

Community-Based Apprenticeship to Develop Uncertainty Preparedness: A Case Study at PKBM Alam Jingga

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Abstract: This study investigates how community-based apprenticeship functions as a pedagogical mechanism for developing learners' uncertainty preparedness and examines its scalability within non-formal education systems in emerging contexts. Adopting a qualitative case study design, the research analyzes a community-based apprenticeship program implemented through collaboration between PKBM Alam Jingga and Rumah Magang Hebat in Indonesia. Data were drawn from program documents, including implementation reports, learning modules, and prior empirical studies, analyzed using reflexive thematic analysis to identify core learning mechanisms. Findings demonstrate that uncertainty preparedness develops through three interrelated mechanisms: (1) situated experiential learning within authentic work environments under practitioner mentorship, (2) active engagement in dynamic community-based economic and social practices, and (3) iterative reflective processes enabling learners to interpret and adapt to unpredictable situations. These collectively foster adaptive capacity, decision-making competence, social communication, and critical thinking. This study repositions apprenticeship from a formal vocational pathway to a flexible, community-embedded pedagogical model, operationalizing uncertainty preparedness as a measurable outcome of experiential learning an underexplored conceptualization in non-formal education literature. The study offers a context-sensitive, resource-efficient model adoptable by non-formal education providers in regions with limited formal vocational training access, leveraging local community ecosystems as learning environments. By bridging experiential learning theory with community-based education practices, this research provides an empirically grounded, scalable framework for designing apprenticeship models responsive to contemporary uncertainty, particularly in developing country contexts.

Keywords: Community-Based Apprenticeship, Experiential Learning, Non-Formal Education, Uncertainty Preparedness

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A. Introduction

Rapid global change has created increasingly complex and uncertain living conditions. Economic transformation, the development of digital technologies, and global social dynamics have led to rapid changes in many aspects of life. In this context, education systems are required not only to focus on the mastery of academic knowledge but also to prepare learners to face uncertainty in life. The ability to deal with uncertain situations is often referred to as *uncertainty preparedness*, which refers to an individual's readiness to adapt, make decisions, and act flexibly in changing circumstances. In contemporary educational discourse, preparedness is understood as a multidimensional construct that encompasses cognitive, affective, and behavioral readiness in responding to uncertain conditions ([Staupe-Delgado & Kruke, 2018](#)). Furthermore, the ability to navigate uncertainty is closely related to career adaptability and lifelong learning capacities, which are increasingly emphasized as essential competencies for learners in the 21st century ([Akther, 2020](#); [Karacan Ozdemir & Yerin Guneri, 2017](#)).

In educational literature, it is important to distinguish clearly between the concepts of *internship* and *apprenticeship*, as they are often used interchangeably despite having different pedagogical implications. Internship generally refers to short-term work exposure aimed at introducing learners to professional environments. In contrast, apprenticeship represents a structured and sustained learning process in which learners acquire knowledge and skills through direct engagement with practitioners, guided mentorship, and participation in authentic work practices. Within apprenticeship program, learning extends beyond technical competencies to include the development of attitudes, values, and adaptive ways of thinking shaped through experience. Studies on vocational education have demonstrated that apprenticeship-based learning can strengthen the connection between education and labor market needs while improving learners' adaptive competencies ([Parey, 2016](#)). Furthermore, apprenticeship is closely linked to the development of professional culture and readiness for continuous learning ([Nizhegorodtseva, 2018](#)).

In educational studies, the experiential learning approach is widely regarded as an effective strategy for developing such capabilities. Experiential learning emphasizes the direct involvement of learners in real-life situations so that they can understand concepts through practical experience. Through such experiences, learners not only acquire knowledge but also develop reflective abilities, problem-solving skills, and the capacity to adapt to unexpected situations. The experiential learning cycle highlights the importance of concrete experience, reflective observation, conceptualization, and active experimentation in shaping meaningful learning processes ([McLeod, 2025](#)). Reflection itself plays a central role in transforming experience into knowledge, particularly in fostering self-regulated and reflective learners ([Kellenberg, 2017](#)). In addition, work-based learning approaches are recognized for effectively bridging theoretical knowledge and practical application in professional learning environments ([Morris, 2018](#)).

In Indonesia, experiential learning approaches have significant potential to be developed through community-based educational institutions such as *Pusat Kegiatan Belajar Masyarakat* (PKBM), or Community Learning Activity Centres. PKBM are non-formal educational institutions that provide equivalency education program such as *Paket A*, *Paket B*, and *Paket C*. These institutions are characterized by their flexibility and close connection with local communities, allowing the development of learning innovations that are contextualized to community life. The integration of community values and local contexts in educational practices is also considered important in strengthening meaningful learning experiences and improving educational outcomes ([Feronika Y. T et al., 2025](#)). Community-based learning has been widely acknowledged as an approach that enhances learner engagement, social responsibility, and contextual understanding of knowledge ([Bedri, 2017](#); [Rakuasa et al., 2024](#)). Data from the Ministry of Primary and Secondary Education show that the network of equivalency education services provided through PKBM in Indonesia is extensive and widely distributed across regions, indicating its strategic potential for the development of community-based educational models ([Kemendikdasmen, 2026](#)).

Table 1 Total PKBM Equivalency Education Program in Indonesia

Equivalency Program	Number
<i>Paket A</i>	6,263
<i>Paket B</i>	8,867
<i>Paket C</i>	9,094
Total	24,224

Source: Kemendikdasmen, 2026

These figures indicate that PKBM not only function as providers of alternative education but also serve as community-based learning ecosystems with wide coverage. With more than twenty-four thousand equivalency education services distributed across different regions, PKBM have considerable potential to become spaces for implementing various educational innovations, including experiential learning models such as community-based apprenticeship. Educational innovation is essential in responding to the evolving demands of society and improving the effectiveness of learning systems ([Fidalgo-Blanco & Sein-Echaluce, 2016](#)). In the broader context of vocational education, apprenticeship systems are increasingly recognized as strategic mechanisms for developing workforce-relevant competencies in a rapidly changing world of work ([Kuczera, 2017](#); [McGrath, 2019](#)). The extensive PKBM network therefore provides a strong structural foundation for scaling up such models across diverse regional contexts.

The apprenticeship model is also consistent with traditional learning practices that have long existed within Indonesian communities. In many local communities, skills and knowledge are transmitted through direct learning from more experienced individuals. Such practices represent forms of local wisdom that have historically played an important role in maintaining the continuity of knowledge and skills within society ([Choliq, 2020](#)). Local wisdom-based education has been shown to strengthen learners' cultural identity and contextual understanding ([Sadri, 2025](#)). Community-based educational practices that integrate local knowledge and social values have also

been shown to strengthen leadership and collaborative learning processes in schools ([Feronika Y. T et al., 2025](#)). In addition, education plays a critical role in shaping social mobility and addressing inequalities within communities ([Budiati & Rochmat, 2020](#)).

While existing research has explored experiential learning, apprenticeship, and community-based education, significant gaps remain. Prior studies have extensively examined apprenticeship within formal vocational education systems and its labor market outcomes ([Beach, 2018; Parey, 2016](#)), yet there is limited empirical evidence on how apprenticeship is implemented within non-formal, community-based educational contexts such as PKBM, particularly in developing countries like Indonesia. Moreover, although the concept of uncertainty preparedness has gained attention as an essential competency ([Staupe-Delgado & Kruke, 2018](#)), few empirical studies have investigated how specific pedagogical models—such as community-based apprenticeship contribute to its development. In addition, the integration of experiential learning, apprenticeship, and community-based education within a single operational model remains underexplored, particularly in terms of its potential for scalability and replication across diverse regional contexts. In the broader global discourse, education for sustainable development highlights the importance of contextual, participatory, and experiential learning approaches, yet the operationalization of these principles within scalable community-based apprenticeship models remains underexplored (UNESCO, 2012).

In response to these gaps, this study examines the case of PKBM Alam Jingga (Saga Lifeschool), a community-based educational institution that integrates experiential learning through collaboration with Rumah Magang Hebat. This program represents an apprenticeship-based learning model in which students engage directly with practitioners in real-world settings. Previous studies related to this program have indicated its potential in supporting student development, including enhancing readiness to face uncertain situations (uncertainty preparedness) and strengthening reflective learning processes ([Robianti et al., 2024](#)). Therefore, this study aims to examine how community-based apprenticeship practices contribute to the development of uncertainty preparedness and how such a model may potentially be implemented and replicated across different educational contexts in Indonesia. Based on this background, the research focuses on analyzing the role of community-based apprenticeship through the collaboration between PKBM Alam Jingga and Rumah Magang Hebat in developing uncertainty preparedness and its potential for replication across diverse regional settings in Indonesia.

B. Methods

This study employs a qualitative case study approach focusing on the implementation of the apprenticeship program at PKBM Alam Jingga in collaboration with Rumah Magang Hebat. A qualitative case study is considered appropriate for exploring complex educational practices within real-life contexts and for generating in-depth understanding of processes and meanings ([Varallyay et al., 2020](#)). The case selection was based on purposive criteria, namely: (1) the program represents an established

model of experiential learning integration within non-formal education; (2) PKBM Alam Jingga has consistently implemented apprenticeship-based learning in collaboration with Rumah Magang Hebat; and (3) the availability of comprehensive program documentation that enables in-depth analysis. Data collection was conducted through document analysis, focusing on a clearly defined corpus of program-related documents produced between November 2024 and July, 2025. These documents include: (a) program implementation reports developed by program coordinators; (b) apprenticeship learning modules used during the training process; and (c) reflective and evaluative documents derived from prior empirical studies conducted at PKBM Alam Jingga. Document analysis is widely used in qualitative research to examine existing records and uncover patterns of practice, particularly in educational program evaluation and implementation studies.

The primary data sources were derived from previous studies on experiential learning practices at PKBM Alam Jingga and the development of the Rumah Magang Hebat model ([Robianti et al., 2025a](#)). To address potential bias arising from reliance on self-produced data, these sources were critically re-examined and triangulated with program documents to ensure analytical depth and reduce circular interpretation. In addition, the study is grounded in the theoretical perspective of experiential learning, which emphasizes learning through direct experience and reflection as a basis for knowledge construction and skill development ([Waite, 2018](#)). Data analysis was conducted using a reflexive thematic analysis approach adapted from established qualitative frameworks. The process involved several systematic stages: (1) data familiarization through repeated reading of all documents; (2) inductive coding of meaningful text segments to capture emerging patterns; (3) categorization of codes into initial themes; (4) reviewing and refining themes to ensure coherence and relevance to the research focus; and (5) interpretation of themes in relation to the program's contribution to the development of uncertainty preparedness. The analytical process draws on qualitative data analysis principles that emphasize systematic coding, comparison, and interpretation of data to generate meaningful insights ([Santos et al., 2018](#)). To enhance the trustworthiness of the findings, investigator triangulation was applied. Two researchers independently coded a subset of the data (approximately 20%) and discussed discrepancies to reach consensus. This process was complemented by iterative reflection and careful documentation of analytical decisions to ensure transparency and consistency throughout the analysis.

C. Results and Discussion

The document analysis generated several key thematic categories that describe the characteristics of the apprenticeship program at PKBM Alam Jingga in collaboration with Rumah Magang Hebat. The findings are presented descriptively based on recurring patterns identified across program documents.

1. Authentic Mentorship

The documents consistently indicate that students learn directly from practitioner mentors within real working environments. Mentors include entrepreneurs and community practitioners who guide students through daily professional activities. Illustrative evidence from program documents shows that *“students participate in apprenticeship activities within business units and practice communities”* and *“learn directly from entrepreneurs and practitioners”* (Robianti et al., 2025). These descriptions highlight the central role of practitioner-led learning within the program.

2. Real-World Problem Solving

The apprenticeship program involves student participation in real-life social and economic activities within the community. Students are exposed to dynamic and unpredictable situations that require immediate responses. Program documentation indicates that students are *“involved in social and economic activities within the community”* (Robianti et al., 2025). These activities include engagement in community-based projects and business practices that reflect real-world conditions.

3. Reflective Sense-Making

Reflection is an integral component of the apprenticeship program. Students are required to document and reflect on their experiences as part of the learning process. Documents show that *“students conduct reflections on their apprenticeship experiences through structured learning modules”* (Robianti et al., 2024). These reflections are designed to capture students’ understanding of their experiences and learning processes.

Table 2. Components of the Apprenticeship Program at PKBM Alam Jingga

Component	Program Description	Source
Collaboration between PKBM and Rumah Magang Hebat	Students participate in apprenticeship activities within business units and practice communities	(Robianti et al., 2025a)
Learning from practitioner mentors	Students learn directly from entrepreneurs and practitioners	(Robianti et al., 2025b)
Engagement in community activities	Students are involved in social and economic activities within the community	(Robianti et al., 2025b)
Reflective learning modules	Students conduct reflections on their apprenticeship experiences	(Robianti et al., 2024)

4. Learning Outcomes Documented in Program Records

Program documents also describe several competencies developed through participation in the apprenticeship activities. These competencies are presented in relation to specific learning experiences.

Table 3. Contribution of Apprenticeship to Uncertainty Preparedness

Learning Experience	Competence Developed
Facing real work situations	Adaptation to change
Interaction with mentors	Decision-making ability
Engagement in community activities	Social communication skills
Reflection on experience	Critical thinking ability

5. Structural Conditions for Program Replication

The analyzed documents identify several factors that support the potential replication of the apprenticeship model in other regions.

Table 4. Potential Replication of the Apprenticeship Model in Other Villages

Supporting factor	Explanation
Availability of local communities	Many villages have entrepreneurs and practitioners
Flexibility of PKBM	PKBM structures allow curriculum innovation
Relatively low cost	The program utilizes local resources
Relevance to local wisdom	The learning model aligns with traditional community learning practices

Discussion

The findings demonstrate that the community-based apprenticeship model at PKBM Alam Jingga contributes to the development of uncertainty preparedness through several interconnected mechanisms. First, the presence of authentic mentorship and real-world problem-solving experiences provides learners with direct exposure to uncertain and dynamic environments. This supports the argument that work-based learning enables the development of practical competencies through participation in real contexts ([McGrath, 2019](#); [Morris, 2018](#)). Unlike classroom-based instruction, apprenticeship immerses learners in situations where outcomes are not predetermined, thereby fostering adaptive behavior.

Second, the role of reflective sense-making explains how experience is transformed into learning. This aligns with experiential learning theory, which emphasizes the importance of reflection in constructing knowledge from experience ([McLeod, 2025](#)). Reflection also strengthens self-regulated learning and critical thinking, which are essential for navigating uncertainty ([Kellenberg, 2017](#)). Through structured reflection, learners are able to interpret their experiences, evaluate decisions, and develop more flexible responses to future challenges.

Third, the findings extend existing literature by demonstrating that apprenticeship is not limited to formal vocational education systems. Previous studies have primarily focused on apprenticeship in formal settings and its impact on labor market outcomes ([Beach, 2018](#); [Parey, 2016](#)). This study shows that apprenticeship can be effectively implemented within non-formal, community-based educational contexts such as PKBM. In this sense, the findings address the identified research gap by providing empirical evidence from Indonesia.

Furthermore, the results highlight that community-based apprenticeship contributes to uncertainty preparedness by integrating cognitive, social, and behavioral dimensions of learning. Direct engagement in community activities strengthens communication and collaboration skills ([Bedri, 2017](#); Rakuasa et al., 2024), while interaction with mentors enhances decision-making abilities. These findings support the conceptualization of uncertainty preparedness as a multidimensional construct involving adaptive capacity and flexible action ([Staupe-Delgado & Kruke, 2018](#)).

The integration of local wisdom within the apprenticeship model also plays a significant role in shaping meaningful learning experiences. Learning that is grounded in cultural and community contexts enhances relevance and identity formation ([Choliq, 2020](#); [Sadri, 2025](#)). This finding reinforces the importance of contextual and participatory approaches in education, as highlighted in education for sustainable development frameworks (UNESCO, 2012).

In addition, the study suggests that the apprenticeship model has strong potential for scalability due to the flexibility of PKBM institutions and the availability of community resources ([Kemendikdasmen, 2026](#)). This supports arguments that educational innovation is essential for responding to changing societal demands ([Fidalgo-Blanco & Sein-Echaluce, 2016](#)). However, consistent with previous research, the effectiveness of apprenticeship programs depends on implementation quality, mentorship capacity, and systemic support ([Beach, 2018](#); [Parey, 2016](#)). Structural inequalities across regions may also influence program sustainability ([Budiati & Rochmat, 2020](#)).

Overall, this study confirms and extends existing literature by demonstrating that community-based apprenticeship can function as an effective pedagogical model for developing uncertainty preparedness. It also provides new insights into how experiential, reflective, and community-based learning processes interact to produce adaptive competencies in non-formal educational settings.

D. Conclusions

This study shows that community-based apprenticeship practices through the collaboration between PKBM Alam Jingga and Rumah Magang HEbAT contribute to the development of students' uncertainty preparedness. Direct learning experiences within the community enable students to develop adaptive abilities, problem-solving skills, and decision-making capacity. The model also has strong potential to be replicated in various regions of Indonesia because it utilizes local community resources. Further research is required to develop policy frameworks and implementation guidelines that may serve as references for educational institutions in developing community-based apprenticeship programs.

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