



## Integrating Food Pedagogy and Project-Based Learning to Promote Healthy Eating in Early Childhood: A Systematic Literature Review

Waliatun Isnaini<sup>1\*</sup>, Zakirman<sup>2</sup>, Erie Siti Syarah<sup>3</sup>, Siti Aisyah<sup>4</sup>, Noviana Mustapa<sup>5</sup>,  
Catherine Lie<sup>6</sup>

<sup>1,2,3,4,5</sup>Universitas Terbuka, Indonesia

<sup>6</sup>University of Mindanao, Philippines

\*Corresponding Author: Waliatun Isnaini E-mail: [waliatunIsnaini1208@gmail.com](mailto:waliatunIsnaini1208@gmail.com)

Received: December 26, 2026	Revised: February 28, 2026	Accepted: March 5, 2026	Online: March 14, 2026
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### ABSTRACT

Food insecurity remains a critical issue affecting early childhood health. Early food knowledge significantly shapes children's dietary behaviors, underscoring the need for effective pedagogical integration within early education settings. This study aims to systematically examine the integration of food pedagogy and Project-Based Learning (PjBL) and to analyze its impact on children's health knowledge and healthy food choices. This systematic literature review followed PRISMA guidelines. Peer-reviewed empirical studies published between 2014 and 2024 were retrieved from the Scopus database using predefined inclusion and exclusion criteria. Articles focusing on early childhood populations, food or nutrition education, and project-based or experiential learning approaches were selected. Data were extracted and synthesized thematically to identify instructional patterns and reported outcomes. The findings indicate that integrating food pedagogy within PjBL enhances nutritional knowledge, fosters positive attitudes toward healthy foods, and supports informed dietary decision-making. Evidence consistently shows that experiential and collaborative projects contribute to sustainable healthy eating behaviors in early childhood. Overall, food pedagogy implemented through project-based learning represents a promising approach to strengthening early preventive efforts against food insecurity.

**Keywords:** *Early Childhood, Food Pedagogy, Healthy Eating, Project-Based Learning*

Journal Homepage <https://ejournaluinmybsk.ecampus.id/index.php/ijecer/index>

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How to cite: Isnaini, W., Zakirman, Z., Syarah, E. S., Aisyah, S., Mustapa, N., & Faruq, A (2026). Integrating Food Pedagogy and Project-Based Learning to Promote Healthy Eating in Early Childhood: A Systematic Literature Review. *Indonesian Journal of Early Childhood Educational Research (IJECEER)*, 5(1), 1-14. <https://doi.org/10.31958/ijecer.v5i1.16367>

Published by: Universitas Islam Negeri Mahmud Yunus Batusangkar, Indonesia

## INTRODUCTION

The prevalence of overweight and obesity among children has increased substantially over the past decades and has become a major global public health concern. According to the World Health Organization (WHO, 2024), the proportion of children and adolescents aged 5–19 classified as obese increased from 2% in 1990 to 8% in 2022 worldwide. Globally, unhealthy dietary patterns, increased consumption of ultra-processed foods, and reduced physical activity have been identified as key contributors to this trend (Bailey et al., 2019; Varman et al., 2021). In Indonesia, the Indonesian Nutritional Status Survey (SSGI) reported that the prevalence of overweight among toddlers reached approximately 3.5% in 2022, with obesity trends showing a consistent rise over the past two decades (Kementerian Kesehatan Republik Indonesia, 2022). Although stunting prevalence declined from 37.6% in 2013 to

21.6% in 2022, overweight and obesity have emerged as parallel nutritional challenges requiring early preventive strategies (WHO, 2024; Contento, 2020).

Early childhood is a critical developmental period for establishing dietary preferences, taste formation, and long-term eating behaviors. Research indicates that food habits developed during the first eight years of life tend to persist into adolescence and adulthood (OECD, 2021; UNICEF, 2023). Consequently, early educational interventions that promote food literacy and healthy eating awareness are essential (Bánfai-Csonka et al., 2022; Dudley et al., 2015). Food literacy is increasingly understood not only as knowledge of nutrition but also as the ability to critically understand food systems, make informed food choices, and recognize social and environmental dimensions of food consumption (Allen & Gillon, 2022; Klinkle & Samar, 2021; Vidgen & Gallegos, 2014). In this regard, food pedagogy extends beyond nutritional instruction by embedding ethical, cultural, and sustainability considerations into learning processes (Allen & Gillon, 2022; Gordon, 2024).

Project-Based Learning (PjBL) offers a pedagogical framework that aligns with experiential and inquiry-based principles. PjBL has been widely recognized for promoting active participation, collaborative problem-solving, and meaningful knowledge construction (Abidin, 2021; Albar, 2021). Recent educational research emphasizes that experiential learning models enhance behavioral change more effectively than conventional didactic approaches, particularly in health education contexts (Bailey et al., 2019; Collado-Soler et al., 2023; Palupi & Sadida, 2023; DeCosta et al., 2017). Moreover, contemporary studies highlight that participatory and context-based learning approaches improve children's engagement with nutrition concepts and foster sustainable dietary behaviors (Gordon, 2024; Ronto et al., 2017).

In the past five years, increasing attention has been directed toward school-based nutrition interventions that integrate experiential activities such as cooking projects, school gardens, and food exploration tasks. Evidence suggests that hands-on food-related activities improve children's willingness to try new foods and increase fruit and vegetable consumption (UNICEF, 2023; Varman et al., 2021; Lynch & Dunn, 2021). Furthermore, interdisciplinary project-based activities have been shown to support not only health outcomes but also cognitive and socio-emotional development, reinforcing the holistic value of integrated pedagogical strategies (OECD, 2021; Ferrero, 2021).

Despite growing evidence on nutrition education and active learning approaches, existing studies tend to examine food literacy and PjBL separately, often within primary, secondary, or higher education settings (Borroni et al., 2021; Ferrero, 2021; Kelly & Nash, 2021; Slater et al., 2018). Empirical investigations that systematically integrate food pedagogy within a structured PjBL framework specifically for early childhood (0–8 years) remain limited (Snyder, 2019). In Indonesia, research addressing innovative models that combine nutrition education with project-based activities designed to stimulate creativity and holistic understanding is still scarce (Candra et al., 2023; Rusdin et al., 2023).

This gap underscores the need for a comprehensive synthesis of empirical evidence to determine how food pedagogy and PjBL can be effectively integrated in early childhood contexts. The novelty of this study lies in its systematic effort to bridge these two pedagogical domains and identify strategies that simultaneously enhance food knowledge and healthy

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eating behaviors. Previous findings suggest that practical learning experiences, such as cooking-based mathematical activities, may support both cognitive development and applied life skills (Jo & Son, 2022; Lynch & Dunn, 2021), indicating the broader potential of integrated experiential learning models (Contento, 2020; Dudley et al., 2015; Ronto et al., 2017).

### **Objective**

This review has several objectives, namely (1) to identify and analyze the strategies used to integrate food pedagogy into Project-Based Learning (PjBL) in early childhood settings (0–8 years), (2) to evaluate the reported impacts of this integration on children’s food knowledge and healthy food choices, (3) to examine the contextual factors that enable or hinder the successful implementation of food pedagogy within PjBL frameworks, and (4) to identify existing research gaps in studies addressing the integration of food pedagogy and PjBL to improve food knowledge and healthy eating behaviors in early childhood.

### **RESEARCH METHODOLOGY**

This study used the Systematic Literature Review (SLR) method to explore the relationship between food pedagogy, project-based learning (PjBL), health knowledge, and healthy food choices in early childhood. This SLR method was chosen because it allows researchers to collect and analyze data from various sources in a structured and standardized manner to identify, evaluate, and synthesize relevant research in a specific area (Abidin, 2021; Snyder, 2019).

### **Research Questions**

Drawing on previous scientific findings, this study aims to identify trends, good practices, and existing gaps in the related literature. The formulation of this research question also aims to support the synthesis of comprehensive and relevant information for the development of future early childhood education policies and interventions. The research questions in this study are as follows: (1) What strategies are used to integrate food pedagogy into PjBL in early childhood settings (0-8 years)? (2) What are the reported impacts on children's food knowledge and healthy food choices? (3) What contextual factors enable or hinder successful implementation? (4) What research gaps still exist in studies on the integration of food pedagogy with PjBL to improve food knowledge and healthy eating choices in early childhood?

### **Literature Inclusion and Exclusion Criteria**

To ensure that the articles analyzed were relevant and aligned with the focus of the study, this study systematically established inclusion and exclusion criteria. These criteria were used to filter the literature based on its suitability and relevance to the topic of integrating food pedagogy with PjBL in improving children's food knowledge and healthy food choices. Inclusion criteria included articles published between 2014 and 2024, written in English or Indonesian, peer-reviewed, and primarily focused on parenting interventions or programs related to food literacy and healthy eating habits in early childhood (ages 0–6 years).

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Conversely, articles that did not meet these criteria were excluded from the analysis. This included non-peer-reviewed publications, articles available only in abstract form, and studies that focused on populations outside of early childhood or did not directly address parenting interventions. The application of these criteria aimed to maintain the quality and relevance of the findings examined in this literature review. Details of the inclusion and exclusion criteria are presented in Table 1.

Table 1. Inclusion and Exclusion criteria

<b>Aspect</b>	<b>Inclusion Criteria</b>	<b>Exclusion Criteria</b>
<b>Type of Study</b>	<ul style="list-style-type: none"> <li>- Peer-reviewed journal articles.</li> <li>- Quantitative, qualitative, or mixed studies.</li> <li>- Relevant literature review or meta-analysis.</li> </ul>	<ul style="list-style-type: none"> <li>- Non-peer-reviewed articles (opinions, editorials, informal reports).</li> <li>- Theory-based studies without empirical data or implementation evaluation.</li> </ul>
<b>Research Topics</b>	<ul style="list-style-type: none"> <li>- Discussing food pedagogy for early childhood.</li> <li>- Using Project Based Learning (PjBL).</li> <li>- Evaluate the impact of food pedagogy or PjBL.</li> </ul>	<ul style="list-style-type: none"> <li>- Does not explicitly discuss food pedagogy or PjBL.</li> <li>- Focuses on children's health without any educational or pedagogical elements.</li> </ul>
<b>Population</b>	<ul style="list-style-type: none"> <li>- Early childhood (0–8 years).</li> </ul>	<ul style="list-style-type: none"> <li>- Does not focus on early childhood or covers a wide age group without separate data for early childhood.</li> </ul>
<b>Language</b>	<ul style="list-style-type: none"> <li>- Articles in English or Indonesian.</li> </ul>	<ul style="list-style-type: none"> <li>- Articles published in languages other than English or Indonesian.</li> </ul>
<b>Publication Period</b>	<ul style="list-style-type: none"> <li>- Articles published in the last 10 years.</li> </ul>	<ul style="list-style-type: none"> <li>- Articles published more than 10 years ago (unless deemed important).</li> </ul>
<b>Research result</b>	<ul style="list-style-type: none"> <li>- Report empirical results related to increased knowledge of healthy food or changes in healthy eating behavior in early childhood.</li> </ul>	<ul style="list-style-type: none"> <li>- Studies without empirical results or only highlighting clinical interventions without educational elements.</li> </ul>
<b>Accessibility</b>	<ul style="list-style-type: none"> <li>- Articles with full text access (open or through institutions).</li> </ul>	<ul style="list-style-type: none"> <li>- Articles with inaccessible full text.</li> </ul>

## Literature Search Strategy

A systematic literature search was conducted in several scientific databases, including Scopus, ScienceDirect, PubMed, and Google Scholar. Keywords used included: "food pedagogy," "PjBL," "choose healthy food," "healthy food selection," "early childhood," and "nutrition and food education." Boolean operators such as AND, OR, and NOT were used to narrow or expand the search results (see Table 2).

Table 2. Literature Search Strategy

Aspect	Description
Database Used	Scopus, ScienceDirect, PubMed and Google Scholar
Search Keywords	"food pedagogy", "PjBL", "choose healthy food", "healthy food selection", "early childhood", and "nutrition food education".
Boolean Operators	AND, OR, NOT are used to combine or filter search results, such as: ("food pedagogy" AND "PjBL") AND "early childhood"
Publication Year Range	2014–2024
Document Type	Peer-reviewed journal articles, available in full-text, English or Indonesian

## Study Selection Process

From the initial search results, duplicate articles were removed. Titles and abstracts were then screened based on the inclusion criteria. Articles that met the criteria were then analyzed for full text to ensure they align with the research focus.

## Data Extraction and Synthesis

The extracted data included: year of publication, country, study objectives, research design, target population, PjBL components, and key outcomes related to food pedagogy and children's healthy eating choices. Synthesis was conducted narratively, grouping findings based on key themes and trends.

## RESULTS AND DISCUSSION

### Results

#### Systematic Article Selection Process

The article search and selection process for this study was conducted systematically based on the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol. The identification stage yielded 127 articles from various academic databases, including Scopus, ScienceDirect, PubMed, and Google Scholar. The Article Selection and Screening stage began with the 127 articles found, with 39 duplicate articles removed, 8 articles not meeting the requirements, and 17 articles for other reasons, leaving 88 articles to be selected based on title and abstract. After the initial screening stage, 56 articles were deemed irrelevant to the study's focus and were excluded from the analysis.

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A total of 32 articles were then thoroughly evaluated through full-text screening. From this evaluation stage, 22 articles did not meet the inclusion criteria, either because the topic was inappropriate, did not focus on parenting, or did not include indicators of food literacy or healthy eating habits in early childhood. Ten articles that met all inclusion criteria were selected for further analysis in this study. These articles reflect the diversity of forms of food pedagogy integration and PjBL activities that have been implemented in various countries and social contexts. Figure 1 shows the article selection using the PRISMA diagram (Haddaway et al., 2022).

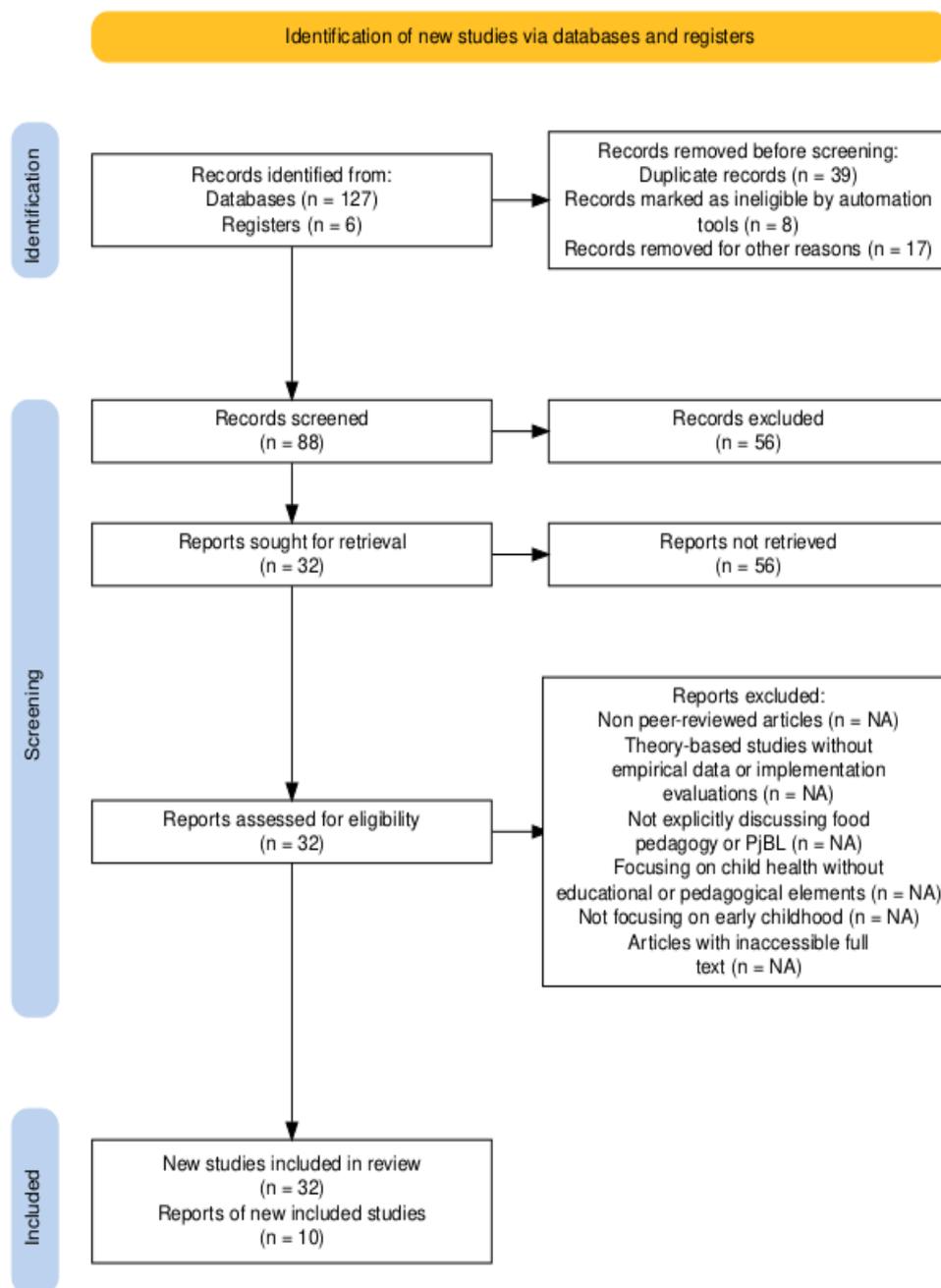


Figure 1. PRISMA Flowchart of Literature Selection

## Results of Data Analysis and Synthesis

Based on a literature review of 32 articles from 2014-2024, 10 articles met the inclusion criteria and answered the research questions. Most of the research subjects in these articles were children aged 0-8 years. Article details are provided in Table 3.

Table 3. Synthesis of Main Findings

<b>Name / Year</b>	<b>Research Title</b>	<b>Key Findings</b>
Allen & Gillon (2022)	Critical pedagogy for food systems transformation: Identifying and addressing social-justice problems in food systems and society	Explain the importance of critical pedagogy for the transformation of food systems towards social justice and sustainability.
Bánfai-Csonka et al. (2022)	Health Literacy in Early Childhood: A Systematic Review of Empirical Studies	Health literacy in early childhood supports the development of healthy lifestyle habits and early intervention.
Ferrero (2021)	Is project-based learning effective among kindergarten and elementary students? A systematic review	Project-Based Learning effectively improves the motivation and learning outcomes of kindergarten and elementary school students in various contexts.
Hsin (2023)	Implementing a Project-Based Learning Module in Urban and Indigenous Areas to Promote Young Children's Scientific Practices	PjBL effectively enhances children's scientific practices in urban areas and indigenous communities.
Jo & Putra (2022)	'I Can Create and Eat it for Snack': How Can Cooking Activities Support Early Math Learning?	Cooking activities support early mathematics learning through practical and interactive experiences.
Kelly & Nash (2021)	Food Literacy Interventions in Elementary Schools: A Systematic Scoping Review	Food literacy interventions in elementary schools support children's knowledge and healthy eating behaviors.
Pratami (2024)	Introducing Project-Based Learning Steps to the Preschool Teachers in Bandung, Indonesia	The implementation of PjBL in PAUD improves teachers' ability to apply active learning methods for early childhood.
Rusdin et al. (2023)	Educating Early Childhood about Healthy and Unhealthy Foods at Tenripakkua Kindergarten	Healthy and unhealthy food education effectively introduces the concept of nutrition to early childhood.
Tartaglia et al. (2024)	Effectiveness of a food literacy and positive feeding practices program for parents of 0 to 5 years old in Western Australia	Food literacy programs and positive parenting are effective in increasing healthy eating behavior in children aged 0-5 years.
Varman et al. (2021)	Experiential Learning Interventions and Healthy Eating Outcomes in	Experiential learning interventions improve healthy eating behaviors in

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children through active engagement in learning.

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## **DISCUSSION**

### **Strategy for integrating food pedagogy in PjBL for early childhood (0-8 years)**

The integration of food pedagogy and project-based learning requires a clear and focused strategy. This can be achieved by providing a concrete context that enriches children's learning through active exploration of healthy food and healthy living practices. Rusdin et al. (2023) stated that education about healthy food for early childhood can be delivered through hands-on, interactive, and contextual activities, such as cooking, gardening, and introducing nutritious foods. In this regard, Project-Based Learning (PjBL) offers children a space to develop creativity, fine motor skills, critical thinking, and social skills through collaborative projects (Pratami, 2024) and can foster children's curiosity in their observations of food and nutrition (Hsin, 2023).

This pedagogical and humanistic approach, which integrates food pedagogy with PjBL, makes children active and meaningful learners. Through these activities, children are stimulated to express ideas, collaborate, and construct knowledge based on their own experiences. Emotional and social engagement during the project also helps build social awareness and justice related to the food system, following the principles of critical pedagogy as expressed by Allen & Gillon (2022), which emphasize social transformation through critical and reflective education.

Based on several case studies that have been conducted, the integration of food pedagogy in Project-Based Learning (PjBL) in early childhood can include the selection of food themes that are close to children's daily lives, such as healthy and nutritious food, so that children can be directly involved in exploration and real practice, for example making a simple healthy menu, observing food ingredients, and discussing their nutritional benefits (Pratami, 2024; Rusdin et al., 2023). This approach is supported by children's direct experiences in cooking or gardening activities, which serve as learning tools to develop food literacy and an understanding of fair and sustainable food systems (Allen & Gillon, 2022; Varman et al., 2021). Furthermore, collaboration between teachers, parents, and the community is an important factor in consistently strengthening nutrition education, helping children apply knowledge of healthy foods in their daily lives (Rusdin et al., 2023; Tartaglia et al., 2024).

A multidisciplinary approach is also applied by linking aspects of mathematics, science, and language in food projects, such as measuring ingredients, observing physical and chemical changes during the cooking process, and expressing ideas and stories related to the food created by children (Hsin, 2023; Jo & Son, 2022). Finally, the strategy for developing health literacy from an early age is aimed at improving children's ability to understand and utilize food health information according to their developmental stage, so that children are able to make healthy and independent food choices gradually (Bánfai-Csonka et al., 2022; Kelly & Nash, 2021). This approach not only emphasizes cognitive aspects but also empowers children holistically in a fun and meaningful learning context.

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### **Indicators of food knowledge and healthy food choices in children**

Indicators of children's food knowledge and healthy food choices refer to both cognitive and affective dimensions that guide children in recognizing, understanding, and selecting foods that meet nutritional and health standards. Such knowledge is essential because the food children consume not only fulfills energy requirements but also contributes significantly to cognitive and physical development (Allen & Gillon, 2022). Children should be guided through holistic learning experiences that involve exploration, manipulation, and direct application in meaningful contexts, such as cooking activities or activity-based learning projects (Ferrero, 2021; Hsin, 2023).

Several indicators are frequently used to measure children's knowledge of healthy eating, including understanding balanced nutrition, food hygiene, and the ability to distinguish between healthy and unhealthy food ingredients. For example, children who understand food groups and essential nutrients are more likely to make healthier food choices in their daily lives (Rusdin et al., 2023). Furthermore, educational interventions that actively involve parents as partners in promoting healthy eating practices have been shown to strengthen the establishment of positive eating habits in early childhood (Tartaglia et al., 2024).

Children's healthy food choices are not solely the result of theoretical knowledge but are also shaped by direct experiences and active engagement in practical, contextual learning processes. Cooking activities, for instance, can reinforce children's understanding of nutrition while simultaneously enhancing foundational mathematical and scientific skills through measuring ingredients and observing physical and chemical changes during food preparation (Jo & Son, 2022). Project-Based Learning approaches have likewise demonstrated effectiveness in deepening children's understanding of healthy food concepts in ways that are engaging and developmentally appropriate (Ferrero, 2021; Pratami, 2024).

A critical perspective on food systems is equally important. Children can be encouraged to understand broader social justice dimensions of food systems, including issues of accessibility, sustainability, and equity in healthy food distribution (Allen & Gillon, 2022). This broader awareness situates children's food choices within environmental and social contexts rather than viewing them solely as individual decisions.

Thus, children's food knowledge and healthy food choices can be assessed and developed through indicators such as understanding balanced nutrition and hygiene, demonstrating active engagement in experiential learning, and developing awareness of socio-food system contexts. Learning approaches should therefore be inclusive, contextual, and interactive to ensure that knowledge acquisition extends beyond theoretical understanding and becomes a foundation for lifelong healthy eating behaviors (Kelly & Nash, 2021; Varman et al., 2021).

### **Key Findings, Challenges and Recommendations**

Recent research has highlighted several important findings regarding health literacy in early childhood and the transformation of equitable food systems. Early childhood represents a crucial period for the formation of healthy habits and foundational health literacy (Bánfai-Csonka et al., 2022). Children can be actively involved in health-related decision-making processes through illustrated materials and storytelling, which support developmentally

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appropriate literacy formation (Bánfai-Csonka et al., 2022). The importance of a critical pedagogical approach to food system transformation has also been emphasized, viewing food systems as dynamic and socially embedded structures shaped by issues of equity, sustainability, and power relations (Allen & Gillon, 2022).

Research on Project-Based Learning further strengthens this perspective. PjBL has been shown to promote active participation and contextual learning among young children (Ferrero, 2021; Hsin, 2023; Pratami, 2024). Integrating cooking activities into project-based frameworks enables children to apply early science and mathematics concepts in authentic contexts, such as measuring ingredients and observing changes during food preparation (Jo & Son, 2022). These findings suggest that combining food pedagogy with experiential learning can foster both cognitive understanding and practical competencies.

Despite these promising developments, several important challenges remain. Health literacy initiatives in early childhood often lack a holistic orientation, particularly in addressing the social and emotional dimensions that influence children's well-being (Bánfai-Csonka et al., 2022). Integrating social justice principles into food education remains complex, especially within food systems where economic interests frequently outweigh concerns of equity and sustainability (Allen & Gillon, 2022). The implementation of project-based learning is frequently constrained by teacher preparedness, limited institutional resources, and the need to adapt pedagogical strategies to diverse sociocultural contexts (Hsin, 2023; Pratami, 2024). Nutrition education for young children must also balance clarity, engagement, and cultural relevance to ensure meaningful learning experiences (Rusdin et al., 2023).

In response to these findings, several practical and scholarly recommendations can be advanced. Health literacy development in early childhood should be designed holistically by integrating cognitive, social, and emotional dimensions through contextual and visually accessible educational media (Bánfai-Csonka et al., 2022). Food system education should be grounded in critical pedagogical principles that promote awareness of social justice and encourage inclusive and sustainable transformation (Allen & Gillon, 2022). Strengthening teacher capacity through focused training in project-based methodologies is essential, particularly in adapting programs to diverse local contexts. The involvement of families as active partners in promoting healthy eating practices can further reinforce learning outcomes (Rusdin et al., 2023; Tartaglia et al., 2024). Experiential learning activities such as cooking-based projects can deepen children's understanding of mathematics and science concepts while supporting meaningful engagement with food and nutrition topics (Jo & Son, 2022; Varman et al., 2021).

### **Research gap on the integration of food pedagogy with PjBL**

A literature review shows that integrating food pedagogy with Project-Based Learning (PjBL) methods has significant potential for improving food literacy and healthy eating behaviors in early childhood. However, several research gaps still require attention for more optimal development.

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### **Imbalance of Research Focus**

Most previous research has focused on the cognitive and technical aspects of project-based learning (Pratami, 2024; Ferrero, 2021), while the socio-emotional and cultural aspects of food education remain underexplored. Allen and Gillon (2022) emphasize the importance of incorporating social justice dimensions into food systems, which have not been comprehensively integrated into learning approaches for children.

### **Lack of Contextual Studies and Local Adaptation**

Hsin (2023), demonstrated the importance of adapting PjBL to urban and indigenous contexts, but research specifically examining the integration of food pedagogy with PjBL across cultural contexts is still limited. There is an urgent need for cross-cultural and geographic studies to develop inclusive and locally tailored learning models.

### **Limited Focus on Family and Home Environment**

Most food literacy interventions still focus on school settings without adequately incorporating families and the home environment as integral components in promoting healthy eating habits (Tartaglia et al., 2024; Rusdin et al., 2023). The role of parents and the home environment is strategic in supporting the sustainability of learning outcomes in schools.

### **Disadvantages of Long-Term Evaluation**

Evaluation of the long-term impact of integrating food pedagogy and PjBL on early childhood eating knowledge and behavior is still limited. Existing studies are mostly cross-sectional or short-term interventions, thus providing a limited picture of the method's sustained effects (Kelly & Nash, 2021; Varman et al., 2021).

Tabel 4. Research gap on the integration of food pedagogy with PjBL

<b>Aspect</b>	<b>Research Gap</b>	<b>Reference</b>
Research Focus	Lack of social-emotional integration and food justice	Allen & Gillon (2022); Pratami (2024)
Adapting to Local Context	Lack of cross-cultural studies and local adaptation of food pedagogy with PjBL	Hsin (2023)
The Role of Family & Environment	Limited family involvement in food literacy programs	Tartaglia et al. (2024); Rusdin et al. (2023)
Long-Term Evaluation	Lack of data on the sustained impact of interventions	Kelly & Nash (2021); Varman et al. (2021)

## **CONCLUSION**

In conclusion, this study demonstrates that food pedagogy and PjBL have significant potential to improve health knowledge and healthy food choices in early childhood. By implementing a project-based and interactive approach, children can learn about the importance of nutrition in a fun and meaningful way. This study also highlights the need for greater support from various parties, including educators, the government, and the community, to implement effective educational programs. Going forward, further research is

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needed to explore various Food Pedagogy models and the implementation of PjBL in various contexts, as well as to evaluate the long-term impact of these interventions on children's eating habits and health. Thus, this research is expected to continue to advance the field of early childhood food and health education and make a positive contribution to the well-being of future generations.

## **ACKNOWLEDGEMENT**

The author would like to express his deepest gratitude to all MPAD Lecturers of the Open University, for the support provided during this research. The guidance provided was invaluable in enabling the completion of this research.

## **REFERENCES**

- Abidin, Z. (2021). Gifted children's mathematical reasoning abilities on problem-based learning and project-based learning literacy. *Journal of Physics: Conference Series*, 1720(1), 012018. <https://doi.org/10.1088/1742-6596/1720/1/012018>
- Albar, S. B. (2021). Problem and project-based learning through an investigation lesson: Significant gains in creative thinking behaviour within the Australian foundation (preparatory) classroom. *Thinking Skills and Creativity*, 41, 100853. <https://doi.org/10.1016/j.tsc.2021.100853>
- Allen, P., & Gillon, S. (2022). Critical pedagogy for food systems transformation: Identifying and addressing social-justice problems in food systems and society. *Frontiers in Sustainable Food Systems*, 6, 847059. <https://doi.org/10.3389/fsufs.2022.847059>
- Bailey, C. J., Drummond, M. J., & Ward, P. R. (2019). Food literacy programmes in secondary schools: A systematic literature review and narrative synthesis of quantitative and qualitative evidence. *Public Health Nutrition*, 22(15), 2891–2913. <https://doi.org/10.1017/S1368980019001666>
- Bánfai-Csonka, H., Betlehem, J., Deutsch, K., Derzsi-Horváth, M., Bánfai, B., Fináncz, J., Podráczky, J., & Csima, M. (2022). Health literacy in early childhood: A systematic review of empirical studies. *Children*, 9(8), 1131. <https://doi.org/10.3390/children9081131>
- Borroni, C., Pimentel-Ávila, A., Stoore, C., Hidalgo, C., Diamond, K., Vásquez-Carrillo, C., Landerer, E., & Paredes, R. (2021). A unique approach to project-based learning (PjBL) in a veterinary anatomy course. *Medical Science Educator*, 31(2), 511–517. <https://doi.org/10.1007/s40670-021-01205-1>
- Candra, H., Gusril, G., Nirwandi, N., & Zarya, F. (2023). The effect of the project-based learning model with the case method and nutritional status on physical fitness of learners class VII SMPN 21 Padang. *International Journal of Multidisciplinary Research and Analysis*, 6(4). <https://doi.org/10.47191/ijmra/v6-i4-02>
- Collado-Soler, R., Alférez-Pastor, M., Torres, F. L., Trigueros, R., Aguilar-Parra, J. M., & Navarro, N. (2023). A systematic review of healthy nutrition intervention programs in
-

- kindergarten and primary education. *Nutrients*, 15(3), 541. <https://doi.org/10.3390/nu15030541>
- Contento, I. R. (2020). *Nutrition education: Linking research, theory, and practice* (4th ed.). Jones & Bartlett Learning.
- DeCosta, P., Møller, P., Frøst, M. B., & Olsen, A. (2017). Changing children's eating behaviour: A review of experimental research. *Appetite*, 113, 327–357. <https://doi.org/10.1016/j.appet.2017.03.004>
- Dudley, D. A., Cotton, W. G., & Peralta, L. R. (2015). Teaching approaches and strategies that promote healthy eating in primary school children: A systematic review and meta-analysis. *International Journal of Behavioral Nutrition and Physical Activity*, 12, 28. <https://doi.org/10.1186/s12966-015-0182-8>
- Ferrero, M. (2021). Is project-based learning effective among kindergarten and elementary students? A systematic review. *PLoS ONE*, 16(4), e0249627. <https://doi.org/10.1371/journal.pone.0249627>
- Gordon, C. (2024). Learning mutual aid: Food justice public pedagogy and community fridge organizing online. *Journal of Applied Communication Research*, 52(2), 158–178. <https://doi.org/10.1080/00909882.2024.2327417>
- Haddaway, N. R., Page, M. J., Pritchard, C. C., & McGuinness, L. A. (2022). PRISMA 2020: An R package and Shiny app for producing PRISMA 2020-compliant flow diagrams. *Campbell Systematic Reviews*, 18(2), e1230. <https://doi.org/10.1002/cl2.1230>
- Hsin, C. T. (2023). Implementing a project-based learning module in urban and indigenous areas to promote young children's scientific practices. *Research in Science Education*, 53(1), 37–57. <https://doi.org/10.1007/s11165-022-10043-z>
- Jo, S., & Son, J.-W. (2022). “I can create and eat it for snack”: How can cooking activities support early math learning? *Early Childhood Education Journal*, 50(6), 983–997. <https://doi.org/10.1007/s10643-021-01230-0>
- Kelly, R. K., & Nash, R. (2021). Food literacy interventions in elementary schools: A systematic scoping review. *Journal of School Health*, 91(8), 660–669. <https://doi.org/10.1111/josh.13053>
- Kementerian Kesehatan Republik Indonesia. (2022). *Buku saku hasil survei status gizi Indonesia (SSGI) 2022*.
- Klinke, C., & Samar, G. K. (2021). Food pedagogy for transformative social change. *Canadian Food Studies*, 8(3). <https://doi.org/10.15353/cfs-rcea.v8i3.485>
- Lynch, M., & Dunn, S. (2021). Experiential learning and food literacy development in early childhood education. *Early Childhood Education Journal*, 49(5), 879–892. <https://doi.org/10.1007/s10643-020-01098-5>
- OECD. (2021). *Health at a glance 2021: OECD indicators*. OECD Publishing. <https://doi.org/10.1787/ae3016b9-en>
-

- Palupi, I. R., & Sadida, H. D. (2023). Edukasi pengolahan makanan sehat seimbang kepada pengelola penyelenggaraan makanan sekolah di taman kanak-kanak. *Kacanegara Jurnal Pengabdian pada Masyarakat*, 6(4), <http://dx.doi.org/10.28989/kacanegara.v6i4.1624>
- Pratami, D. (2024). Introducing project-based learning steps to preschool teachers in Bandung, Indonesia. *Journal of Technology and Science Education*, 14(3), 883–902. <https://doi.org/10.3926/jotse.2398>
- Ronto, R., Ball, L., Pendergast, D., & Harris, N. (2017). Adolescents' perspectives on food literacy and its impact on their dietary behaviours. *Appetite*, 116, 182–189. <https://doi.org/10.1016/j.appet.2017.04.012>
- Rusdin, A., Awaliah, N., Ajsal, A. A. A., & R. (2023). Edukasi bagi anak usia dini tentang makanan sehat dan tidak sehat di TK Tenripakkua. *RESWARA: Jurnal Pengabdian Kepada Masyarakat*, 4(2), 1323–1329. <https://doi.org/10.46576/rjpkm.v4i2.3295>
- Slater, J., Falkenberg, T., Rutherford, J., & Colatruglio, S. (2018). Food literacy competencies: A conceptual framework for youth. *Journal of Nutrition Education and Behavior*, 50(6), 547–556. <https://doi.org/10.1016/j.jneb.2018.02.002>
- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104, 333–339. <https://doi.org/10.1016/j.jbusres.2019.07.039>
- Tartaglia, J., Jancey, J., Scott, J. A., Dhaliwal, S. S., & Begley, A. (2024). Effectiveness of a food literacy and positive feeding practices program for parents of 0 to 5 years olds in Western Australia. *Health Promotion Journal of Australia*, 35(2), 263–275. <https://doi.org/10.1002/hpja.742>
- UNICEF. (2023). The state of the world's children 2023.
- Varman, S. D., Cliff, D. P., Jones, R. A., Hammersley, M. L., Zhang, Z., Charlton, K., & Kelly, B. (2021). Experiential learning interventions and healthy eating outcomes in children: A systematic literature review. *International Journal of Environmental Research and Public Health*, 18(20), 10824. <https://doi.org/10.3390/ijerph182010824>
- Vidgen, H. A., & Gallegos, D. (2014). Defining food literacy and its components. *Appetite*, 76, 50–59. <https://doi.org/10.1016/j.appet.2014.01.010>
- World Health Organization. (2024). Obesity and overweight. <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>
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