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Teachers' Perceptions of Online Learning for Professional Competence Development: A Mixed-Methods Study of Early Childhood Education Teachers in Indonesia's Affirmative Scholarship Program

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Abstract: Early Childhood Education (ECE) teachers in Indonesia, particularly those in remote and underserved regions who also carry domestic roles as homemakers, face constraints in upgrading their professional competence, and the effectiveness of online learning for this group remains insufficiently evidenced. This study aims to investigate the effectiveness of online learning in enhancing the professional competence of Early Childhood (PAUD) teachers enrolled in the Affirmative Scholarship Program at Universitas Terbuka (UT). A mixed-methods design was employed over three months (April-June 2026) across 14 virtual sessions of the Teacher Professionalism course, combining Likert-scale questionnaires (n = 53-54) with open-ended responses from 28 students across Sumatra, Java, Kalimantan, Sulawesi, Maluku, and Eastern Indonesia, with findings interpreted through the Communities of Inquiry framework and the Technology Acceptance Model. Quantitative results show strongly positive perceptions: 77.4% of respondents strongly agreed that online learning substantially improved their professional competence, 72.2% strongly agreed that the learning management system (LMS), digital materials, and tutorial scheduling supported regular and self-directed study, and 74.1% strongly agreed that tutor support and academic services enabled task completion. Thematic analysis identified three themes: scheduling flexibility as the main enabler for teachers balancing dual roles, the emergence of virtual learning communities and inter-regional professional networks, and constructive aspirations for greater system interactivity and tutor responsiveness. In conclusion, online learning at UT is perceived as an effective and accessible pathway for PAUD teacher development, providing empirical support for expanding distance education policies in remote and underserved regions of Indonesia.

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INTRODUCTION

Early childhood education (ECE) is a foundation of human capital development, and the quality of early childhood teachers shapes children's cognitive, socio-emotional, and character outcomes from the earliest years of life (Barnett, 2011; Manning et al., 2019). Reviews of early childhood teacher competence emphasise domain-specific knowledge, pedagogical skill, and responsive interaction with children as core dimensions (Ranta et al., 2023), and meta-analytic evidence shows that teacher qualifications are positively associated with the quality of the early childhood education and care environment (Manning et al., 2019). Upgrading the qualifications of practising PAUD (Pendidikan Anak Usia Dini) teachers, Indonesia's early childhood educators, is therefore a matter of educational quality as well as regulatory compliance (Syafi'i 2026). In Indonesia, the professional competence framework for PAUD teachers is codified in Ministerial Regulation No. 16 of 2007, which delineates pedagogical, personal, social, and

professional competence, and Law No. 14 of 2005 on Teachers and Lecturers and Government Regulation No. 19 of 2005 require teachers to hold at least a four-year undergraduate (S1/D-IV) qualification.

Digital technologies have transformed how such qualifications can be pursued. Distance education has moved from correspondence and broadcast media to networked environments characterised by greater interactivity, feedback, and personalisation (Anderson & Dron, 2011), and the current generation integrates learning management systems (LMS), synchronous communication tools, multimedia content, and online assessment (Ally, 2019; Garrison & Kanuka, 2004). Online and technology-mediated formats are now widely used for teacher professional learning at scale (Abakah et al., 2023; Allela et al., 2020; Stutchbury et al., 2024), and recent evidence, including meta-analytic evidence, links online professional development to teacher-level and classroom-level outcomes (Huang et al., 2024; Morina et al., 2025; Stavermann, 2024). Meta-analytic findings also show that student-content, student-instructor, and student-student interaction improve achievement in distance education (Bernard et al., 2009). According to Anderson's (2003) interaction equivalency theorem, meaningful learning can result from any of these interaction types if at least one is sufficiently strong. This matters where synchronous student-instructor interaction is constrained by infrastructure, because compensatory investment in content quality and peer learning becomes important.

Two frameworks help explain when online learning works. The Community of Inquiry (CoI) framework identifies cognitive, social, and teaching presence as the essential elements of an effective online learning environment (Garrison et al., 2000), and meta-analytic evidence relates both teaching presence and social presence to satisfaction and learning (Caskurlu et al., 2020; Richardson et al., 2017). The Technology Acceptance Model (TAM) holds that perceived usefulness and perceived ease of use are the primary determinants of technology use (Davis, 1989), and it has been extended and widely applied to educational technologies such as LMS platforms (Venkatesh & Davis, 2000; Venkatesh et al., 2003).

Flexibility is the most frequently cited strength of distance education. Learning can be fitted around professional and domestic responsibilities (Dhawan, 2020; Kebritchi et al., 2017), a feature also documented in online professional development for teachers in regional, remote, and early childhood settings (Main & Slater, 2022; Pölzl-Stefanec et al., 2023). This matters for PAUD teachers, who are largely women combining teaching with caregiving. However, flexibility in time does not guarantee access. Research on online professional learning identifies technological access, support, and platform affordances as conditions for sustained participation (Charania et al., 2023; Jin et al., 2024), and studies of online learning in Indonesia report constraints in internet connectivity, device availability, and teacher readiness (Mailizar et al., 2020).

Ideally, every PAUD teacher meets national qualification standards and has equitable access to professional development. Universitas Terbuka (UT), Indonesia's dedicated open and distance university, has long been designed to accommodate in-service teachers, working adults, and high school graduates (Zuhairi et al., 2020). Through the Affirmative Scholarship Programme, practising PAUD teachers without a bachelor's degree can pursue S1 PG-PAUD study through recognition of prior learning, with government tuition support and a living allowance, without leaving their communities or teaching posts (Direktorat Guru PAUD dan PNF, 2026).

In reality, this ideal remains difficult to achieve. A substantial proportion of PAUD teachers, particularly in the remote, frontier, and disadvantaged (3T: terdepan, terluar, tertinggal) regions, remain underqualified and face systemic barriers to professional development and higher education (Palupi & Sugito, 2025). Dapodik data show that about 145,000 teachers still lack the minimum S1/D4 qualification, mostly PAUD and elementary school teachers, many in disadvantaged areas and hard-to-reach groups. Connectivity is a persistent barrier: the 2025 APJII survey reported national internet penetration of 80.66%, yet about 20% of the population, roughly 55 million people, still lack internet service, with penetration lowest in Maluku and Papua (69.26%) (APJII, 2025). These figures describe the whole population, so for 3T teachers the gap is likely wider. Studies of UT itself show that distance students in remote rural areas have struggled to use the internet optimally for learning (Rahardjo et al., 2016).

This is significant because UT's system assumes that learners can connect. Asynchronous support is delivered through online tutorials (Tuton), which require internet access (Rahardjo et al., 2016), and synchronous support through Tutorial Webinar (Tuweb), a real-time session of about 120 minutes on

Microsoft Teams that is compulsory for students whose dispersed residences make face-to-face tutorials impractical (Universitas Terbuka, n.d.). Tutors reinforce concepts, give examples and exercises, and discuss assignments during these sessions (Universitas Terbuka, n.d.). The scholarship addresses financial and credit-recognition barriers, whereas lesson delivery, the LMS, tutoring, and assessment remain UT's responsibility. The scholarship documentation reviewed does not describe dedicated provisions for internet quota, devices, academic mentoring, or technical support for 3T participants (Direktorat Guru PAUD dan PNF, 2026). Geographic and technological barriers can therefore persist even among scholarship recipients.

Earlier research on UT has examined satisfaction with online tutorials (Harsasi & Sutawijaya, 2018; Minrohayati et al., 2020), student support services in open and distance learning (Zuhairi et al., 2020), and the performance of UT PG-PAUD alumni, which school principals judged favourably (Mahardika et al., 2025). However, these studies largely treat students as a general population. The specific experiences of PAUD teachers enrolled as distance learners, a group distinguished by dual professional-domestic roles, geographic dispersion, and distinct pedagogical training needs, remain under-theorised and empirically underexplored, especially where connectivity is a precondition for participation and financial support is available but digital support is not clearly specified.

To address this gap, this study, entitled *Teachers' Perceptions of Online Learning for Professional Competence Development: A Mixed-Methods Study of Early Childhood Education Teachers in Indonesia's Affirmative Scholarship Program,* examines the effectiveness of UT's online learning system, defined as the LMS platform, tutorial scheduling, digital materials, and assessment mechanisms, in enhancing the professional competence of PAUD teachers enrolled under the Affirmative Scholarship Programme. It draws on data collected during the April–June 2026 academic cycle through a mixed-methods design that integrates quantitative Likert-scale perception data with qualitative narratives from 28 PAUD teacher-learners across Indonesia, from Aceh to Alor and from Nunukan to Ternate, and it is anchored in the CoI framework (Garrison et al., 2000) and TAM (Davis, 1989). The study is guided by three research questions. RQ1: To what extent does online learning at UT contribute to enhancing the professional competence of PAUD teachers enrolled under the Affirmative Scholarship Programme? RQ2: How do PAUD teacher-learners perceive the online learning system, encompassing the LMS platform, tutorial scheduling, digital materials, and assessment mechanisms? RQ3: What factors facilitate or impede their use of tutor support, academic services, and online learning resources? The study is expected to contribute empirical evidence from 3T-based PAUD teacher-learners, clarify the respective roles of the scholarship and UT's online system, and offer practical implications for designing connectivity-sensitive support for in-service teacher education.

METHOD

Research Design

This study used an explanatory sequential mixed-methods design (Ivankova et al., 2006). Quantitative and qualitative data were collected through one end-of-course questionnaire; the quantitative results were analysed first, and the qualitative responses were then analysed to explain and contextualise them. The two strands were integrated at the interpretation stage through a joint display (Fetters et al., 2013). The study was guided by three questions: (RQ1) how participants perceive the contribution of online learning to their professional competence; (RQ2) how they perceive the usability and usefulness of the learning management system (LMS); and (RQ3) how they evaluate tutor support, academic services, and learning resources, and what improvements they *recommend*.

*Data were collected in the Profesionalitas Guru (Teacher Professionalism) course delivered online through Universitas Terbuka (*UT) from April to June 2026. The course comprised 14 synchronous and asynchronous learning sessions.

Participants and Research Ethics

Participants were PAUD teachers from across Indonesia, including Aceh to Maluku and East Nusa Tenggara, who were recipients of the Affirmative Scholarship Programme and enrolled as undergraduate students at UT. All course participants were invited to complete the questionnaire at the end of the course.

Fifty-six students accessed the questionnaire, 53-54 gave complete responses to each Likert item, and 28 provided qualitative responses. Convenience sampling was applied within a purposively defined population, consistent with the exploratory aims of the study (Campbell et al., 2020).

Participation was voluntary, informed consent was obtained, responses were anonymised, and data were used only for scholarly purposes. Because the researcher was also the course tutor, respondents were informed that their answers would not affect their course outcomes, no identifying information was collected, and responses were analysed only in aggregate to avoid pressure to respond favourably.

Instruments and Validation

The quantitative instrument consisted of three Likert items (1 = strongly agree to 5 = strongly disagree; lower scores indicate more favourable perceptions), each representing one dimension (Table 1). The qualitative instrument consisted of three open-ended prompts (Table 2).

Table 1. Dimensions, theoretical basis, and operational definitions

Item	Dimension	Theoretical basis	Operational definition
Q1	Contribution to professional competence	Professional learning outcomes (Guskey, 2002; Kirkpatrick & Kirkpatrick, 2006)	Perceived improvement in knowledge, skills, and professional practice as a PAUD teacher
Q2	LMS usability and usefulness	Technology Acceptance Model (Davis, 1989); system quality (DeLone & McLean, 2003)	Perceived ease of use and usefulness of the LMS, including functionality, tutorial scheduling, digital materials, and assessment
Q3	Tutor support, academic services, and resources	Teaching presence (Garrison et al., 2000); learner support in distance education (Moore, 1993)	Perceived adequacy and responsiveness of tutor guidance, academic services, and online learning resources

Table 2. Open-ended prompts and their role

Prompt	RQ addressed	Contribution to interpretation
Place of domicile	Context for all RQs	Documents geographic breadth and shows whether concerns, such as connectivity, differ by region
Impressions of the learning experience	RQ1, RQ2	Explains why Q1 and Q2 ratings were favourable or unfavourable
Messages or recommendations for the programme	RQ3	Elaborates Q3 and identifies improvements a closed item cannot capture

1. Adequacy of three items

   One item per dimension is justified because each dimension is concrete and easily understood by respondents, a condition under which single-item measures can perform comparably to multi-item scales (Bergkvist & Rossiter, 2007; Fuchs & Diamantopoulos, 2009). The instrument was an end-of-course programme evaluation intended to describe perceptions, not to build a psychometric scale, and brevity reduced the burden on working teachers in dispersed regions. Items were not summed into a composite score, and the open-ended prompts provided the detail that additional closed items would otherwise provide.

2. Validity and reliability

   Content validity was supported by deriving the items from the theoretical constructs in Table 1 and the course learning objectives. Because each dimension is measured by a single item, internal-consistency indices such as Cronbach's alpha are not applicable. Interpretive validity was strengthened by comparing each Likert distribution with the matching qualitative themes. The

instrument was not psychometrically validated as a scale; therefore, findings are interpreted as indicative of general perceptions and this is acknowledged as a limitation.

Data Collection Procedures

After the final session, the questionnaire was distributed through Google Forms with an information and consent statement. Responses were exported, screened for completeness, and anonymised before analysis.

Data Analysis

Quantitative data were analysed using descriptive statistics (frequencies and percentages for each response category), presented in tables and charts. Qualitative data were analysed using Braun and Clarke's (2006) six phases: familiarisation, initial coding, theme construction, theme review, theme definition and naming, and report writing. Trustworthiness was established through methodological triangulation, thick description (Nowell et al., 2017), and reflexive acknowledgement of the researcher's positionality as course tutor and data collector. The sequence of procedures is summarised in Figure 1.

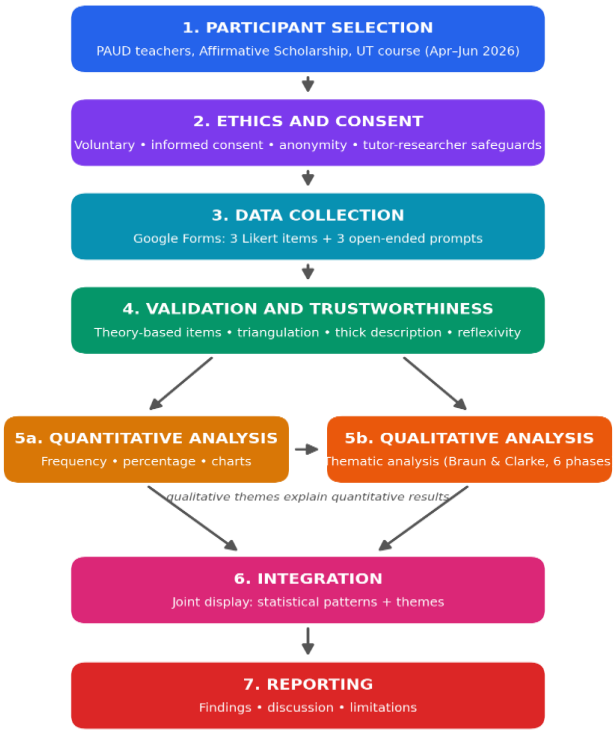


Figure 1. Research Flow

RESULT

Participant Profile and Geographic Distribution

Table 3 presents the geographic and qualitative data provided by the 28 respondents who completed the open-ended section of the questionnaire. The distribution spans seven major island groups of Indonesia, encompassing Sumatra (Lampung, South Sumatra, Aceh, Riau), Java (Banten, West Java, Central Java, East Java), Kalimantan (South Kalimantan, Central Kalimantan, North Kalimantan), Sulawesi (Central Sulawesi, South Sulawesi), Maluku (North Maluku, Southeast Maluku), Nusa Tenggara Timur (East Nusa Tenggara), and the western frontier region (Natuna Islands). This distribution confirms the programme's success in reaching PAUD teachers across the full geographic breadth of the Indonesian archipelago, including frontier and island territories that have historically been underserved by conventional higher education provision.

Qualitative responses were provided by a subset of participants, predominantly from those in Sumatra and Java, potentially reflecting higher levels of engagement with the platform or greater comfort

with written self-expression. The content of these responses ranges from brief affirmations to substantive reflections on the learning experience, providing a varied but thematically coherent dataset for qualitative analysis.

Table 3. Geographic Distribution and Qualitative Responses of Research Participants (n = 28)

No.	Location	Impressions of Learning	Messages / Suggestions
1	Mekarmukti, Sekampung, East Lampung	Online study at UT is very suitable; enables time management alongside teaching and domestic duties	Online tutorial system should be more accessible, with faster tutor response
2	South Tangerang	Alhamdulillah, much learned through distance learning	–
3	Palembang, South Sumatra	Happy to be a UT student; knowledge is useful, and guidance received	May knowledge be beneficial and a legacy of good deeds
4	Umbul Limus Village, Marga Punduh, Pesawaran, Lampung	Grateful for tutor guidance; material was easy to understand	May tutors continue to improve their mentoring
5	Bangsri, Jepara, Central Java	Helped manage time as a PAUD teacher and homemaker	Thank you to tutor (Mr Imam); please continue guiding us
6	Dukuhwaru, Slawi, Tegal, Central Java	Really enjoy the learning; tutor communication is good	Please be generous with grades
7	Ogan Komering Ilir, South Sumatra	Enjoyed the course; material was comprehensible and communication was good	–
8	Ternate (Umapura), North Maluku	Online learning is very helpful for PAUD teachers	–
9	Puruk Cahu, Murung Raya, Central Kalimantan	–	–
10	Pelalawan Regency, Riau	Thank you for the guidance and knowledge	–
11	South Nunukan, North Kalimantan	–	–
12	Nunukan, North Kalimantan	–	–
13	South Aceh	–	–
14	Karanganyar, Central Java	–	–
15	Sabang Mawang Barat (Natuna Islands)	Learning was enjoyable and fostered good inter-regional bonds	–
16	Palopo City, South Sulawesi	–	–
17	Sigi Regency, Central Sulawesi	–	–
18	TK Hang Tuah, Tual, Southeast Maluku	–	–
19	UT Kupang – Alor Regency, NTT	Everything is excellent	–
20	Krajan, Trenggalek, East Java	–	–

No.	Location	Impressions of Learning	Messages / Suggestions
21	Wonodadi, South Lampung	–	–
22	Barito Kuala Regency, South Kalimantan	–	–
23	Mayag, Negla Village, Brebes, Central Java	Online learning helps improve PAUD teacher competence	UT should continue enhancing interactive systems and tutor communication
24	East Lampung	Very suitable; enables good time management	Online tutorials should be more accessible with faster tutor response
25	Tegal, Central Java	Agree / brief response	–
26	South Tangerang	Online study helps PAUD teachers	Need adequate internet, smartphone, and laptop preparation
27	Andi Mappanyompa Street (South Sulawesi)	–	–
28	Karanganyar, Central Java	–	–

Note. Data from primary research (2026). NTT = Nusa Tenggara Timur. Dashes indicate no response provided.

RQ1: Perceived Contribution of Online Learning to Professional Competence

The first research question examined participants' perceptions of the contribution of online learning to their professional competence as PAUD teachers. Fifty-three respondents completed this item. Table 4 and Figure 2 present the distributional findings.

Table 4. Distribution of Responses to Item 1: Perceived Contribution to Professional

Score	Category	Frequency	Percentage
1	Strongly Agree	41	77.4%
2	Agree	9	17.0%
3	Somewhat Agree	1	1.9%
4	Disagree	1	1.9%
5	Strongly Disagree	1	1.9%
	Total	53	100%

Note. Score 1 = Strongly Agree; Score 5 = Strongly Disagree. Lower scores indicate more favourable perceptions. Percentages may not sum exactly to 100% because of rounding. Data from primary research (2026).

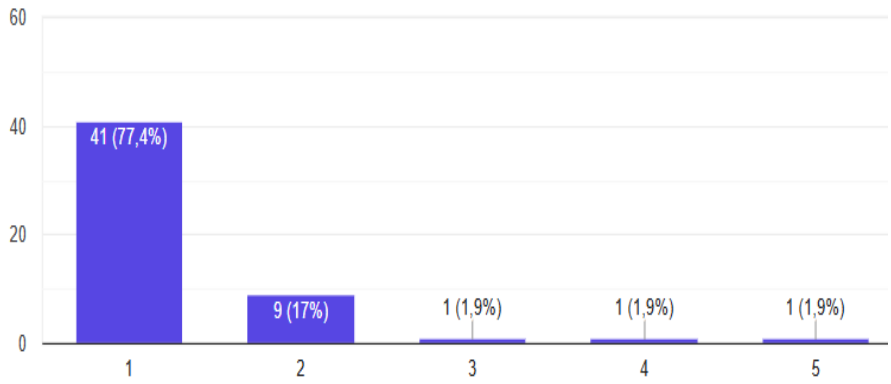


Figure 2. Distribution of Responses to Item 1: Perceived Contribution of Online Learning to PAUD Teacher Professional Competence (n = 53)

Perceptions were strongly favourable. Of the 53 respondents, 77.4% (n = 41) selected Strongly Agree and 17.0% (n = 9) selected Agree, a combined 94.3% (n = 50). One further respondent (1.9%) selected Somewhat Agree, so 96.2% (n = 51) expressed some degree of agreement, while 3.8% (n = 2) selected Disagree or Strongly Disagree. These results indicate that most participants perceived the online course as contributing to their professional competence. Because the data are self-reported at a single time point, and no pre–post assessment or other independent measure of competence was collected, the findings do not demonstrate that competence actually improved or that the course caused any change.

The qualitative responses were consistent with this pattern. One participant from Central Java described online learning as something that "helps improve PAUD teacher competence," and another from North Maluku described it as "very helpful for PAUD teachers." These statements convey perceived practical usefulness and not verified gains in classroom practice.

The perceptions are broadly compatible with research suggesting that professional learning is valued when its content is aligned with practitioners' instructional contexts and includes active learning and sustained follow-up (Desimone, 2009). Meta-analytic evidence from other settings reports improved teacher-level outcomes from online teacher professional development (Morina et al., 2025); the present study cannot confirm such outcomes and documents only participants' perceived contribution. From a Community of Inquiry perspective (Garrison et al., 2000), the favourable ratings may be consistent with meaningful engagement with the course's learning activities, but cognitive presence was not measured, so this interpretation remains tentative. Because the instrument captures participants' reactions and self-perceived learning, the findings correspond to the reaction level of programme evaluation (Kirkpatrick & Kirkpatrick, 2006), not to observed behaviour change or results. Future studies could combine perception data with pre–post assessments, classroom observation, or portfolio evidence.

RQ2: Perceptions of the Online Learning Management System

The second research question examined participants' perceptions of the ease and utility of UT's online learning management infrastructure, encompassing the LMS platform, tutorial scheduling, digital course materials, and assessment mechanisms. Fifty-four respondents completed this item. Table 5 and Figure 3 present the findings.

Table 5. Distribution of Responses to Item 2: Online Learning Management System (n = 54)

Score	Category	Frequency	Percentage
1	Strongly Agree	39	72.2%
2	Agree	11	20.4%
3	Somewhat Agree	2	3.7%
4	Disagree	1	1.9%
5	Strongly Disagree	1	1.9%
	Total	54	100%

Note. Score 1 = Strongly Agree; Score 5 = Strongly Disagree. Data from primary research (2026).

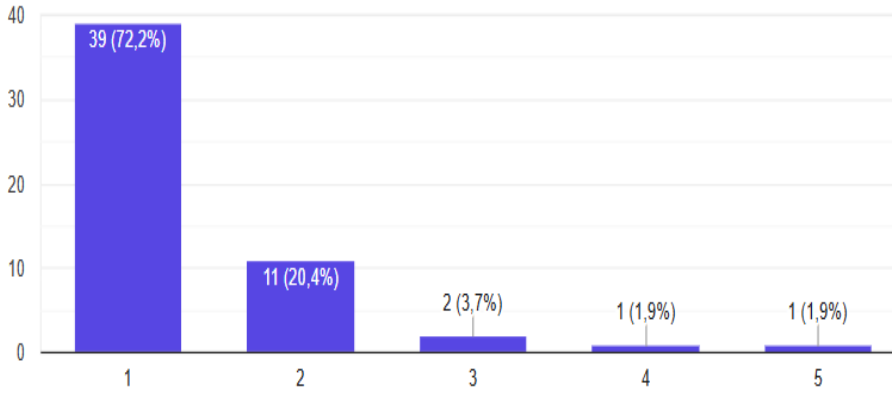


Figure 3. Distribution of Responses to Item 2: Perceived Ease and Utility of UT's Online Learning Management System (n = 54)

Results indicate that 72.2% of respondents (n = 39) strongly agreed and 20.4% (n = 11) agreed that UT's online learning management system facilitated regular and self-directed study, yielding a cumulative positive response rate of 92.6%. These findings indicate a high level of perceived system usability and functionality across a geographically and technologically diverse participant cohort.

The significance of these findings is amplified when considered against the geographic distribution of participants. Students based in frontier locations such as Nunukan (North Kalimantan), Alor (East Nusa Tenggara), and the Natuna Islands environments characterised by limited infrastructure and restricted digital connectivity nonetheless reported high perceived ease of use. This suggests that UT's LMS has been designed with sufficient affordances to accommodate users across a broad range of connectivity conditions, an engineering achievement of considerable practical importance for educational equity in Indonesia.

Through the lens of TAM (Davis, 1989), these results indicate that UT's LMS has achieved the threshold of perceived ease of use necessary to support consistent user adoption. The high perceived usefulness documented in Item 1, combined with the high perceived ease of use reflected in Item 2, creates the attitudinal conditions for sustained and productive engagement with the online learning system a finding that has direct implications for retention and completion rates in the Affirmative Scholarship Programme.

Qualitative data provide important nuance, however. Several participants articulated aspirations for enhanced system performance: respondents from East Lampung and Brebes requested that the online tutorial system become "more accessible with faster tutor response," while the participant from South Tangerang emphasised the need for adequate personal technology (internet connection, smartphone, laptop) as a prerequisite for effective system use. These responses collectively identify two distinct layers of the accessibility challenge: institutional system design (for which responsibility lies with UT) and individual infrastructural preparedness (for which responsibility is more diffusely distributed between individuals, institutions, and the state).

RQ3: Tutor Support, Academic Services, and Online Learning Resources

The third research question examined participants' perceptions of the effectiveness of tutor support, academic services, and online learning resources in enabling task completion and learning engagement. Fifty-four respondents completed this item. Table 6 and Figure 4 present the findings.

Table 6. Distribution of Responses to Item 3: Tutor Support and Academic Services (n = 54)

Score	Category	Frequency	Percentage
1	Strongly Agree	40	74.1%
2	Agree	10	18.5%
3	Somewhat Agree	2	3.7%
4	Disagree	1	1.9%
5	Strongly Disagree	1	1.9%
	Total	54	100%

Note. Score 1 = Strongly Agree; Score 5 = Strongly Disagree. Data from primary research (2026).

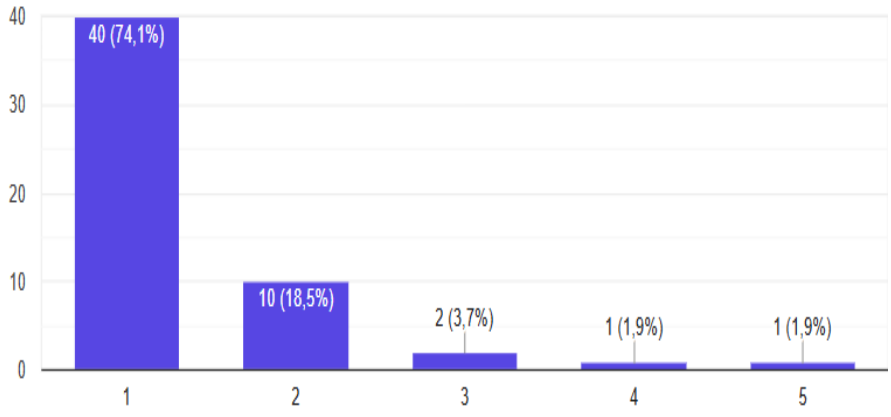


Figure 4. Distribution of Responses to Item 3: Perceived Effectiveness of Tutor Support and Online Learning Resources (n = 54)

The data show that 74.1% of respondents (n = 40) strongly agreed and 18.5% (n = 10) agreed that the tutor support, academic services, and online learning resources provided by UT were effective in supporting their learning and task completion, resulting in a cumulative positive response rate of 92.6%. This high level of endorsement of tutor and institutional support underscores the centrality of the human dimension of online learning in shaping student experience.

Thematic Analysis: Three Integrative Themes

Analysis of qualitative data yielded three overarching themes.

1. Theme 1: Flexibility as Structural Enabler for Dual-Role Learners. Scheduling flexibility was the most pervasive theme across qualitative responses. Multiple participants from Lampung, Jepara, and East Lampung characterised UT's online learning system as "very suitable" because it enabled them to "manage time" around their dual responsibilities as PAUD educators and homemakers.
2. Theme 2: Virtual Community Formation and Professional Networking. A second theme, less frequent than the first, concerned the formation of virtual learning communities and inter-regional professional networks. The participant from the Natuna Islands noted that the learning experience was "enjoyable" and "fostered good inter-regional bonds" (silaturahmi antar daerah).
3. Theme 3: Constructive Institutional Aspirations. The third theme comprised participants' suggestions for institutional improvement. Participants from East Lampung and Brebes requested faster tutor response times and enhanced tutorial accessibility; the participant from South Tangerang emphasised individual technological preparedness; and the participant from Brebes advocated for more interactive systems and improved tutor communication. These suggestions were offered alongside appreciation and positive evaluation of the programme.

DISCUSSION

Programme Reach and Participant Engagement

The geographic distribution in Table 1 confirms the programme's success in reaching PAUD teachers across the full breadth of the Indonesian archipelago, including frontier and island territories that have historically been underserved by conventional higher education provision. The visual evidence in Figure 1 reflects the implementation of inclusive and flexible online learning environments that contribute to strengthening pedagogical competence, digital literacy, and professional development in Islamic and early childhood education contexts. The predominance of qualitative responses from Sumatra and Java potentially reflects higher levels of engagement with the platform or greater comfort with written self-expression, so the qualitative data should be read as a varied but thematically coherent set rather than as a fully representative one.

RQ1: Online Learning and Professional Competence Development

The Results for Item 1 provide robust empirical support for the proposition that UT's online learning system is perceived as an effective mechanism for professional competence enhancement among PAUD teacher-learners. They are consistent with evidence that professional development is most effective when content is aligned with practitioners' instructional contexts and supported by active learning and sustained follow-up (Desimone, 2009), and with meta-analytic evidence that online teacher professional development improves teacher-level outcomes (Morina et al., 2025). The Teacher Professionalism course at UT appears to have achieved this contextual alignment, as suggested by qualitative responses citing direct applicability of course content to classroom practice. The comments from Brebes and Ternate connote perceived practical utility rather than merely theoretical enrichment.

From a Communities of Inquiry perspective (Garrison et al., 2000), the high level of perceived professional competence development suggests the successful cultivation of cognitive presence through the course's structured learning activities, case-based discussions, and applied assignments. The 14 virtual sessions appear to have created sufficient opportunities for deep engagement with course content to produce perceptions of meaningful learning and professional growth.

RQ2: Perceptions of the Online Learning Management System

The findings for Item 2 indicate a high level of perceived system usability and functionality across a geographically and technologically diverse cohort. Their significance is amplified by the participants' locations: students based in frontier locations such as Nunukan, Alor, and the Natuna Islands, environments characterised by limited infrastructure and restricted digital connectivity, nonetheless reported high perceived ease of use. This suggests that UT's LMS has been designed with sufficient affordances to accommodate users across a broad range of connectivity conditions, an achievement of considerable practical importance for educational equity in Indonesia.

Through the lens of the Technology Acceptance Model (Davis, 1989), these results indicate that UT's LMS has achieved the threshold of perceived ease of use necessary to support consistent user adoption. The high perceived usefulness documented in Item 1, combined with the high perceived ease of use in Item 2, creates the attitudinal conditions for sustained and productive engagement, a finding with direct implications for retention and completion rates in the Affirmative Scholarship Programme.

The qualitative data add nuance. The requests for faster tutor response and the emphasis on adequate personal technology identify two distinct layers of the accessibility challenge: institutional system design, for which responsibility lies with UT, and individual infrastructural preparedness, for which responsibility is more diffusely distributed between individuals, institutions, and the state.

RQ3: Tutor Support, Academic Services, and Online Learning Resources

The high level of endorsement of tutor and institutional support underscores the centrality of the human dimension of online learning consistent with work on the humanistic dimension of distance higher-education services in Indonesia (Syafi'i, 2025). The Pesawaran participant explicitly attributed the ease of the material to tutor guidance, and the Jepara participant named the course tutor directly, demonstrating that effective relational bonds between tutors and learners can develop even within virtualised instructional contexts. This personalised gratitude reflects what Richardson et al. (2017) describe as social presence in online learning: the perception of other participants as real, accessible, and emotionally present human beings rather than abstract digital interlocutors.

These findings are consistent with CoI-based meta-analytic evidence linking teaching presence to student satisfaction and learning in online environments (Caskurlu et al., 2020; Garrison & Kanuka, 2004), and with research on online teacher development that emphasises instructional support, feedback, and design quality (Huang et al., 2024; Stavermann, 2024). The tutor's role encompasses not only content delivery but also the facilitation of discussion, provision of personalised feedback, maintenance of interpersonal warmth, and scaffolding of self-regulated learning (Guasch et al., 2010), all of which appear to have been perceived positively by the majority of participants. Evidence that teacher coaching improves instruction (Kraft et al., 2018) further supports the value of sustained tutor guidance.

Theme 1: Flexibility as Structural Enabler for Dual-Role Learners

The prominence of scheduling flexibility is consistent with evidence that online professional learning can widen access for teachers working in regional and remote settings (Main & Slater, 2022; Abakah et al., 2023). Temporal flexibility was framed not merely as a convenience but as a structural precondition for participation: without it, higher education would simply be inaccessible. This resonates with research identifying flexibility as a central affordance of online learning for working adults (Dhawan, 2020; Kebritchi et al., 2017).

The PAUD teacher workforce in Indonesia is predominantly female, and many participants are housewives in addition to their professional duties. The inflexibility of conventional higher education, with fixed class schedules, campus attendance requirements, and rigid assignment deadlines, constitutes a structural exclusion mechanism for this group. UT's asynchronous and flexible learning architecture effectively dismantles this barrier, transforming structural exclusion into structural inclusion. The policy implication is that the effectiveness of the Affirmative Scholarship Programme is not contingent solely on financial support but also critically depends on the structural design of the learning environment. Temporal flexibility is thus not merely a pedagogical feature but a social equity mechanism.

Theme 2: Virtual Community Formation and Professional Networking

Although less prominent in frequency, this theme is highly significant in its social and educational

implications. Research on teachers' online professional learning communities likewise identifies collaboration, network expansion, knowledge sharing, and rapid support as key technological affordances (Jin et al., 2024; Krismanto et al., 2026). The Natuna participant's comment encapsulates a dimension of online learning that is frequently underemphasised in effectiveness research: its potential to generate social capital through professional communities that transcend geographic boundaries, in line with long-standing work on building a sense of community at a distance (Rovai, 2002).

The Indonesian concept of "silaturahmi", a cultural and religious practice of maintaining bonds of fellowship and kinship, carries deeper social meaning than its translation as "networking" suggests. It implies that participants experienced the virtual course environment not merely as a functional space for knowledge acquisition but as a social space in which meaningful human relationships were cultivated. This adds a dimension to the CoI framework's conceptualisation of social presence: in culturally specific contexts, social presence in online learning may activate culturally embedded practices of communal solidarity with significant motivational and relational consequences.

Theme 3: Constructive Institutional Aspirations

The suggestions for improvement are interpreted not as dissatisfaction but as evidence of active institutional investment. Offered within a broader framework of appreciation, they constitute what might be termed constructive aspirations: expressions of institutional loyalty and engagement by learners who perceive the programme as genuinely valuable and wish to see it realise its full potential.

Institutionally, these aspirations map onto identifiable areas for quality enhancement. Tutor responsiveness and feedback latency are recognised dimensions of teaching presence that UT can address through professional development, adjusted workload allocations, and enhanced platform notification systems. The digital preparedness challenge requires a more complex institutional response, potentially including subsidised device provision, community-based digital literacy training, and partnerships with telecommunications providers to extend connectivity in underserved areas, interventions that align with broader national digital transformation agendas.

Implications

The findings suggest that participants perceived the online course, its learning management system, and its tutor support as contributing positively to their professional learning. For Universitas Terbuka (UT), this indicates that tutor responsiveness, digital materials, and LMS accessibility are valued features worth sustaining, particularly for learners in low-connectivity areas. Qualitative responses further suggest that scheduling flexibility helped teachers balance their studies with professional and domestic roles, thereby supporting the equity rationale of the Affirmative Scholarship Programme. The results are consistent with the perceived usefulness and ease-of-use constructs of the Technology Acceptance Model and with the teaching-presence dimension of the Community of Inquiry framework, although neither framework was formally tested.

Limitations

The most important limitation is that all findings rely on self-reported perceptions collected at a single time point, without pre-post assessment or other independent measures of competence. The results therefore cannot be interpreted as evidence of actual competence improvement or of a causal effect of the course. This limitation is compounded by potential social desirability bias stemming from the first author's dual role as a course tutor and data collector. In addition, the small convenience sample (n = 53–54 for the Likert items; n = 28 for open-ended responses) limits generalisability beyond this programme and cohort.

Recommendations

For UT: maintain investment in tutor responsiveness, digital resources, and LMS accessibility, and establish a routine mechanism to collect and respond to student feedback. *For policy:* the perceived value of the programme supports continued attention to digital infrastructure in remote regions as a condition for equitable participation in distance education. *For future research:* studies should use larger samples, independent data collection, and designs that combine perception data with pre–post assessments, classroom observation, or portfolio evidence to examine whether perceived contributions translate sinto

changes in practice.

CONCLUSION

This mixed-methods study examined how PAUD teachers in UT's Affirmative Scholarship Programme perceived online learning in the Teacher Professionalism course. Participants overwhelmingly reported favourable perceptions of the course's contribution to their professional competence, the usability of the LMS, and the quality of tutor support and academic services, and open-ended *responses* helped explain these ratings. Because the study measured perceptions rather than competence, the findings indicate perceived contributions only; whether these perceptions correspond to actual professional improvement remains a question for future research.

DECLARATIONS

Ethics Approval and Consent to Participate. Participation was voluntary, and respondents were informed of the study's purpose before data collection. Informed consent was obtained from all participants before they completed the questionnaire. Responses were anonymised and used solely for academic purposes.

Consent for Publication. All participants consented to the use of anonymised data in scholarly publications. No personally identifiable information is included in this manuscript.

Availability of Data and Materials. The datasets generated and analysed during this study are available from the corresponding author on reasonable request. They are not publicly available because of participant privacy and confidentiality.

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AI Use Statement. During the preparation of this manuscript, the authors used GPT as a writing and editing assistant. It was used to restructure sections in response to reviewer comments, improve language clarity, align terminology with the perception-based study design, and check the consistency of reported percentages against the tables. AI was not used to collect data, to generate or alter the study data, or to produce the findings. The authors verified all AI-assisted text and take full responsibility for the content of the manuscript.

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