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AGRICULTURAL LEARNING CENTERS IN SCHOOLS

Pakkapong Poungsuk*
pakkapong.po@kmitl.ac.th*

Department of Agricultural Education, School of Industrial Education and Technology, King Mongkut's Institute of Technology Ladkrabang, Bangkok 10520 Thailand

*Corresponding author E-mail: pakkapong.po@kmitl.ac.th

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ABSTRCT

This book review critically examines *Agricultural Learning Centers in Schools* by Wathana Saduak and Amporn Saduak, a publication that presents a comprehensive framework for establishing and managing school-based agricultural learning centers. The review evaluates the book's conceptual foundation, pedagogical approaches, organizational structure, practical applications, and contribution to agricultural and industrial education. The analysis is informed by contemporary educational perspectives, including experiential learning, competency-based education, learner-centered pedagogy, and Education for Sustainable Development (ESD). The review finds that the book successfully integrates educational philosophy with practical implementation by presenting agricultural learning centers as authentic learning environments where students develop knowledge, practical competencies, leadership, problem-solving abilities, and environmental responsibility through meaningful learning experiences. Its systematic organization, comprehensive instructional guidance, and emphasis on project-based learning and community participation make the book a valuable resource for teachers, teacher educators, curriculum developers, school administrators, and researchers. Furthermore, the book demonstrates how agricultural learning centers can function as living laboratories that promote sustainable education and lifelong learning. Although future editions could further strengthen the discussion by incorporating recent developments in smart agriculture, precision agriculture, artificial intelligence, digital learning technologies, and international comparative perspectives, these recommendations represent opportunities for future enhancement rather than limitations of the current publication. Overall, the book makes a significant contribution to agricultural teacher education and provides a practical and scholarly reference for developing innovative, competency-based, and sustainable agricultural learning environments within contemporary educational contexts.

Keywords: Agricultural learning centers, School-based agricultural education, Experiential learning, Sustainable education, Agricultural teacher education

I. INTRODUCTION

Agricultural education plays a pivotal role in equipping learners with the knowledge, practical competencies, and professional attitudes required to address the increasingly complex challenges of food security, environmental sustainability, and rural development. In Thailand, agricultural education has continuously evolved in response to changing social, economic, technological, and environmental conditions, requiring educational systems that integrate innovation, experiential learning, and sustainable development (Siriwan, 2014, pp. 45-56; OECD, 2018, pp. 3-6; UNESCO, 2020, pp. iii-5). As education systems increasingly shift from content-based instruction toward competency-based and learner-centered approaches, authentic learning environments have become indispensable for fostering meaningful learning experiences. Among these, school-based agricultural learning centers provide valuable opportunities for students to integrate theoretical knowledge with hands-on practice, thereby enhancing critical thinking, problem-solving, collaboration, and lifelong learning competencies. These characteristics position agricultural learning centers as essential components of Education for Sustainable Development (ESD) and twenty-first-century education (FAO, 2022, pp. iv-vi; UNESCO, 2020, pp. iii-5).

Previous scholarship has further emphasized that meaningful learning occurs when students actively engage with authentic tasks situated in real-world contexts rather than relying solely on classroom-based instruction. Previous studies have consistently emphasized that effective agricultural education should integrate theoretical knowledge, practical experiences, and competency development to prepare learners for professional practice (Poungsuk, 2026, pp. 24-46; Kolb, 2015, pp. 31-50; Roberts & Ball, 2009, pp. 84-90). This perspective is consistent with the long-established philosophy of agricultural education, which recognizes farm work and authentic

agricultural experiences as fundamental components of effective teaching and learning (Siriwan, 1989, pp.133-136). Experiential learning theory proposes that knowledge is created through the transformation of experience, enabling learners to integrate concrete experiences with reflective observation, conceptual understanding, and active experimentation (Kolb, 2015, pp. 31-50). Likewise, school-based agricultural education has increasingly been recognized as an effective pedagogical approach for developing technical competencies, problem-solving skills, leadership, and career readiness through hands-on learning experiences. Recent studies further demonstrate that experiential learning within agricultural education enhances learner engagement, practical competence, and the application of knowledge in authentic educational settings (Banige et al., 2026, pp. 15-33). Moreover, the Education for Sustainable Development (ESD) framework advocates learner-centered, action-oriented, and transformative pedagogies that empower students to address sustainability challenges through participatory and experiential learning (UNESCO, 2020, pp. 13-15). Collectively, these perspectives suggest that agricultural learning centers represent more than instructional facilities; they function as dynamic learning environments where theory, practice, community participation, and sustainable development are meaningfully integrated.

Despite the growing body of literature on experiential learning and agricultural education, relatively few publications provide comprehensive guidance that systematically integrates educational philosophy, instructional design, practical implementation, learner assessment, project-based learning, and academic agricultural activities within a single resource. In this context, Agricultural Learning Centers in Schools by Saduak and Saduak (2024, pp. 78-89) makes a valuable contribution by presenting an integrated framework for establishing and managing school-based agricultural learning centers. The book effectively integrates the theoretical foundations of agricultural education with practical strategies for designing learning environments, organizing instructional activities, developing students' practical skills, implementing project-based learning, and promoting agricultural academic activities (Saduak & Saduak, 2024, pp. 90-126). Furthermore, the authors emphasize the role of agricultural learning centers as living laboratories that encourage authentic learning, community participation, and competency development, thereby aligning with contemporary educational paradigms that advocate learner-centered, experiential, and sustainable education (Saduak & Saduak, 2024, pp. 90-139). This perspective is also consistent with previous studies highlighting the transformation of agricultural learning centers into innovative educational environments that support digital learning, lifelong learning, and community engagement in the twenty-first century (Poungsuk, 2018, pp. 1-7).

The purpose of this book review is to critically examine *Agricultural Learning Centers in Schools* by evaluating its conceptual foundation, pedagogical approaches, organizational structure, practical applications, and overall contribution to agricultural and industrial education. The review further discusses the book's strengths, identifies areas for future enhancement, and considers its significance for teachers, teacher educators, curriculum developers, school administrators, and researchers interested in competency-based agricultural education and sustainable learning environments.

II. OVERVIEW AND CRITICAL ANALYSIS OF THE BOOK

1. Overview of the Book

Agricultural Learning Centers in Schools is a comprehensive academic and practical resource that addresses the development and management of agricultural learning centers within school settings. Written by Wathana Saduak and Amporn Saduak, the book presents an integrated framework that combines the philosophy of agricultural education, instructional design, practical skill development, project-based learning, and academic agricultural activities into a coherent educational model. Rather than focusing exclusively on agricultural production, the authors position agricultural learning centers as dynamic educational environments that promote experiential learning, competency development, and community engagement.

The book is systematically organized into seven major sections, beginning with the fundamental concepts of agricultural education and the role of learning resources in schools. It subsequently introduces the theoretical foundations for establishing agricultural learning centers, followed by practical guidance on designing learning spaces, organizing instructional activities, developing students' practical skills, implementing project-based learning, and promoting agricultural academic activities. This logical progression from educational theory to classroom implementation enables readers to understand not only the conceptual rationale behind agricultural learning centers but also the practical procedures required for successful implementation.

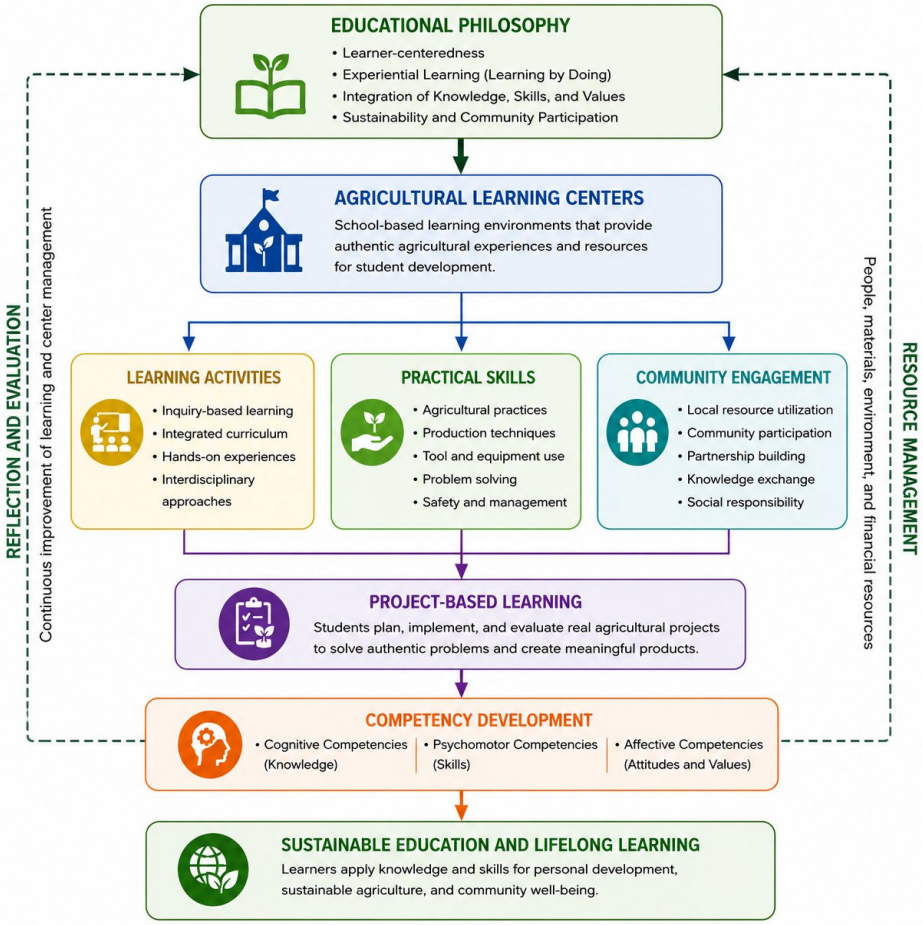

Figure 1: Framework of agricultural learning centers presented in the book
Source: Developed by the reviewer based on Saduak and Saduak (2024, pp. 78-126).

Figure 1 synthesizes the educational framework presented throughout the book. Rather than depicting agricultural learning centers solely as physical facilities, the framework illustrates a holistic educational system that integrates educational philosophy, experiential learning, practical skill development, community engagement, project-based learning, competency development, and sustainable education. The figure also highlights the continuous roles of reflection, evaluation, and resource management in supporting effective learning environments. This conceptual framework demonstrates that agricultural learning centers function as dynamic educational ecosystems rather than isolated instructional resources.

One of the distinguishing characteristics of this book is its successful integration of educational theory with practical experience. Throughout the seven sections, the authors consistently demonstrate how agricultural learning centers can function as "living laboratories," where students actively construct knowledge through observation, experimentation, reflection, and authentic agricultural practice. The book also emphasizes learner-centered instruction, interdisciplinary integration, community participation, and sustainable agricultural development, thereby extending its relevance beyond agricultural education to broader fields of vocational, industrial, and technology education. Consequently, the book serves not only as an instructional guide but also as a practical reference for teachers, school administrators, teacher educators, curriculum developers, and researchers interested in improving experiential and competency-based education.

2. Pedagogical Contributions

To better illustrate the educational value of the book, its major pedagogical contributions can be synthesized into an integrated conceptual framework. Rather than viewing agricultural learning centers merely as physical instructional facilities, the book presents them as learner-centered educational environments that promote experiential learning, project-based instruction, practical skill development, and community participation. These interconnected pedagogical elements collectively support competency-based education and holistic learner development. The conceptual framework is presented in Figure 2.

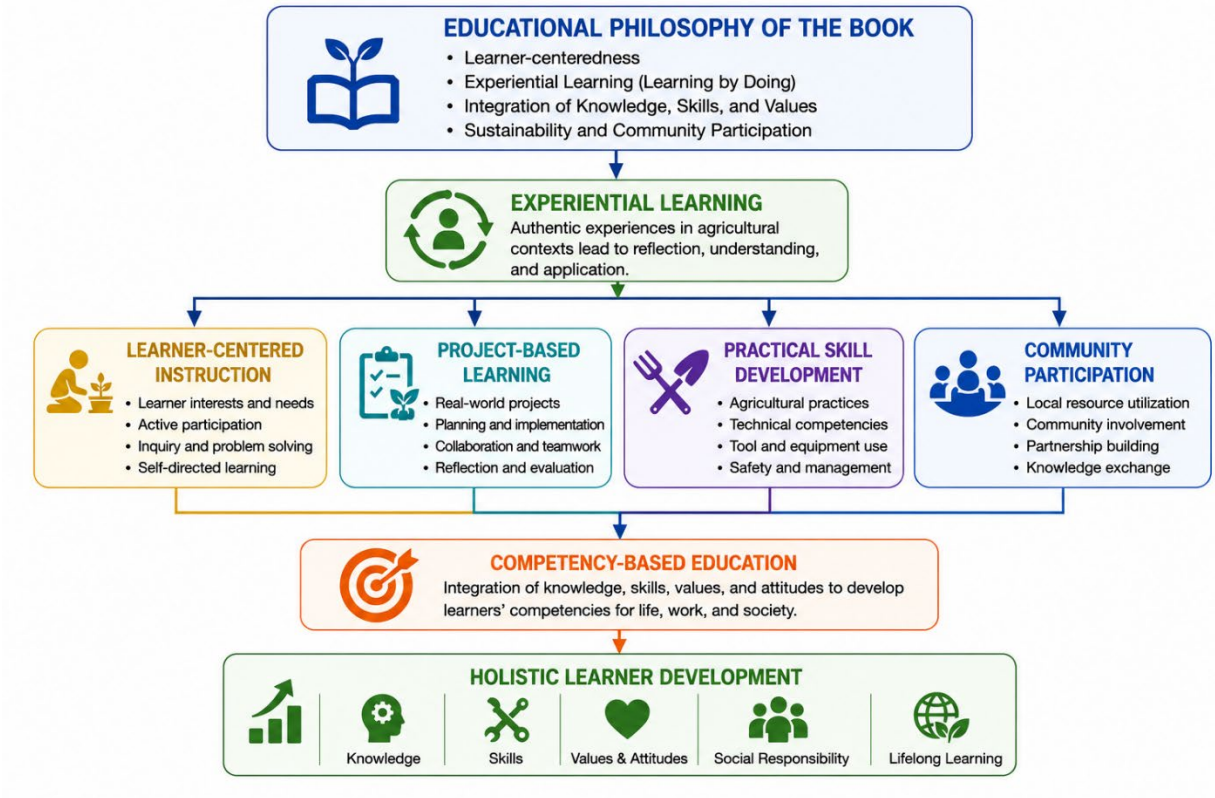

Figure 2: Pedagogical contributions of the book
Source: Developed by the reviewer based on Saduak and Saduak (2024, pp. 90-139).

Figure 2 illustrates the book's major pedagogical contributions by demonstrating how educational philosophy is translated into effective teaching and learning practices within agricultural learning centers. The framework emphasizes experiential learning as the central instructional approach that supports learner-centered instruction, project-based learning, practical skill development, and community participation. Together, these pedagogical components contribute to competency-based education and holistic learner development, reinforcing the book's emphasis on integrating knowledge, skills, values, and lifelong learning within authentic educational settings.

One of the book's most significant contributions lies in its pedagogical perspective on agricultural education. This pedagogical perspective reflects the long-standing principle that agricultural education should integrate practical farm experiences with theoretical instruction to promote meaningful learning and professional competency (Siriwan, 1989, pp. 133-136). Rather than presenting agriculture as a collection of technical production practices, the authors conceptualize agricultural learning centers as educational environments designed to cultivate learners' cognitive, psychomotor, and affective competencies through authentic learning experiences (Saduak & Saduak, 2024, pp. 90-102). This perspective reflects the fundamental principles of experiential learning, where knowledge is constructed through the continuous interaction between experience, reflection, conceptualization, and experimentation (Kolb, 2015, pp. 39-45). Throughout the book, considerable emphasis is placed on learner-centered instruction, practical skill development, project-based learning, and community participation, all of which are recognized as essential characteristics of competency-based education and twenty-first-century learning (Saduak & Saduak, 2024, pp. 90-126; Darling-Hammond et al., 2020, pp. 97-105). Furthermore, the integration of instructional planning, practical activities, learner assessment, and agricultural academic events demonstrates a comprehensive educational model that extends beyond traditional vocational training toward holistic learner development (Saduak & Saduak, 2024, pp. 116-180).

3. Practical Applications

Another notable strength of the book is its strong emphasis on practical implementation. The authors provide systematic guidance for establishing agricultural learning centers, organizing learning resources, planning instructional activities, developing practical skills, implementing project-based learning, and evaluating student performance. These practical recommendations enable readers to translate educational concepts into classroom practice with relative ease. Importantly, the proposed framework is sufficiently flexible to accommodate diverse school contexts, available resources, and community characteristics. Consequently, the book has broad applicability for classroom teachers, teacher educators, school administrators, curriculum developers, and educational policymakers seeking to enhance experiential and competency-based agricultural education. The inclusion of practical examples, instructional procedures, and authentic learning activities further increases the book's value as both a professional reference and an implementation guide for educational institutions.

4. Critical Evaluation

Despite its considerable strengths, several aspects of the book could be further developed in future editions. While the book provides extensive practical guidance for establishing agricultural learning centers, greater discussion of digital technologies, smart agriculture, precision agriculture, artificial intelligence, and data-driven agricultural management would strengthen its relevance to contemporary educational and agricultural contexts. In addition, expanding international perspectives through comparative case studies from other countries would enhance readers' understanding of diverse approaches to school-based agricultural education. Greater attention to evaluating long-term learning outcomes and educational impacts using empirical evidence would also reinforce the book's academic contribution. Nevertheless, these observations do not diminish the overall quality of the publication. Instead, they represent opportunities for

future development of an already comprehensive and highly practical resource. Overall, *Agricultural Learning Centers in Schools* successfully bridges educational theory and classroom practice, making it a valuable contribution to agricultural education, vocational education, and industrial education.

III. DISCUSSION AND EDUCATIONAL IMPLICATIONS

The publication of Agricultural Learning Centers in Schools is particularly timely as educational systems worldwide increasingly emphasize competency-based education, authentic assessment, and experiential learning as essential strategies for preparing learners to address complex social, environmental, and technological challenges (Kolb, 2015, pp. 31-50; UNESCO, 2020, pp. 13-15). Contemporary agricultural education extends beyond the acquisition of technical knowledge to encompass the development of critical thinking, collaboration, communication, creativity, and lifelong learning competencies (Poungsuk, 2022, pp. 210-235). In this context, the book illustrates how school-based agricultural learning centers can function as educational ecosystems that integrate classroom instruction, practical experience, community engagement, and sustainable agricultural development into a coherent educational framework (Saduak & Saduak, 2024, pp. 90-139). These characteristics closely reflect current international perspectives on learner-centered and action-oriented education while also supporting educational change through authentic learning, collaborative practice, and continuous professional development, which are recognized as essential elements of sustainable educational improvement (Fullan, 2020, pp. 23-45).

One of the book's most valuable contributions is its ability to bridge the long-standing gap between educational theory and classroom practice. Although experiential learning and learner-centered education have been widely discussed in educational literature, relatively few publications provide comprehensive guidance for translating these theoretical concepts into practical instructional models that can be implemented effectively in school settings (Kolb, 2015, pp. 39-45; Knobloch & Smith, 2024, pp. 304-309). The authors systematically present procedures for designing agricultural learning centers, organizing instructional activities, developing students' practical competencies, implementing project-based learning, and evaluating learning outcomes (Saduak & Saduak, 2024, pp. 90-180). This practical orientation reflects contemporary trends in school-based agricultural education, which advocate authentic and active learning experiences that enable learners to construct knowledge through observation, experimentation, reflection, and application (Kolb, 2015, pp. 40-43; Knobloch & Smith, 2024, pp. 314-319). To further demonstrate the broader significance of the book, its educational implications can be synthesized into a conceptual model that extends beyond agricultural instruction alone. The book illustrates how agricultural learning centers contribute not only to agricultural education but also to vocational and industrial education, community-based learning, and education for sustainable development (Saduak & Saduak, 2024, pp. 90-180). These interconnected educational dimensions collectively support learner competency, innovation, and sustainable community development. The synthesized educational implications are presented in Figure 3.

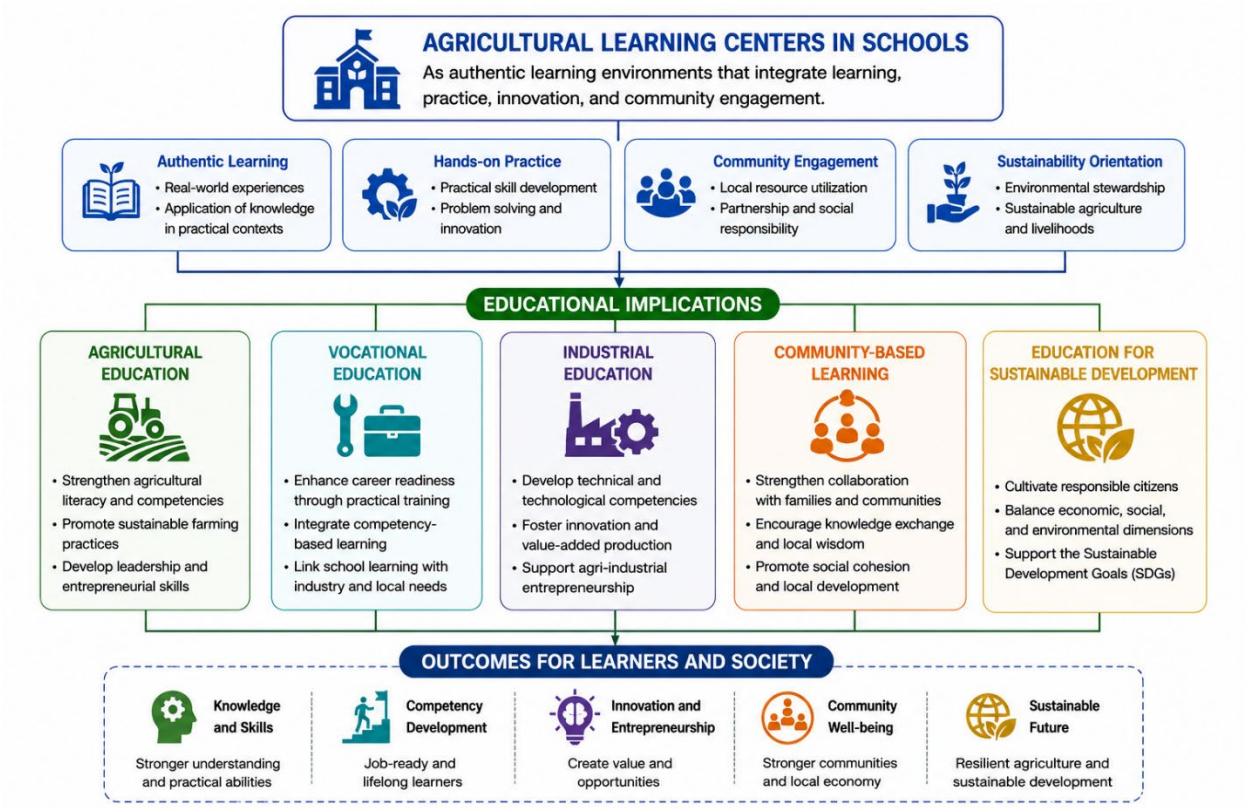

Figure 3: Educational implications for agricultural and industrial education
Source: Developed by the reviewer based on Saduak and Saduak (2024, pp. 78-180).

Figure 3 synthesizes the broader educational implications of the book by illustrating how agricultural learning centers contribute to multiple educational domains. The framework demonstrates that authentic agricultural learning extends beyond technical skill development to strengthen vocational and industrial education, foster community-based learning, and promote Education for Sustainable Development. Collectively, these educational dimensions contribute to competency development, innovation, community well-being, and sustainable societal outcomes.

Furthermore, the educational philosophy embedded throughout the book extends beyond agricultural instruction itself. The proposed learning model encourages learner autonomy, responsibility, teamwork, leadership, environmental stewardship, and community participation-attributes that are central to Education for Sustainable Development (ESD) and competency-based education (UNESCO, 2020, pp. 13-15). By positioning agricultural learning centers as "living laboratories," the authors demonstrate how authentic learning environments can cultivate not only agricultural competencies, but also transferable skills required for sustainable development and responsible citizenship (Saduak & Saduak, 2024, pp. 90-139). This educational perspective is further supported by previous scholarship demonstrating that agricultural learning centers have evolved into innovative learning environments that promote digital learning, community engagement, and lifelong learning in the twenty-first century (Poungsuk, 2018, pp. 1-7). Consequently, the book has relevance not only for agricultural education but also for vocational education, industrial education, technology education, and community-based learning, where experiential and interdisciplinary learning approaches are increasingly encouraged (Poungsuk, 2026, pp. 116-118). This broader educational perspective is consistent with the contemporary direction of Thai agricultural education, which emphasizes authentic learning, community engagement, innovation, and sustainable agricultural development as fundamental principles for preparing future agricultural professionals (Siriwan, 2014, pp. 45-56).

From the reviewer's perspective, this publication represents one of the few comprehensive references that successfully integrate educational philosophy, curriculum implementation, instructional design, agricultural practice, and school management within a single volume. While future editions could be further strengthened by incorporating recent developments in smart agriculture, precision agriculture, digital learning technologies, artificial intelligence, and international comparative case studies, these observations should be viewed as opportunities for future enhancement rather than limitations of the present work. Overall, *Agricultural Learning Centers in Schools* makes a substantial contribution to agricultural teacher education and provides a valuable reference for teachers, teacher educators, school administrators, curriculum developers, and researchers seeking to establish innovative, learner-centered, competency-based, and sustainable agricultural learning environments.

IV. CONCLUSION

Agricultural Learning Centers in Schools is a well-organized and academically valuable publication that successfully integrates educational philosophy, instructional design, agricultural practice, and school management into a coherent framework for agricultural education. The book effectively demonstrates how agricultural learning centers can serve as authentic learning environments that promote experiential learning, competency development, project-based instruction, and sustainable educational practices (Saduak and Saduak, 2024, pp. 90-139). By combining conceptual foundations with practical implementation strategies, the authors provide educators with a comprehensive resource that supports both curriculum development and instructional improvement. This emphasis on innovation, collaboration, and authentic learning also reflects broader perspectives on sustainable educational change and continuous school improvement (Fullan, 2020, pp. 23-45).

From an educational perspective, the book makes a significant contribution by illustrating how agricultural education can extend beyond traditional classroom instruction to foster critical thinking, practical competencies, collaboration, leadership, and environmental responsibility. These educational values are closely aligned with contemporary international priorities in competency-based education, Education for Sustainable Development (ESD), and learner-centered pedagogy (Kolb, 2015, pp. 40-43; UNESCO, 2020, pp. 13-15). Consequently, the publication has relevance not only for agricultural teachers but also for teacher educators, curriculum developers, school administrators, vocational educators, and researchers seeking innovative approaches to authentic and sustainable learning (Poungsuk, 2026, pp. 116-118).

Although future editions could further enrich the discussion by incorporating recent developments in digital learning technologies, smart agriculture, precision agriculture, artificial intelligence, and international comparative perspectives, these recommendations should be viewed as opportunities for expanding an already comprehensive and practical educational resource. The book's emphasis on integrating theory with practice, fostering community participation, and promoting lifelong learning remains one of its most distinctive strengths (Saduak & Saduak, 2024, pp. 90-180). Overall, *Agricultural Learning Centers in Schools* is highly recommended for educators and institutions interested in developing effective school-based agricultural learning environments. Beyond serving as a practical guide, the book contributes meaningfully to the advancement of agricultural teacher education and offers valuable insights that can inform curriculum innovation, instructional improvement, and educational policy. Its publication represents an important contribution to the literature on agricultural education and reinforces the continuing importance of experiential, competency-based, and sustainable learning in preparing future generations for the challenges of agriculture and society.

REFERENCES

Banige, D., Ikendi, S., Mwenyi, R. M., Somers, R., Asimo, E. A., Kakungulu, B. A., Kitayimbwa, R., & Kabbale, F. G. (2026). Enhancing experiential learning in school-based agricultural education: An exploratory study with agricultural educators in Uganda. *Journal of Agricultural Education, 67*(1), 1-15. https://doi.org/10.5032/jae.v67i1.3301.

Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2020). Implications for educational practice of the science of learning and development. *Applied Developmental Science, 24*(2), 97-140.

Food and Agriculture Organization of the United Nations. (2022). The state of food and agriculture 2022: Leveraging automation in agriculture for transforming agrifood systems. FAO.

Fullan, M. (2020). Leading in a culture of change (2nd ed.). Jossey-Bass.

Knobloch, N. A., & Smith, A. R. (2024). Experiential learning in school-based agricultural education. *Journal of Agricultural Education, 65*(1), 303-323. https://doi.org/10.5032/jae.v65i1.2527.

Kolb, D. A. (2015). Experiential learning: Experience as the source of learning and development (2nd ed.). Pearson.

Organisation for Economic Co-operation and Development. (2018). The future of education and skills: Education 2030. OECD Publishing.

Poungsuk, P. (2018). Agricultural learning center and transition to digital society era. *Journal of Industrial Education, 17*(2), 1–7.

Poungsuk, P. (2022). Agricultural education (3rd ed.). Mean Service Supply.

Poungsuk, P. (2026). Digital agricultural instructional models. Mean Service Supply.

Roberts, T. G., & Ball, A. L. (2009). Secondary agricultural science as context for teaching. *Journal of Agricultural Education, 50*(1), 81-91.

Saduak, W., & Saduak, A. (2024). Agricultural learning centers in schools. Mean Service Supply.

Siriwan, N. (1989). Farm work: A key strategy in agricultural education. Phonchai Printing Center.

Siriwan, N. (2014). Miscellany of Thai agricultural education: Essential issues to reconsider. Mean Service Supply.

UNESCO. (2020). Education for sustainable development: A roadmap. UNESCO Publishing.

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