopia Prevention Project in Yinhai District
Mode 2	Communicating	Establish a four-party (school–family–medical–community) health information–sharing and feedback mechanism to achieve early identification and joint intervention for students’ health issues	Health-themed Parent Meetings; Online Health-Management Platform; School–Hospital Green Communication Channel; “Health on the Tip of the Tongue” Round-table Forum
Mode 3	Volunteering	Form health-focused volunteer service teams, including medical professionals, to provide students with professional health support and science-popularization services	“Health Guardians” Parent Volunteers; Junior Health Science Lecturers; On-Campus Free Clinics; “Life Protection” School First-Aid Popularization Program
Mode 4	Learning at Home	Design systematic and scenario-based family health practice tasks to effectively transform health knowledge into behaviors and habits	21-Day Healthy Habit Check-in; Family Green Kitchen; Family Bright-Eye Room; Family Fitness Space; “24 Solar Terms” Healthy Lifestyle Practice Program
Mode 5	Decision Making	Parents and alliance experts jointly participate in school policy formulation and evaluation, forming a democratic decision-making mechanism for health promotion	Pilot Program for Multi-Disease Co-Prevention; Charter for Building a School–Family Health Community
Mode 6	Collaborating with Community	Integrate community and medical resources in depth to build a health-support network covering all scenarios of students’ study and daily life	“Shuangxing Alliance” Community Health Initiative; Traditional Chinese Medicine Field Studies; “Sunshine Mental Health” Caring Action

3.5 “Top Ten Families” Evaluation Toolkit — Data-Driven Effectiveness Assessment

A three-dimensional evaluation system supported by “standards–tools–data” is constructed to precisely identify problems through institutional norms and regulations, dynamically optimize practice through tool-based mechanisms, and verify the effectiveness of student development through data tracking, thereby overcoming the traditional dilemma in which evaluation emphasizes form over substance. The “Top Ten Families” Happiness-Enhancement Toolkit is developed to build a growth-tracking system covering individuals, families, and schools. Integrating multiple instruments, this system transforms the abstract notion of “collaborative effectiveness” into observable and quantifiable behavioral indicators.

The Happiness Family Energy Points Card quantifies parents’ level of engagement and contribution across collaborative pathways such as course participation, parent–child practices, and volunteer services. Through this

points-based system, the process-based analysis and visualized value-added effect of health education capabilities are achieved.

4 Outcomes and Reflections

4.1 Outcomes

The systematic implementation of the “school–family–community–medical” collaborative model at Jining Rencheng Experimental Primary School has transformed medical institutions from “external consultants” into “embedded partners”. Through list-based management, the Parent–Child Academy, six-dimensional collaborative pathways, and data-driven evaluation, the school has achieved significant results. Students’ health literacy has improved markedly; the incidence of psychological problems has decreased by 37%; the adolescent myopia rate is 3.2 percentage points lower than the provincial average; the physical fitness pass rate has increased year by year; and students are gradually growing into “healthy, confident, eager-to-learn, and rational” young learners.

All teachers have become family education instructors; parents have provided more than 2,000 instances of volunteer service; the efficiency of resolving school–family conflicts has increased by 40%; and parent satisfaction has reached 98.6%, creating a positive and interactive educational atmosphere. The school’s “Five-Domain Collaboration Model for Myopia Prevention” (school–family–medical–government–community) has been included in the core scripts of the provincial myopia-prevention lecture team. The municipal CDC has adopted data related to myopia, obesity, and scoliosis monitoring as evidence for policy formulation. The family education projects supported by the “Top Ten Families” evaluation toolkit have been promoted by the district Women’s Federation.

The school has successively been recognized as a National School First Aid Education Pilot School, a Shandong Province Myopia Prevention Pilot School, and a Shandong Province Family Education Experimental Base. These achievements mark the transition from school-based practice to regional demonstration, providing a replicable and scalable model for the collaborative education mechanism of “school–family–community–medical” cooperation.

4.2 Future Prospects

Although the “school–family–community–medical” collaborative model and its practical pathways proposed in this study have initially demonstrated their effectiveness, several key issues still require further investigation — these also constitute the main directions for future research.

First is the issue of accurately attributing collaborative effectiveness. Current outcomes are presented holistically; however, what are the respective contributions of individual strategies (e.g., list-based management, the Parent–Child Academy, data-driven evaluation) to the final results? Do interaction effects exist among them? Future research needs to introduce more sophisticated variable controls and path analyses to unpack the core mechanisms of each strategy.

Second is the challenge of universality and adaptability. This study is rooted in an experimental primary school with relatively strong resources. How will this model perform in schools with weaker resource endowments or across different educational stages? How should its core elements be extracted and adapted to varying contexts? These questions remain to be addressed.

Finally, there is the issue of deepening and utilizing “heterogeneous domains”. While this study seeks to expand the “overlapping influence threshold”, some scholars point out that the “heterogeneous domains” between parents and teachers are objectively real (Zhang et al., 2018). Future research should not treat such heterogeneity merely as an obstacle. Still, it should explore how to respect and leverage this division-of-labor-based heterogeneity to transform it into a more flexible and enriched collaborative force, rather than pursuing homogeneity or uniformity.

Sustained inquiry into these issues will contribute to advancing collaborative education theory from “model construction” toward “mechanism deepening”.

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