

Analysis of factors in integrated internship models for preservice Islamic education teachers using exploratory factor analysis

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ABSTRACT

This research identifies key success factors of integrated internship models for prospective Islamic Religious Education (PAI) teachers using exploratory factor analysis (EFA), addressing critical gaps where empirical evidence in religious teacher preparation remains limited. Analyzing 218 PAI students across four Yogyakarta universities through mixed-methods design, EFA revealed a four-factor structure explaining 63.4% variance: observation competence (28.7%), microteaching (13.8%), teaching practice (11.2%), and spiritual reflection (9.7%). The identification of spiritual reflection as an independent factor represents a novel contribution not documented in international teacher education literature, empirically validating integration of spiritual competencies within professional preparation frameworks. The internship component assessment scale (ICAS) demonstrates strong psychometric properties (CVI=0.87, α =0.84), providing the first culturally responsive instrument for Islamic education contexts. This study proposes the integrated internship spiral model (IISM) emphasizing cyclical reinforcement rather than linear progression, challenging conventional designs. Educational implications include redesigning PAI teacher professional education curriculum with proportional resource allocation, implementing mentor training for assessing spiritual-pedagogical dimensions, and embedding technology integration across internship phases. Future research should pursue longitudinal validation, cross-contextual studies in other religious education settings, instrument development strengthening spiritual factor reliability, and comparative effectiveness studies. This research demonstrates that culturally responsive teacher preparation can honor religious authenticity while advancing professional excellence, contributing to holistic transformation of PAI internship programs with potential global application.

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1. INTRODUCTION

The contemporary educational world faces an unprecedented global crisis in teacher quality, particularly in preparing high-quality teachers in the digital era. UNESCO reported that 69 million new teachers are needed to achieve universal basic education by 2030, with special emphasis on quality preparation programs capable of producing adaptive and digitally literate competent teachers [1]. This global

shortage is compounded by rapid technological transformation demanding teachers possess not only pedagogical competence but also proficiency in integrating digital technologies into their teaching practices. International teacher education trends show adoption of integrated internship models as best practices in developed countries. These models are grounded in multiple theoretical frameworks including clinical practice models emphasizing supervised authentic practice, reflective teaching frameworks developed through Schön's work, and situated learning theory articulated by Lave and Wenger [2]. Finland implements research-based teacher education with majority of the program consisting of integrated field practice, producing teachers with high retention rates and job satisfaction [3]. Singapore applies comprehensive "teaching practicum" combining structured observation, intensive collaboration, and independent teaching. Australia uses a "professional experience framework" integrating university courses with extended school placements [4].

Contemporary research emphasizes the transformative potential of technology-enhanced teacher education programs. Computer simulation and cloud-based smart technologies can revolutionize teacher preparation by facilitating successful open learning environments [5]. Prospective teachers engaging with advanced simulation technologies show significantly improved classroom management skills and technological pedagogical content knowledge (TPACK) [6]. The integration of artificial intelligence and digital tools has emerged as critical in preparing educators for 21st-century classrooms. Lavidas *et al.* [7] examine determinants of humanities and social sciences students' intentions to use artificial intelligence applications, revealing that perceived usefulness and ease of use significantly influence adoption patterns. Islamic education frameworks provide essential theoretical grounding for understanding Islamic Religious Education (PAI) teacher preparation. Classical Islamic educational philosophy emphasizes integration of knowledge acquisition with spiritual development through concepts of *ta'lim* (instruction), *tarbiyah* (character development), and *ta'dib* (ethical refinement), positioning teachers as moral exemplars [8], [9]. Modern Islamic teacher education frameworks seek to balance traditional religious knowledge transmission with contemporary pedagogical approaches responsive to diverse student needs and technological innovations [10].

In the Indonesian context, teacher education faces complex challenges requiring comprehensive reform strategies integrating global best practices with local cultural contexts and Islamic educational values [11]. Recent international assessments indicate Indonesia continues facing significant challenges in teacher quality, with substantial variations in pedagogical competence across different subject areas [12]. PAI teachers report lack of confidence in integrating learning technology, and a significant gap between theoretical knowledge and practical skills has become crucial [13]. The teacher professional education program (PPG) launched in 2017 has faced various implementation challenges. Evaluation identified needs for substantial strengthening of field practice components and learning technology integration [14]. PAI teachers face unique challenges in integrating religious content with modern pedagogical approaches while maintaining cultural authenticity [15]. Recent studies identify significant gaps between theoretical preparation and practical demands [16].

Literature review reveals important findings but also significant research gaps. Recent international research demonstrates that integrated internship models produce higher teacher retention rates and improved job satisfaction [17]. Structured internship experiences increase teacher self-efficacy and confidence in implementing innovative pedagogical approaches [18]. However, there is lack of empirical studies on effective integrated internship model components, particularly in Islamic education contexts in Indonesia. This research aims to analyze and identify factors contributing to success of integrated internship models for prospective PAI teachers using exploratory factor analysis (EFA). Specifically, this research seeks to answer four main research questions:

- i) What is the factor structure of integrated internship program components for prospective PAI teachers?
- ii) What is the validity and reliability of evaluation instruments?
- iii) What theoretical model can be developed based on factor analysis?
- iv) What recommendations can be given for improving internship programs?

This research addresses gaps in PAI teacher education by developing a factor-based integrated internship model using EFA. Unlike traditional normative approaches, our study identifies latent structural components such as mentoring quality, technology integration, and contextual religious pedagogy that empirically determine internship success. By integrating clinical practice models, reflective teaching frameworks, and situated learning theory with Islamic educational principles, we designed a culturally responsive model adapted to PAI characteristics in Indonesia.

2. METHOD

2.1. Research design and justification

This research uses a mixed methods sequential explanatory design with emphasis on quantitative approach [19] where EFA is the main focus and supplemented with qualitative data [20]. Ex post facto design was chosen because it analyzes internship program data that has been completed without variable

manipulation. EFA was specifically chosen to identify complex relationship patterns and reveal factor structures underlying internship program components. The selection of EFA over confirmatory factor analysis was deliberate, as this research aims to explore rather than test pre-existing theoretical models. The robustness of EFA is ensured through rigorous prerequisite testing with KMO and Bartlett's test, cross-validation through qualitative data from focus group discussions and expert interviews, multiple rotation methods comparison, and sensitivity analysis. Variables were selected based on theoretical frameworks from experiential learning theory by Kolb and social cognitive theory by Bandura [21], review of international best practices, preliminary qualitative inquiry with 15 PAI educators, and gaps in existing literature.

2.2. Population, sample size, and sampling procedure

The research population consists of 486 students from PAI study programs who have completed internship programs at universities in Yogyakarta during the 2023/2024 academic year. The sample consists of 218 PAI students from four universities. This sample size exceeds EFA requirements of minimum 5:1 ratio of participants to variables and the recommended 200 for robust factor analysis, with response rate of 44.9% reflecting realistic participation in educational research contexts. Purposive sampling was employed with clearly defined inclusion criteria to ensure sample homogeneity and data quality [22]. Participants must have completed all four internship components (observation, microteaching, teaching practice, and reflection), achieved minimum GPA of 3.0, completed minimum 4-month internship program, and achieved minimum B grade in internship evaluation. The sampling procedure involved four stages: identification of 312 eligible participants from total population of 486, stratified selection across four universities ensuring proportional representation, email invitations with informed consent documents, and online survey data collection yielding 218 valid responses (69.9% response rate from eligible participants) [23].

Sample characteristics show 64% female and 36% male, age range 20-24 years, 67% from *pesantren* (Islamic boarding school) backgrounds and 33% non-*pesantren*, with 55% from public Islamic universities and 45% from private institutions. This purposive approach was justified as theory-driven, targeting participants with complete experiences necessary for measuring all constructs while ensuring quality control and adequate heterogeneity across institution types. The research was conducted from February to August 2024, with intensive data collection from March to June 2024. Yogyakarta (Indonesia) was selected based on high concentration of teacher education institutions, established school partnerships, diversity of internship structures, and geographical accessibility. Table 1 presents factor score comparisons across demographic subgroups, revealing several noteworthy patterns. Female participants demonstrated slightly higher mean scores across all factors, though differences were not statistically significant. Students from *pesantren* backgrounds scored significantly higher on spiritual reflection compared to non-*pesantren* students, suggesting that prior immersion in Islamic educational environments cultivates spiritual-pedagogical integration that university programs build upon rather than initiate. Conversely, non-*pesantren* students showed marginally higher microteaching scores, potentially reflecting greater exposure to contemporary pedagogical methods prior to university enrollment. Public university students demonstrated higher observation competence scores, possibly attributable to more established school partnerships and structured orientation programs, while private institution students showed comparable teaching practice scores, indicating that authentic classroom performance equalizes across institution types despite resource differences. These patterns suggest that internship effectiveness depends on complex interactions between individual background, institutional resources, and program design rather than any single factor.

Table 1. Demographic characteristics and mean factor scores

Characteristic		n (%)	Factor 1 M(SD)	Factor 2 M(SD)	Factor 3 M(SD)	Factor 4 M(SD)
Gender	Female	139 (64%)	4.18 (0.62)	4.12 (0.54)	3.94 (0.68)	3.87 (0.76)
	Male	79 (36%)	4.09 (0.71)	4.08 (0.61)	3.98 (0.63)	3.73 (0.84)
Background	<i>Pesantren</i>	146 (67%)	4.16 (0.65)	4.08 (0.56)	3.93 (0.67)	4.02 (0.68)*
	Non- <i>pesantren</i>	72 (33%)	4.11 (0.69)	4.15 (0.58)	4.01 (0.65)	3.56 (0.87)*
Institution status	Public institution	120 (55%)	4.24 (0.61)*	4.11 (0.55)	3.97 (0.65)	3.84 (0.79)
	Private institution	98 (45%)	4.05 (0.70)*	4.10 (0.58)	3.95 (0.68)	3.82 (0.81)

*p<0.05 indicating statistically significant difference between groups

2.3. Instrument development and validation

The internship component assessment scale (ICAS) was developed through rigorous multi-stage process grounded in theoretical frameworks and empirical validation. Initial item generation combined theoretical deduction from experiential learning theory and social cognitive theory with preliminary qualitative inquiry involving 15 experienced PAI teacher educators. These interviews revealed pedagogical dimensions and emphasized spiritual development as integral to PAI teacher preparation. An initial pool of

18 items was generated covering observation skills, microteaching competencies, teaching practice abilities, and spiritual reflection, using 5-point Likert scale. Content validity was established through expert panel review involving five experts with complementary expertise in PAI teacher education, learning methodology, evaluation, curriculum development, and field practice. Content validity index (CVI) calculation followed methodology [24], where experts rated each item on relevance. Items achieving agreement from at least 80% of experts were retained, resulting in refinement to 12 items with average CVI of 0.87, indicating strong content validity. Pilot testing with 30 PAI students from a comparable university assessed item clarity, tested administration procedures, conducted preliminary reliability analysis, and identified technical issues. Feedback led to minor wording adjustments in three items. Preliminary reliability analysis yielded Cronbach's alpha of 0.82, supporting progression to main data collection.

The final ICAS consists of 12 items across three hypothesized components. The observation component includes four items measuring briefing experiences, planning abilities, implementation effectiveness, and personal-social competency development. The microteaching component comprises four items assessing group discussion, Al-Quran literacy in pedagogical contexts, peer feedback, and implementation quality. The teaching practice component contains four items evaluating preparation, implementation, evaluation processes, and reflection practices. Qualitative data collection employed semi-structured interview protocols with six supervising lecturers and eight cooperating teachers, exploring perceptions of critical components, implementation challenges, and improvement suggestions. Focus group discussion protocols involved three sessions with 6-8 participants per session (22 total students), facilitating exploration of experiences across internship phases. Documentation analysis frameworks systematically examined program curricula, guidelines, and assessment rubrics from participating universities. All qualitative protocols were reviewed by two experienced qualitative researchers before implementation.

2.4. Data collection procedures

Data collection employed multi-method approach capturing comprehensive perspectives. Primary quantitative data were collected through structured online survey using ICAS [25]. Following institutional approval, eligible participants received personalized email invitations with detailed research information, informed consent documents, and secure survey links. The informed consent process explicitly outlined research objectives, voluntary participation, confidentiality protections, data usage, estimated time commitment of 15-20 minutes, and contact information. Participants provided electronic consent before accessing survey items. Survey design incorporated quality control features including required response fields, randomized item order within components, attention check items, and progress indicators. Data collection occurred over 12 weeks from March to June 2024, with reminder emails at two-week intervals. Real-time monitoring enabled early identification of issues, though no major problems emerged.

Qualitative data collection through three 90-minute focus group discussion sessions occurred after preliminary quantitative analysis, following sequential explanatory design logic. Sessions were facilitated by two trained researchers and audio-recorded with permission. Semi-structured interviews with supervising lecturers and cooperating teachers lasted 45-60 minutes, conducted face-to-face or via video conferencing. All interviews were audio-recorded, transcribed verbatim, and returned to participants for member checking. Documentation analysis involved systematic review of internship curricula, guidelines, assessment rubrics, and evaluation forms, providing contextual understanding of program structures [26].

2.5. Data analysis procedures

Data analysis followed systematic procedures integrating quantitative statistical analysis with qualitative thematic analysis [27]. Quantitative analysis began with data screening examining incomplete surveys, careless responding, and duplicate responses, retaining 218 valid responses. Preliminary statistical analysis included Shapiro-Wilk normality testing, Mahalanobis distance outlier detection (five potential outliers examined and retained), and Little's MCAR test for missing data (less than 2%, randomly distributed). Assumption testing for EFA examined Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (values above 0.6 considered adequate), Bartlett's test of sphericity (significant results indicating suitable correlations), linearity through scatterplot matrices, and anti-image correlation matrix for individual variable adequacy. EFA employed principal component analysis for data reduction and factor structure identification. Number of factors was determined using Kaiser criterion (eigenvalues greater than 1.0), scree plot examination, and parallel analysis. Varimax orthogonal rotation enhanced interpretability, selected based on theoretical expectation of conceptually distinct dimensions. Factor interpretation examined items with loadings above 0.4.

Reliability analysis assessed internal consistency at multiple levels. Cronbach's alpha coefficients for total scale and each factor, with values above 0.7 considered acceptable. Item-total statistics identified weak items and potential improvements. Test-retest reliability with 30 participants at two-week interval examined Pearson correlations. Effect size interpretation followed established guidelines where factor

loadings above 0.4 were practically significant, eigenvalues above 1.0 suggested meaningful factors, and total variance above 60% was satisfactory. Qualitative data analysis employed thematic analysis following Braun and Clarke [28] approach. Analysis involved familiarization through repeated reading, initial coding using NVivo 12 software with both inductive and deductive codes, theme development through collating codes into broader patterns, and theme refinement ensuring internal coherence. Integration of quantitative and qualitative findings occurred through complementary analysis comparing qualitative themes with quantitative factor structure to identify convergence and elaboration. Advanced statistical procedures using R 4.3.0 included bootstrap validation, sensitivity analysis, and subgroup analysis supporting robustness of the four-factor solution. Software utilized included SPSS 28.0 for primary EFA procedures and reliability analysis, NVivo 12 for qualitative coding and thematic analysis, and R 4.3.0 for advanced statistical procedures including bootstrap validation and parallel analysis. This multi-software approach ensured comprehensive analysis leveraging strengths of each platform while maintaining analytical rigor.

3. RESULTS

3.1. Factor structure of integrated internship program components

EFA was conducted to identify the underlying factor structure of the integrated internship program for prospective PAI teachers. As shown in Table 2, the KMO measure of sampling adequacy yielded 0.603, meeting the minimum threshold of 0.6. Bartlett’s test of sphericity produced $\chi^2=847.293$ (df=66, $p<0.001$), confirming the correlation matrix was suitable for factor analysis. Principal component analysis with eigenvalue>1.0 identified four factors, with Varimax rotation applied for interpretability. The four factors collectively explained 63.4% of total variance, as shown in Table 3.

Figure 1 presents the scree plot visualization confirming the four-factor solution. The plot shows a clear elbow at the fifth component where the eigenvalue drops below 1.0 and the slope flattens substantially, indicating that factors beyond the fourth contribute minimal unique variance. The steep descent from factor 1 through factor 4 followed by leveling supports retention of four factors rather than alternative three-factor or five-factor solutions, corroborating Kaiser criterion and parallel analysis results.

Table 2. KMO and Bartlett test results

Test	Value	Interpretation
KMO measure of sampling adequacy	0.603	Adequate for factor analysis
Bartlett’s test of sphericity (χ^2)	847.293	
Df	66	
Sig.	0.000	Highly significant ($p<0.001$)

Table 3. Total variance explained

Factor	Total	Initial eigenvalues		Rotation sums of squared loadings		
		% Variance	Cumulative %	Total	% Variance	Cumulative %
1	3.444	28.700	28.700	2.891	24.092	24.092
2	1.656	13.800	42.500	2.334	19.450	43.542
3	1.344	11.200	53.700	1.876	15.633	59.175
4	1.164	9.700	63.400	1.507	12.558	71.733

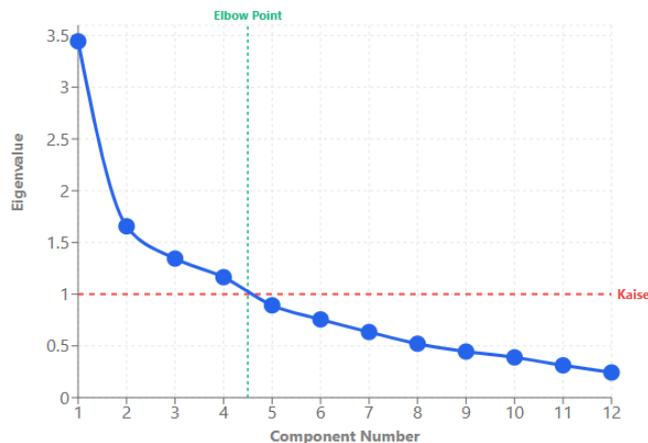


Figure 1. Scree plot of eigenvalues

As shown in Table 4, factor 1 contributed 28.7% of variance, factor 2 accounted for 13.8%, factor 3 contributed 11.2%, and factor 4 contributed 9.7%. After rotation, factor 1 maintained dominance at 24.1% of explained variance. The rotated factor matrix, as in Table 4, revealed distinct loading patterns. Factor 1 (observation competency) comprised briefing and orientation (0.780), observation planning (0.724), observation implementation (0.542), and personal-social competency (0.689). Factor 2 (microteaching) included small group discussion (0.672), peer ranking (0.598), microteaching implementation (0.812), and learning practice preparation (0.589). Factor 3 (teaching practice) contained learning practice implementation (0.831) and learning evaluation (0.643). Factor 4 (spiritual reflection) included Al-Quran reading-writing ability (0.714) and learning reflection (0.762).

Table 4. Rotated factor matrix (Varimax rotation)

Item	Component				Communalities
	Factor 1: observation competency	Factor 2: microteaching	Factor 3: teaching practice	Factor 4: spiritual reflection	
A1 - briefing & orientation	0.780	0.234	0.156	0.089	0.683
A2 - observation planning	0.724	0.298	0.201	0.123	0.661
A3 - observation implementation	0.542	0.387	0.298	0.234	0.592
A4 - personal-social competency	0.689	0.201	0.123	0.298	0.621
B1 - small group discussion	0.289	0.672	0.234	0.156	0.587
B3 - peer ranking	0.234	0.598	0.289	0.201	0.524
B4 - microteaching implementation	0.156	0.812	0.198	0.134	0.734
C1 - learning practice preparation	0.298	0.589	0.387	0.223	0.611
C2 - learning practice implementation	0.201	0.234	0.831	0.198	0.791
C3 - learning evaluation	0.289	0.298	0.643	0.412	0.698
B2 - Al-Quran reading-writing ability	0.134	0.289	0.198	0.714	0.625
C4 - learning reflection	0.198	0.234	0.456	0.762	0.823

Items C3 and C4 exhibited cross-loadings. C3 loaded primarily on factor 3 (0.643) with secondary loading on factor 4 (0.412). C4 loaded primarily on factor 4 (0.762) with secondary loading on factor 3 (0.456). Communalities ranged from 0.524 to 0.823. Focus group discussions with 22 students provided qualitative validation. Regarding factor 1, students emphasized orientation importance:

“Briefing helped us understand school culture before entering the classroom. Without proper orientation, we felt lost.” (Student, University 2)

For factor 2, peer learning emerged as critical:

“Planning lessons in microteaching was more detailed than actual teaching practice because we had time to revise.” (Student, University 4)

Factor 3 highlighted authentic practice challenges:

“Evaluation after teaching helped us see what worked and what didn’t.” (Student, University 3)

Factor 4’s emergence was strongly validated:

“The internship program helps us understand that teaching PAI is not just knowledge transfer, but also a spiritual process.” (Student, University 1)

Six supervising lecturers confirmed the factor structure:

“Spiritual reflection is unique to PAI internships. It’s not just about teaching skills, but about developing teacher identity rooted in Islamic values.” (Lecturer B)

Eight cooperating teachers provided practical validation:

“PAI students need special guidance to integrate spirituality in teaching practice. This cannot be learned from books alone.” (Teacher F)

3.2. Validity and reliability of the internship component assessment scale

Five experts evaluated content validity of the 12-item ICAS. The average CVI was 0.87, indicating strong content validity, as shown in Table 5. Individual item CVI scores varied, as in Table 6. Item B2 received the lowest score (0.71), requiring substantial revision. For construct validity indicators, Table 7 shows KMO=0.603 (adequate), significant Bartlett's test ($p<0.001$), and 63.4% total variance explained.

Table 5. CVI results

Expert panel	Field of expertise	CVI score
AM	PAI teacher education	0.92
SA	PAI learning methodology	0.83
AF	Education evaluation	0.89
NH	PAI curriculum development	0.85
US	Field experience practice	0.86
Average CVI		0.87

Table 6. CVI per item and revision recommendations

Item	CVI score	Status	Recommendation
A1 - briefing & orientation	0.92	Very good	Maintain
A2 - observation planning	0.89	Good	Maintain
A3 - observation implementation	0.86	Good	Maintain
A4 - personal-social competency	0.83	Good	Maintain
B1 - small group discussion	0.88	Good	Maintain
B2 - Al-Quran reading-writing ability	0.71	Adequate	Revision required
B3 - peer ranking	0.85	Good	Maintain
B4 - microteaching implementation	0.94	Very good	Maintain
C1 - learning practice preparation	0.87	Good	Maintain
C2 - learning practice implementation	0.91	Very good	Maintain
C3 - learning evaluation	0.89	Good	Maintain
C4 - learning reflection	0.82	Good	Minor adjustment

Table 7. Construct validity indicators

Indicator	Value	Interpretation
KMO	0.603	Adequate (>0.6)
Bartlett's test of sphericity	$\chi^2=847.293$; $p<0.001$	Significant
Total variance explained	63.4%	Good (>60%)
Cross-loading items	2 items (C3, C4)	Needs attention

Anti-image correlation matrix diagonal values ranged from 0.58 to 0.73. Item B2 had the lowest value (0.58). Internal consistency reliability, Table 8 shows total instrument $\alpha=0.841$ (good). Factor 1 had highest reliability ($\alpha=0.822$), while factor 4 showed questionable reliability ($\alpha=0.684$). Item-total statistics, as in Table 9, identified B2 as problematic with lowest corrected item-total correlation (0.398) and α if deleted (0.849) exceeding total α (0.841). FGD participants confirmed B2 ambiguity:

"When filling out the questionnaire, I was confused with the item 'Al-Quran reading-writing ability'. Is this about reading fluency, Arabic writing ability, or how to integrate verses in teaching?" (Student, University 2)

Test-retest reliability with 30 participants at two-week intervals, Table 10 shows total instrument $r=0.798$ (stable). Factor 4 had lowest stability ($r=0.641$).

Table 8. Cronbach's alpha per factor

Factor	Number of items	Cronbach's alpha	Interpretation	α if item deleted (range)
Factor 1: observation competency	4	0.822	Good	0.789-0.801
Factor 2: microteaching	4	0.751	Acceptable	0.718-0.734
Factor 3: teaching practice	2	0.789	Good	0.712-0.756
Factor 4: spiritual reflection	2	0.684	Questionable	0.621-0.673
Total instrument (12 items)	12	0.841	Good	0.823-0.849

Table 9. Item-total statistics (selected items)

Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	A if item deleted
A1	48.23	52.17	0.687	0.823
A4	48.45	51.89	0.642	0.827
B2	48.91	49.23	0.398	0.849
B4	47.78	53.45	0.721	0.821
C4	48.67	50.34	0.598	0.831

Table 10. Test-retest reliability (n=30, interval 2 weeks)

Factor	Pearson correlation	Sig. (2-tailed)	Interpretation
Observation competency	0.823	0.000	Very stable
Microteaching	0.767	0.000	Stable
Teaching practice	0.745	0.000	Stable
Spiritual reflection	0.641	0.000	Moderate stability
Total instrument	0.798	0.000	Stable

3.3. Theoretical model development based on factor analysis

The four-factor structure informed development of the integrated internship spiral model (IISM), departing from the initial three-component hypothesis by incorporating spiritual reflection and conceptualizing relationships as cyclical rather than linear. IISM positions internship learning as recursive, with students repeatedly engaging with all four dimensions at progressively deeper levels. The model structure reflects variance contributions: factor 1 (28.7%) forms the foundational base, factor 2 (13.8%) represents controlled practice, factor 3 (11.2%) encompasses authentic implementation, and factor 4 (9.7%) integrates religious identity with professional development. The spiral configuration indicates re-engagement at higher complexity levels after completing one cycle. FGD data validated the spiral concept:

“Every student must return to the observation phase after teaching practice to deepen understanding, then conduct spiritual reflection that will strengthen the next observation.” (Student, University 3)

Supervising lecturers corroborated interconnected phases:

“Students who excel in observation tend to perform better in subsequent phases because they’ve built strong relationships and understanding of context.” (Lecturer G)

Cooperating teachers affirmed the model:

“This spiral model fits our experience guiding PAI students. They indeed need to repeatedly return to observation, and the spiritual aspect cannot be separated.” (Teacher I)

IISM diverges from international models, as shown in Table 11. The Finnish model emphasizes three linear phases, while IISM incorporates four factors with explicit spiritual dimensions and recursive engagement. The Australian framework includes five parallel competencies but lacks spiritual components and spiral progression.

Table 11. Comparison of IISM with international models

Aspect	IISM (Indonesia)	Finnish model	Australian model
Main structure	4 Spiral factors	3 Linear phases	5 Parallel components
Spiritual dimension	✓Explicit (9.7% variance)	✗None	✗None
Peer learning	✓Integrated (B1, B3)	✓Limited	✗Mentor focused
Reflection	✓Spiritual-pedagogical	✓Pedagogical only	✓Professional
Technology	✗Not yet explicit	✓TPACK integrated	✓Digital literacy

IISM integrates experiential learning theory (Kolb) and social cognitive theory (Bandura) adapted for Islamic education. The Kolb cycle is reinterpreted with concrete experience corresponding to observation and teaching practice, reflective observation aligned with spiritual reflection, abstract conceptualization connected to microteaching, and active experimentation returning to observation in spiral progression. Stakeholders acknowledged limitations:

“We feel there’s a gap in technology use. PAI students also need to master digital platforms for teaching.” (Supervising lecturer)

“The spiritual factor is specific to PAI contexts. Other subject areas would need different models.” (Expert)

Resource allocation implications were discussed:

“If observation contributes 28.7% of variance, we should allocate roughly proportional time and resources to this phase, yet currently we spend minimal time on orientation.” (Program director)

3.4. Recommendations for program improvement

Evidence-based recommendations address curriculum restructuring, mentor development, assessment redesign, and infrastructure enhancement aligned with empirical findings.

3.4.1. Curriculum restructuring

Observation competency (28.7% variance) requires expansion from token orientation to structured 8-week programs. A supervising lecturer suggested, *“orientation should not be just one day but extended with clear learning objectives each week.”* Table 12 presents the proposed weekly observation structure with specific focus areas, tools, and expected outputs for each phase.

Table 12. Proposed weekly observation structure

Week	Observation focus	Tools	Output
1-2	Briefing and school culture	Observation checklist	Cultural mapping report
3-4	Classroom management	Video recording	Best practices analysis
5-6	Teaching methods	Lesson observation form	Comparative teaching methods
7-8	Student assessment	Assessment rubrics	Alternative assessment portfolio

3.4.2. Spiritual reflection strengthening

Factor 4 (9.7% variance, $\alpha=0.684$) requires integrated reflection journals connecting teaching with Quranic values, bi-weekly spiritual mentoring, and applied *Tahsin* (improvement) and *Tahfidz* (memorizing Quran) workshops. A cooperating teacher emphasized, *“PAI students need special guidance to integrate spirituality in teaching practice. This cannot be learned from books alone.”* Item B2 revision was recommended:

“Change the formulation from 'My Al-Quran reading-writing ability supports internship program implementation' to 'My ability to recite and integrate Al-Quran verses in PAI learning develops during the internship program.’” (Expert AM)

3.4.3. Technology integration

Recommendations include developing TPACK modules adapted for PAI contexts, digital platform training, and technology assessment integration. FGD participants emphasized, *“after COVID-19, we realize that prospective PAI teachers must also master digital platforms. This is no longer a choice.”*

3.4.4. Mentor development

Proposed training for 50 cooperating teachers and 20 supervising lecturers addresses IISM foundations, spiritual competency assessment, technology integration, and feedback methods over 32 hours. A supervising lecturer stated, *“we have difficulty assessing students’ spiritual aspects. Clear and objective rubrics are needed.”*

3.4.5. Assessment redesign

Table 13 presents recommended evaluation weights reflecting empirical findings and practical considerations. An expert commented, *“evaluation weights must reflect the importance of each component. Good observation becomes the foundation for success in other phases.”* Implementation timeline includes 6-month preparation, 1-year pilot at two universities, and full rollout in year three. Success indicators: 15% improvement in internship scores, >85% mentor satisfaction, 90% digital component completion, and Cronbach’s alpha >0.75 for spiritual factor post-revision.

Table 13. Recommended evaluation weight distribution

Factor	Variance contribution (%)	Evaluation weight (%)	Justification
Observation competency	28.7	35	Highest variance contribution + foundational importance
Microteaching	13.8	25	Critical for skill development
Teaching practice	11.2	25	Ultimate performance indicator
Spiritual reflection	9.7	15	Unique PAI dimension but needs strengthening

4. DISCUSSION

4.1. Factor structure and theoretical contributions to teacher education

The four-factor structure identified in this study fundamentally challenges linear progression models dominant in international teacher education literature. While Finnish and Australian frameworks conceptualize internship as sequential phases, our findings reveal interconnected dimensions requiring simultaneous development—a distinction with profound implications for program design. The dominance of observation competence (28.7% variance) contradicts resource allocation patterns in Indonesian PAI programs, where orientation receives minimal attention despite empirical evidence of its foundational role. This misalignment reflects what Korthagen *et al.* [29] identified as the persistent “theory-practice gap” in teacher education, where programmatic decisions follow tradition rather than evidence. Situated learning theory posits that observation functions primarily as passive apprenticeship, yet our qualitative data reveal active relationship-building and cultural interpretation: “*building relationships with mentor teachers from day one made the whole internship smoother*” (Student, University 3). This finding extends Lave and Wenger framework [2] by demonstrating that observation in religious education contexts involves negotiating cultural identities and establishing legitimacy within faith communities. The high loading of personal-social competency (0.689) empirically validates what Brown *et al.* [30] theorized—that legitimate peripheral participation depends critically on social integration preceding skill acquisition. Indonesian PAI contexts amplify this requirement because teachers must demonstrate both pedagogical competence and religious authenticity, creating dual legitimacy demands absent in secular settings.

The emergence of spiritual reflection as an independent factor represents our most significant theoretical contribution, empirically validating integration of transcendent meaning-making within professional preparation frameworks—a dimension conspicuously absent from Western teacher education models reviewed by Cochran-Smith and Villegas [31]. While Schön’s influential framework distinguishes reflection-in-action from reflection-on-action, both remain bounded by professional-technical rationality. Our findings demonstrate that PAI teacher preparation requires a third dimension—spiritual-pedagogical reflection—connecting teaching practice with religious identity formation through processes Islamic educators term *tarbiyah* (character development) and *ta’dib* (ethical refinement). This integration challenges secular assumptions undergirding mainstream teacher education research and raises critical questions about cultural imperialism in international educational frameworks that privilege Western epistemologies while marginalizing non-secular knowledge systems. However, the moderate reliability of spiritual reflection ($\alpha=0.684$) demands critical interpretation beyond conventional psychometric standards. Trait theory assumes temporal stability, yet spiritual development may exhibit legitimate fluctuation. The statistical “weakness” may paradoxically reflect authentic construct characteristics—spiritual competencies are processual rather than fixed, contextually negotiated rather than universally applicable, and existentially wrestling with meaning rather than technically applying skills. This interpretation challenges positivist measurement paradigms and suggests that capturing spiritual dimensions requires methodological pluralism combining standardized assessment with narrative inquiry, contemplative practices, and longitudinal portfolios.

The cross-loading of learning reflection (C4) between teaching practice (0.456) and spiritual reflection (0.762) empirically demonstrate what Islamic educational philosophy has long asserted—the inseparability of pedagogical competence from religious identity in PAI contexts. This finding contradicts Western frameworks artificially compartmentalizing professional knowledge, pedagogical skills, and personal beliefs as discrete domains. Practically, this integration creates assessment challenges acknowledged by supervisors, “*we have difficulty assessing students’ spiritual aspects. Clear and objective rubrics are needed.*” This tension between holistic development and evaluative accountability represents a fundamental paradox in religious teacher education requiring innovative assessment approaches that honor spiritual authenticity while maintaining professional standards. The spiritual reflection factor finds instructive parallels with other religious education traditions. Christian teacher preparation programs incorporate spiritual formation through contemplative retreats and theological reflection seminars, though often as co-curricular enrichment rather than integrated internship assessment. Jewish teacher education emphasizes chavruta learning partnerships grounded in Talmudic dialogue traditions, yet the communal interpretation focus differs from Islamic emphasis on individual spiritual accountability. Buddhist educational frameworks integrate mindfulness practices, sharing with Islamic models the view that teaching requires inner cultivation, though Buddhist

approaches emphasize detachment while Islamic frameworks emphasize intentionality and service. These comparisons reveal that integrating spiritual and professional dimensions represents a common challenge across religious education traditions, yet each tradition requires culturally authentic operationalization.

4.2. Challenging international models and contextual adaptation

The IISM fundamentally diverges from international frameworks through recursive rather than linear conceptualization, grounded in empirical evidence that participants “*must return to the observation phase after teaching practice to deepen understanding.*” This cyclical pattern contradicts stage theories dominating teacher development research. The spiral configuration reflects what Kolb’s experiential learning theory proposes but teacher education programs rarely implement—genuine cyclical movement through concrete experience, reflective observation, abstract conceptualization, and active experimentation at progressively complex levels. More critically, IISM’s explicit incorporation of spiritual dimensions addresses the “culture problem” in teacher education—Western frameworks’ inability to accommodate non-secular epistemologies without relegating them to “cultural context” rather than recognizing them as legitimate knowledge systems. The Finnish model’s research-based inquiry and Australia’s professional experience framework demonstrate pedagogical sophistication yet operate within secularized conceptual boundaries inappropriate for religious education contexts where spiritual formation constitutes core rather than peripheral competence [24]. Our findings demonstrate that culturally responsive teacher preparation requires fundamental reconceptualization honoring indigenous knowledge systems—in this case, Islamic educational philosophy positioning teachers as moral exemplars guiding students’ character formation.

However, critical examination reveals IISM’s notable limitation: absence of explicit technology integration despite global digitalization trends. Papadakis *et al.* [5] demonstrate that simulation technologies and augmented reality substantially enhance teacher preparation, while Lavidas *et al.* [7] establish that AI literacy increasingly determines teaching effectiveness. Participant acknowledgment—“*After COVID-19, we realize that prospective PAI teachers must also master digital platforms*”—reveals tension between empirical factor structure and contemporary educational demands. This gap suggests our EFA captured existing practice rather than optimal design, raising important questions about whether data-driven model development risks reifying current limitations rather than imagining transformed futures. The comparative analysis with international models, as in Table 10, reveals both strengths and concerning absences. IISM’s explicit spiritual dimension and recursive structure offer valuable contributions, yet the Finnish emphasis on TPACK and Australian digital literacy standards address 21st-century demands inadequately represented in our model. This comparison illustrates tensions between cultural responsiveness and global competence—programs must honor religious authenticity while preparing teachers for technologically mediated classrooms. Resolving this tension requires “glocalization”: integrating global innovations with local values rather than choosing between cultural preservation and contemporary relevance [32]. Practically, this means embedding technology within spiritual reflection (using digital tools for Quranic study), microteaching (virtual peer collaboration), and teaching practice (blended learning delivery)—transforming technology from technical skill to pedagogical-spiritual tool.

4.3. Theoretical integration and the emergence of spiritual reflection

The four-factor structure requires theoretical grounding across multiple frameworks. Figure 2 illustrates how established pedagogical theories converge with Islamic educational philosophy through theoretical convergence to inform the IISM. IISM’s spiral architecture operationalizes Kolb’s experiential learning cycle where the four factors map recursively: observation competence (factor 1, 28.7%) represents concrete experience, microteaching (factor 2, 13.8%) embodies abstract conceptualization, teaching practice (factor 3, 11.2%) manifests active experimentation, and spiritual reflection (factor 4, 9.7%) deepens reflective observation. Unlike linear models, each cycle ascends toward higher competency through recursive engagement, mirroring Islamic *tasawwuf* principles of spiritual elevation where learners repeatedly revisit phases at progressively deeper levels. Bandura’s social cognitive theory validates observation competence as foundational, where preservice teachers develop self-efficacy through modeling and vicarious experiences. The dominance of factor 1 confirms Bandura’s assertion that “most human behavior is learned observationally,” establishing observation as the base upon which other competencies build. This extends Lave and Wenger situated learning theory [2]—the high loading of personal-social competency (0.689) demonstrates that legitimate peripheral participation depends on social integration and relationship-building preceding technical skill acquisition, particularly critical in PAI contexts requiring both pedagogical competence and religious authenticity.

The emergence of spiritual reflection extends Schön’s reflective practice beyond technical rationality. While Schön distinguished reflection-in-action from reflection-on-action, PAI teacher preparation requires spiritual-pedagogical reflection—connecting teaching with religious identity formation. This

integration empirically validates Islamic educational philosophy's core principles: *ta'lim* (knowledge instruction) operationalized through microteaching, *tarbiyah* (holistic character development) manifested in spiritual reflection, and *ta'dib* (ethical refinement) integrated across teaching practice. Factor 4's independence challenges secular Western frameworks by demonstrating that spiritual competencies constitute distinct professional dimensions rather than peripheral concerns, positioning PAI teachers as moral exemplars guiding students' intellectual and character formation within faith-integrated pedagogical practice.

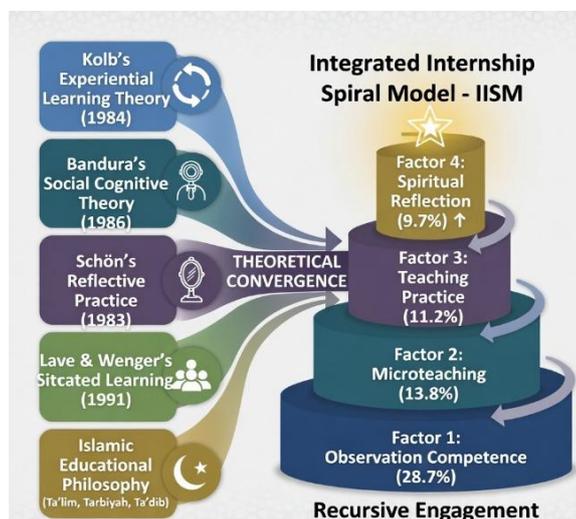


Figure 2. Theoretical integration

4.4. Implications for teacher readiness, pedagogical competence, and professional identity

The factor structure has profound implications for teacher readiness inadequately addressed in current PAI preparation programs. Observation competence's dominance (28.7% variance) empirically demonstrates that teacher readiness depends foundationally on contextual understanding and relationship-building preceding technical skill development—a finding challenging frontloaded university coursework followed by brief practicum. Research by Darling-Hammond [33] establishes that extended clinical experiences improve teacher effectiveness, yet our findings specify mechanisms: observation enables expert capacity to perceive pedagogically significant patterns invisible to novices [34]. The strong loading of personal-social competency (0.689) further indicates that readiness encompasses relational capabilities—teachers must learn to work collegially with mentor teachers, collaborate with colleagues, and navigate institutional cultures before managing classrooms independently [35].

Current Indonesian practice inverts this empirically-supported sequence, allocating minimal time to observation while rushing students into teaching responsibilities. This misalignment produces the documented "reality shock" where majority of new PAI graduates experience severe difficulties in their first year. Recent longitudinal studies demonstrate that reality shock manifests in emotional exhaustion and decreased constructivist beliefs during transition from preservice to in-service teaching [36]. Cooperating teachers' validation—"students who excel in observation tend to perform better in subsequent phases because they've built strong relationships and understanding of context"—empirically supports restructuring programs to front-load substantially expanded observation experiences. This evidence-based recommendation has immediate policy implications: PPG curriculum redesign should allocate time proportional to empirical importance, potentially dedicating first semester primarily to structured observation rather than fragmenting it as preliminary activity [37].

The spiritual reflection factor's emergence raises critical questions about professional identity formation in religious education contexts. Mainstream teacher identity research conceptualizes professional identity as integrating subject matter knowledge, pedagogical beliefs, and institutional contexts, yet omits spiritual dimensions central to religious educators. Our findings demonstrate that PAI teachers develop dual identities—professional educator and religious exemplar—requiring simultaneous competence in pedagogical techniques and spiritual authenticity. Research on religious teachers confirms that educators navigate complex negotiations between their faith commitments and professional responsibilities [38]. Participant testimony powerfully illustrates this integration: "teaching PAI is not just knowledge transfer, but also a spiritual process" (Student, University 1).

The moderate reliability and stability of spiritual reflection ($\alpha=0.684$, $r=0.641$) suggests that spiritual identity develops through non-linear processes resisting standardized measurement—findings with profound assessment implications. If spiritual authenticity constitutes core PAI teacher competence, programs require assessment approaches honoring its developmental and contextual nature. Traditional rubrics risk reducing spirituality to performance indicators, contradicting Islamic educational philosophy emphasizing sincerity (*ikhlas*) and inner transformation over external compliance. Research on spiritual pedagogy suggests that spiritual development requires ongoing self-reflection, engagement with faith communities, and integration of spiritual practices with pedagogical learning [39]. Narrative portfolios documenting spiritual struggles and growth, contemplative practices fostering self-awareness, peer dialogues exploring meaning-making, and mentor relationships modeling integration of spirituality and pedagogy offer promising alternatives. However, these approaches create quality assurance challenges for programs accountable to national standards requiring demonstrable competencies, illustrating persistent tensions between holistic development and evaluative accountability characterizing religious teacher education globally.

4.5. Policy implications and institutional redesign

Our findings generate specific, actionable policy recommendations addressing Indonesia's teacher quality crisis while offering broader implications for religious education internationally. First, PPG curriculum restructuring should reallocate resources proportional to empirical factor contributions: expanding observation from token orientation to 8-week structured programs, as in Table 11, intensifying microteaching with technology-enhanced peer learning, ensuring authentic teaching practice under graduated responsibility, and integrating spiritual reflection throughout rather than relegating it to concluding activities. This evidence-based allocation contradicts current practice where “*we spend minimal time on orientation*” (program director) despite observation's foundational importance. Recent systematic analysis demonstrates that policy-practice gaps in education persist globally, with effective service delivery requiring high-quality implementation systems rather than merely increased resources [40].

Implementing proportional allocation requires confronting resource constraints and institutional inertia. Extended observation demands increased school partnerships, mentor compensation, and coordinated scheduling—investments requiring political will and financial commitment currently absent. Finnish teacher education's success partially attributes to substantial government investment enabling favorable student-faculty ratios and extensive school partnerships, while Indonesian programs face faculty shortages and limited budgets. This resource disparity raises equity concerns: evidence-based improvements risk remaining aspirational unless policymakers prioritize teacher education funding. International experience suggests strategic sequencing: pilot intensive models at select institutions, document outcomes rigorously, scale gradually building infrastructure, and legislate standards requiring minimum observation hours after feasibility is demonstrated. This staged approach balances evidence-based reform with pragmatic constraints.

Second, mentor development requires systematic training addressing IISM's four dimensions, particularly spiritual competency assessment where supervising lecturers report difficulties establishing “clear and objective rubrics.” The proposed 32-hour training program should develop mentors' capacity to observe and provide feedback on observational learning, facilitate microteaching debriefs emphasizing peer learning, scaffold teaching practice through graduated responsibility, and assess spiritual-pedagogical integration honoring authenticity while maintaining standards. Mentor quality critically determines novice teacher development, with comprehensive mentoring competence encompassing cognitive, social, and emotional dimensions significantly predicting teacher effectiveness [41]. Yet Indonesian programs provide limited mentor preparation, assuming pedagogical expertise automatically translates to mentoring capability—an assumption contradicted by evidence that mentoring requires distinct competencies [42].

Technology integration represents a critical policy imperative inadequately addressed in current factor structure yet essential for 21st-century teacher preparation. The absence of technology as an independent factor reflects current practice limitations rather than irrelevance, as participants recognize, “*prospective PAI teachers must also master digital platforms. This is no longer a choice.*” Policy should mandate TPACK integration throughout internship phases: digital observation tools enabling video analysis, technology-enhanced microteaching platforms, blended learning implementation during teaching practice, and digital portfolios documenting spiritual-pedagogical development. Recent studies emphasize that effective technology integration requires intersection of technological knowledge with pedagogical and content knowledge [43]. These integrations require infrastructure investments and professional development enabling faculty and mentors to model technology integration. International evidence demonstrates that technology integration improves teacher preparation quality, yet successful implementation requires systemic change demanding coordinated policy across universities, schools, and government agencies.

4.6. Methodological contributions, limitations, and future research directions

This study advances religious teacher education research through methodological innovations. The application of EFA in Islamic education contexts addresses teacher education research's persistent problem—excessive reliance on small-scale qualitative studies providing rich description but limited generalizability, and quantitative studies measuring superficial outcomes without capturing complexity. Our mixed-methods design leverages quantitative analysis identifying underlying factor structures while qualitative data illuminate meanings and mechanisms. The development and validation of ICAS provides the first psychometrically sound instrument for assessing Islamic teacher education internships, enabling future comparative research. However, several limitations warrant acknowledgment. First, the cross-sectional design captures participants' retrospective perceptions rather than developmental processes. Longitudinal designs tracking competency development across internship phases would reveal temporal dynamics our static snapshot misses. Future research should employ longitudinal mixed-methods designs with repeated measurements, qualitative interviews at multiple time points, and video analysis documenting actual practice changes. Such designs could test IISM's spiral conceptualization.

Second, sampling limitations constrain generalizability. Purposive sampling ensured participants had complete internship experiences yet introduced selection bias favoring successful students with minimum 3.0 GPA and grade B evaluation. The reliance on self-reported retrospective data introduces potential response bias. Participants may have overestimated competencies due to social desirability effects, particularly for spiritual reflection items where religious authenticity carries normative expectations. Memory distortion likely influenced recollections. The purposive sampling strategy excluding students below threshold criteria systematically removed participants whose experiences might reveal critical failure factors. Furthermore, findings remain geographically bounded to Yogyakarta's unique educational ecosystem that may not generalize to rural contexts with under-resourced schools. Future research should employ stratified random sampling including diverse achievement levels, examine unsuccessful internship experiences, compare urban and rural contexts, and conduct cross-regional studies. Cross-regional validation in diverse Indonesian provinces and international Islamic education contexts is essential before claiming IISM's broad applicability.

Third, the moderate reliability and stability of spiritual reflection ($\alpha=0.684$, $r=0.641$) suggests measurement challenges requiring methodological innovation beyond traditional psychometrics. Future research should explore alternative assessment approaches including narrative analysis of reflection journals, phenomenological interviews probing lived experiences of integrating faith and teaching, longitudinal case studies documenting spiritual development trajectories, and contemplative inquiry methods enabling researchers to understand spiritual dimensions from insider perspectives. These approaches would generate deeper understanding while potentially revealing dimensions our questionnaire-based approach missed. Fourth, our study focused exclusively on preservice teacher experiences without examining longer-term outcomes. Longitudinal investigations tracking graduates through early career stages represent the most critical research priority for establishing whether internship performance predicts meaningful long-term outcomes. Future research should pursue outcomes studies examining relationships between internship factor scores and multiple criteria including supervisor ratings of teaching effectiveness, student learning outcomes, teacher retention and career satisfaction, and classroom observation protocols assessing actual pedagogical practices. Such evidence would establish whether factor structures identified predict meaningful outcomes.

Fifth, contextual factors potentially moderating factor structure deserve investigation. Future research should test measurement invariance across institutional types, *pesantren* backgrounds, and gender, potentially revealing that single factor structure masks important contextual variations. Multilevel modeling examining how institutional characteristics moderate individual-level relationships would advance understanding of contextual influences on internship effectiveness. Finally, the absence of technology as an independent factor requires dedicated investigation. Future research should develop and validate instruments explicitly measuring technological pedagogical competencies in PAI contexts, conduct comparative studies examining programs with varying technology integration levels, and employ design-based research iteratively developing and testing technology-enhanced internship models. Such research would address the critical gap between our empirically-derived model reflecting current practice and aspirational models incorporating 21st-century competencies essential for contemporary teaching.

4.7. Broader implications for religious teacher education globally

This study's findings extend beyond Indonesian PAI contexts, offering insights for religious teacher education globally. The identification of spiritual dimensions as integral to professional preparation challenges secular frameworks dominating international teacher education discourse, raising important questions about cultural imperialism in educational research. Western models emphasizing technical rationality, evidence-based practice, and pedagogical content knowledge provide valuable frameworks yet operate within epistemological boundaries excluding transcendent meaning-making central to religious

educators across traditions—Christian, Jewish, Muslim, Hindu, and Buddhist. Our findings demonstrate that culturally responsive teacher preparation requires reconceptualizing core competencies rather than superficially adapting secular models, validating what religious education scholars have long argued but lacked empirical evidence demonstrating. However, asserting spiritual dimensions' importance raises legitimate concerns about religious dogmatism conflicting with critical thinking, indoctrination versus education, and exclusionary practices contradicting pluralistic values. Our findings suggest that spiritual reflection, properly implemented, can enhance rather than contradict educational quality by fostering ethical commitment to student welfare, cultural humility recognizing multiple ways of knowing, and meaning-making connecting personal identity with professional purpose—qualities beneficial across secular and religious contexts. The challenge lies in developing spiritual competencies honoring religious authenticity while maintaining inclusive practices, critical inquiry, and respect for diverse beliefs.

The methodological approach demonstrated here—using factor analysis to identify latent structures underlying complex educational phenomena—offers valuable lessons for religious education research more broadly. Rather than assuming Western frameworks universally apply, researchers should employ inductive methods discovering indigenous structures, then critically examine how these align with or diverge from international models. This approach honors local knowledge while engaging international scholarship, fostering genuine dialogue rather than epistemological imperialism. Future research across religious traditions could examine whether spiritual dimensions emerge as independent factors in Christian, Jewish, or Hindu teacher preparation, potentially revealing universal aspects of religious teaching alongside tradition-specific elements. Ultimately, this research demonstrates that culturally responsive teacher preparation can simultaneously honor religious authenticity and advance professional excellence, challenging false dichotomies between tradition and innovation, spirituality and pedagogy, local contexts and global standards. The IISM offers one example of how empirical research grounded in specific cultural contexts can generate insights with broader theoretical significance, contributing to more inclusive and epistemologically diverse international educational scholarship. As teacher education globally confronts demands for cultural responsiveness while maintaining quality standards, approaches integrating rather than separating cultural identity from professional competence offer promising pathways forward.

5. CONCLUSION

This study addresses critical gaps in religious teacher education through comprehensive investigation of integrated internship models for prospective PAI teachers in Indonesia. Analyzing 218 students across four Yogyakarta universities using EFA, we provide empirical answers to four research questions. First, we identified four dimensions underlying effective internships: observation competence (28.7% variance), microteaching (13.8%), teaching practice (11.2%), and spiritual reflection (9.7%), collectively explaining 63.4% of total variance. Second, the ICAS demonstrated adequate psychometric properties ($CVI=0.87$, $\alpha=0.84$), representing the first culturally responsive instrument for Islamic teacher education contexts, though spiritual reflection's moderate reliability ($\alpha=0.684$) requires refinement. Third, we developed the IISM reconceptualizing teacher learning as recursive engagement across all dimensions rather than linear progression. Fourth, we generated evidence-based recommendations for proportional resource allocation, assessment redesign, mentor development, and technology integration.

This research advances scholarship through three theoretical contributions. First, empirical validation of spiritual reflection as independent competency domain challenges secular assumptions in Western teacher education paradigms. Second, IISM extends Kolb's experiential learning theory by demonstrating effective teacher development involves iterative deepening through repeated cycles. Third, methodologically, this study demonstrates rigorous mixed-methods approaches for culturally responsive scale development. Practical implications demand systematic institutional restructuring. Observation competence's dominance requires expanded structured observation programs. Assessment systems need comprehensive redesign with evaluation weights reflecting empirical factor contributions. Mentor development emerges as critical, necessitating comprehensive training. Technology integration addresses significant gaps requiring TPACK frameworks embedding digital literacy across internship phases. Study limitations indicate productive research directions: cross-contextual validation, longitudinal investigations, psychometric refinement, and comparative effectiveness studies. This research demonstrates that culturally responsive teacher preparation honoring religious authenticity while advancing professional excellence is both achievable and essential, with applicability extending beyond Indonesian Islamic contexts to diverse religious and cultural settings worldwide.

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AUTHOR CONTRIBUTIONS STATEMENT

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C : Conceptualization

M : Methodology

So : Software

Va : Validation

Fo : Formal analysis

I : Investigation

R : Resources

D : Data Curation

O : Writing - Original Draft

E : Writing - Review & Editing

Vi : Visualization

Su : Supervision

P : Project administration

Fu : Funding acquisition

CONFLICT OF INTEREST STATEMENT

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. All authors were involved in the internship programs solely in a research capacity and had no direct supervisory roles that could constitute a conflict of interest.

INFORMED CONSENT

We have obtained informed consent from all individuals included in this study. Participants were informed about the purpose of the research, data collection procedures, and how their responses would be used. They were assured of confidentiality and their right to withdraw from the study at any time without consequences.

ETHICAL APPROVAL

The research related to human use has been complied with all the relevant national regulations and institutional policies in accordance with the tenets of the Helsinki Declaration and has been approved by the Research Ethics Committee of State Islamic University Sunan Kalijaga Yogyakarta (Ref. No: UIN.02/RE/KE/09/2022). All procedures were performed in accordance with the ethical standards of the institutional research committee.

DATA AVAILABILITY

The data that support the findings of this study are available from the corresponding author, [K], upon reasonable request. The data are not publicly available due to privacy and ethical restrictions, as they contain information that could compromise the privacy of research participants. Analytical code and aggregated results that do not compromise participant privacy are available at the institutional repository of State Islamic University Sunan Kalijaga Yogyakarta.

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