

INCLUSIVE COLLABORATIVE TRAINING TO IMPROVE PESANTREN CAREGIVERS' COMPETENCE THROUGH AN ANDRAGOGICAL APPROACH

^{*1}Deden S, ²Elih Sudia Permana, ³Joni Rahmat Pramudia

^{*1,2,3}Universitas Sangga Buana YPKP

Email: ^{*1}deden.sugandi5@upi.edu, ²elsud@upi.edu, ³jonirp@upi.edu

Abstract

This study explores the lived experiences of pesantren caregivers and educators in implementing inclusive education and examines the development of their competencies through an andragogical approach. The study employed a qualitative phenomenological design to understand caregivers' experiences, challenges, and educational practices in three pesantren in Pasir Kuda Sub-district, Cianjur Regency: Darul Huda Pesantren, Nurul Fukoha Pesantren, and Annidhomiah Pesantren. Participants were selected purposively and consisted of pesantren caregivers and educators who were directly involved in educational activities. Data were collected through in-depth interviews, field observations, and documentation studies. The data were analyzed through data reduction, data display, and conclusion drawing and verification. The findings indicate that caregivers' competencies remain uneven across pedagogical, personality, professional, social, managerial, spiritual, and technological dimensions. Major challenges include limited understanding of inclusive education, insufficient capacity to adapt curricula to diverse learner needs, limited technological competence, inadequate infrastructure, and persistent social stigma toward students with special educational needs. The findings further demonstrate that conventional training approaches are insufficient to address these contextual challenges. An andragogical and collaborative training model is therefore needed to integrate caregivers' experiences, contextual problem-solving, peer learning, and institutional collaboration. The proposed Inclusive Collaborative Training (KOLIN) model provides a potential framework for strengthening caregivers' comprehensive competencies and supporting the transformation of pesantren into more inclusive, adaptive, collaborative, and learner-responsive educational environments.

Keywords: inclusive education, pesantren caregivers, caregiver competence, andragogy, collaborative training, KOLIN model, phenomenology

Abstrak

Penelitian ini mengeksplorasi pengalaman nyata para pengasuh dan pendidik pesantren dalam menerapkan pendidikan inklusif serta menelaah perkembangan kompetensi mereka melalui pendekatan andragogi. Penelitian ini menggunakan desain fenomenologis kualitatif untuk memahami pengalaman, tantangan, dan praktik pendidikan para pengasuh di tiga pesantren di Kecamatan Pasir Kuda, Kabupaten Cianjur: Pesantren Darul Huda, Pesantren Nurul Fukoha, dan Pesantren Annidhomiah. Peserta dipilih secara purposif dan terdiri dari pengasuh serta pendidik pesantren yang terlibat langsung dalam kegiatan pendidikan. Data dikumpulkan melalui wawancara mendalam, observasi lapangan, dan studi dokumentasi. Data dianalisis melalui reduksi data, penyajian data, serta penarikan kesimpulan dan verifikasi. Temuan menunjukkan bahwa kompetensi pengasuh masih tidak merata di berbagai dimensi, yaitu pedagogis, kepribadian, profesional, sosial, manajerial, spiritual, dan teknologi. Tantangan utama meliputi pemahaman yang terbatas mengenai pendidikan inklusif, kapasitas yang kurang memadai untuk menyesuaikan kurikulum dengan kebutuhan peserta didik yang

beragam, kompetensi teknologi yang terbatas, infrastruktur yang tidak memadai, serta stigma sosial yang masih melekat terhadap siswa berkebutuhan khusus. Temuan tersebut lebih lanjut menunjukkan bahwa pendekatan pelatihan konvensional tidak cukup untuk mengatasi tantangan kontekstual ini. Oleh karena itu, diperlukan model pelatihan andragogis dan kolaboratif untuk mengintegrasikan pengalaman pengasuh, pemecahan masalah kontekstual, pembelajaran sesama, dan kolaborasi kelembagaan. Model Pelatihan Kolaboratif Inklusif (KOLIN) yang diusulkan memberikan kerangka kerja potensial untuk memperkuat kompetensi komprehensif para pengasuh serta mendukung transformasi pesantren menjadi lingkungan pendidikan yang lebih inklusif, adaptif, kolaboratif, dan responsif terhadap peserta didik.

Kata kunci: pendidikan inklusif, pengasuh pesantren, kompetensi pengasuh, andragogi, pelatihan kolaboratif, model KOLIN, fenomenologi

Introduction

Pesantren are Islamic educational institutions that play a strategic role in shaping the religious knowledge, character, morality, and social identity of the younger generation. As they have evolved, Islamic boarding schools no longer function solely as spaces for transmitting Islamic knowledge; they must also address the demands of 21st-century education, which emphasizes pedagogical competence, managerial skills, digital literacy, collaboration, creativity, and the ability to respond to the diversity of students. This transformation places pesantren educators and caregivers in an increasingly complex position, as they are required to preserve the distinctive characteristics of Islamic education while adapting to social and technological changes. Studies on pesantren educational management indicate that institutional transformation and improvements in the quality of learning require strengthening educators' professionalism, curriculum development, and a management system that is more adaptive to changes in the educational environment (Abidin, 2020; Rahmah & Prasetyo, 2022). Thus, the quality of Islamic boarding schools in the contemporary era is determined not only by the strength of Islamic scholarly traditions but also by the capacity of the human resources managing the educational process.

These changes become increasingly significant as Islamic boarding schools face an increasingly diverse student body. This diversity relates not only to social, cultural, and economic backgrounds as well as academic abilities but also includes students with special educational needs. The perspective of inclusive education views student diversity as an integral part of the educational process and requires educational institutions to provide access, participation, support, and meaningful learning experiences for all students. Research on inclusive education in Indonesia shows that teachers still face various challenges in developing learning strategies that meet the needs of a diverse student body, particularly in resource-limited areas (Kurniawati, 2021). A similar issue is evident in the context of inclusive madrasahs, where teachers' instructional strategies have been shown to be linked to peers' acceptance of students with special needs (Mariyam & Kurniawati, 2022). These findings suggest that inclusivity cannot be achieved merely through the administrative acceptance of students with special needs, but requires pedagogical competencies that enable educators to adapt the learning

process to meet students' individual needs.

The context of Islamic boarding schools (pesantren) presents its own complexities in the development of inclusive education. Pesantren have institutional structures, educational cultures, patterns of social relations, and learning traditions that differ from those of public schools. Studies on inclusive education in Islamic boarding schools indicate that these institutions have great potential to develop an educational system that is open to students with diverse backgrounds and needs; however, its implementation still faces dynamics, debates, and limitations in carrying out academic reforms (Hadziq et al., 2024).

Research on inclusive education through guidance and counseling in pesantren also indicates that the characteristics of pesantren can serve as a foundation for developing an educational environment that accommodates student diversity (Naqiyah et al., 2024). On the other hand, studies on Islamic schools that implement inclusive education show that teachers' understanding of special education can influence how inclusion is understood and practiced in the classroom (Suprihatiningrum et al., 2022). This situation indicates that the challenges of inclusive education in Islamic boarding schools are not merely a matter of facility availability but are also related to pedagogical readiness, understanding of special needs, attitudes toward diversity, and the ability of educators to translate the principles of inclusion into daily educational practice.

The competencies of pesantren educators are therefore a strategic variable in the success of pesantren educational transformation. Educators do not merely serve as conveyors of religious knowledge but also fulfill the roles of mentors, managers of the learning environment, character builders, social mediators, and, in many contexts, play a role in institutional decision-making. Research on the development of teachers' competencies, commitment, and motivation in Islamic boarding schools indicates that improving the quality of human resources in these institutions requires a systematic and sustainable development model (Fauzi et al., 2022). High-quality pesantren models also demonstrate a close link between teacher professionalism and organizational management; thus, the development of educators' competencies cannot be separated from the strengthening of institutional governance (Rahmah & Prasetyo, 2022). Thus, capacity-building for pesantren educators must be directed not only toward mastery of religious content but also toward pedagogical, social, managerial, professional, personal, and technological competencies.

The need to strengthen these competencies is becoming increasingly urgent in the face of the digital transformation of education. Digital technology has changed the way knowledge is produced, distributed, and used in learning. Islamic boarding schools face the challenge of integrating technology without losing their identity and Islamic educational values. Research on pesantren educational management in the digital age indicates that technology-based learning skills are becoming increasingly important within the pesantren educational system (Abidin, 2020). Studies on

the digital transformation of pesantren education also show that technology can benefit learning, but its implementation is still constrained by limitations in infrastructure, human resource capacity, and institutional readiness (Nugroho & Astutik, 2024). In fact, recent research on deep learning instructional design in Islamic boarding schools underscores the importance of integrating Islamic values, digital technology, and 21st-century competencies in the development of contemporary Islamic boarding school learning (Hikmayati et al., 2025). Consequently, educators' digital literacy can no longer be viewed as an additional competency but rather as an integral part of the professional capacity required to design, implement, and evaluate learning.

Issues regarding digital competencies are also evident in the broader Indonesian education system. Bentri et al. (2022) found that teachers' digital pedagogical competencies are influenced by various supporting factors related to individual readiness and the educational environment. At the professional community level, research indicates that the majority of Indonesian teachers remain at the "exploration" and "integration" stages of digital competency, thus requiring more systematic professional development opportunities through professional learning communities (Widhanarto et al., 2023). A conceptual review of teachers' professional digital competence also indicates that teachers' digital competence is a multidimensional construct that encompasses not only technical skills in using technology but also the ability to integrate technology pedagogically into teaching practices (Falloon, 2022). In fact, experimental research on digital competency training shows that systematically designed training programs can significantly improve teachers' digital competencies (Munawaroh et al., 2022). These findings reinforce the argument that improving the digital competencies of pesantren educators requires training interventions designed based on real needs—not merely training in the use of technological devices.

At the same time, inclusive education demands competencies that extend beyond mere mastery of conventional teaching strategies. Teachers need knowledge about student diversity, a positive belief in inclusion, self-efficacy, the ability to adapt instruction, and the ability to create a learning environment responsive to individual needs. Empirical studies on teachers' competencies for inclusive education indicate that teachers' beliefs and self-efficacy are key components of inclusive teaching competencies (Vantieghem et al., 2023). Research in Indonesia also shows that teachers' pedagogical competencies remain a challenge in implementing instruction for students with special needs (Mumpuniarti et al., 2020). Furthermore, research on teachers' attitudes toward inclusive education in East Java indicates that teachers' attitudes and perceptions play a crucial role in determining their readiness to implement inclusive education (Ediyanto & Kawai, 2023). Therefore, the development of pesantren caregivers' competencies must integrate the dimensions of knowledge, skills, attitudes, self-efficacy, and reflective ability.

These challenges indicate that conventional, one-way training approaches may be insufficient

for developing the competencies of pesantren caregivers. Caregivers are adult learners who already possess extensive experience in managing students, conducting instruction, resolving disciplinary issues, and navigating the social dynamics of the pesantren. Therefore, this experience should not be treated as a background to be ignored in training but rather as a primary source of learning. Research on the implementation of pedagogical and andragogical approaches in teacher training indicates that the use of an andragogical approach for experienced trainees can support competency enhancement through the development of materials, learning strategies, information technology, and evaluation methods tailored to the participants' needs (Maspupah et al., 2023). Research on the continuity of the pedagogy–andragogy–heutagogy approaches among Indonesian teachers also indicates a correlation between these learning approaches and the development of teachers' pedagogical competencies (Amiruddin et al., 2023).

Consequently, training for Islamic boarding school educators needs to shift from a knowledge-transmission model toward an adult learning model grounded in experience, needs, problem-solving, reflection, and direct application.

Beyond andragogical aspects, the dimension of collaboration is a key element in professional development design. Inclusive education fundamentally requires collaboration because students' needs cannot always be addressed by a single educator acting individually. A systematic review of collaborative professional development indicates that professional development involving collaboration among teachers has greater potential to support changes in inclusive educational practices compared to entirely individual professional development (Holmqvist & Lelinge, 2021). Other research indicates that collaborative professional development enables educators to share expertise and learning strategies to support students with significant support needs (Toews & Zagona, 2022). Experimental findings on collaborative professional training also highlight the importance of direct interaction and collaborative activities in developing teachers' competencies (Schumaker et al., 2021). Thus, collaboration is not merely a method for delivering training content but can serve as a mechanism for the collective construction of professional knowledge.

The urgency of collaborative training is growing as research indicates that effective professional development must be practice-oriented and responsive to contextual needs. A meta-analysis of professional development for inclusive education found that professional development programs have a positive effect on teachers' knowledge, skills, and beliefs, as well as on student behavior, although the magnitude of the effect varies across the measured outcomes (Donath et al., 2023). Research on inclusive professional development programs based on mentor–mentee relationships also indicates that reciprocal learning processes can benefit participants' professional development (Meda et al., 2023). Another study confirms that effective inclusive professional development programs need to provide practical experiences, help teachers identify special needs, and strengthen collaboration

among teachers, school leaders, and other education personnel (Kumekpata et al., 2024). This means that effective training must go beyond simply providing information about inclusive education; it must create opportunities for participants to analyze real-world problems, share experiences, develop solutions, engage in practice, and receive feedback.

The need for contextual training models is also supported by research on the conditions of teacher professional development in Indonesia. Rahman (2022) demonstrates that teacher professional development is influenced by personal, professional, and systemic conditions within the school environment. These findings imply that competency-building programs cannot be designed in isolation from the organizational context in which teachers work. In the context of Islamic boarding schools (*pesantren*), these needs are even more complex because professional development must take into account the *pesantren*'s culture, authority structures, learning traditions, student characteristics, Islamic values, and institutional resources. Therefore, training models that merely adopt the format of general school training may not fully meet the needs of *pesantren* educators.

In this context, the concept of Inclusive Collaborative Training (KOLIN) is relevant as an approach that integrates the principles of inclusive education, adult learning, professional collaboration, and the strengthening of digital competencies. KOLIN is not positioned as training that merely transfers knowledge about inclusion, but rather as a professional learning ecosystem that enables educators to identify real-world issues in Islamic boarding schools, reflect on their experiences, discuss with fellow educators, develop problem-solving strategies, conduct simulations, adapt the curriculum, and utilize digital technology according to learning needs. This approach aligns with findings that inclusive teacher competencies require a combination of knowledge, skills, beliefs, and efficacy (Vantieghem et al., 2023), while collaborative professional development can strengthen the implementation of inclusive practices through the exchange of experiences and expertise among education practitioners (Holmqvist & Lelinge, 2021; Toews & Zagona, 2022).

KOLIN is also relevant to the need for curriculum and learning transformation in Islamic boarding schools. Research on the integration of educational technology in Islamic boarding schools indicates that digital transformation must take into account the characteristics of the curriculum and the educational identity of these schools, rather than merely incorporating technology into the learning process (Raafi & Saifulloh, 2025). Challenges in adopting e-learning in Islamic boarding schools also reveal a tension between the tradition of face-to-face learning and the need to adapt to digital pedagogy (Al-Hamadi et al., 2025). Meanwhile, an evaluation of Islamic religious education in *pesantren* in the digital age indicates that technological changes require a more systematic institutional and pedagogical response (Jamil et al., 2025). Therefore, the competencies of educators in KOLIN must include the ability to manage inclusive classrooms, develop adaptive curricula, build collaborative learning strategies, and use technology in a pedagogically sound and contextually

appropriate manner.

Although research on inclusive education, teacher competencies, professional development, andragogy, collaboration, and the digitization of education has advanced significantly, there remains a research gap regarding the integration of all these dimensions within the pesantren context. The literature on pesantren tends to address educational management, teacher professionalism, digital transformation, or inclusive education in isolation. Conversely, the literature on inclusive education largely focuses on public schools and madrasahs, while studies on teacher professional development tend not to specifically accommodate the characteristics of pesantren educators as adult learners. Studies on inclusive education in pesantren do demonstrate the potential of pesantren as educational spaces for students with diverse needs; however, the need for training models that simultaneously integrate inclusivity, collaboration, andragogy, pedagogical and managerial competencies, curriculum, and technology has not yet been extensively explored empirically (Hadziq et al., 2024; Naqiyah et al., 2024). It is this gap that provides a strong foundation for the development of KOLIN.

Thus, this study aims to develop and test Inclusive Collaborative Training (KOLIN), based on an andragogical approach, as a model for developing the competencies of pesantren educators. The novelty of this research lies in the integration of four main dimensions—andragogy, inclusivity, professional collaboration, and digital competencies—into a single training model contextualized to the characteristics of pesantren. This model is designed not only to enhance caregivers' knowledge but also to strengthen their practical skills in managing inclusive classrooms, adapting curricula, implementing collaborative learning strategies, utilizing educational technology, and applying experience-based problem-solving. Conceptually, this study expands the discourse on educators' professional development by incorporating Islamic boarding schools as an educational context with unique institutional and cultural characteristics. Practically, KOLIN is expected to serve as a capacity-building model that Islamic boarding schools can use to create a learning environment that is more inclusive, adaptive, collaborative, and responsive to the demands of 21st-century education.

Research Method

Research Design

This study employs a qualitative phenomenological research design to explore the experiences of caregivers and educators at Islamic boarding schools (pesantren) in implementing inclusive education and developing their pedagogical, managerial, social, spiritual, professional, personal, and digital competencies. The phenomenological approach was chosen because this study aims to understand how caregivers experience, interpret, and attribute meaning to inclusive education practices within the unique sociocultural context of Islamic boarding schools. Rather than measuring competencies solely through predetermined indicators, this study examines the participants' first-person narratives, their daily experiences, the challenges they face, their adaptive practices, and the

meanings attached to their roles as educators and caregivers.

Phenomenology is particularly well-suited when the research objective is to uncover experiences embedded in complex social and educational contexts. Recent methodological reviews emphasize that phenomenological investigations must maintain coherence between their philosophical assumptions, research questions, participant selection, data collection, and analytical procedures (Farrell, 2020; Frechette et al., 2020). In educational research, phenomenology provides an opportunity to examine how educators construct meaning from their experiences, rather than reducing those experiences to predefined categories or numerical indicators (Stolz, 2020). Similarly, Alhazmi and Kaufmann (2022) demonstrate that phenomenological inquiry is particularly useful for examining complex educational and cross-cultural experiences, in which participants' interpretations are shaped by social, cultural, and institutional contexts.

This study is grounded in an interpretive phenomenological orientation, in which participants' narratives are treated as experiences embedded in context, rather than as objective descriptions detached from context. This orientation allows researchers to examine not only what caregivers experience but also how they interpret inclusive education, professional competencies, institutional constraints, collaboration, and the needs of students with diverse learning characteristics. This approach aligns with contemporary phenomenological methodology, which emphasizes the importance of explicitly linking the philosophical foundations of phenomenology to sampling, interviews, interpretation, and analysis (Frechette et al., 2020).

Research Locations

This study was conducted at three Islamic boarding schools (pesantren) located in Pasir Kuda Subdistrict, Cianjur Regency, West Java, Indonesia. The research locations were selected purposefully because these three institutions represent different organizational and educational configurations within the context of Islamic boarding schools. The first location was Darul Huda Islamic Boarding School, which provides formal education at the early childhood education (PAUD), diniyah, and Madrasah Tsanawiyah (MTs) levels. The second location is Nurul Fukoha Islamic Boarding School, which provides non-formal education through a Community Learning Center (PKBM). The third location is Annidhomiah Islamic Boarding School, which also provides non-formal education through a PKBM. The inclusion of these three locations allows this study to examine the experiences of caregivers across various educational structures while maintaining the Islamic boarding school as a common institutional context. This multi-site design is important because inclusive educational practices can be influenced by differences in institutional structure, educational provision, available resources, organizational culture, and interactions among caregivers, educators, students, and the community. The phenomenological approach allows these contextual differences to be preserved while identifying shared meanings and experiences across the three research sites.

Participants and Sampling

Participants consisted of pesantren caregivers and educators directly involved in educational activities and student development at the three research sites. Participants were selected using purposive sampling, in which individuals were recruited based on their direct experience relevant to the phenomenon under study (Patton, 2002). Participant selection was guided by several inclusion criteria. Participants were required to: (1) have direct responsibility for educating, supervising, guiding, or managing students within the pesantren; (2) have experience interacting with students from diverse social, cultural, economic, or educational backgrounds; (3) have sufficient experience in pesantren educational activities to provide a substantive account of institutional practices; and (4) be willing to voluntarily participate in interviews and other data-collection activities.

The sampling strategy prioritizes richness of information over statistical representativeness. This principle aligns with phenomenological research, in which participants' analytical value stems from the depth and relevance of their life experiences, not solely from sample size. Recent methodological literature emphasizes that phenomenological studies require participants capable of articulating meaningful experiences related to the phenomenon under investigation (Frechette et al., 2020; Prosek & Gibson, 2021). The final number of participants must be reported in the manuscript based on actual field data as $N = [\text{insert number}]$ participants, consisting of $[\text{insert number}]$ caregivers and $[\text{insert number}]$ educators. Researchers must also report relevant participant characteristics, such as gender, educational background, length of service at the pesantren, and educational responsibilities, without disclosing personally identifiable information.

Data Collection

Data were collected through in-depth semi-structured interviews, non-participant field observations, and document analysis. The use of multiple sources was intended to yield a rich description of participants' experiences and to facilitate triangulation between what participants reported, what researchers observed, and what was documented institutionally. In-depth semi-structured interviews constitute the primary source of phenomenological data. The interviews were designed to encourage participants to describe concrete experiences, rather than merely offer general opinions about inclusive education. The questions explored participants' experiences in managing classrooms, adapting learning activities and the curriculum, responding to students with special educational needs, collaborating with other educators, managing institutional responsibilities, overcoming social stigma, using educational technology, and balancing the demands of their spiritual and professional roles.

The interview questions were structured around the seven domains of competence explored in this study: pedagogical, personal, professional, social, managerial, spiritual, and technological/digital. However, these domains were used as illuminating dimensions, not as rigid analytical categories.

Participants were encouraged to share experiences and meanings that the researchers had not anticipated. This procedure helped maintain the phenomenological character of this study by allowing participants' experiences to guide the development of themes. Methodological research emphasizes that phenomenological interviews must provide sufficient space for participants to describe their experiences in their own words and must avoid reducing lived experiences to predetermined theoretical categories (Farrell, 2020; Frechette et al., 2020).

Field observations were conducted to examine educational interactions and institutional practices in their natural settings. Observations focused on caregiver–student interactions, classroom management, teaching practices, collaboration among educators, responses to student diversity, the use of educational technology, and institutional arrangements related to inclusive education. Observation notes were systematically recorded immediately following each observation session and were used to contextualize and corroborate interview accounts.

Document analysis was conducted on relevant institutional documents, including curriculum documents, educational programs, lesson plans, institutional policies, student-related records (where ethically permitted), training materials, and other documents related to inclusive educational practices. Documentary evidence was not considered a substitute for participants' lived experiences but was used to understand the institutional context in which those experiences occurred.

Research Instruments

The primary research instrument is the researcher, supported by a semi-structured interview protocol, observation guidelines, and document analysis guidelines. The interview protocol was developed based on seven competency domains while maintaining sufficient flexibility for participants to elaborate on significant experiences. The interview protocol includes questions regarding participants' understanding of inclusive education, their experiences managing a diverse student body, strategies for adapting learning activities, experiences working collaboratively, the use of digital technology, institutional and infrastructure constraints, professional development experiences, and the competencies they perceive as necessary to support inclusive education. To strengthen methodological rigor, the interview protocol was reviewed prior to field implementation to ensure that the questions were easy to understand, relevant to the research objectives, and sufficiently open-ended. Follow-up and probing questions were used when participants shared experiences that required further exploration.

Data Analysis

Data analysis was conducted iteratively throughout the research process. Interview recordings were transcribed verbatim, while field notes and related documents were organized into a qualitative data corpus. The researchers initially conducted repeated readings of the transcripts to gain a holistic understanding of the participants' narratives. Significant statements describing experiences with

inclusive education, competency development, institutional barriers, collaboration, and adaptation were then identified and coded.

This analysis followed a phenomenological sequence consisting of initial reading and familiarization, identification of significant statements, formulation of units of meaning, grouping of meanings into experiential themes, development of textual descriptions, development of structural descriptions, and synthesis of the essential meaning of the phenomenon. This procedure was used to ensure that the analysis remained focused on the participants' lived experiences, rather than merely categorizing responses based on the seven competency domains.

The researchers also employed the principles of data reduction, data presentation, and conclusion drawing/verification described by Miles, Huberman, and Saldaña as an organizational framework for managing qualitative data sets. However, these procedures serve as a structure for data management and verification, not as a substitute for phenomenological analytical logic. This distinction is important because phenomenological research requires analytical procedures that remain consistent with its philosophical orientation (Frechette et al., 2020; Alhazmi & Kaufmann, 2022). Cross-case comparisons were then conducted across the three Islamic boarding schools. The researchers examined both convergent and divergent experiences, identifying themes common across all institutions as well as experiences specific to particular organizational or educational contexts. This process allowed the study to distinguish between the general dimensions of caregivers' experiences and context-specific manifestations of inclusive educational practices.

Research Reliability and Validity

The credibility of the findings was strengthened through triangulation of data sources, member reflection, peer discussion among researchers, long-term engagement, and an audit trail. Triangulation involved comparing information obtained from interviews, observations, and institutional documents. When inconsistencies arose, the researchers reexamined the relevant data and, when necessary, clarified interpretations with the participants. Participant reflection is used to provide participants with an opportunity to review the researchers' interpretations of key experiences and clarify meanings as needed. Peer debriefings are conducted among research team members to test initial interpretations and reduce the likelihood that emerging themes reflect only a single researcher's assumptions.

An audit trail is maintained throughout the research process, including interview protocol notes, field notes, coding decisions, theme development, analytical memos, and revisions to interpretations. These procedures enhance transparency and reliability by making the analytical process traceable. Reflexivity was also integrated into the research process. The researchers kept reflective notes on their assumptions, expectations, relationships with participants, and interpretations of pesantren educational practices. This is particularly important because phenomenological research

acknowledges that interpretations are influenced by the researcher's position and their interactions with participants. Contemporary methodological literature emphasizes that researchers must explicitly acknowledge their interpretive stance, rather than treating qualitative interpretations as if they were entirely independent of the researcher (Frechette et al., 2020; Farrell, 2020).

Ethical Considerations

This study adheres to the basic ethical principles for qualitative research involving human participants. Prior to data collection, institutional approval was obtained from the participating Islamic boarding schools. Participants were provided with an explanation of the study's objectives, the voluntary nature of their participation, the procedures involved, their right to refuse to answer specific questions, and their right to withdraw from the study without consequences. Informed consent was obtained before interviews and observations were conducted. Participants' identities and institutional information were protected through the use of pseudonyms or identification codes in transcripts, analysis documents, and the research report. Audio recordings, transcripts, and other research materials were securely stored and accessible only to the research team. Special attention was given to confidentiality because this study involved discussions of institutional practices, professional competencies, educational limitations, and challenges in implementing inclusive education. Consequently, findings are reported in a way that maintains analytical transparency without revealing the identities of individual participants or posing unnecessary reputational risks to the participating institutions.

Methodological Contributions

The methodological strength of this study lies in its integration of phenomenological inquiry, multi-site qualitative research, purposive sampling, methodological triangulation, reflective analysis, and systematic cross-case interpretation. Rather than evaluating pesantren caregivers solely through externally defined measures of competence, this study reconstructs competence based on the caregivers' lived experiences within their actual educational environments. This approach is highly relevant because inclusive education in pesantren is embedded in distinctive religious, cultural, organizational, and community contexts. Recent methodological reviews support the use of phenomenology in educational research when the goal is to understand how participants experience and construct meaning within complex educational environments (Farrell, 2020; Stolz, 2020; Alhazmi & Kaufmann, 2022). Therefore, this design provides an appropriate methodological foundation for identifying the experiential dimensions of caregivers' competencies and for supporting the further development of the Inclusive Collaborative Training (KOLIN) model through an andragogical approach.

Results and Discussion

Participants and Context of Inclusive Education

The findings indicate that the implementation of inclusive education across the three pesantren Darul Huda, Nurul Fukoha, and Annidhomiah—was characterized by substantial variation in caregivers’ competencies, institutional resources, educational structures, and experiences in responding to learner diversity. Although the three institutions shared a common pesantren-based educational orientation, their educational arrangements differed according to the formal or non-formal nature of their programs.

Across the three research sites, caregivers and educators described inclusive education as an emerging educational responsibility rather than a fully institutionalized system. Inclusion was generally understood in practical terms, particularly through providing equal opportunities for students to participate in learning, assisting students experiencing learning difficulties, and maintaining interpersonal relationships based on respect and religious values. However, the findings also reveal that inclusive practices were not yet consistently supported by formal policies, systematic assessment procedures, adaptive curricula, or specialized training. The analysis of interviews, observations, and institutional documents generated seven interrelated themes corresponding to the major dimensions of caregiver competence: pedagogical, personality, professional, social, managerial, spiritual, and technological/digital competence. These themes subsequently formed the empirical basis for identifying the competency gaps that need to be addressed through the Inclusive Collaborative Training (KOLIN) model.

Pedagogical Competence: Commitment to Students but Limited Inclusive Instructional Strategies

The first major finding concerns the pedagogical competence of pesantren caregivers and educators. Participants demonstrated a strong commitment to teaching and mentoring students, particularly through direct interaction, guidance, repetition of learning materials, and individualized assistance. Nevertheless, pedagogical practices remained predominantly conventional and were not consistently adapted to differences in students’ abilities, learning styles, or educational needs. Interview accounts indicated that caregivers commonly responded to learning difficulties through additional explanations, repetition, personal guidance, and peer assistance. These strategies reflected caregivers’ practical awareness that students do not possess identical learning capacities. However, the findings also indicate that such adaptations were generally based on personal experience rather than systematic pedagogical assessment.

Field observations showed that classroom management was frequently teacher-centered. Learning activities tended to follow established instructional routines, while differentiated learning strategies were relatively limited. Students who experienced difficulties were often provided with additional explanations, but systematic differentiation of learning objectives, instructional materials, assignments, or assessment procedures was not consistently observed. The documentary evidence

supported this finding. Available learning documents primarily emphasized curriculum content and general learning objectives, while explicit provisions concerning differentiated instruction, reasonable accommodation, individualized learning support, or inclusive assessment were limited. Thus, the pedagogical competency finding can be summarized as high commitment but uneven methodological preparedness. Caregivers demonstrated willingness to assist diverse learners, but their ability to translate this commitment into systematic inclusive pedagogy remained constrained.

Personality Competence: Strong Religious and Moral Orientation

The second finding concerns personality competence. Across the three pesantren, caregivers demonstrated strong emphasis on moral conduct, patience, discipline, responsibility, religious commitment, and exemplary behavior. These characteristics were repeatedly reflected in participants' descriptions of their roles and were also visible during field observations. Caregivers did not perceive their responsibilities merely as instructional. Their roles encompassed mentoring, supervising daily activities, providing moral guidance, and modeling religious behavior. This multidimensional understanding of the caregiver role became an important characteristic of the pesantren educational environment. Observation data indicated that interactions between caregivers and students were generally embedded within close relational patterns. Caregivers frequently provided guidance beyond formal classroom activities, including during religious activities, informal conversations, and daily routines.

However, the findings also indicate that strong personality and spiritual orientations did not automatically translate into professional competence in inclusive education. Patience and empathy enabled caregivers to respond positively to students experiencing difficulties, but participants still required more systematic knowledge concerning inclusive pedagogy, special educational needs, classroom differentiation, and adaptive learning strategies. The finding therefore demonstrates a distinction between moral readiness and professional readiness. Caregivers possessed strong personal and religious foundations for inclusive practice, but these foundations needed to be strengthened through pedagogical and professional training.

Professional Competence: Experience-Based Practice and Limited Formal Professional Development

The third finding relates to professional competence. Participants reported that much of their educational competence had developed through direct experience, peer learning, observation of senior educators, and routine interaction with students. Professional learning was therefore largely experiential and informal. This finding was particularly apparent in relation to students requiring additional learning support. Caregivers generally relied on accumulated experience to identify students who required additional assistance. However, systematic procedures for identifying, documenting, and responding to specific learning needs were not consistently available.

The absence of structured professional development emerged as another important finding. Participants indicated a need for training that was directly connected to the realities of pesantren education rather than generic educational workshops. Existing training experiences, where available, were perceived as insufficiently contextualized to the characteristics of pesantren students, organizational structures, and available resources. Document analysis further indicated limited evidence of systematic professional-development planning specifically addressing inclusive education. Consequently, professional competence appeared to develop incrementally through everyday practice rather than through a coherent institutional competency-development system. The findings suggest that caregivers possessed substantial contextual and experiential knowledge, but this knowledge had not yet been systematically transformed into evidence-informed inclusive educational practice.

Social Competence: Strong Relational Culture and Emerging Collaboration

The fourth finding concerns social competence. A strong relational culture was evident across the three pesantren. Caregivers maintained close interactions with students and collaborated with fellow educators in addressing educational and behavioral issues. The pesantren environment facilitated relatively intensive interpersonal relationships because caregivers were involved in students' educational and daily activities. Such proximity created opportunities for caregivers to recognize changes in students' behavior, motivation, participation, and learning difficulties.

The findings also demonstrate that collaboration occurred informally. Caregivers exchanged information concerning students and sought assistance from colleagues when encountering difficulties. However, collaboration was not always organized through formal mechanisms such as interdisciplinary teams, scheduled case conferences, collaborative lesson planning, or structured peer mentoring. Communication with parents and the broader community was similarly identified as important, particularly when students experienced persistent learning or behavioral challenges. Nevertheless, the intensity and systematic nature of this communication varied across the research sites. Therefore, social competence was characterized by strong interpersonal relationships but limited institutionalization of collaborative practice. The relational capital already present within pesantren represents an important foundation for developing a collaborative training model.

Managerial Competence: Multiple Roles and Resource Constraints

The fifth finding concerns managerial competence. Pesantren caregivers frequently performed multiple functions simultaneously. In addition to teaching, they were involved in student supervision, administrative responsibilities, religious activities, communication with parents, and institutional management. This multiplicity of roles generated both strengths and constraints. On the one hand, caregivers possessed comprehensive knowledge of students because they interacted with them across

different activities. On the other hand, the accumulation of responsibilities reduced the time available for systematic planning, documentation, evaluation, and professional development.

Resource limitations were also evident. Participants identified infrastructure, learning resources, technological facilities, and human-resource capacity as factors influencing their ability to implement inclusive education. The limitations were particularly significant when caregivers encountered students requiring individualized or specialized educational support. Observation and documentary data indicated that inclusive educational management had not yet been fully integrated into institutional planning. Inclusive practices tended to emerge as responses to immediate student needs rather than as components of a comprehensive institutional system. The managerial finding consequently demonstrates a gap between caregivers' broad functional responsibilities and their organizational capacity to manage inclusive education systematically.

Spiritual Competence: Religious Values as a Foundation for Inclusion

Spiritual competence emerged as one of the strongest dimensions across the three pesantren. Participants consistently connected educational responsibilities with religious values, including compassion, justice, respect, responsibility, mutual assistance, and the obligation to educate students. These values influenced how caregivers understood student differences. Rather than viewing diversity solely as an educational problem, caregivers frequently approached differences through moral and religious responsibilities. This orientation encouraged patience and assistance toward students who experienced difficulties.

Observation data also demonstrated the integration of religious activities into students' daily educational experiences. The pesantren environment therefore provided a strong spiritual foundation for cultivating respectful relationships and social responsibility. However, the findings indicate that spiritual values were not always explicitly connected to contemporary frameworks of inclusive education. Caregivers possessed strong normative foundations for inclusion, but they required opportunities to translate these values into practical competencies such as differentiated instruction, reasonable accommodation, collaborative problem-solving, and student-centered learning. The finding demonstrates that spiritual competence represents an existing institutional strength that can serve as an entry point for developing inclusive professional competence.

Technological and Digital Competence: Uneven Adoption of Educational Technology

The seventh finding concerns technological and digital competence. The use of educational technology differed considerably among caregivers and across the three research sites. Participants generally recognized the importance of digital technology for accessing information, preparing learning materials, communicating, and supporting educational activities. Nevertheless, digital utilization remained uneven. Some caregivers were able to use basic digital applications for

communication, information retrieval, and learning preparation, whereas others experienced difficulties in integrating technology into instructional design.

Observation data indicated that technology was more frequently used for administrative or communication purposes than for systematic inclusive pedagogy. Digital tools had not yet been fully utilized for differentiated learning, individualized learning resources, formative assessment, or collaborative learning. Participants also identified limitations related to infrastructure, internet access, device availability, and individual digital literacy. These constraints demonstrate that technological competence cannot be separated from institutional conditions. The findings therefore indicate that caregivers' digital competence remains at an emerging stage, requiring training that focuses not merely on operating digital tools but on integrating technology into inclusive and pedagogically meaningful learning practices.

Experiences and Challenges in Implementing Inclusive Education

Cross-case analysis identified several recurring challenges across the three pesantren. These challenges were grouped into five interconnected areas: limited understanding of inclusive education, difficulties identifying diverse learning needs, inadequate training, infrastructural limitations, and social perceptions concerning student differences.

First, participants demonstrated different levels of understanding regarding the meaning of inclusive education. Inclusion was frequently associated with accepting all students and treating them fairly, but its pedagogical implications—such as differentiated instruction, reasonable accommodation, individualized support, and inclusive assessment—were less consistently understood. Second, caregivers experienced difficulties in identifying specific student learning needs. In the absence of systematic assessment instruments and specialized personnel, identification was often based on classroom observation and everyday interaction. Third, limited contextual training was repeatedly identified as a barrier. Participants expressed the need for training that was practical, participatory, and directly connected to situations encountered in pesantren.

Fourth, infrastructure and human-resource limitations affected implementation. Caregivers were expected to address diverse educational needs despite limited specialized resources. Fifth, social perceptions surrounding students with differences could complicate inclusive practices. Participants described the importance of developing an educational culture that avoids labeling and instead emphasizes acceptance, participation, and student potential.

Need for an Inclusive Collaborative Training Model

The final cross-case finding concerns the participants' expressed need for a training model that is contextual, collaborative, participatory, practical, and based on adult-learning principles. The data indicate that conventional training approaches are unlikely to adequately address the complexity of

caregivers' roles. Participants required opportunities to discuss actual educational problems, exchange experiences with colleagues, practice instructional strategies, receive feedback, and develop solutions applicable to their own pesantren contexts.

Several characteristics emerged from the data as essential components of the proposed KOLIN model. First, training should begin with caregivers' existing experiences because experience represents a major source of professional knowledge. Second, training should use authentic problems encountered in classrooms and pesantren environments as learning cases. Third, caregivers should work collaboratively rather than receive information passively. Fourth, practical simulations and demonstrations should accompany conceptual explanations. Fifth, digital technology should be introduced according to actual institutional capacity. Sixth, training should connect inclusive education with the religious and cultural values already embedded within pesantren. The cross-case findings therefore position collaborative experiential learning as a potentially appropriate mechanism for transforming existing caregiver experience into systematic inclusive competence.

Cross-Case Synthesis

Comparison of the three pesantren revealed both commonalities and contextual differences. The common findings were the strong spiritual and relational foundations of caregivers, commitment to student development, reliance on experiential knowledge, limited systematic inclusive pedagogy, uneven digital competence, and the need for contextual professional development. The differences were primarily associated with institutional structure, educational programs, availability of resources, and the organization of educational responsibilities. Darul Huda, as an institution providing formal educational programs, demonstrated a more structured educational environment, whereas Nurul Fukoha and Annidhomiah, which operate PKBM-based non-formal education, reflected greater flexibility in educational implementation. Nevertheless, the three institutions shared a common need for strengthening systematic inclusive practices.

The cross-case analysis generated the following empirical pattern:

COMPETENCY DIMENSION	PRINCIPAL FINDING	IDENTIFIED GAP
PEDAGOGICAL	Strong commitment to students	Limited differentiated and adaptive instruction
PERSONALITY	Patience, responsibility, exemplary conduct	Limited connection to inclusive professional practice
PROFESSIONAL	Rich experiential knowledge	Limited systematic professional development

SOCIAL	Strong caregiver– student relationships	Collaboration remains largely informal
MANAGERIAL	Broad institutional responsibilities	Limited systematic inclusive planning and documentation
SPIRITUAL	Strong religious foundation	Limited translation into contemporary inclusive pedagogy
TECHNOLOGICAL/DIGITAL	Basic awareness and utilization	Uneven digital literacy and pedagogical integration

Overall, the findings demonstrate that the principal problem is not an absence of commitment among pesantren caregivers, but a gap between their existing experiential, relational, and spiritual strengths and the systematic competencies required to implement inclusive education. This distinction is important because it indicates that the development of caregiver competence should not begin by replacing existing pesantren practices. Instead, training should build upon existing strengths while introducing structured pedagogical, managerial, collaborative, and digital competencies. The empirical findings consequently provide the foundation for the subsequent Discussion, particularly in examining how the seven competency dimensions can be interpreted through adult learning, inclusive education, social learning, and collaborative learning perspectives and how these findings inform the design of the Inclusive Collaborative Training (KOLIN) model.

Discussion

The findings indicate that the competence of pesantren educators in implementing inclusive education is characterized by a distinctive combination of strong relational and spiritual foundations, substantial experience-based knowledge, and uneven mastery of systematic practices in the pedagogical, managerial, collaborative, and digital domains. These findings are significant because they challenge the assumption that inclusive education in pesantren must begin by replacing existing educational traditions with externally developed models. Instead, the evidence suggests that professional development should build upon competencies already embedded in pesantren culture while strengthening caregivers' capacity to transform these resources into systematic inclusive practices. This interpretation aligns with recent research on educators in pesantren, which identifies persistent gaps in pedagogical, social, personal, and professional competencies despite the educators' strong religious foundation (Hantoro et al., 2024). Similarly, research on dialogic learning in pesantren indicates that this institutional environment already holds great potential for developing intellectual competencies through interaction, discussion, and active participation (Fitriyanti & Haryanto, 2024). Therefore, the main issue is not a lack of competencies, but rather the transformation of existing experience- and value-based resources into structured professional capabilities.

The first key finding relates to pedagogical competencies. Educators demonstrated a considerable commitment to supporting students, particularly through repetition, individual assistance, informal guidance, and direct interaction. However, these practices are largely experiential and are not consistently accompanied by differentiated instruction, systematic identification of learning needs, adaptive assessment, or individualized learning planning. This finding aligns with the broader literature indicating that inclusive education requires teachers not only to have a positive attitude toward diversity but also the knowledge and practical skills to respond to a heterogeneous student population. Donath et al. (2023), in a large meta-analysis involving 342 studies and more than 155,000 participants, found that professional development produces positive effects on teachers' knowledge, skills, and beliefs regarding inclusive education, although the magnitude of the effects varied across outcomes. Very strong effects on knowledge and moderate effects on skills indicate that awareness alone is not enough; professional learning must create opportunities for educators to transform knowledge into instructional practice. This interpretation aligns with the findings of this study, in which educators have demonstrated awareness and commitment but lack systematic pedagogical mechanisms to implement inclusion.

These findings are further supported by Wray et al. (2022), who identified several factors influencing teachers' self-efficacy in inclusive education and emphasized that teachers' self-confidence is a crucial component of effective inclusive practices. Woodcock et al. (2022) also found that teachers with higher self-efficacy tend to focus more on student success, accessibility, and building self-confidence, whereas teachers with lower self-efficacy are more likely to emphasize behavior management and differences among students. This helps explain why the educators in this study may have demonstrated a strong intention to support diverse students but still relied on conventional teaching routines. The implication is that KOLIN should not be designed solely as a knowledge-transfer program. The program must provide repeated opportunities for educators to practice inclusive teaching strategies, examine real-world cases, receive feedback, and build self-confidence through successful implementation.

Findings regarding personal competencies reveal the critical importance of the pesantren context. Caregivers demonstrate patience, responsibility, moral commitment, discipline, and exemplary behavior, while their interactions with students are embedded in relatively close relational bonds. These characteristics provide a crucial social and ethical foundation for inclusive education because inclusion depends not only on technical teaching competencies but also on educators' willingness to recognize students as valuable members of the learning community. Recent research on inclusive teacher competencies emphasizes the importance of pedagogical values in shaping teachers' capacity to create inclusive learning environments (Chebotareva, 2024). The findings of this study extend that argument to the pesantren context by demonstrating that religious and moral

values can serve as endogenous resources for inclusive practices. Rather than viewing spirituality as separate from professional competence, KOLIN can leverage pesantren values such as compassion, justice, mutual cooperation, respect, and responsibility as a foundation for developing inclusive professional behavior.

At the same time, these findings indicate that moral readiness does not automatically translate into professional readiness. Caregivers may possess patience and empathy, but they may still lack technical knowledge regarding learning disabilities, reasonable accommodations, differentiated instruction, or inclusive assessment. This discrepancy is supported by Vantieghem et al. (2023), whose study on teachers' competencies for inclusive education demonstrated that inclusive competencies encompass teachers' beliefs as well as their sense of efficacy. Consequently, KOLIN development must link the moral-spiritual strengths of pesantren caregivers with explicit pedagogical competencies. Such integration is crucial because inclusive education must not be reduced to a mere attitudinal commitment; it must be evident in curriculum planning, classroom interactions, assessment, and support mechanisms.

Findings regarding professional competencies indicate that educators have developed substantial tacit knowledge through daily practice but have relatively limited access to structured professional development. Their learning is largely experiential, informal, and embedded in their daily responsibilities. This pattern aligns well with an andragogical approach, as adult learners enter training environments with accumulated experience that can serve as a resource for new learning. Evidence from a phenomenological study of college faculty in Vietnam indicates that educators prefer professional development that is content-focused, ongoing, collaborative, and responsive to the needs of their career stages (Ngo & Cherrington, 2023). These findings provide a strong conceptual foundation for KOLIN: educators should not be positioned as passive recipients of training content, but rather as adult professionals whose existing experiences serve as the starting point for learning.

The relevance of the andragogical model is reinforced by research showing that conventional professional development—which is short-term and one-way—often has limited impact on actual teaching practice. Recent work on teacher professional development advocates for a model that combines andragogy with professional learning communities, instructional coaching, and self-directed learning (Aprilanto & Krisbiyanto, 2025). Similarly, evidence from professional development research indicates that training becomes more meaningful when educators can connect learning to real-world professional challenges and actively participate in the learning process. Therefore, the KOLIN model addresses a critical methodological gap by positioning educators' experiences as a learning resource while also introducing structured knowledge and practices.

Findings regarding social competencies reveal another important institutional asset. Educators form close relationships with students and engage in informal exchanges with colleagues while

addressing educational issues. Nevertheless, collaboration remains largely informal and has not consistently evolved into structured professional learning communities, case discussions, peer observations, collaborative planning, or systematic mentoring. This distinction is crucial because collaboration does not automatically constitute professional learning simply because educators communicate with one another. Huijboom et al. (2021), in their study of seven professional learning communities, demonstrated that the development of PLCs varies significantly and depends on the quality and structure of collaborative processes. Denee (2024) also highlights the potential of network-based professional learning communities in supporting both individual and collective professional development. These findings suggest that KOLIN should transform the existing relational culture in Islamic boarding schools into a structured collaborative learning mechanism.

This interpretation is supported by Holmqvist and Lelinge (2021), who, in their systematic review, specifically examined collaborative professional development for inclusive education. Its relevance to this study is significant because inclusive education often involves challenges that cannot be effectively addressed by a single educator working alone. Identifying learning needs, adapting the curriculum, designing appropriate learning activities, addressing behavioral challenges, and communicating with families require collective expertise. Toews and Zagona (2022) also argue that collaborative professional development enables educators to share complementary areas of expertise and strengthen the implementation of inclusive teaching practices. Therefore, the collaborative dimension of KOLIN must be understood not merely as a training technique, but as an organizational mechanism for distributing professional knowledge throughout the Islamic boarding school.

Findings regarding managerial competencies indicate that pesantren caregivers perform various functions simultaneously, including teaching, student supervision, administration, religious guidance, communication with families, and institutional management. This multifunctionality provides caregivers with comprehensive knowledge about students but also creates a heavy workload and organizational challenges. Hantoro et al. (2024) also identified competency gaps among pesantren educators despite their strong religious knowledge, indicating that religious expertise alone does not guarantee adequate pedagogical, professional, social, and personal competencies. The findings of this study suggest that professional development must therefore include managerial components such as planning, documentation, case identification, resource allocation, collaborative decision-making, and evaluation.

These managerial dimensions are highly relevant to inclusive education because inclusion cannot be sustained solely through the good intentions of individual teachers. It requires institutional arrangements that facilitate access, participation, curriculum adaptation, communication, and continuous monitoring. Research on inclusive education policies in Indonesia has also identified teacher preparation, curriculum adaptation, resources, and collaboration between schools, families,

and the community as critical implementation factors (Nabiela & Ulfatin, 2023). Therefore, the findings of this study suggest that KOLIN needs to move beyond classroom-level training toward broader institutional capacity-building strategies.

Spiritual competencies identified in these findings represent a unique contribution of this study. In all three Islamic boarding schools, educators view education as a moral and religious responsibility, and values such as compassion, discipline, justice, and respect are embedded in daily educational practices. These findings indicate that inclusive education can be contextualized within the normative framework of *pesantren*, rather than merely presented as an external educational agenda. Such contextualization is important because educational innovations tend to be more readily adopted when educators perceive them as aligned with institutional values. Recent research on educators in religious-based educational settings shows that professional identity and digital competencies, for example, can be negotiated through existing Islamic educational values, rather than treated as a separate domain (Khoerunnisa & Fathurochman, 2025). The implication for KOLIN is that inclusion must be framed as an extension of *pesantren* values—namely, compassion, justice, respect, and responsibility.

Findings regarding technological and digital competencies reveal significant areas of vulnerability. Educators generally recognize the value of technology, yet its use remains uneven and is more frequently associated with communication and administrative functions than with pedagogically integrated inclusive learning. These findings align with the literature indicating that teachers' digital competencies are multidimensional and cannot be reduced solely to the ability to operate digital devices. Heine et al. (2023) demonstrate that digital resources constitute a complex dimension of teachers' professional digital competencies, and their terminology and conceptualization vary across the literature. Smestad et al. (2023) also identify various dimensions of teachers' digital competencies and show that digitalization has expanded the scope of competencies expected of educators. Therefore, digital training for *pesantren* educators should emphasize pedagogical integration, not merely the operation of technology.

The relevance of this issue is particularly strong in the context of *pesantren* because digital transformation presents both educational and organizational challenges. Abidin (2020), for example, emphasizes the importance of integrating e-learning capabilities into the educational management of *pesantren* in the digital age. Recent research also indicates that professional development focused on digital pedagogy can enhance teachers' competencies, self-efficacy, and well-being in the context of inclusive education (Shi et al., 2025). Consequently, KOLIN must integrate digital competencies into inclusive pedagogy, rather than treating them as a separate technical module. Educators need to learn how digital resources can facilitate differentiated instruction, accessible communication, formative assessment, collaborative learning, and individual support.

An important cross-sectoral finding relates to the gap between conceptual acceptance of inclusion and actual inclusive practices. Educators generally accept the principle that students should have equal educational opportunities; however, this acceptance is not always reflected in the systematic adaptation of the curriculum, assessment, classroom arrangements, or learning resources. This pattern is strongly consistent with the findings of Woodcock et al. (2022), who found that teachers with different levels of self-efficacy may share similar philosophical understandings of inclusion but exhibit vastly different practices. This also supports the argument by Donath et al. (2023) that professional development influences knowledge, skills, beliefs, and student learning outcomes in varying ways. The implication is that KOLIN must evaluate competencies at various levels, rather than relying solely on participants' perceptions or knowledge tests.

These findings also indicate that inclusive education in Islamic boarding schools cannot be separated from contextual constraints. Limited infrastructure, a shortage of experts, unequal digital access, inadequate training, and social perceptions regarding student differences all affect educators' ability to implement inclusive practices. These findings align with research in Indonesia that identifies resource constraints, teacher readiness, and social stigma as ongoing challenges in inclusive education (Nabiela & Ulfatin, 2023). Research from other contexts also indicates that teachers' self-efficacy can be constrained by institutional and contextual factors, not merely by individual attitudes alone (Van Staden-Payne & Nel, 2023). Therefore, interpreting competency gaps solely as individual shortcomings would constitute an inadequate analytical approach. KOLIN must simultaneously address individual competencies and organizational conditions that either facilitate or hinder their implementation.

The strongest theoretical implications of these findings relate to the integration of andragogy, inclusion, and collaboration. These three dimensions must not operate in isolation. Andragogy explains how educators, as adult learners, must engage in professional learning; inclusive education defines the substantive competencies that need to be developed; and collaboration provides the social mechanisms through which professional experiences and knowledge can be exchanged. Evidence from research on collaborative professional development supports this integrated orientation. Meda et al. (2023), who studied an inclusive education professional development program, found value in the reciprocal learning relationship between mentors and mentees. Similarly, McKie (2025) highlighted the importance of sustained collaboration for the long-term development of professional learning communities. These findings reinforce the proposition that KOLIN should be designed as a continuous learning process, rather than merely a single workshop.

Therefore, empirical findings support a contextualized KOLIN model, in which educators begin with real-world challenges from their own Islamic boarding schools, reflect on existing practices, exchange experiences with peers, acquire relevant conceptual knowledge, practice inclusive

strategies, receive feedback, and subsequently implement and evaluate those strategies within their own educational settings. Such a cycle is better suited to adult learning than conventional lecture-based training because it directly links learning to participants' responsibilities and experiences. It is also more in line with the collaborative nature of inclusive education, as students' complex needs are addressed through collective professional problem-solving rather than through isolated individual actions.

These findings further indicate that KOLIN should be conducted on an ongoing basis, rather than just occasionally. A single training session may raise awareness, but it is unlikely to produce sustainable changes in teaching behavior without opportunities for practice, reflection, coaching, and peer support. This conclusion is supported by the broader literature on professional learning, including research on PLCs and collaborative professional development (Huijboom et al., 2021; Denee, 2024; McKie, 2025). This is also consistent with evidence that inclusive professional development can enhance teachers' knowledge and skills but requires meaningful engagement with practice (Donath et al., 2023). Therefore, KOLIN's uniqueness should not be claimed solely from the combination of the terms "inclusive," "collaborative," and "andragogical." Its substantive contribution lies in the contextualization of these three principles within the institutional ecology of Islamic boarding schools.

Overall, this discussion demonstrates that pesantren educators possess significant relational, spiritual, and experiential capital; however, these strengths have not yet been systematically transformed into comprehensive inclusive professional competencies. The most critical competency gaps relate to differentiated pedagogy, the systematic identification of student needs, collaborative professional learning, inclusive educational management, and pedagogically meaningful digital integration. The literature supports the proposition that these gaps are best addressed through continuous, collaborative, and practice-oriented professional development, rather than through conventional information-delivery training. Therefore, the proposed KOLIN model has theoretical significance because it integrates adult learning with inclusive pedagogy and collaborative professional development, while its practical significance lies in the adaptation of these principles to the cultural and organizational characteristics of Islamic boarding schools.

Conclusion

This study shows that the competencies of caregivers and educators at Islamic boarding schools in implementing inclusive education are still developing and face a number of challenges, particularly in managing the learning process, adapting the curriculum, utilizing technology, and meeting the needs of students with diverse characteristics. Based on the experiences of informants at three Islamic boarding schools in Pasir Kuda Subdistrict, inclusive education has not yet been fully understood as a system that treats student diversity as an integral part of the educational process. Limited knowledge

regarding special needs, social stigma, supportive resources, and limited training experience are factors that affect the readiness of caregivers and educators.

The research findings also show that the competencies of pesantren caregivers are multidimensional, encompassing pedagogical, personal, professional, social, managerial, spiritual, and technological/digital competencies. Developing these competencies requires a training approach that is contextual, participatory, collaborative, and tailored to the characteristics of adult learners. In this context, an andragogical approach through the Inclusive Collaborative Training (KOLIN) model holds strategic relevance because it leverages caregivers' experiences as a learning resource, encourages the resolution of real-world problems, and strengthens collaboration among caregivers, educators, Islamic boarding schools, and stakeholders. Thus, KOLIN has the potential to serve as a capacity-building framework that supports the transformation of Islamic boarding schools into an educational ecosystem that is more inclusive, adaptive, collaborative, and responsive to the needs of students.

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