

Developing PIAUD Students' Pedagogical Content Knowledge for Play-Based Arabic Learning: A Conceptual Framework for Institut Islam Kuningan

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Abstract

Early childhood teacher education increasingly expects prospective teachers to integrate language content, child development, and digital media, yet preparation for Arabic learning in Islamic Early Childhood Education (PIAUD) remains fragmented. Previous studies have examined Arabic teaching methods, media, or general teacher digital competence separately, leaving limited guidance on how prospective PIAUD teachers should combine linguistic accuracy with developmentally appropriate instructional reasoning in one assessable performance. This article aims to develop a conceptual framework of pedagogical content knowledge for designing play-based Arabic learning, with Institut Islam Kuningan as the intended implementation context. A structured narrative review was conducted on 26 sources published between 2020 and 2025, identified through database and targeted searches and analysed through coding and constant comparison. The synthesis produced five interdependent domains: Arabic content accuracy, developmental representation, instructional alignment, media judgment, and reflective revision. The review also shows that attractive media and self-reported confidence are insufficient indicators of professional competence. Based on these findings, the article proposes a five-stage preparation cycle of diagnose, model, design, microteach, and reflect, supported by an analytic rubric and portfolio assessment. The study contributes an integrated model that extends general pedagogical content knowledge and technology integration frameworks to early Arabic learning. Practically, it offers a basis for curriculum mapping, authentic assessment, and lecturer collaboration. The framework has not yet been empirically tested and requires expert validation and classroom evaluation.

Keywords: arabic learning; pedagogical content knowledge; PIAUD; play-based learning; prospective teachers; structured narrative review

INTRODUCTION

Globally, the preparation of early childhood teachers has become an urgent policy concern. UNICEF, (2019) reported that more than 175 million children, around half of the world's pre-primary age population, were not enrolled in pre-primary education and estimated that 9.3 million additional pre-primary teachers would be needed to reach universal provision by 2030. The wider teaching workforce faces similar pressure, with a projected need for 44 million additional primary and secondary teachers by 2030 (UNESCO, 2023). Expansion alone does not guarantee quality, because many teachers report feeling unprepared and lacking confidence when teaching with technology (UNESCO, 2023). These indicators show that teacher education must prepare graduates who can design meaningful early learning, including early foreign language exposure, rather than simply increase the number of teachers.

The quality of early childhood education depends not only on what teachers know but also on how they transform knowledge into experiences that are meaningful for young learners. In Islamic early childhood settings, prospective teachers are expected to understand child development, facilitate play, communicate sensitively, assess learning through observation, and connect educational activities with Islamic values. The professional standards for early

childhood educators place child development, curriculum, assessment, family partnership, and ethical responsibility within one integrated competence structure (Children, 2020).

Arabic learning creates an additional professional challenge because the teacher must combine linguistic knowledge with early childhood pedagogy. Young children do not need an adult-oriented grammar syllabus. They need simple words, short expressions, songs, stories, movement, objects, pictures, and classroom routines that allow meaning to be experienced before it is formally explained. Research in Raudhatul Athfal indicates that songs, visual media, repetition, and playful interaction can support early Arabic exposure when the activities are carefully organized (Marni & Rahmi, 2025). In Indonesia, Arabic is introduced from kindergarten onward. Studies show that listening, memorisation, and kinesthetic activities support Arabic acquisition in Islamic kindergartens Aziz et al.,(2021) and that Arabic teaching for children in Islamic boarding schools can be organised around child friendly values in materials, interaction, and evaluation (Akmaliyah et al., 2021).

The integration of content and pedagogy is therefore central. Recent early childhood scholarship defines pedagogical competence as connected planning, interaction, assessment, inclusion, and reflection (Ranta et al., 2023). For PIAUD students, Arabic-specific competence includes deciding which words are developmentally suitable, checking pronunciation and meaning, choosing play-based representations, and anticipating children's possible difficulties. Technology can enrich this process, but it can also create a false impression of competence. A student may produce visually attractive slides or digital flashcards while using inappropriate vocabulary, inaccurate transliteration, excessive screen exposure, or activities that do not require children to communicate. Teacher digital competence involves pedagogical, ethical, contextual, and evaluative judgment rather than application skills alone (Falloon, 2020).

The preparation problem is often intensified by curricular fragmentation. Arabic language, child development, learning media, assessment, and microteaching may be taught in different courses without a common performance task. Consequently, students may complete individual assignments but remain unable to produce one coherent learning design. Reviews of early childhood teacher education emphasize explicit opportunities to observe, practise, evaluate, and reflect on technology-supported pedagogy (Papavlasopoulou et al., 2024). A second concern is the measurement of competence. Confidence questionnaires can reveal students' perceptions, but they cannot prove the quality of a lesson plan or teaching performance. Competence should be demonstrated through verified language content, complete design artifacts, microteaching, observation, and revision. Digitalized teaching practice can improve preservice Arabic teachers' pedagogical competence when technology is embedded in guided practice (Hanifah et al., 2024).

Institut Islam Kuningan is positioned in this article as the intended implementation context rather than as an empirically diagnosed problem site. Its PIAUD program prepares students for educational environments in which Islamic values, early language exposure, classroom creativity, and professional accountability intersect, so the framework is designed to fit this setting. Because no institutional performance data were collected, the article makes no claim about the current competence level of Institut Islam Kuningan students; instead, it formulates a framework that can later be tested with valid evidence.

A critical comparison of previous studies reveals a conceptual imbalance (Table 1). Studies on Arabic learning in Indonesian early childhood settings mainly describe classroom

methods and media, such as songs, flashcards, Canva, and total physical response, and they report positive engagement, but they rarely examine how teachers reason about these choices (Marni & Rahmi, 2025; Warmansyah et al., 2023; Zulfida et al., 2024). Studies on early childhood and preservice teacher competence describe planning, interaction, and digital competence in depth, but they are not specific to Arabic content (Papavlasopoulou et al., 2024; Ranta et al., 2023; Zhang et al., 2025). Research on preservice Arabic teachers shows that digitalized teaching practice can improve pedagogical competence, yet it focuses on school level teaching rather than young children (Hanifah et al., 2024).

Research on young foreign language learners emphasizes play, agency, and guided interaction, but it does not translate these principles into an Arabic specific performance standard for teacher education (Skene et al., 2022; Thieme et al., 2022; Waddington, 2023). Consequently, limited attention has been given to how prospective PIAUD teachers integrate Arabic linguistic accuracy with developmentally appropriate and child centred reasoning in an assessable performance. This gap justifies an integrated framework rather than another list of isolated teaching techniques.

Table 1. Critical Synthesis of Previous Research

Research cluster	Focus and main findings	Limitation	Remaining gap
Arabic learning in Indonesian early childhood (Aziz et al., 2021; Marni & Rahmi, 2025; Warmansyah et al., 2023; Zulfida et al., 2024)	Songs, pictures, memorisation, total physical response, Canva, and repetition increase engagement and vocabulary retention.	Descriptive case studies of practising teachers; teacher reasoning is not assessed.	How prospective teachers verify and justify Arabic content choices.
Early childhood pedagogical competence (Children, 2020; OECD, 2021; Ranta et al., 2023)	Competence integrates planning, interaction, assessment, inclusion, and reflection.	Not specific to foreign language or Arabic content.	Subject specific indicators for early Arabic learning.
Preservice digital competence (Falloon, 2020; Papavlasopoulou et al., 2024; Smestad et al., 2023; Starkey, 2020; Zhang et al., 2025)	Preparation needs modelling, guided practice, evaluation, and reflection.	Technology is often treated apart from content; many studies rely on self reports.	Performance evidence that links media to content and children.
Preservice Arabic teacher education	Digitalized teaching practice improves	Focus is beyond early childhood.	Adaptation to learning through

Research cluster	Focus and main findings	Limitation	Remaining gap
(Hanifah et al., 2024)	pedagogical competence.		play for young children.
Young learner language pedagogy (Skene et al., 2022; Thieme et al., 2022; Waddington, 2023)	Play, agency, routines, and guided play support language learning.	Principles are not translated into teacher education standards.	An assessable framework for teacher preparation.

These concerns are consistent with research on how teaching knowledge develops. Subject knowledge becomes professionally useful when it is transformed through pedagogical reasoning in repeated cycles of planning, enactment, and analysis (Hanifah et al., 2024; Papavaslopoulou et al., 2024), and such reasoning becomes visible through documented representations, anticipated difficulties, and justified choices, including choices about digital resources, which recent reviews treat as part of preservice teachers' professional readiness (Zhang et al., 2025).

For young learners, these choices must favour play scenarios that leave room for child agency (Waddington, 2023), vocabulary that is useful and repeatedly retrieved across activities (Zulfida et al., 2024), and contingent scaffolding that gradually transfers responsibility to the child (Skene et al., 2022). Prospective PIAUD teachers therefore need preparation that makes these decisions explicit and assessable.

The framework also needs to distinguish knowledge from professional judgment. Knowledge allows a student to name a method, define a learning objective, or operate a digital application. Judgment is demonstrated when the student explains why one word, activity, representation, or assessment is more suitable than another for a particular group of children. Recent accounts of early childhood pedagogical competence place such reasoning at the centre of professional preparation (Ranta et al., 2023).

The urgency of this study lies in the distance between expanding expectations for early childhood teachers and the absence of an assessable standard for Arabic learning design in PIAUD programs. Without such a standard, programs risk rewarding attractive products or self-reported confidence instead of demonstrated professional judgment. The novelty of this article lies in integrating linguistic accuracy, developmentally appropriate practice, play, digital pedagogy, assessment, and reflection within one operational framework for prospective PIAUD teachers. Accordingly, the study addresses three research questions: (1) what domains constitute pedagogical content knowledge for early Arabic learning; (2) what preparation gaps are consistently identified in the literature; and (3) how can these findings be translated into a curriculum and assessment model for INSTITUT ISLAMKuningan?

The study is expected to provide several benefits. Theoretically, it extends pedagogical content knowledge and technology integration frameworks to the specific case of early Arabic learning and clarifies the difference between knowledge and professional judgment. Practically, it offers lecturers a shared set of domains, performance evidence, a preparation cycle, and an analytic rubric that can support curriculum mapping, authentic assessment, and lecturer collaboration. For future research, it provides testable propositions for expert

validation, rubric piloting, and longitudinal studies, without confusing a proposed standard with evidence of current achievement.

METHOD

This article employed a structured narrative review. The method was selected because the objective was to integrate concepts from several related fields rather than estimate a statistical effect. Narrative synthesis is appropriate when literature differs in design, population, and terminology but can be compared through explicit conceptual categories (Baethge et al., 2019; Sukhera, 2022). The final analytical corpus comprised 26 sources published between 2020 and 2025, selected for conceptual relevance, methodological credibility, and direct contribution to the proposed framework. The unit of analysis was the reviewed literature rather than human participants, and Institut Islam Kuningan served only as the intended implementation context, not as a source of empirical data.

Sources were selected from books, peer-reviewed articles, professional standards, and policy-oriented reports addressing pedagogical content knowledge, early childhood pedagogy, Arabic learning, digital competence, learning media, and preservice teacher education. Priority was given to peer reviewed studies, systematic reviews, professional guidance, and policy reports published from 2020 to 2025 that explained instructional principles or teacher preparation processes.

To improve transparency and reproducibility, literature identification followed a documented protocol summarized in Table 2. Searches were conducted in Scopus, ERIC, Google Scholar, and Garuda, the Indonesian national index that includes SINTA accredited journals, for publications from January 2020 to December 2025. Search strings combined three concept blocks with Boolean operators, for example (“pedagogical content knowledge” OR “teacher competence” OR “digital competence”) AND (“early childhood” OR preschool OR PIAUD OR “young learners”) AND (Arabic OR “foreign language” OR “preservice teacher” OR “teacher education”).

Additional documents were retrieved from the websites of NAEYC, OECD, and UNESCO and through backward citation chaining. The search yielded 412 database records and 14 additional records. After 97 duplicates were removed, 329 titles and abstracts were screened, 78 full texts were assessed for eligibility, and 26 sources met all criteria (Figure 1). The reporting of this flow was adapted from PRISMA 2020 Page et al., (2021) only as a transparency aid; the review itself remained a narrative synthesis rather than a systematic review.

Table 2. Literature Search Protocol and Eligibility Criteria

Aspect	Protocol
Review type	Structured narrative review (Baethge et al., 2019; Sukhera, 2022)
Databases and sources	Scopus, ERIC, Google Scholar, Garuda (SINTA accredited journals); NAEYC, OECD, and UNESCO websites; backward citation chaining
Search period	January 2020 to December 2025

Search terms	Pedagogical content knowledge, teacher competence, digital competence; early childhood, preschool, PIAUD, young learners; Arabic, foreign language, preservice teacher, teacher education
Inclusion criteria	Published 2020 to 2025; peer reviewed article, scholarly book, systematic review, professional standard, or policy report; addresses teacher competence, early language pedagogy, Arabic learning, or digital pedagogy; offers implications for teacher preparation
Exclusion criteria	Technology without pedagogy; language learning not involving young learners or teacher education; opinion pieces without scholarly grounding; no accessible full text
Unit of analysis	Reviewed documents (n = 26); INSTITUT ISLAMKuningan as implementation context only
Analytic instrument	Coding framework with five a priori categories (linguistic, pedagogical, technological, assessment, reflective) and one emergent category

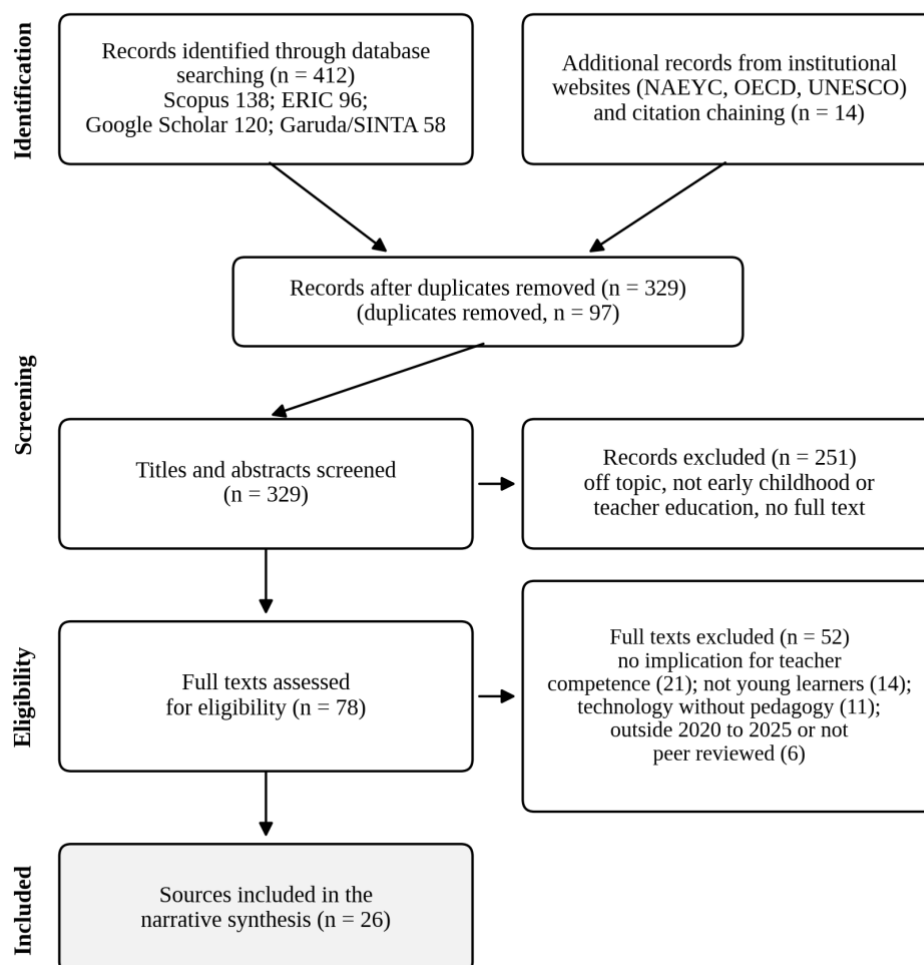


Figure 1. Literature Identification and Selection Flow (adapted from PRISMA 2020 for reporting only)

The analysis followed four stages. First, the sources were read to identify recurring competence indicators. Second, indicators were coded into linguistic, pedagogical, technological, assessment, and reflective categories. Third, overlapping categories were consolidated into a smaller competency framework. Fourth, the framework was translated into a curriculum cycle and authentic assessment proposal for INSTITUT ISLAMKuningan. The institutional name functions as an implementation context, not as a source of empirical data. The analytic instrument was a coding framework consisting of five a priori categories and one open category for emergent indicators. Both authors coded the sources independently and resolved differences through discussion before the categories were consolidated.

Within the documented search, final inclusion relied on purposeful selection rather than an exhaustive count of all available studies. A source was retained when it contributed a clear concept, empirical finding, professional standard, or design principle relevant to the research questions. Sources that addressed technology without pedagogy, language learning without young learners, or early childhood practice without implications for teacher competence were used only when their concepts could be transferred cautiously.

Analytic trustworthiness was strengthened through constant comparison. Each proposed domain was checked against several types of literature to avoid deriving the framework from a single disciplinary perspective. The final categories were also examined for redundancy and observability. A category was retained only when it described a distinct professional decision and could be evidenced in a design artifact, teaching performance, or reflective revision. The reporting quality of the review was also checked against the six SANRA criteria for narrative reviews, namely justification, aims, literature search, referencing, evidence level, and presentation of relevant data (Baethge et al., 2019).

RESULT AND DISCUSSION

Results of the Literature Synthesis

The synthesis produced five interdependent domains of pedagogical content knowledge. These domains should not be taught or assessed as isolated skills because a weakness in one area can reduce the quality of the entire design. For example, an enjoyable game remains educationally weak when the Arabic input is inaccurate, while linguistically correct material remains unsuitable when it ignores children's need for movement, repetition, and interaction. These domains answer the first research question and are derived directly from the literature synthesis rather than from empirical testing. Table 3 summarizes each domain, and the following paragraphs indicate the literature that supports it.

The first domain is content selection and linguistic accuracy. PIAUD students need to select concrete and functional vocabulary connected to children's immediate experiences. Accuracy includes meaning, pronunciation, script, and contextual use. The second domain is developmental representation. Young learners benefit from short sequences, sensory support, movement, and repeated use in meaningful situations.

The third domain is constructive alignment, which requires clear relationships among objectives, child activity, teacher support, and evidence of learning. Support for these domains comes from Indonesian studies showing that songs, repetition, and movement aid early Arabic learning (Aziz et al., 2021; Marni & Rahmi, 2025; Zulfida et al., 2024), from young learner research that emphasizes meaning and interaction (Thieme et al., 2022; Waddington, 2023),

and from early childhood standards that link objectives, activity, and observation (Children, 2020; Ranta et al., 2023).

Table 3. Proposed Pedagogical Content Knowledge Domains

Domain	Key Competence	Observable Evidence
Arabic content accuracy	Select and verify age-appropriate words and expressions.	Correct script, meaning, pronunciation, and contextual use.
Developmental representation	Transform content into play, stories, songs, movement, and routines.	Activities match attention span, motor needs, and social interaction.
Instructional alignment	Connect objectives, activities, prompts, and assessment.	Each activity produces evidence related to the stated objective.
Media judgment	Use physical and digital media purposefully and safely.	Media supports interaction rather than replacing it.
Reflection and revision	Use feedback and observation to improve the design.	Revised plans explain what changed and why.

The fourth domain is media judgment. Canva, digital storytelling, audio recordings, and interactive presentations can help students produce clear and repeatable input. However, the educational value of media depends on how it supports attention, interaction, and feedback. Canva-based resources are useful when their visual design is connected to pedagogical purposes rather than decorative production (Warmansyah et al., 2023). This domain is supported by reviews showing that digital language tools vary widely in design and require adult guidance Liu et al., (2024) and that teachers' digital competence includes resource selection and ethical judgment (Revuelta-Domínguez et al., 2022).

The fifth domain is reflective revision. Professional competence develops when students compare their intentions with evidence from teaching performance. A microteaching session should therefore be followed by feedback on Arabic accuracy, teacher language, pacing, child participation, and assessment. Reflection must produce a documented revision instead of a general statement that the activity was successful. Evidence based self evaluation is a recurring dimension of teachers' digital competence (Smestad et al., 2023), which supports treating revision as observable evidence rather than a general impression.

Answering the second research question, the synthesis identified four preparation gaps that recur across the literature. The first is curricular fragmentation, in which Arabic, child development, media, assessment, and microteaching are taught separately without a common performance task (Papavlasopoulou et al., 2024). The second is the confusion of technological proficiency with pedagogical competence, which appears when media production is evaluated without reference to children's interaction (Falloon, 2020; Starkey, 2020).

The third is the reliance on self reports of confidence instead of performance evidence (Papavlasopoulou et al., 2024; Smestad et al., 2023). The fourth is limited attention to Arabic accuracy within early childhood programs, since Indonesian studies document engaging methods but rarely examine how teachers verify meaning, script, and pronunciation (Aziz et al., 2021; Marni & Rahmi, 2025; Warmansyah et al., 2023).

Discussion and Proposed Application

Moving from findings to proposed application, and answering the third research question, the authors propose that INSTITUT ISLAMKuningan could adopt a diagnose, model, design, microteach, and reflect cycle (Figure 2). This cycle is an interpretive recommendation derived from the synthesis and has not yet been tested with PIAUD students. Diagnosis identifies students' initial Arabic knowledge and pedagogical assumptions. Modeling shows how lecturers think aloud while choosing content and representing it for young children. Design requires students to prepare a complete learning package. Microteaching tests the feasibility of the plan. Reflection requires revision based on evidence.

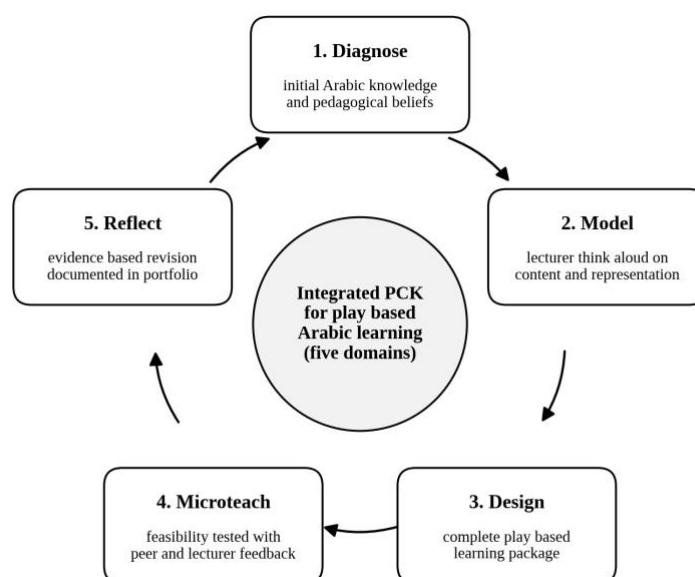


Figure 2. Proposed Preparation Cycle for Play-Based Arabic Learning Design

Assessment should use an analytic rubric rather than a single holistic score. Suggested dimensions are Arabic accuracy, developmental appropriateness, alignment, interaction, media judgment, assessment quality, and reflective revision. A portfolio can include the original design, language verification notes, media products, microteaching observation, peer feedback, and the final revised design.

This model also supports curriculum integration. Arabic lecturers can verify linguistic content, PIAUD lecturers can evaluate developmental appropriateness, media lecturers can examine accessibility and design, and microteaching lecturers can assess performance. Shared assignments reduce duplication and make graduate competence more visible.

The framework has limitations. It does not measure current student performance, and several principles are drawn from international early childhood literature that requires local adaptation. Future research should validate the rubric through expert judgment, apply it to student artifacts, report inter-rater reliability, and compare self-perceived competence with observed performance.

The domains operate as a system. Arabic accuracy protects the quality of input, developmental representation protects children from inappropriate abstraction, alignment protects the coherence of the lesson, media judgment protects interaction and safety, and reflection protects the program from repeating weak designs. A rubric that gives a high score to one domain cannot compensate for a critical failure in another. Serious pronunciation or meaning errors, for example, should trigger revision even when the media is visually strong.

A practical design brief can make this integration visible. Students may receive a scenario describing children aged five to six, a theme such as family or animals, a limited lesson duration, and one inclusion consideration. They then select three to five Arabic targets, justify the selection, verify the language, design a play sequence, specify teacher prompts, and identify observable evidence. The brief prevents students from starting with a favourite application and searching for a learning purpose afterwards.

The proposed rubric should include performance descriptors. At the beginning level, a design may contain unrelated activities, unverified language, and assessment that only asks whether children enjoyed the lesson. At the proficient level, the design uses accurate content, age-appropriate interaction, clear alignment, and observable evidence. At the advanced level, the student also anticipates learner variation, adapts prompts, and explains revisions using evidence from microteaching.

Implementation can be distributed over one semester. Early meetings diagnose students' Arabic and pedagogical foundations. Middle meetings provide lecturer modeling and guided design workshops. Later meetings conduct microteaching and revision conferences. The final portfolio should show development across time rather than a single polished product. Such sequencing is consistent with the need for sustained preparation rather than isolated technology training (Starkey, 2020).

Lecturer collaboration requires governance. A shared project coordinator can establish common terminology, deadlines, rubric criteria, and feedback responsibilities. Without coordination, students may receive contradictory advice or repeat similar assignments. A moderation meeting can compare sample portfolios and calibrate scoring before final assessment.

The framework also has implications for institutional quality assurance. Aggregated rubric data can show which domains require curricular reinforcement without exposing individual students. If several cohorts demonstrate strong media production but weak assessment design, the program can revise course sequencing or provide targeted workshops. Such data should be collected through actual scoring procedures and reported transparently.

Future research should proceed in stages. The first stage can use expert validation to examine content relevance and clarity. The second can pilot the rubric with a small set of artifacts and calculate inter-rater agreement. The third can investigate students' learning trajectories across the project cycle. The fourth can follow graduates into practicum or employment to examine transfer into authentic early childhood classrooms.

The conceptual framework is not intended to standardize every Arabic lesson. Young children, local cultures, institutional resources, and teacher strengths differ. The framework instead identifies non-negotiable dimensions while allowing flexible methods. Songs, stories, puppets, games, digital media, and routines remain options whose value depends on the quality of the teacher's reasoning.

The proposed framework should be read in relation to established models. The refined consensus model of pedagogical content knowledge describes how collective, personal, and enacted knowledge interact within a learning context (Carlson et al., 2019), while the TPACK framework, extended by contextual knowledge, explains how technology, pedagogy, and content are integrated (Mishra, 2019). DigCompEdu specifies educators' digital competence across professional engagement, resources, assessment, and learner empowerment (Redecker, 2017), the teacher digital competency framework adds personal, ethical, and contextual dimensions (Falloon, 2020), and later reviews and policy guidance confirm this multidimensional view (OECD, 2025; Revuelta-Domínguez et al., 2022).

Table 4 shows that the present framework does not replace these models. Instead, it specifies them for one subject and one age group by adding Arabic linguistic verification, developmental representation for young children, and observable performance evidence.

Table 4. Comparison of the Proposed Framework with Existing Frameworks

Framework	Core focus	Use in this study	Element added by the proposed framework
Refined consensus model of PCK (Carlson et al., 2019)	Collective, personal, and enacted PCK within a learning context	Reasoning about representations and learner difficulties	Arabic specific verification of meaning, script, and pronunciation
TPACK with contextual knowledge (Mishra, 2019)	Integration of technology, pedagogy, and content in context	Media judgment within content and pedagogy	Criteria for screen use, interaction, and child well-being in the early years
DigCompEdu and teacher digital competency frameworks (Falloon, 2020; Redecker, 2017; Revuelta-Domínguez et al., 2022)	Areas of educators' digital competence	Resource selection, assessment, and responsible practice	Links between digital resources and observable child participation
Early childhood pedagogical competence (Ranta et al., 2023)	Planning, interaction, assessment, inclusion, and reflection	Developmental appropriateness and reflection	Subject specific indicators and a performance cycle for Arabic
Proposed framework (this study)	Integrated PCK for play-based Arabic learning	Five domains, preparation cycle, rubric, and portfolio	An assessable performance standard for prospective PIAUD teachers

The literature also clarifies how the domains should be enacted. Quality in early childhood provision depends on meaningful interactions and intentional support (OECD, 2021), language rich environments are created through responsive interaction and meaningful routines (Finders et al., 2023), and preschool teachers value play based approaches for language and literacy but need support to reconcile them with curriculum demands (Roche et al., 2024). Foreign language programmes for young children differ from adult instruction because they rely on oral interaction, stories, games, and manageable cognitive demands (Thieme et al., 2022). Media design should coordinate rather than duplicate verbal and visual information (Mayer, 2021), language activities should draw on evidence based strategies such as storytelling, play, and interactive dialogue (Astuti, 2025), and digital storytelling is useful only when it remains developmentally appropriate (Purnama et al., 2022).

At the policy level, technology should remain subordinate to learning needs, inclusion, and children's well-being (OECD, 2023; UNESCO, 2023). Preservice programmes that model these choices, use authentic design tasks, and provide continuous feedback are therefore more likely to support meaningful integration (Starkey, 2020; Zhang et al., 2025). Table 5 links each research question to its answer and indicates whether the answer is a literature derived finding or a proposed application, so that the boundary between synthesis and recommendation remains visible.

Table 5. Research Questions, Answers, and Status of the Evidence

Research question	Answer from the synthesis	Status
RQ1. Domains of pedagogical content knowledge for early Arabic learning	Arabic content accuracy, developmental representation, instructional alignment, media judgment, and reflective revision (Table 3)	Literature derived finding
RQ2. Preparation gaps identified in the literature	Curricular fragmentation; technology confused with pedagogy; reliance on self reports; limited attention to Arabic accuracy	Literature derived finding
RQ3. Curriculum and assessment model for INSTITUT ISLAMKuningan	Diagnose, model, design, microteach, and reflect cycle with analytic rubric and portfolio (Figure 2)	Proposed application that requires expert validation and empirical testing

CONCLUSION

PIAUD students' competence in designing Arabic learning should be understood as integrated pedagogical content knowledge. It combines linguistic accuracy, developmental representation, instructional alignment, media judgment, assessment, and reflection. Attractive media or self-confidence alone cannot demonstrate this competence. In answer to the research questions, this structured narrative review identified five interdependent domains, four recurrent preparation gaps, and a proposed preparation cycle that can translate the domains into curriculum and assessment. For INSTITUT ISLAMKuningan, the proposed diagnose–model–design–microteach–reflect cycle offers a basis for curriculum mapping and authentic assessment.

The model can connect Arabic courses, early childhood pedagogy, learning media, assessment, and microteaching through shared performance tasks and portfolio evidence. The main scientific contribution is an integrated framework that specifies pedagogical content knowledge and technology integration models for play-based Arabic learning in Islamic early childhood teacher education. The framework has not been tested with PIAUD students and requires expert validation and empirical evaluation.

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