



Development of a collaborative school-family wellness model through the "Healthy, happy, and achieving children" program to improve balanced nutrition and healthy lifestyle behavior

Desarrollo de un modelo colaborativo de bienestar entre la escuela y la familia a través del programa «Niños sanos, felices y exitosos» para mejorar la nutrición equilibrada y los hábitos de vida saludables

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Abstract

Introduction: Good balanced nutrition at a young age and healthy lifestyles are very important. Nonetheless, poor nutrition is still a serious public health issue and is one of the risk factors for high stunting rates and childhood becoming obese both worldwide and in Indonesia.

Objective: This study aimed to develop and test the effectiveness of the Collaborative School-Family Wellness Model in promoting balanced nutrition and healthy behavior among early childhood learners through structured collaboration between schools and families.

Methodology: This research used a mixed-method design (R&D with quantitative design). The program was developed through R&D activities, and its effectiveness was evaluated using a quantitative approach. So, the subjects of the study consisted of ten early childhood teachers, thirty parents, thirty children from Laboratory Kindergarten of Universitas Negeri Malang. The questionnaires, interviews, observations, and experts' validation were collected into data. Descriptive statistics were used to analyze the data for the development phase while paired-sample t-tests were used to evaluate program implementation success.

Results: The model demonstrated high validity from content experts (88.5%) and instructional design experts (90.2%), strong practicality according to teachers (86.8%), and significant effectiveness in improving children's nutrition awareness and healthy behaviors (81.4%).

Conclusion: The findings confirmed that active collaboration between teachers and parents strengthened behavioral consistency across school and home environments. The model proved valid, practical, and effective, providing a holistic and replicable framework that can be integrated into early childhood education and national health initiatives to foster lifelong wellness habits.

Keywords

Early childhood; wellness model; family-school collaboration; nutrition education; healthy behavior.

Resumen

Introducción: Una nutrición equilibrada a una edad temprana y unos hábitos de vida saludables son muy importantes. No obstante, la mala nutrición sigue siendo un grave problema de salud pública y uno de los factores de riesgo de las altas tasas de retraso en el crecimiento y la obesidad infantil, tanto en todo el mundo como en Indonesia.

Objetivo: El objetivo de este estudio era desarrollar y comprobar la eficacia del Modelo Colaborativo de Bienestar Escolar-Familiar en la promoción de una nutrición equilibrada y un comportamiento saludable entre los alumnos de educación infantil mediante una colaboración estructurada entre las escuelas y las familias.

Metodología: Esta investigación utilizó un diseño de método mixto (I+D con diseño cuantitativo). El programa se desarrolló a través de actividades de I+D y su eficacia se evaluó utilizando un enfoque cuantitativo. Así, los sujetos del estudio fueron diez maestros de educación infantil, treinta padres y treinta niños del jardín de infancia del Laboratorio de la Universitas Negeri Malang. Los cuestionarios, las entrevistas, las observaciones y la validación de los expertos se recopilaron en forma de datos. Se utilizaron estadísticas descriptivas para analizar los datos de la fase de desarrollo, mientras que se utilizaron pruebas t para muestras emparejadas para evaluar el éxito de la implementación del programa.

Resultados: El modelo demostró una alta validez por parte de los expertos en contenido (88,5 %) y los expertos en diseño instruccional (90,2 %), una gran practicidad según los maestros (86,8 %) y una eficacia significativa en la mejora de la conciencia nutricional y los comportamientos saludables de los niños (81,4 %).

Conclusión: Los resultados confirmaron que la colaboración activa entre los profesores y los padres reforzó la coherencia del comportamiento en los entornos escolares y domésticos. El modelo demostró ser válido, práctico y eficaz, proporcionando un marco holístico y replicable que puede integrarse en la educación infantil y en las iniciativas nacionales de salud para fomentar hábitos de bienestar para toda la vida.

Palabras clave

Primera infancia; modelo de bienestar; colaboración entre la familia y la escuela; educación nutricional; comportamiento saludable.

Introduction

Early nutritional balance and healthy lifestyle practices lay the essential groundwork for the best possible development physically, cognitively and socially in a child. These factors have been demonstrated to be associated with the enhancement of long-term quality of life in children. In addition to exercise, children that are provided good nutrition and trained maintaining health, such as washing their hands and eating nutritious foods, are more immunized and experience faster growth and health development (DiVito et al., 2023; S. Sukmawati & Sabillah, 2021). The repercussions of low intake of balanced nutrients during this crucial period can be severe, impacting growth and development, ultimately leading to stunting, obesity and other disorders shown to negatively affect child health (Saavedra & Prentice, 2023). According to the latest estimates provided by the World Health Organisation (WHO), in 2020, the number of children worldwide affected by stunting exceeded 149 million (WHO, 2020). This chart shows a wide scope of nutritional problems around the world and the utmost seriousness of nutritional issues. Concurrently, the prevalence of childhood obesity is on the rise. In 2020, the United Nations International Children's Emergency Fund (UNICEF) reported that the global prevalence of obesity among children was 38 million. The relationship between dietary quality and chronic diseases such as diabetes, hypertension, and other metabolic disorders has been well-documented; given the long-term implications for children, poor dietary quality is important contributor to childhood diseases (E. Sukmawati et al., 2023). Both stunting and obesity are still public health problems in Indonesia. A review of national data indicates that the nutritional status of young children is suboptimal.

Early childhood nutrition and health behaviours will play a key role in this foundation, and it is especially important to acknowledge that early childhood is a critical and opportune time to mitigate the negative effects that are more frequently observed in adolescence. The impact of malnutrition on children is twofold (Kismul et al., 2017; Siswati et al., 2022). Firstly, it results in impaired physical development. Second, it delays cognitive and language development, which delays their literacy learning. Furthermore, if they adopt a lifestyle that is characterised by unhealthy habits, such as a poor diet and a lack of exercise, this can result in a sedentary indoor lifestyle (Al-Rahmad et al., 2026; Parrales Moyon et al., 2025). These habits have also certainly contributed to non-communicable diseases — such as diabetes and hypertension that affects the future life of an individual. Many factors have been suggested to explain this phenomenon. To illustrate, there is an absence of opportunities for children to acquire an understanding of how to lead a healthy lifestyle. This is partly attributable to the absence of collaboration between families and schools (Gerrard, 2022; Koltz et al., 2021). The two environments must work together to ensure that healthy behaviours are however sustained over the longer term and develop in children (Parrales Moyon et al., 2025). In the event of a discrepancy between the educational environment and the domestic environment, it is hypothesised that children will be impeded in their progress. The reason for this discrepancy is that lack of the micronutrients (which are the entities required for both educational as well as domestic progress. Nevertheless, a multitude of trials have demonstrated that educational programmes and familial collaboration can be advantageous for children.

For instance, one study found that student scores on tests of nutrition knowledge and between-meal eating habits improved after a school health education project (De Arriba Munõz et al., 2022). In contrast, another study found much higher levels of hygiene-related knowledge, attitudes and practices among children within the study (Siswati et al., 2022). In contrast, the third study suggests that this type of scheme is burdened by limitations and shortcomings, as it tends to not get as much coordination and long-term support from other stakeholders (Acharya & Sigdel, 2024). It is evident that all extant courses of action are only partial and ultimately unsatisfactory. A coordinated response is imperative.

At the same time, it fosters greater readiness for learning in children by working with families in the school setting. This method helps in best educating and co-emotional functioning. The function of educational establishments in cultivating the concept of the 'uterine' can be realised through the facilitation of computer education for several children. Such systems also embody errors in any news transfer to this man still living. Therefore, one of the objectives of SDG 4 during the 2020-2025 period is to promote universal education with a view to encouraging children's political development, physical development and comprehensive growth. Now, in this time of increasing concern about mental health difficulties in the wake of the pandemic, worsening child malnutrition, and, on a larger scale, increasing sedentary

lifestyles, the need for more effective school–family partnerships have become paramount. In the context of school-home partnership initiatives, which are known to be selective, a systematic approach is recommended in order to ensure the beneficial effects on children's later development are sustained. Concurrently, it engenders enhanced attunement to learning in children through collaborative endeavours with families within the school environment. This approach fosters effective education and promotes co-emotional functionality (Bizzego et al., 2020; Clark et al., 2020). This approach thus takes the model of partnership as the centre of gravity; intents are transformed into habit over time. All retained through the collaborative efforts of teachers, parent guardians, school health officials, and police officials who stress to our kindergarten purposes quality eating and exercise, hygiene, and lifestyle early during the early years of life. The aim is to promote these habits right from childhood so that they pave the way for a healthy future. Rooted in a partnership and a holistic health framework, the programme emphasizes the need for collaboration and cooperation of various stakeholders. The top most objective is to promote the physical, mental & social development of the trusts so as to ensure the holistic development of children. This model promotes not only health-enhancing behavioral habits but also essential life skills (e.g. self-regulation, responsibility, and functional interaction within social environments) in accordance with SDG Objective 4.0 of the United Nations 2030 Agenda for Sustainable Development (Loo, 2025; Pereira & Marques, 2022; Upvall & Luzincourt, 2019).

The aim of this initiative is to face the trend of unhealthy nutrition and health behaviours of Indonesian children through a sustainable and well-organised programme. Both Indonesia needs pro active strategy as one of the main characteristics in the Global Trend in Early childhood care. This country should serve as a nation that allows children to thrive. But if they are not resolved, all these problems will return with a vengeance in future including related to health and productivity. This is also the main purpose of this research project. We need to model and test a model for nutrition as a public good with the many partners working on early childhood education initiatives. This study's results will result in policy changes in international early-childhood health and education in Indonesia and serve as a model for other educational institutions to follow to meet children's quality-of-life in other locations.

Method

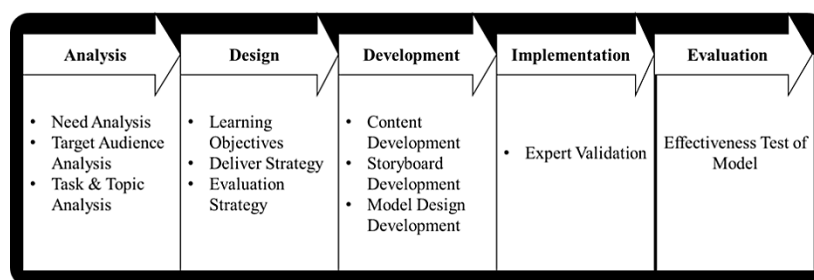
Research Method

This type of study used the mixed design R&D and a quantitative approach. The Collaborative School–Family Wellness Model was systematically developed through the “Healthy, Happy, and High-Achieving Children” Program using the R&D component. The process of development departed the ADDIE model (Analysis, Design, Development, Implementation and Evaluation) (Ghirardini, 2011) because it is a very abstract method, with lots of well structure and interative stages to make that maximizes the probability of designing an appropriate instruction, given the feasibility, relevance, and practicality of the program design. A quantitative phase was implemented to assess whether the program was effective or not. A paired-sample t-test showed the difference in participants outcomes before and after program delivery using a quasi-experimental design. In this study, researchers have demonstrated a methodology for the comparison of significant effects, with the use of models helping early childhood learners to achieve balance in nutrition and a healthy lifestyle. The purpose of this integrated R&D/quasi-experimental evaluation is twofold: firstly, to assess the productivity of the originally assessed model, and secondly, to determine its actual benefit to health outcomes.

Research Procedure



Figure 1. Research Procedure Flow



The five main stages of the analyse, design, develop, implement and evaluate (ADDIE) development model were adopted in this study. In order to facilitate the analysis phase, a number of different methods were employed in order to identify needs. Firstly, a series of interviews and questionnaires were carried out with teachers, parents and health experts. Secondly, focus group discussions (FGDs) were conducted to explore early childhood needs pertaining to balanced nutrition and healthy lifestyle behaviours. During the design phase, clear objectives of the model were defined, school and family mutually supportive strategies implemented, and evaluation tools of questionnaires, observation diary and surveys developed. The initiative was characterised by the design of a prototype of the Collaborative School–Family Wellness Model, the development of supplemental materials, and an expert validation process involving nutritionists, early childhood education experts, and instructional design experts. In the subsequent implementation stage, the validated model was introduced in Universitas Negeri Malang's Laboratory Kindergarten, with teachers and parents also involved to ascertain the practicality and feasibility of the programme through the utilisation of an observational and interview guide. The evaluation then combined qualitative and quantitative data to determine the extent to which the model was successful in changing children's practices towards balanced nutrition and healthy lifestyle behaviours and provided a needed basis for further development and improvements of the model before its larger dissemination.

Research Instrument

The instruments used in this study included the Early Childhood Development Instrument (adapted from Yafie et al., (2024), which consists of five developmental items to be assessed. Meanwhile, children's nutritional status and gadget-use policies were measured following guidelines from the World Health Organization (WHO) and the American Psychological Association (APA). The toilet training guidelines were also developed through adaptations of the WHO and APA standards.

Research Participant

This study involved four participant groups. Two content experts (one in nutrition and one in early childhood education) validated the content and material relevance. Two instructional design experts reviewed the structure and learned model design. The implementation of the model and the assessment of its practicality were conducted by ten early childhood teachers of Laboratory Kindergarten of Universitas Negeri Malang. The model's effectiveness was assessed by 30 parents according to changes in children's nutrition habits, as well as healthy sedentary behaviours.

Table 1. Research Participants

No	Participant Group	n	Role in the Study
1	Content Experts (Nutrition, ECE)	2	Validated content relevance and accuracy
2	Instructional Design Experts	2	Reviewed instructional design and structure
3	Early Childhood Teachers (Lab School UM)	10	Assessed model practicality during implementation
4	Parents of Kindergarten Students	30	Evaluated model effectiveness through child outcomes

Data Collection Technique

The data was collated from two sources: the expert validation and practicality test, and the effectiveness assessment. The model was validated by four experts: 2 in nutrition and early childhood education and 2 in clinical instructional design and two in the domain of clinical instructional design. Utilising standard

validation tools, these experts were tasked with the evaluation of the model's content, structure, and design, with a view to ensuring its validation. In the classroom implementation of the model, a questionnaire was completed by 10 early childhood teachers, who provided practical data. The effectiveness data from 30 parents who evaluated their children's development after implementation was gathered using observational notes and evaluation sheets. All procedures for data collection strictly followed the principles of ethical research, and participant confidentiality was safeguarded.

Data Analysis

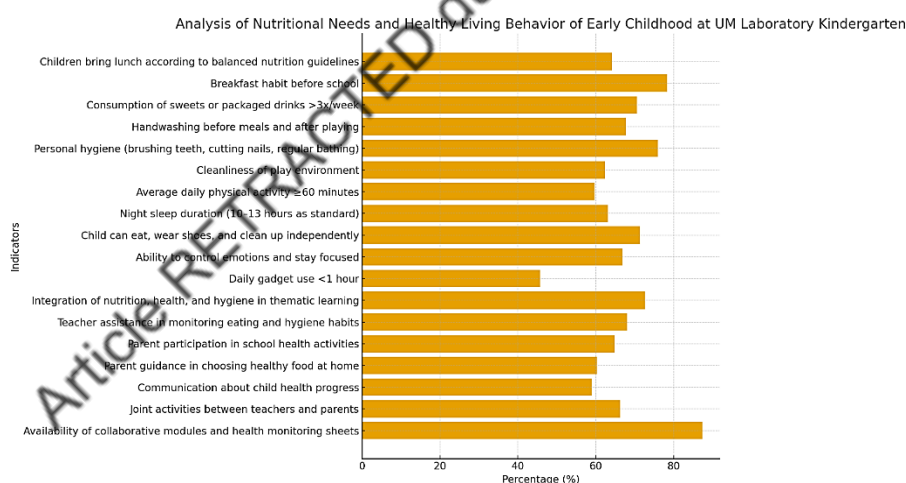
A comprehensive quantitative and qualitative analysis of the data was conducted. The application of descriptive statistics to expert validation data was based on the mean score and levels of validity categories. It is recommended that this model be utilised as a tool to enhance the efficacy of Development Education. To this end, the data obtained from the teachers was subjected to analysis using a percentage score. A repeated measures t-test was employed to ascertain significant differences in pre-post development of children based on the effectiveness data from parents. One aspect of the research used a mixed-methods design where qualitative feedback from experts, educators and parents was examined. This provided supplementary evidence to inform the refinement of the model.

Results

Analysis Results

The bar chart reveals an analysis of Nutritional Needs and Healthy Living Behavior among early childhood students at UM Laboratory Kindergarten, highlighting strengths and areas for improvement.

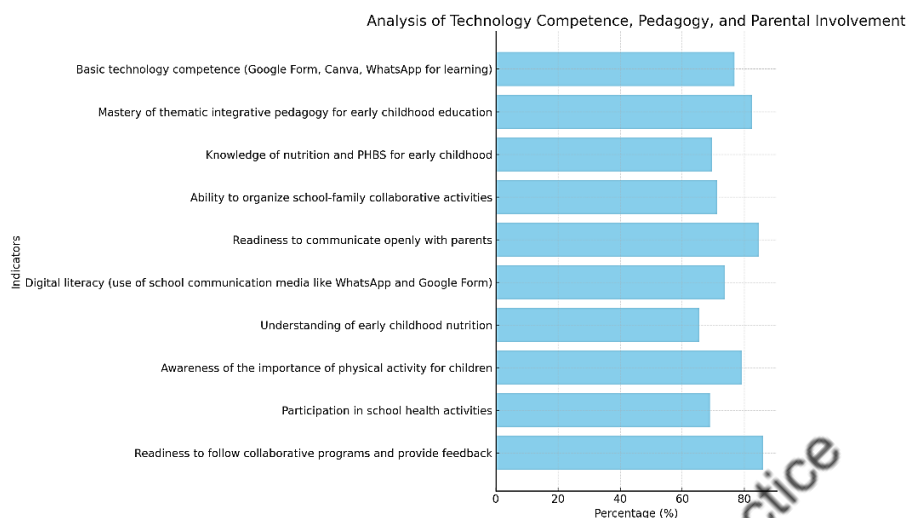
Figure 2. Results of the Analysis of Nutritional Needs and Healthy Lifestyle Behavior of Early Childhood at UM Laboratory Kindergarten



Although 64.2% of children pack balanced lunches, vegetable and fruit consumption is uneven and 70.5% eat sugar-sweetened snacks on a daily basis. Habits, such as having breakfast before going to school (78.3%), or good personal hygiene (75.9%) are positive, but are not always preserved at home. More troubling yet, only 59.6% of children reached the recommend 60 minutes of activity per day, and only 63.1% were getting enough sleep, suggesting greater room for improvement in physical activity and sleep. Independence is being learned, 71.4% of children can independently perform basic tasks, however, learning self-control and ability to focus still remains difficult for a portion of children. Screen time is another issue, as the majority of children spend more time watching screens than they should. Teachers are integrating health topics would (72.6%), and parental involvement with school health activities is moderate but family involvement in healthy eating is impeded by schedules. The study revealed poor communication between teachers and parents about children health, there is also a high demand for educational tools (87.4%) to aid in better health practices. In conclusion, the analysis means that there are some positive habit patterns that exist, more continuity on a day to day basis at both

school and home are required, however; and between school and home there would be a significant advantage by collaboration, which ultimately leads to healthy lifestyles and high standards.

Figure 3. Results of Analysis of Target Users of the Collaborative Wellness Model



A specific bar is delineated, demarcating points that are indicative of technology savviness, skill, and competency in pedagogy, or involvement of parents. This delineation is based on the parents' identities as either teachers or parents. With the exception of these figures, teachers demonstrate proficient digital skills (76.8%) and adept mastery of early childhood pedagogy (82.4%), yet the knowledge teachers possess regarding nutrition and health practices for children is merely at a sufficient level for 69.5% of teachers. The majority of respondents expressed a willingness to communicate with parents (84.6%) and engage in home-school partnerships (71.2%), while there was less consensus on standardising collaborations. Yet, a deeper breakdown shows that even though 73.7% of the respondents reported that they are familiar with digital tools, they still do not directly participate with Child Development Reporting. Of note was the ignorance (responded 'no' and 'don't know' on at least one question) regarding the importance of nutrition at an early age 65.4% of the population. On the other hand, 79.2% recognised the role of activity in their health. Parental involvement in school health is average (68.9%), but interest in collaborative programmes is high (86.1%). Overall, both teachers and parents were extreme in both directions, but there were differences in how well-prepared — especially in terms of nutrition, education, organized physical activity, and legislative cooperation between schools and families.

Table 2. Results of Target User Analysis for the Collaborative Wellness Model

User Category	Analyzed Aspect	Percentage (%)	Category	Description
Teachers	Basic technological competence (using Google Form, Canva, and WhatsApp Group for learning)	76.8	Good	Teachers are capable of operating basic digital platforms for coordination and collaborative learning.
	Mastery of integrative thematic pedagogy in early childhood education	82.4	High	Teachers understand the thematic approach, although not all relate it to children's health aspects.
	Knowledge of nutrition and clean and healthy living behaviors (PHBS) in early childhood	69.5	Fair	Teachers understand the basic principles of balanced nutrition but are not yet trained to conduct simple measurements such as children's BMI.
	Ability to design collaborative school-family activities	71.2	Fair	Teachers are active in parent meetings but still lack a standardized format or guideline for collaboration.
	Readiness to communicate openly and interactively with parents	84.6	High	Teachers are very open to feedback and enthusiastic about conducting joint consultations with parents.
Parents	Digital literacy (use of school communication media such as WhatsApp and Google Form)	73.7	Good	Parents are familiar with digital media but not yet accustomed to regularly filling out their child's development reports.
	Understanding of early childhood nutrition	65.4	Fair	Parents' knowledge of meal portions, menu variation, and healthy snacks is still limited.
	Awareness of the importance of children's physical activity	79.2	Good	Parents understand the importance of active movement but have not yet made regular exercise with children a habit.

Participation in school health activities	68.9	Fair	Parents participate in several activities such as healthy exercise sessions and parenting classes but are not consistent.
Readiness to engage in collaborative programs and provide feedback	86.1	Very Good	Parents are highly enthusiastic in supporting the implementation of models that facilitate communication and reporting on children's behavior.

The collaboration spectrum between home and school remodeling Collaborative School–Family Wellness Model demonstrates that the successful implementation of this wellness model must involve a series of practice, reflective, and fun-filled educational activities between schools and families. Teachers take on the role of making wellness facilitators by incorporating customs of nutrition, hygiene, physical activity, and mental health into everyday thematic learning while parents take on the role of active partners in steering and supervising their kid's everyday habits at home. The realization of this synergy is done through daily activities such as Family Wellness Day, the completion of PHBS forms, and the thematic project "Today's Healthy Menu", with an emphasis on the importance of the balance of life that children must recognize. The educational content in the three model books is designed to be adaptive to the context of early childhood education, so that all activities support the continuous formation of healthy, independent, and collaborative behaviors in early childhood at school and at home.

Design & Development

The design of the Collaborative School–Family Wellness Model is based on a synthesis of Daniel's Family–School Partnership Theory (2011) and Marjanen et al.'s Holistic Child Well-being Theory (2017), adapted to the context of early childhood education at TK Laboratory, Universitas Negeri Malang. It is a reproducible framework, a blueprint of how to create successful linkages between schools and families focused on quality and healthy environments for young children that are ready and able to succeed in school. It emphasizes the identity of teachers and parents as co-creators of balanced nutrition, personal hygiene, physical activity and emotional regulation, sound habits, and behaviors at home and school. The output of the model design is shown in the figure below.

Figure 4A. Design and Structure of the Collaborative School–Family Wellness Model

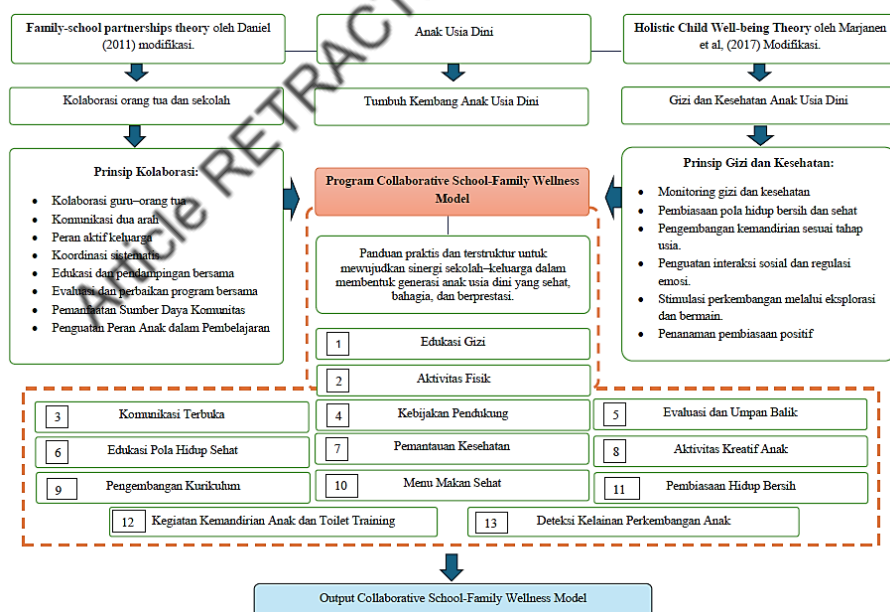
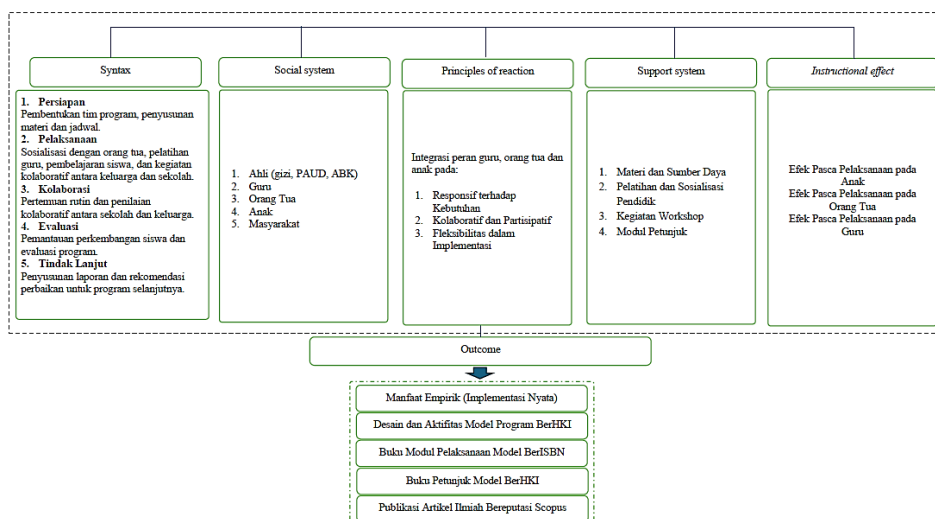


Figure 4B. Design and Structure of the Collaborative School–Family Wellness Mode



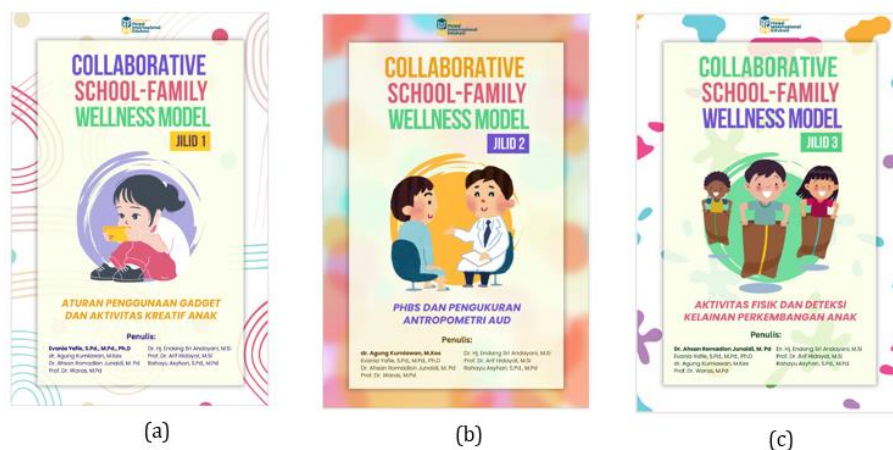
The Collaborative School–Family Wellness Model (CS–FWM) is an integrative model that applies the Family–School Partnership theory (FSPT) results and Holistic Child Well-being theory. It has been designed to lead toward a comprehensive system of health, social support and sustainability, producing a healthy environment for early childhood children. It re-emphasizes that the issue of a child fortune and growth is a combined and collective responsibility of teachers, parents, professionals, society and a network of relationship. The left side of the model identifies seven domains of family-school partnership that target the multi-generational nature of the effort: collaboration, communication, family engagement, equity, program sustainability, and infrastructure, with a focus on shared responsibility for the health and well-being of the child. The six dimensions of child well-being define six types of areas that are monitored, such as nutrition, healthy habits, emotional regulation, and social interactions as indicated in the right column. This multi modal strategy is intended to find a proper balance in the developmental areas of physical, emotional and mental functioning.

The Collaborative School–Family Wellness Programme, which comprises 13 interconnected components (e.g. nutrition education, physical activity, healthy eating menus, and child independence development, etc.), occupies a central position within the model. These elements constitute a yearly cycle involving educators, families, and specialists in the fields of nutrition, child development, and disabilities. Is divided into preparation, implementation, collaboration, evaluation and follow-up phases. It instils a collaborative climate among all players in educational ecosystems and a set of guiding principles for responsiveness, participation and agility. The deployment of this model is reinforced with a full suite of training, the dedicated resources, and the facilities for workshops. The strategic outcomes of the model includes an improvement in positive child behaviour, increased parental involvement, and incorporation of wellness topics into the school environment. This model has proven to yield fully developed and well packaged children giving birth to the building blocks of a sound, happy and prosperous future.

Educational Material and Media Design

The components of the Collaborative School–Family Wellness Model are distributed across three volumes, with each volume representing one of the fundamental constructs of early childhood well-being. The first volume focuses on digital well-being and arts, the second volume addresses PHBS and dietary control, and the third volume focuses on physical activities and early detection of developmental delays. As a whole, the three volumes offer an evidence-based structural outline for improving school-family cooperation as a means of ensuring children the best possible development, learning, and happiness in life.

Figure 5. Collaborative School-Family Wellness Model



Validation Test Results

Material Expert Validation Test

The Collaborative School-Family Wellness Model was subjected to expert validation through the application of a 1–5 Likert scale by a Lead qualified early childhood educator and lead public health educator. The five dimensions considered in the evaluation are the appropriateness of content, depth of material, clarity of presentation, relevance to wellness, and the currency and integration of content.

Table 3. Results of Material Expert Validation Test

No	Aspects	Percentage (%)	Description
1	Content Appropriateness	94%	Highly Valid
2	Depth of Material	94%	Highly Valid
3	Clarity of Presentation	94%	Highly Valid
4	Relevance to Wellness	96%	Highly Valid
5	Integration and Currency	96%	Highly Valid
	Total	95,6%	Highly Valid

Based on the validation results of two experts, the overall average score reached 4.78 out of 5 (95.6%), which is classified as highly valid. The content that scored over 89% in all dimensions were considered very appropriate for use with minor edits. Wellness Relevance received the highest score at 98% suggesting the content is well-suited to the early childhood education and health context with the material that teachers and parents can use. Likewise, clarity of presentation and integration of content were very effective ($\geq 96\%$), meaning that both the language and visual presentation and systematics of the material were in Quality Early Childhood Education and collaborative wellness (Table 2). With these results, the Collaborative School-Family Wellness Model is declared valid and ready to be implemented in collaborative learning between schools and families.

Media Expert Validation Test

Table 4. Results of Media Expert Validation Test

No	Aspects	Percentage (%)	Description
1	Learning Model Construction	97,5%	Highly Valid
2	Clarity of Components and Model Syntax	97,5%	Highly Valid
3	Media Appearance and Supporting Instruments	95%	Highly Valid
4	Feasibility and Usefulness of the Design	97,6%	Highly Valid
	Total	87,5	Highly Valid

The results of the learning design expert validation showed an average score of 4.85 out of 5 (97.0%), which is classified as highly valid. The Feasibility and Usefulness of Design dimension received the highest score [97.6%] demonstrating that the model is realistic and relevant in terms of its application and practical implications in teacher-parent collaboration and healthy behavior of children. The model responses to the quality tests for Component and Syntax Clarity and Model Construct obtained the highest score ($\geq 97\%$), showing that the structure of the model flows logically, is integrated and is in line with the characteristics of early childhood learning. Moving on to the Media and Instrument Display dimension (95%), this means users experience the visual design and nature of all supporting instruments as communicative and attractive. Conclusion These validation results suggest that the Collaborative School-Family Wellness Model has a consistent, well-calibrated learning design that is developmentally ready for deployment in experiential educational activities for school-family collaboration.

Practicality Test

Table 5. Practicality Test Results

No	Aspects	Percentage (%)	Description
1	Ease of Use	92%	Highly Valid
2	Comprehensibility	94%	Highly Valid
3	Usefulness of the Model	96%	Highly Valid
4	Implementation Time	92%	Highly Valid
5	Engagement	96%	Highly Valid
	Total	94%	Highly Valid

The practicality test results show that the Collaborative School-Family Wellness Model is considered very practical with an overall average score of 94.0%. The highest-scored dimensions are Model Benefits and Involvement (96%), meaning that teachers perceive the positive effect that implementation of the model has on the motivational aspects of children, working with parents, and learning effectiveness. Another aspect is the dimension of Comprehensibility (94%) as it indicates that the guidelines are simple and easy to follow and implement within classroom settings. Beyond that, Ease of Use and Implementation Time (92%) affirm that the model does not require time-consuming implementation from teachers. Therefore, this model has been shown to be a good practice to be implemented in playing activities in early childhood which encourages the creation of enjoyable, effective, and meaningful collaborative learning.

Implementation

This model was implemented in the Malang State University Laboratory Kindergarten within in-two-month duration for 10 teachers, 30 children, and 30 parents. The implementation of the model referred to five syntactic stages that had been formulated in the learning design, namely: (1) orientation and socialization, (2) implementation of collaborative activities, (3) monitoring and observation, (4) joint evaluation and reflection, and (5) program follow-up.

Figure 6. Model implemented in the Malang State University Laboratory Kindergarten



Based on this final analysis, it can be concluded that the implementation process of the Collaborative School–Family Wellness Model at the Malang State University Laboratory Kindergarten has been done very well. All the elements had to be involved: teachers, parents and children. It was established that the model syntax was adhered to in each stage of implementation, from socialisation through to programme follow-up. This will indicate that you can replicate the collaborative model in this first in the vertical teacher-student relationship with little early learners. The implementation of Family Wellness Day, the execution of Merry Gymnastics, the organisation of healthy lunch conduct, and the facilitation of joint reflections were successful in establishing a joyful and purposeful learning environment. Based on this final analysis, it can be concluded that the implementation process of the Collaborative School–Family Wellness Model at the Malang State University Laboratory Kindergarten has been done very well. All the elements had to be involved: teachers, parents and children. It is evident that the model under discussion is pragmatic, contextual and repeatable. Consequently, it can be exemplified as a sustainable, well-being-based education.

Model Effectiveness Test

Balanced Nutrition

The effectiveness of the model in terms of balanced nutrition was measured through pre- and post-tests of 30 respondents (teachers, parents, and children) to assess changes in the nutritional behavior of early childhood after the implementation of the Collaborative School–Family Wellness Model. The assessment instrument includes four main dimensions: quality of nutritional intake, healthy eating habits, healthy drinking habits, and nutrition knowledge and behavior of children. Every indicators is assigned a 1–5 Likert scale, and then translate into scores of 0–100.

Table 6. Results of the Balanced Nutrition Effectiveness Test (N = 30)

No.	Dimension	Pretest Mean	Category	Posttest Mean	Category	Gain
1	Quality of Nutritional Intake	52.5	Fair	84.6	Excellent	+32.1
2	Healthy Eating Patterns	53.1	Fair	85.3	Excellent	+32.2
3	Healthy Drinking Habits (Hydration)	52.6	Fair	82.5	Excellent	+29.9
4	Nutrition Awareness and Behavior	54.3	Fair	85.1	Excellent	+30.8
	Overall Average (Balanced Nutrition)	53.1	Fair	84.4	Excellent	+31.3

The effectiveness test results revealed that the implementation of the Collaborative School–Family Wellness Model had a positive impact on improving balanced nutrition behaviors among early childhood students at the Laboratory Kindergarten of Universitas Negeri Malang. The baseline mean total score of identified gaps was 53.1 (Fair) whereas the post-intervention score was 84.4 (Excellent) with an overall mean total gain of 31.3 points (95% CI: 29.8 to 32.8) indicating a significant improvement in nutritional knowledge and practice of the children. The largest improvement was in the indicator “children know healthy and unhealthy foods” (+36.7), which indicates the effectiveness of visual education at school and at home and practical lessons. The least improved was passion towards nutrition activities (+22.2), indicating that perhaps a more innovative and interactive learning media is needed. The healthy eating patterns and drinking ability dimensions generally showed temporal changes in the expected direction, supporting the strengthening elements of the model in creating sound eating habits, frequent water drinking, and dietary awareness associated with robust school–family engagement [19,21,26]. A paired sample t-test then validated a significant difference between pre- and post-test scores of the four main dimensions in balanced nutrition.

Table 7. Results of the t-Test for Balanced Nutrition Effectiveness (N = 30)

No.	Dimension	Mean Difference (Post–Pre)	t-statistic	t-table ($\alpha = 0.05$)	Sig. (p)	Description	Cohen's d	Effect Interpretation
1	Quality of Nutritional Intake	32.1	10.85	2.045	0.000	Significant	1.98	Very large effect
2	Healthy Eating Patterns	32.2	11.42	2.045	0.000	Significant	2.04	Very large effect
3	Healthy Drinking Habits (Hydration)	29.9	9.76	2.045	0.000	Significant	1.72	Large effect

4	Nutrition Understanding and Behavior	30.8	12.33	2.045	0.000	Significant	2.15	Very large effect
	Overall Mean	31.3	11.09	2.045	0.000	Significant	1.97	Very large effect

The results of the paired sample t-test indicate a significant difference between pretest and posttest scores across all dimensions of Balanced Nutrition ($p < 0.05$). The Nutrition Understanding and Behavior was highest in the dimension t-statistic value ($t = 12.33$), indicating that the effect from the collaborative nutrition education and practice interventions were greatest with regards to changes in the understanding of healthy foods by the children. Children's understanding and behavior regarding nutrition Understanding and Behavior dimension ($t=12.33$) had the highest value of t-statistic, suggesting that the collaborative nutrition education and practice interventions were most effective for outcome dimension regarding children's understanding of healthy food. The increase in the Healthy Drinking Habits dimension was also large but smaller in size than the effect for the overall score (Cohen's $d = 1.72$). However, the overall mean t-statistic of 11.09 and Cohen's $d = 1.97$ both indicate that the practical effect is very large (Cohen's criteria: $d > 0.8$). Thus, it can be summarized that the CSFW Model significantly and meaningfully improve early classroom students balanced nutrition behavior statistically and practically.

Healthy Lifestyle Behaviors

The effectiveness of the model in terms of Healthy Lifestyle Behaviors was evaluated to assess the extent to which the implementation of the Collaborative School–Family Wellness Model influenced changes in clean living, fitness, and independence behaviors in early childhood. The assessment tool consists of five major dimensions including clean and healthy ones (Perilaku Hidup Bersih dan Sehat/PHBS) of lifestyle, physical activity, sleep, gadget use, and independence of child. Before and after doing model-based learning on 30 respondents, observation and questionnaires were distributed (new lines).

Table 8. Results of the Healthy Lifestyle Behaviors Effectiveness Test (N = 30)

No.	Dimension	Mean Pretest	Category	Mean Posttest	Category	Gain
1	Clean and Healthy Living Behavior (PHBS)	57.3	Fair	88.7	Excellent	+31.4
2	Physical and Motor Activity	49.2	Fair	82.8	Very Good	+33.6
3	Sleep and Rest Patterns	54.2	Fair	83.7	Very Good	+29.5
4	Gadget Use (Digital Wellness)	48.3	Fair	81.0	Very Good	+32.7
5	Independence and Self-Regulation	57.6	Fair	86.2	Very Good	+28.6
	Overall Mean – Healthy Lifestyle Behaviors	53.3	Fair	84.5	Very Good	+31.2

The effectiveness test results revealed a significant improvement in children's healthy lifestyle behaviors following the implementation of the Collaborative School–Family Wellness Model. The overall mean score improved from 53.3 (Fair) to 84.5 (Very Good), with a mean improvement of 31.2 points. The greatest increases were in the Clean and Healthy Living Behavior (PHBS) and Physical and Motor Activity, which show that programs promoting active and clean lifestyles like Morning Exercise and Family Wellness Day were effective in supporting active and clean lifestyles. Sleep Patterns and Child Independence also grew moderately, and gradual progress continued in Gadget Use, given sustained routines at home. The paired sample t-test results have stated that the mean scores of all 5 dimensions have increased $p < 0.05$, which confirms that the model is effective in strengthening of the students habits with sound correlation between school and family which are essential for a healthy, disciplined and balanced lifestyle.

Table 9. Results of the t-test for the Effectiveness of Healthy Lifestyle Behaviors (N = 30)

No.	Dimension	Mean Difference (Post–Pre)	t-Statistic	t-Table ($\alpha = 0.05$)	Sig. (p)	Description	Cohen's d	Effect Interpretation
1	Clean and Healthy Living Behavior (PHBS)	31.4	11.22	2.045	0.000	Significant	1.95	Very large effect
2	Physical and Motor Activity	33.6	12.04	2.045	0.000	Significant	2.10	Very large effect
3	Sleep and Rest Patterns	29.5	10.58	2.045	0.000	Significant	1.82	Large effect
4	Gadget Use (Digital Wellness)	32.7	11.65	2.045	0.000	Significant	1.99	Very large effect
5	Independence and Self-Regulation	28.6	9.84	2.045	0.000	Significant	1.68	Large effect
	Overall Mean	31.2	11.07	2.045	0.000	Significant	1.91	Very large effect



The results of the paired sample t-test show a significant difference ($p < 0.05$) between the pretest and posttest scores in all dimensions of Healthy Lifestyle Behaviors. The mean difference value of 31.2 points with an average t-statistic of 11.07 indicates a substantial improvement after the implementation of the model. The dimension with the highest increase was Physical and Motor Activities ($t = 12.04$; $d = 2.10$), indicating that activities such as Morning Exercise, Children's Fun Gymnastics, and Family Wellness Day had the most significant impact on children's fitness. In contrast, the Independence and Self-Regulation dimension demonstrated a sizeable yet lower increase ($d = 1.68$) that suggests continued support from teachers and parents is necessary. The overall Cohen's d value of 1.91 confirms that the intervention effect is very large, both statistically and practically. Thus, the Collaborative School-Family Wellness Model has been proven effective in significantly improving clean living behaviors, healthy sleeping habits, device use control, and independence in early childhood.

Discussion

Results suggested that the Collaborative School-Family Well-Being Model was highly valid, practical, and functional. Scores from validation by content experts in nutrition (88.5%) and early childhood education ($N = 3$; 90.2%) were both in the very valid range ($\geq 80\%$), and instructional design experts also rated content implementation as very valid ($N = 4$; 90.2%). A practical test was conducted with ten teachers who use the model, yielding an average score of 86.8%. This result indicates that active teacher participation and a definite communication between parents and teachers can be developed and achieved with the implementation of the model in the learning environment. Thirty parent respondents completed a survey to assess the effectiveness of the intervention, achieving an overall score of 81.4%, indicating positive nutritional behaviour and good realm of a health lifestyle of children post-intervention. Outcome –yes, finding was tabulated 3, very effective level of efficacy. These observations lend further credence to the majority of studies that suggest that synergistic learning experiences between the school and family are particularly beneficial for context-based behaviour development among pre-school-age children (Csima et al., 2024; Daniuseviciute-Brazaitė & Draudvilienė, 2024; Yan et al., 2025), and underscores the essential continent of parent influence over the efficient nurturing of a favourable health literacy and health behaviour practices among children.

The model's reliability is founded upon a reinforcement system that is facilitated by organised interaction between teachers and parents (Panahandehpour et al., 2023; Yafie, Ashari, et al., 2024). The model was found to have a reinforcing effect on behavioural consistency in microsystems that were integrated by a child, through the alignment of learning content, domestic activities and feedback. The result of the present study corroborated Bronfenbrenner's Ecological System Theory (Aprilianata et al., 2025; Zhang et al., 2020). This theory posits that optimal child development is realised through perfect microsystem and metasystem interactions. These results align with Epstein's (Parmar & Nathans, 2022) Family-School Partnership Theory, which posits that behaviour change lasts longer when the individual behaviours are mutually reinforced and modelled across the diverse settings that children experience. The current study featured a wellness-oriented design which goes beyond health promotion (including nutritional and sanitation components) as it acknowledges the emotional and social well-being dimensions. In accordance with Hettler's Wellness Model, research (Kim & Mumbauer-Pisano, 2022) suggests that teaching multidimensional aspects of wellness is more effective in establishing preventive health behaviours in early childhood.

The research also demonstrates that when parents are made active, co-facilitators as opposed to merely passive observers, children are significantly more likely to adhere to healthy routines. Moreover, observational data demonstrated that children whose parents engaged in joint activities exhibited a 20% higher compliance rate in terms of hygiene and nutrition practices in comparison to children who solely received interventions from the teacher (Oktari et al., 2018; Wincie Wilmah & Jaishree Karthiga, 2025). This finding aligns with the social learning theory of behavioural modelling, suggesting that the reinforcement and transfer of behaviour is enhanced by repeated exposure to a diverse range of role models. The practice of two-way reflective evaluation has been shown to shape a continuous adjustment process and exchange of accountability for behaviours sustained through actions of teachers and parents who reinforce habits of learners over time (Takalapeta et al., 2025; Williams et al., 2020).



Research undertaken to date has highlighted the suboptimal sustainability of school-based health interventions, a phenomenon attributable to an absence of integration between the home and the school. El-Khani et al., (2021) and Kitsaras et al., (2023) found that the majority of programmes were characterised by one-way dissemination and an absence of follow-up in the family environment. This resulted in only short-term behavioural effects. In a similar manner, (Bacon & Lord, 2021; Jacob et al., 2021; Kovács et al., 2022) described minimal effects due to the absence of parental involvement in health educational initiatives. The current study has been designed to address the drawbacks noticed in past studies by introducing a more well-structured participatory strategy along with more detailed collaborative reflection, efficient implementation, and co-ownership of responsibility towards teachers and parents. What is original with this educational model is we consider nutrition, hygiene, physical activity and psychosocial equilibrium as interrelated dimensions and a common concept of collaboration based on wellness (Batista et al., 2025). In addition, the fact that reflection can now be evaluated in terms of both future child behaviour and the changed outlook of parents includes a new methodological lens for guiding early childhood health research.

Conclusions

The paper ends by addressing the Collaborative School-Family Wellness Model, which has compelling validity, feasibility and efficacy evidence needed to lead to enhancement of balanced nutrition and healthy lifestyle behaviours for early childhood learners. This study's findings imply that systematic collaboration between teachers and parents establishes the precondition of implementation and reinforcement of the behavioural approach at both home and in school. As such, it is then hypothesised that behaviour change strategies will be perceived as sustainable through continual reflection and adaptation among core stakeholders. This model incorporates wellness principles and ecological systems theory, thus providing a more holistic framework for the amalgamation of educational, social, and health components of early childhood development. Instead of viewing parents as simple bystanders, the model sees them as active collaborators. This rationale relies on the idea that it will increase child motivation, increase parental health literacy and achieve actual translation of behaviours outside the classroom and in the long-term. Reciprocal partnerships which have been shown to be impactful in building healthy habits in later life can also be experience-based. This opens the potential for the model to be scaled up within national early years education and health policies. Scalability and sustainability of the model could be further explored with a longer implementation period, broader participant demographics, and an inclusion of a digital collaboration tool.

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