

Integration of Islamic Religious Education through Project-Based Learning in a Baking Class

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Abstract

Keywords:

authentic learning;
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values; project-based
learning; value
habituation.

Islamic Religious Education (IRE) requires authentic learning experiences that enable students not only to understand Islamic values conceptually but also to practice them through real-life activities. This study aims to analyze the learning process in baking classes, the implementation of Project-Based Learning (PjBL), and its integration with Islamic Religious Education values. A descriptive qualitative approach was employed in baking classes conducted at Onty Cake, Bakery and Resto, Pekalongan. Data were collected through six observations, semi-structured interviews with eight students, four accompanying teachers, and two mentors, as well as documentation. Data credibility was strengthened through source and method triangulation, member checking, and persistent observation. The findings show that baking classes involve instruction, preparation, product creation, guidance, group work, product completion, and evaluation, reflecting key characteristics of PjBL. Students' levels of involvement were adjusted according to their ages and abilities through varying levels of activity complexity. Each project stage also provided opportunities to introduce, habituate, and practice Islamic values, including prayer, cleanliness (thahārah), the use of *halāl* *ṭayyib* ingredients, responsibility (*amānah*), cooperation (*ta'āwun*), discipline, and gratitude. The findings demonstrate that PjBL and Islamic Religious Education can be integrated through authentic activities beyond formal classrooms by positioning project completion as a space for experiencing Islamic values. However, the evidence indicates value habituation and practice rather than deep and lasting internalization. Thus, baking classes provide a contextual, student-centered approach integrating cognitive, affective, and psychomotor dimensions of Islamic Religious Education.

Abstrak

Kata kunci:

baking class; nilai
Pendidikan Agama Islam;
pembelajaran autentik;
pembelajaran berbasis
proyek; pembiasaan nilai.

Pembelajaran Pendidikan Agama Islam (PAI) memerlukan pengalaman autentik yang memungkinkan peserta didik tidak hanya memahami nilai keislaman secara konseptual, tetapi juga mempraktikkannya dalam aktivitas nyata. Penelitian ini bertujuan menganalisis proses pembelajaran baking class, implementasi Project-Based Learning (PjBL), serta integrasinya dengan nilai-nilai PAI. Penelitian menggunakan pendekatan kualitatif deskriptif pada kegiatan baking class di Onty Cake, Bakery and Resto, Pekalongan. Data diperoleh melalui enam kali observasi, wawancara semi-terstruktur dengan delapan peserta didik, empat guru pendamping, dan dua mentor, serta dokumentasi. Keabsahan data diperkuat melalui triangulasi sumber dan teknik, member checking, dan pengamatan berkelanjutan. Hasil penelitian menunjukkan bahwa baking class berlangsung melalui tahapan instruksi, persiapan, pembuatan produk, pendampingan, kerja kelompok, penyelesaian produk, dan evaluasi yang mencerminkan karakteristik PjBL. Tingkat keterlibatan peserta didik disesuaikan dengan usia dan kemampuan melalui variasi kompleksitas kegiatan. Setiap tahapan proyek juga

menyediakan ruang untuk mengenalkan, membiasakan, dan mempraktikkan nilai PAI berupa doa, kebersihan (thahārah), penggunaan bahan halalān ṭayyiban, tanggung jawab (amānah), kerja sama (ta'āwun), disiplin, dan rasa syukur. Temuan menunjukkan bahwa integrasi PjBL dan PAI dapat diwujudkan melalui aktivitas autentik di luar kelas formal dengan menjadikan penyelesaian proyek sebagai ruang pengalaman nilai. Namun, temuan lebih menunjukkan proses pembiasaan dan praktik nilai daripada internalisasi yang mendalam dan menetap. Baking class dengan demikian menawarkan pembelajaran PAI yang kontekstual, berpusat pada peserta didik, serta mengintegrasikan aspek kognitif, afektif, dan psikomotorik.

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Introduction

Educational developments in today's digital age reflect a shift in the learning paradigm from a teacher-centered approach to a student-centered one. This shift calls for innovation in adapting the learning process to students' needs so that learning can be more interactive, contextual, and meaningful ((Albina, M, A Safiâ, M A Gunawan, and ... "Model Pembelajaran Di Abad Ke 21." *Warta ...*, 2022); (Albina et al., 2022)2). Through innovative learning models, students are allowed to be more active, creative, and directly engaged in the learning process ((Yusufi, 2024); (Mardin et al., 2024)). Various studies also indicate that Project-Based Learning (PjBL) is one of the effective learning models for enhancing students' skills (Avisena et al., 2024; Azainil et al., 2024). This suggests that learning can no longer be limited to the delivery of content but must provide real-world learning experiences that are relevant to students' lives.

Learning from the perspective of Islamic Religious Education (PAI) aims not only to develop cognitive competencies but also to foster the internalization of Islamic values, as reflected in the cultivation of moral character, the practice of worship, and the development of students' character (Amanullah et al., 2023; M. Azizah & Usman, 2023; Hasan & Aziz, 2023; Nahdliyah & Naelasari, 2024). Therefore, learning innovations in PAI need to be designed contextually so that students not only understand the material conceptually but are also able to implement Islamic values in their daily lives. This process demonstrates that the internalization of values requires learning experiences that enable students not only to know the values but also to practice and reflect on them in real-life activities. Practice-based learning activities are a relevant alternative because they provide students with opportunities to experience,

practice, and reflect on values such as trustworthiness, responsibility, cooperation (ta'āwun), discipline, and maintaining cleanliness (thaharah) through authentic learning experiences (Andrianto et al., 2022; Anton et al., 2024; Faqihuddin, 2024).

At the early childhood and elementary school levels, practice-based learning is well-suited to children's developmental characteristics, as they learn more easily through direct experience. This aligns with research indicating that learning methods for young learners should be concrete, enjoyable, and involve hands-on activities to stimulate their cognitive and social development (N. A. Azizah, 2024; Nursholichah & Hibana, 2024). One such example is a baking class, which involves students directly in the process of making food (Maharani et al., 2025; Nawangsih & Isnaningsih, 2024). This activity not only develops fine motor skills but also fosters critical thinking, problem-solving, and collaboration (Anton et al., 2024). It also provides an enjoyable learning experience that holistically develops cognitive, motor, and social aspects (Angelina & Aulina, 2024; Rahmadini et al., 2025). Baking classes, on the other hand, also have the potential to serve as a medium for internalizing Islamic Education (PAI) values through the practice of praying, maintaining cleanliness, using halal and wholesome ingredients (halālan ṭayyiban), working together, taking responsibility, and being grateful for the results of one's efforts (Andrianto et al., 2022; Anton et al., 2024; Faqihuddin, 2024).

Various previous studies have shown that the implementation of innovative learning models can improve the quality of learning, motivation, learning outcomes, creativity, and character development among students (Andrianto et al., 2022; Irsyad & Anggraini, 2023; Mayasari et al., 2023; Sambonu & Hardi, 2024). Other studies have also shown that learning models such as Project-Based Learning and Problem-Based Learning are effective in significantly improving students' critical thinking skills, creativity, and learning outcomes (Hamsyah, 2025; Ruswandi et al., 2025; Sekarwangi et al., 2024). However, most research on cooking and baking classes still focuses on the development of students' motor skills, creativity, cognitive aspects, and social skills. Studies that position baking classes as both an implementation of Project-Based Learning and a medium for internalizing the values of Islamic Religious Education remain relatively limited. In fact, these activities have the potential to provide contextual, project-based learning experiences while supporting the development of Islamic character.

Nevertheless, there are conceptual issues that have not been fully addressed by previous research. The Project-Based Learning framework provides a structure for learning through the processes of planning, implementation, product completion, and reflection; however, this framework does not automatically explain how religious values are internalized through each project activity. Conversely, PAI learning oriented toward the internalization of values cannot stop at normative understanding alone; it must provide space for students to practice those values in real learning

activities. This situation indicates that there is room to connect the structure of PjBL learning experiences with the process of internalizing Islamic values through authentic practical activities.

This study offers a perspective that links the structure of Project-Based Learning experiences with the process of internalizing the values of Islamic Religious Education through baking class activities. The baking class is positioned not merely as an activity to produce goods, but as a learning context that allows students to experience, practice, and reflect on Islamic values through the stages of the project. Therefore, this study aims to analyze the learning process in the baking class, describe the implementation of Project-Based Learning, and explain the integration of Project-Based Learning with the values of Islamic Religious Education. The research questions include: (1) what is the learning process in the baking class; (2) how is Project-Based Learning implemented in the baking class; and (3) how is Project-Based Learning integrated with the values of Islamic Religious Education. The results of this study are expected to contribute to the development of innovative learning studies and serve as a reference for educators in designing Islamic Religious Education (PAI) lessons in the Indonesian context that are more contextual, meaningful, and learner-centered.

Methods

This study employs a descriptive qualitative approach to gain an in-depth understanding of the learning process in a baking class. This approach was chosen because it can explore the meaning, processes, and learning experiences naturally, as well as examine phenomena holistically and contextually (Fatimah et al., 2025; Indarta et al., 2022). The descriptive approach also allows for the systematic, factual, and accurate presentation of data (Nasron et al., 2024). This study was conducted during baking classes organized by Onty Cake, Bakery and Resto in Pekalongan. The research location and subjects were selected purposively in accordance with the study's objectives. The subjects included children aged 2–13 years from early childhood education (PAUD) and elementary school (SD) levels, teachers serving as companions and guides, and mentors acting as activity instructors. The involvement of these three groups provided a comprehensive perspective on the learning process that took place. The number of students in each session varied, ranging from approximately 40 to 60 students or more. All students participating in the activity served as subjects of observation, while interview informants were selected purposefully based on their involvement in the learning process.

Data collection was conducted through observation, interviews, and documentation. Observation was used to directly observe the students' activities, their interactions with teachers and mentors, and group dynamics during the activities (Nasron et al., 2024). Observations were conducted six times over a three-month period, covering four baking classes and two special meetings with mentors. During the four baking classes, observations focused on students' activities, their interactions

with teachers and mentors, their involvement in project completion, group dynamics, and the internalization of Islamic Religious Education values. In the following two sessions, observations and interviews focused on the mentors to gather information regarding the planning, implementation, and guidance of the activities. Each baking class generally took place from approximately 7:00 a.m. to 11:00 a.m. WIB, although the duration could be adjusted based on the nature of the activity. This approach allowed the researcher to identify the implementation of Project-Based Learning (PjBL) syntax in real-world practice and to assess the level of student engagement. (Faqihuddin, 2024).

Semi-structured interviews were conducted with eight students and four accompanying teachers from different schools, as well as two mentors. During each of the four baking class sessions, interviews were conducted with two students and one supervising teacher from the school participating in that day's activity. Meanwhile, during the next two sessions, interviews were conducted with two mentors from Onty Cake, Bakery and Resto. Students were selected based on age representation and their involvement in the baking class activities, while teachers and mentors were chosen for their direct experience in supervising or managing the activities. The interviews were used to explore the students' experiences, the teachers' perspectives, mentoring strategies, the PjBL implementation process, and the integration of PAI values into the activities (N. A. Azizah, 2024; Fatimah et al., 2025). In addition to formal interviews, the students' spontaneous responses to prompt questions from the host or facilitator were used as supporting data.

The age differences among students, ranging from 2 to 13 years old, were taken into account in the data collection and analysis process. Students in early childhood education (PAUD), kindergarten (TK), and grades 1–2 were primarily observed based on their participation in hands-on activities, their ability to follow simple instructions, their interactions with teachers and mentors, and their responses to probing questions. Meanwhile, students in grades 3–6 were observed based on their ability to follow more complex instructions, their collaboration, their involvement in project completion and problem-solving, as well as their responses to quizzes and reflections on activities. Thus, students were not viewed as a homogeneous group but were analyzed by considering the developmental characteristics and levels of independence specific to each age group. Meanwhile, documentation in the form of photos and videos was used as supporting data to reinforce the findings and provide visual evidence of learning activities (Anton et al., 2024).

Data validity was assessed through source and method triangulation by comparing the results of observations, interviews, and documentation to ensure the consistency of the information (Fatimah et al., 2025; Nasron et al., 2024). Data sufficiency was determined based on recurring patterns of information from the results of observations and interviews, as well as the absence of new substantive

information related to the research focus. The data collection process was halted when the information obtained provided an adequate picture of the implementation of Project-Based Learning and the integration of Islamic Religious Education values into baking class activities. Additionally, data validity was strengthened through the member-check technique by confirming findings with informants, as well as through persistent observation to obtain more accurate and in-depth data (Faqihuddin, 2024). This process is crucial for minimizing bias and enhancing the research's credibility. Through this series of techniques, the data collected is expected to provide a comprehensive picture of the implementation of Project-Based Learning and its integration with the values of Islamic Religious Education in baking class activities.

Result and Discussion

Results

The Learning Process in the Baking Class

Learning in the baking class takes place in several stages, from the opening, through the activity itself, to the closing. During the opening stage, the activity begins with handwashing, a prayer, and introductions between the mentors and the baking class team from Onty Cake and the accompanying teachers and students from the school participating in that day's activity. Next, the students participated in hands-on activities to make or decorate products according to the package they had chosen. During the closing stage, the activity concluded with an evaluation and a group prayer. Throughout the observation, the students appeared engaged in various activities, such as adding ingredients, preparing the dough, shaping and decorating the products, and following the instructions of the mentors and teachers. Interview results also indicated that the students responded positively to the activity. One student remarked:

"The baking class was really fun; there were so many interesting and exciting things to learn with my friends." (Student II, MI Salafiyah Simbang Kulon 02, 2026)

Onty's regular baking classes consist of three packages—Happy, Fun, and Spectacular—each with varying levels of complexity tailored to the students' ages and abilities. In the Happy Package, which is generally attended by children aged 2–4 years, students primarily engage in decorating baked goods. They also begin to participate in preparing some of the dough. Meanwhile, in the Spectacular Package, students follow the bread-making process from start to finish. This Spectacular Package is typically attended by students who are significantly older. The types of products made in each class are also tailored to the students' characteristics. In these regular baking classes, the products practiced include pizza, donuts, cupcakes, and muffins, as their preparation processes are relatively simple and suited to the students' abilities. The division into packages demonstrates that students' activities and levels of involvement differ based on their age range. In the Happy Package, students are primarily involved in decorating the products. In the Fun Package, students begin to

participate in preparing part of the dough, while in the Spectacular Package, students are more involved in the bread-making process.

Figure 0.1 Comparison between the Happy Package and the Spectacular Package Baking Classes



During the activity, the students were divided into several groups based on the number of participants. Some groups participated in the bread-making process, while others took a tour of the production, packaging, and sales areas. In the groups conducting the hands-on activity, the students were seen sharing tasks such as adding ingredients, mixing the dough, shaping, and decorating the products. Mentors and teachers provided direction and guidance when students encountered difficulties in following the activity steps. Thus, the observations revealed a series of activities that directly involved students in the product-making process, with varying forms and levels of involvement depending on the activity package they participated in.

Implementation of Project-Based Learning in a Baking Class

Observations show that the baking class involves students in a series of activities to produce bread. The class begins with an explanation of the product to be made, an introduction to the ingredients and tools, and a review of the rules and work procedures. Next, students participate in the processes of preparing ingredients, shaping, and decorating the products until they produce bread that can be enjoyed at the end of the activity (at home). As previously described, the level of student involvement varies depending on the activity package they participate in. In the Happy Package, students are more involved in decorating the products. In the Exciting Package, students begin to participate in part of the dough preparation process, while in the Spectacular Package, students participate in the bread-making process from start to finish. These differences are evident in the students' activities during the observation, particularly in the number of stages they participate in and their level of involvement in each process.

Before the baking process began, the mentor explained the ingredients, tools, rules, and steps to be followed. The mentor, along with the team and teachers, then helped the students prepare the ingredients and ensured that each student received

the necessary materials. Next, the students carried out various activities, such as pouring ingredients, preparing and mixing the dough, shaping, and decorating the bread according to the package they were following. A teacher from MIS Gapuro explained that the students were given the opportunity to prepare the dough according to instructions and develop their creativity throughout the activity. This was reinforced by a teacher from MI Salafiyah Simbang Kulon 02, who said, *"In the baking class, each student is given the opportunity to participate in the entire bread-making process until they successfully create the final product"* (Teacher at MI Salafiyah Simbang Kulon 02, 2026).

During the process, students sometimes encountered difficulties. One teacher from MI Sullam Taufiq explained, *"Some students had trouble stirring the dough, which became heavier after all the ingredients were mixed in"* (Teacher at MI Sullam Taufiq, 2026). Based on observations, students who encountered difficulties received assistance in the form of instructions, examples, and encouragement from teachers or mentors, after which they resumed the task at hand. Assistance was provided gradually without immediately taking over the students' entire work. Interaction among students was also evident during the product-making process. Students worked in groups and shared tasks such as adding ingredients, mixing the dough, shaping the products, and decorating the bread. A teacher from Aisyiyah Tangkil Preschool and Kindergarten explained that students learned to share tasks and collaborate while completing the activity. These activities are particularly evident in the "Fun and Spectacular" Package, as students participate in more stages of the bread-making process. Once the production process is complete, students can see the finished products they have made. The mentor then provides guidance if there are any parts that need improvement before the activity moves on to the next stage.

The final stage of the program consisted of reinforcement and evaluation activities tailored to the students' ages. Students in grades 3–6 took a quiz (related to the baking class), while early childhood education (PAUD) and kindergarten students, as well as those in grades 1–2, colored pictures of the products they had made. Students were also allowed to share their experiences participating in the activities, either through open-ended questions or by speaking directly. One student said, *"This activity was really fun; I learned so many new things"* (Student I, MI Salafiyah Simbang Kulon 02, 2026). These findings indicate that the activity unfolded through a series of steps: instruction, preparation, product creation, guidance, group work, product completion, and evaluation. This series of empirical findings was subsequently used to map each stage of the activity against the components of Project-Based Learning in the discussion section.

Integrating Project-Based Learning with Islamic Education Values in a Baking Class

Based on observations, during the baking class activities, students were encouraged to begin and end the activities with a prayer. Even while the food preparation process was underway, students were guided to maintain personal hygiene, keep their tools and workspace clean by washing their hands, use halal and tayyib ingredients, and dispose of trash properly. This is reinforced by the results of an interview with a teacher from MIS Gapuro, who explained that after finishing preparing the dough, students are encouraged to tidy up the table they used and dispose of any leftover dough in the provided trash bin. In addition to learning about hygiene, students are also strongly encouraged to be independent and responsible. They are taught to take care of the materials provided so that they do not spill, get damaged, or go missing. One of the Baking Class mentors also added that:

“In every baking class, the children are taught to be responsible for the ingredients they are given, by explaining that each student will receive only one set of ingredients, and that there will be no replacements if the ingredients are spilled or damaged after they are handed out.” (Mentor I, 2026)

The roles of teachers and mentors complement each other in supporting this process. Mentors are responsible for providing technical guidance during the project, while teachers guide the students and link each stage of the activity to Islamic values. This guidance is provided without taking over the students' work, ensuring they retain the opportunity to learn independently, take responsibility, and complete the project to the best of their ability. As one of the Baking Class mentors stated:

“As mentors, we only provide examples and guidance to the participants; beyond that, they are allowed to complete the tasks on their own.” (Mentor II, 2026)

Figure 0.2 Internalization through the use of halālan ṭayyiban ingredients and taking responsibility



In addition, group activities demonstrated a division of roles during the product-making process. Students were involved in adding ingredients, mixing the batter, shaping, and decorating the products according to the activity stages. For example, in the “Spectacular Package” muffin-making activity, students were divided into groups of two. One student was tasked with adding the batter, while the other student stirred the batter at the same time. From the overall observations and interviews, several

forms of habit formation related to Islamic Religious Education values were identified, namely prayer, maintaining cleanliness, the use of halal and tayyib ingredients, responsibility (amanah), and cooperation (ta'awun). Findings regarding the stages of the activity, forms of guidance, division of tasks, completion of the product, and the instillation of these values subsequently served as the basis for analyzing the relationship between the implementation of Project-Based Learning and the process of internalizing Islamic Religious Education values in the baking class.

Discussion

The Learning Process in a Baking Class

Learning in a baking class can be understood as an implementation of the modern learning paradigm, which emphasizes students' active involvement in the learning process. Learning in a baking class demonstrates that hands-on activities can serve as a learning space that allows students to be directly involved in the learning process – not merely receiving information from a teacher or mentor, but actively participating from the preparation stage through execution to the completion of the product. This involvement indicates that learning is built through real-world learning experiences, thereby providing students with the opportunity to construct their own knowledge. These findings reinforce the view that innovative learning positions students as active agents who construct their own learning experiences through direct involvement in the activities they undertake (Rakhmayanti, 2025; Yusufi, 2024). However, this study also places a slightly different emphasis than research that views baking activities solely as a practice. In this study, the practical activity does not stand alone but takes place within a series of activities that have specific objectives, work stages, guidance, role assignments, and deliverables. Thus, the pedagogical value of a baking class lies not merely in the act of making food but in how that activity provides a context for students to learn through the process they undergo.

The characteristics of this baking class align with the evolving educational trends of the 21st century, in which teachers or mentors are no longer the sole source of knowledge but act as facilitators who create a learning environment that fosters students' curiosity, creativity, and participation. In the baking class, this is evident when students are given the opportunity to handle ingredients, follow each step of the production process, and complete the final product according to their individual abilities. This situation demonstrates that knowledge is not acquired through rote memorization but through experiences gained during the course of the activity. Consequently, learning becomes more contextual, as students learn from activities closely tied to their daily lives (Sambonu & Hardi, 2024). Thus, this study expands upon this understanding by showing that the context of daily life need not be realized solely through formal instructional materials. Simple activities such as baking bread can also serve as a pedagogical context when students have the opportunity to

personally experience the process, rules, responsibilities, and consequences of their actions.

This hands-on experience is also evident in activities that require coordination between physical actions and simple decision-making. This demonstrates that baking classes can also contribute to the development of students' motor skills, cognitive abilities, and independence. Activities such as mixing ingredients, working with dough, and decorating bread allow students to learn by doing. Through this process, students not only develop technical skills but also hone their attention to detail, coordination, thinking skills, and sense of responsibility toward the tasks at hand. These findings align with research showing that baking classes can enhance students' motor, cognitive, and independence skills through hands-on learning experiences (Angelina & Aulina, 2024; Keanu Pramudiantoro, Hanifah Maharani, 2025; Rahmadini et al., 2025). However, the findings of this study primarily indicate that students have the opportunity to develop these skills through hands-on experience, rather than directly proving an improvement in skills after participating in the activity. What is more evident from the data is the learning process that allows these skills to emerge through students' engagement in completing a concrete activity.

This is also evident when students encounter difficulties during the product-making process. Students receive guidance, examples, and encouragement from their teachers or mentors, and then resume working on their own. This experience provides students with the opportunity to learn how to complete tasks through a process they experience firsthand. This supports (Faqihuddin, 2024) view that authentic learning experiences can increase student engagement while strengthening understanding, as students learn through real-world activities that are meaningful to them. Thus, baking classes are not merely practical activities but also provide contextual learning experiences that directly engage students. However, the results of this study differ from most previous research, which primarily described baking or cooking classes as a means to improve students' motor skills, creativity, and social development. Previous studies generally focused on the benefits of cooking activities for student development, whereas this study describes how these activities unfold as a structured learning sequence. The findings of this study indicate that a baking class consists not only of food preparation activities but also includes providing instructions, preparing ingredients, assigning tasks, providing guidance, completing the product, and conducting an evaluation. This perspective highlights that the pedagogical value of a baking class lies not only in the final product but also in the learning process that takes place throughout the activity.

Another interesting finding is that student engagement in the baking class did not take the same form across all groups. The division into the Happy, Fun, and Spectacular packages resulted in differences in the types of tasks and the level of student engagement. Students in the Happy package spent more time decorating

products, while those in the Fun package began to participate in preparing some of the dough. In the Spectacular Package, students participate in more stages of product creation, from preparation to completion. These differences indicate that the learning experience in the baking class is not delivered in a uniform manner. This finding suggests that activities are not assigned identically to all students but are tailored to the level of involvement they are capable of. This approach aligns with learning principles that take into account students' characteristics and needs (Nursholichah & Hibana, 2024; Yani & Budiarti, 2024). However, based on research data, these findings are best understood as adjustments in activity levels based on age and ability, rather than as evidence that the overall principle of differentiated instruction has been implemented.

Therefore, these findings are best understood as a form of adapting activity design to learners' characteristics. In this context, this grouping also aligns with Piaget's stages of cognitive development and Vygotsky's concept of the zone of proximal development, which emphasizes the importance of concrete experiences and guidance tailored to learners' abilities (Hyun et al., 2020). The adjustments to activities and guidance identified in this study are also consistent with the view that learning that is adapted to students' characteristics can enhance learning effectiveness because each student is allowed to develop according to their potential (Krissandi et al., 2022; Tafrijiyah et al., 2024). Thus, the contribution of these findings lies not in proving that the baking class is a model of differentiated instruction, but rather in the finding that a single practice-based activity can be designed with varying levels of complexity, thereby enabling students of diverse age ranges to engage in the same project through different types of tasks. This is because similar activities in other settings may have different underlying concepts.

Implementation of Project-Based Learning in Baking Classes

The baking classes at Onty Cake demonstrate the implementation of the Project-Based Learning model throughout the entire process, rather than merely serving as practical activities or a combination of several learning models. This is evident in the systematic sequence of activities, ranging from project introduction, the execution of each stage of product creation, guidance throughout the process, to the evaluation of the final results. All of these activities are oriented toward the completion of a real-world project in the form of a food product, so that students gain a holistic learning experience from start to finish. This characteristic aligns with the basic concept of Project-Based Learning, which positions the project as both the core of learning and a means for students to build knowledge through direct experience (Albina et al., 2022; Indarta et al., 2022; Yusufi, 2024).

Unlike traditional hands-on learning, which generally focuses only on mastering specific procedures or skills, the implementation of PjBL places the project completion process at the heart of the learning experience. In a baking class, students are not only

taught how to make bread but are also engaged in understanding the work stages, following procedures in sequence, managing ingredients, completing tasks according to their responsibilities, and ultimately producing final products such as pizza, cupcakes, donuts, muffins, and other items. Thus, the learning process does not stop at psychomotor skills but also involves critical thinking, decision-making, and taking responsibility for the project at hand. This demonstrates that the existence of a final product is not the sole indicator of PjBL; rather, the process by which students achieve that product is a crucial part of the learning experience.

These findings further reinforce the view that the success of Project-Based Learning is measured not only by the quality of the final product but also by the quality of the process that students experience while completing the project. Throughout the activity, students are given the opportunity to develop their creativity, determine their work steps, follow mentors' guidance, correct mistakes, and complete the product according to their individual abilities. This process provides students with the space to learn independently while taking responsibility for the results of their work. Previous research has also shown that Project-Based Learning can enhance students' creativity, critical thinking skills, motivation to learn, and active participation because they are directly involved in the process of completing authentic projects (Irsyad & Anggraini, 2023; Ruswandi et al., 2025). In this study, these findings are not merely interpreted as evidence of improved abilities but indicate that the characteristics of the baking class activities provide the conditions that enable such engagement and learning experiences to take place.

Interestingly, this study highlights how project designs were adapted based on the developmental characteristics of the students. The Happy Package, the Fun Package, and the Spectacular Package not only feature a variety of activity types but also demonstrate an increase in project complexity in line with the students' ages and abilities. In the Happy Package, students are primarily introduced to decorating products, so the projects remain simple, given the very young age range of the children. Meanwhile, in the Fun Package, students begin to be involved in some stages of dough preparation, allowing them to gain a more diverse experience in the product-making process. As for the Spectacular Package, students are given the full opportunity to participate in the entire series of activities—from ingredient preparation and dough processing to independently completing the product—with guidance from mentors and teachers. This approach demonstrates that projects in the baking class are not delivered in a uniform manner but are tailored to the level of involvement students are capable of. Thus, the flexibility of project design is one of the findings that complements our understanding of the application of PjBL among students of diverse age groups.

In addition to demonstrating flexibility in project design, this study also shows that guidance from teachers and mentors is a key factor in the successful

implementation of Project-Based Learning. Teachers and mentors do not take over students' work when they encounter difficulties; rather, they provide guidance, examples, and questions that help students find solutions on their own. This form of guidance demonstrates that the learning process remains student-centered even when students receive assistance during project implementation. This type of guidance helps students complete the project stages while also providing them with the space to learn to take responsibility for the work they do. These findings offer a different perspective from some previous studies, which have largely framed Project-Based Learning as a formal classroom learning model oriented toward the completion of academic tasks. In this study, however, PjBL implementation was found in a non-formal learning environment through a baking class. These findings expand the scope of PjBL application by demonstrating that project structures can be present in experience-based learning activities outside the classroom, provided there is a real-world project, student engagement, clear stages of completion, and a final product produced at the end of the activity.

Based on these findings, this study also makes a conceptual contribution to the field of innovative learning by demonstrating that baking classes have a pedagogical structure that can be analyzed through the characteristics of Project-Based Learning. While previous research has tended to describe baking classes as a medium for developing motor skills, creativity, or social skills, this study shows that these activities have a pedagogical structure aligned with the syntax of Project-Based Learning, including project introduction, preparation, implementation, guidance, product completion, and evaluation. Thus, the contribution of this study is not merely to affirm that baking classes "align" with PjBL, but to demonstrate how this project structure is realized in nonformal learning practices and how the level of student engagement is adapted to age and the complexity of the activities. These findings broaden the perspective on the application of PjBL in the context of practice-based learning.

Integration of Project-Based Learning with Islamic Religious Education (PAI) Values in Baking Classes

Research findings indicate that the implementation of Project-Based Learning (PjBL) in baking classes is not only focused on project completion but also provides a contextual space for students to learn about and practice a number of Islamic Religious Education (PAI) values. This is evident in every stage of the activity, which consistently incorporates the practice of religious values—from praying before the activity begins, maintaining cleanliness as an expression of *thahārah*, using halal and wholesome ingredients (*halālan ṭayyiban*), working together (*ta'āwun*), carrying out tasks with full responsibility (*amanah*), to concluding the activity with a sense of gratitude. Thus, the projects undertaken by the students not only produce food products but also provide a learning experience that gives them the opportunity to practice Islamic values in activities closely related to their daily lives. These findings

indicate that PAI learning can take place in a more contextual manner when students are given the opportunity to learn about and practice Islamic teachings through real-life experiences, rather than solely through the verbal delivery of material. (Andrianto et al., 2022; Anton et al., 2024; Faqihuddin, 2024).

The results of this study show that the relationship between PjBL and PAI does not stop at the inclusion of religious activities within the project, but opens up opportunities for students to connect concrete experiences with Islamic values. When students collaborate to complete a project, they have the opportunity to practice the value of *ta'āwun* in real-life situations. By taking responsibility for the materials or tools they use, they gain experience in demonstrating the virtue of *amanah*. Similarly, when students maintain cleanliness before and after practical activities, they not only follow hygiene procedures but are also introduced to the concept of *thahārah* as part of Islamic teachings. This aligns with various studies stating that PAI learning is more meaningful when developed through contextual activities that provide students with the opportunity to directly experience Islamic values in real life (Anton et al., 2024; Faqihuddin, 2024). However, the findings of this study more strongly indicate a process of acculturation and the practice of values than they do a deep internalization of those values. This is because the study did not specifically measure changes in students' understanding, awareness, or behavior after participating in the activities. Therefore, the term "internalization" in this study is more accurately understood as the initial stage or process of acculturation to values through experience, rather than as evidence that all of these values have become a permanent part of the students' identities.

This approach holds significant importance in Islamic Education (PAI) because, to date, religious education has often been dominated by the conceptual presentation of material. As a result, students understand Islamic values on a theoretical level but are not necessarily able to apply them in their daily lives. The findings of this study indicate that PjBL has the potential to bridge this gap by providing a learning experience that simultaneously integrates cognitive, affective, and psychomotor aspects. Students not only recognize the importance of discipline, responsibility, or cooperation but also learn to practice these values throughout the project completion process. Thus, character development begins to be guided through habits formed during the activities, rather than solely through instructions or lectures. However, this study cannot yet confirm that these experiences have resulted in lasting character changes; therefore, further research is needed to examine the sustainability of the activities' influence on students' behavior outside the baking class.

Intriguingly,, this study offers a different perspective. While previous studies have generally focused on the internalization of Islamic Education (PAI) values through the practice of worship, teachers' exemplary behavior, or religious activities within the school environment, this study demonstrates that the introduction and

internalization of these values can also occur through project-based activities that are not directly oriented toward religious education but are still capable of fostering religious experiences through contextual activities. In other words, Islamic Education values have the potential to be integrated into various learning activities when teachers are able to connect each stage of a project to the meaning of Islamic education. The contribution of this study is also evident in the shift in perspectives regarding Islamic Education learning. Until now, religious education has often been understood as a process of conveying material related to Islamic beliefs, worship, ethics, or jurisprudence. Research findings, however, show that Islamic Education (PAI) can be developed through interdisciplinary activities, provided that these activities provide opportunities to introduce, familiarize students with, and practice Islamic values. This perspective broadens the scope of PAI implementation because the development of Islamic character does not only take place when students study religious material but also when they participate in pedagogically designed project-based activities. Therefore, a baking class can be viewed not only as a medium for learning how to make food products but also as a learning context that provides opportunities for the development of Islamic character and values.

Table 1. Integration of Project-Based Learning with Islamic Religious Education Values

Baking Class Stages	PjBL Syntax	PAI Integration
Prayer before the activity	Preparing the project	Religious values, etiquette for starting work
Introducing tools and ingredients	Determining the project	Understanding sustenance and recognizing <i>halal</i> and <i>thoyyib</i> foods
Making the dough	Working on the project	Discipline, trustworthiness, responsibility
Working in groups	Project collaboration	<i>Ta'awun</i> (mutual assistance), <i>ukhuwah</i>
Decorating the bread	Producing the final product	Creativity as a form of effort
Disposing of leftover materials	Closing the project	Maintaining cleanliness (<i>an-nadhafah minal iman</i>)

These findings also constitute the main contribution of this study to the development of research on Islamic Religious Education (IRE) learning. Unlike previous studies, which generally positioned baking classes as a medium for developing students' motor skills, creativity, or social skills, this study shows that such activities can be positioned as a context for implementing Project-Based Learning (PjBL), which provides space for the practice of Islamic Religious Education values. This perspective illustrates that projects function not only as learning strategies but also as experiential spaces that bring together knowledge, skills, and values within a single authentic activity. Thus, this study offers a conceptual contribution: the integration of Project-Based Learning and Islamic Religious Education can be realized

through authentic, contextual, and student-centered learning activities. However, this contribution is more appropriately framed as a conceptual model or an opportunity for integration, rather than as definitive proof that the internalization of values has occurred deeply within the students.

Conclusion

This study shows that baking classes are not merely practical cooking activities but can serve as a context for implementing Project-Based Learning (PjBL) in a structured manner that is integrated with the values of Islamic Religious Education (PAI). The most important finding of this study is that the integration of PjBL and PAI values does not have to take place through direct religious education activities but can emerge through project-based activities that are relevant to students' daily lives. All stages of the activity—from preparation, implementation, and guidance to project completion—provide opportunities for students to practice the values of trustworthiness, responsibility, cooperation (ta'āwun), discipline, and maintaining cleanliness (thahārah) in real-life situations. However, the research findings suggest the cultivation and practice of these values rather than proving their deep and lasting internalization within the students. Thus, baking classes can serve as a learning experience that integrates cognitive, affective, and psychomotor aspects in Islamic Religious Education.

From an academic standpoint, this study offers a new perspective on the study of baking classes and Islamic Religious Education. Unlike previous studies, which generally positioned baking classes as a means of developing students' motor skills, creativity, cognitive abilities, or social skills, this study demonstrates that baking classes can serve as a context for implementing Project-Based Learning while simultaneously providing an opportunity to practice the values of Islamic Religious Education. These findings confirm that the characteristics of PjBL can be applied in practice-based learning outside the context of formal classrooms, while also broadening the perspective on its application in Islamic Religious Education. The contribution of this study lies in the perspective that the integration of PjBL with Islamic Religious Education can be realized through authentic activities closely related to students' lives, by making the project completion process a space to introduce, familiarize students with, and practice Islamic values. Thus, this study not only broadens the context of PjBL application but also demonstrates the possibility of integrating Islamic Religious Education values into interdisciplinary learning activities.

This study has several limitations. First, the study was conducted at only one baking class provider, Onty Cake, Bakery and Resto; therefore, the findings cannot yet reflect variations in the implementation of baking classes at different providers or in different contexts. Second, the study involved students aged 2–13 years, ranging from early childhood education through elementary school, with diverse developmental

characteristics; therefore, the findings cannot yet be generalized to higher levels of education. Third, although the study involved observations and interviews with students, supervising teachers, and mentors, the interviews with students were limited in scope; therefore, evidence regarding the process of personal meaning-making and changes in the students' values could not yet be explored in depth. Fourth, the descriptive qualitative approach used places greater emphasis on understanding the learning process than on quantitatively measuring changes in character or the effectiveness of learning. Therefore, future research could involve a wider variety of locations and student characteristics, a larger number of participants, and the use of a longitudinal approach or a combination of qualitative and quantitative methods to examine in greater depth whether the values instilled during baking classes develop into a deeper understanding, internalization, and more lasting behavioral changes. It is hoped that the results of this more in-depth and comprehensive study will serve as a foundation for the development of more effective practices and policies in Islamic Education.

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Ethical Statement

This study was conducted with due consideration of research ethics, particularly voluntary participation, confidentiality, and the protection of participants' identities. As the participants included children aged 2–13 years, ethical considerations were applied throughout the observation, interview, documentation, and reporting processes. Participants' information was used solely for academic purposes, and personal identities were not disclosed in the presentation of the findings.

Artificial Intelligence (AI) Use Statement

The authors used artificial intelligence (AI) tools only for limited language-editing purposes, including improving grammatical accuracy, clarity, and readability of the manuscript. AI was not used to generate or manipulate research data, conduct data analysis, interpret the findings, or formulate the research conclusions. All scholarly arguments, interpretations, references, and substantive content were reviewed and verified by the authors, who take full responsibility for the integrity and accuracy of the published work.

Author Contributions

Roisna Kamila contributed to the conceptualization, investigation, data collection, data analysis, and preparation of the initial manuscript. Rahmat Kamal

contributed to the conceptualization, methodology, supervision, validation, interpretation of the findings, and critical review of the manuscript. Rizal Bilhakiki contributed to the investigation, data organization, analysis, literature review, and manuscript revision. All authors reviewed and approved the final version of the manuscript.

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Conflict of Interest Statement

The authors declare that there are no financial, professional, institutional, or personal conflicts of interest that could have influenced the conduct, interpretation, or publication of this study.

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