



Integrating ICT and AI-driven Reflective Practice to Enhance EFL Teachers' Language Assessment Literacy: A Comparative Study of Young and Adult-Learner Contexts

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Abstract

Language Assessment Literacy (LAL) is vital for effective instruction, but its development is often limited by institutional policies and a lack of contextualized professional development. Although information and communication technology (ICT) and Artificial Intelligence (AI) provide new avenues for nurturing reflective practice and fostering LAL, their influence across various instructional contexts remains underexplored. This qualitative, multiple case study explores how incorporating ICT and AI-driven reflective practices impacts the LAL of EFL teachers, comparing experiences in young-learner (YL) and adult-learner (AL) contexts in Iran. Data from post-observation discussions, classroom observations, semi-structured interviews, and narrative frames from 12 teachers revealed that both groups faced similar limitations from institutional policies, which restricted their assessment agency and reflective practice. Nevertheless, key differences emerged: YL teachers mainly required material and technological affordances to support multimodal, age-appropriate assessment, whereas AL teachers highlighted the need for conceptual tools and professional development to leverage data-informed, reflective practices. The study concludes that targeted teacher education, integrating AI-driven reflective systems and digital assessment tools, can allow teachers to explore institutional limitations and develop their LAL in ways that are responsive to the particular sociocultural and developmental needs of their learners.

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Introduction

Over the past decades, language assessment literacy (LAL) has received considerable scholarly attention as a means of understanding how teachers conceptualize, develop, and implement assessment knowledge and practice (Coombe et al., 2020; Inbar-Lourie, 2013; Taylor, 2013; Zhang et al., 2024). This growing field of research progressively highlights not only the theoretical foundations of assessment knowledge but also its practical applications in classroom settings (Fulcher, 2012; Inbar-Lourie, 2019; Levi & Inbar-Lourie, 2017). Recent developments in LAL research (e.g., Giraldo, 2018; Kao, 2023; Abrar-ul-Hassan & Nassaji, 2023) have further underscored the need to contextualize teachers' assessment competence regarding institutional structures, learner groups, and sociocultural specificities.

With the rapid progress of educational technology and the proliferation of artificial intelligence (AI), new opportunities have appeared for nurturing teachers' professional development by means of technology-supported reflective practice (Trevisan et al., 2024). Incorporating ICT and AI tools into reflective cycles enables teachers to analyze assessment processes more systematically, obtain data-informed feedback, and make evidence-based instructional modifications (Qazi & Pachler, 2025). Such incorporation provides significant potential for expanding teachers' LAL by linking theoretical understanding with authentic classroom practice in real time.

Although the implementation of ICT and AI-driven reflective practices has been widely explored in teacher education, limited research has examined how these innovations can support LAL development across diverse learner groups, mainly between teachers of young learners (YLS) and those of adults (Garton & Copland, 2019). Teachers working with YLS often explore distinctive socio-emotional, psychological, and developmental challenges (Ghasemi, 2025; Zein & Butler, 2022), making assessment processes mainly sensitive and complex. As Parker and Valente (2018) emphasize, overt assessment practices can be stressful for younger learners, who may show greater emotional vulnerability than adults when confronted with evaluative tasks. To fill this gap, the current study explores how incorporating ICT and AI-driven reflective practice can develop EFL teachers' LAL, comparing experiences and results in young- and adult-learner settings. The study probes how institutional and contextual factors mediate the use of digital and AI tools in teachers' reflective assessment practices, eventually determining their professional development and classroom effectiveness.

Literature Review

Language Teacher Assessment Literacy

Assessment literacy, first conceptualized by Stiggins (1991) and later borrowed into language education by Falsgraf (2005), refers to "the ability to understand, analyze, and apply information on student performance to improve instruction" (p. 6). Within language education, language assessment literacy (LAL) includes the range of knowledge, principles, and skills teachers need to plan, implement, interpret, and use assessment efficiently (Davies, 2008; Förster, 2024; Stiggins, 1995; Taylor, 2009). LAL has been inspected both in general education (Popham, 2008; Stiggins, 1999) and language assessment (Brindley, 2001; Taylor, 2009), underscoring how teachers' engagement with assessment, both high- and low-stakes, forms

their professional practices and classroom decision-making (Coombe et al., 2020). Hence, LAL reflects teachers' ability to balance theoretical understanding with context-sensitive implementation of assessment principles (Davies, 2008; Green et al., 2025).

Current studies have expanded the LAL framework to contain technological and reflective dimensions, admitting that assessment today is inseparable from digital mediation. ICT and AI tools can function as catalysts for developing teachers' assessment literacy through constructive feedback, real-time analytics, and reflective insights into learners' progress (Wei et al., 2025). For example, digital learning management systems, AI-based scoring tools, and automated data dashboards can provide teachers with authentic data to reflect on assessment fairness, validity, and reliability—key components of LAL (Trajkovski & Hayes, 2025).

Conceptualizations of assessment literacy have also relied on the sociocultural and institutional contexts determining assessment practices (Xu & Brown, 2016). The standards set by the American Federation of Teachers (AFT) and related organizations in the 1990s emphasized teachers' competence in choosing and interpreting assessments appropriately. Taylor's (2013) multidimensional model additionally recommended eight core knowledge domains for assessment-literate teachers, incorporating theoretical, technical, instructional, sociocultural, and emotional aspects. In technologically mediated classrooms, these domains are progressively implemented through digital and AI-based reflective tools that help teachers visualize learning outcomes, interpret performance patterns, and align assessment decisions with instructional goals (Zou et al., 2025).

Research, however, shows that teachers' LAL remains underexplored across settings and is highly dependent on training and institutional support (Chan & Luk, 2022). Studies by Campbell et al. (2002), Mertler (2003), and DeLuca and Klinger (2010) collectively indicate deficiencies in teachers' assessment competence, mainly in formative assessment, emphasizing the need for more innovative, contextually responsive professional development. The incorporation of ICT and AI-based reflective practice can address this need by allowing teachers to involve in data-informed, iterative cycles of reflection, thereby deepening their LAL and developing assessment quality.

Young- and Adult-Learner Teachers' Professional Assessment

Modern shifts in language education have expanded the research focus to different learner groups, comprising YLs and adult learners (ALs) (Farrell, 2022; Garton & Copland, 2019). Teaching YLs has moved from a peripheral "Cinderella" area (Garton & Copland, 2019) to a central research domain, given the increasing importance on early language teaching (Johnstone, 2009; Rich, 2019). Teachers of YLs (typically ages 5–12) must modify instruction and assessment to the developmental, emotional, and cognitive needs of children (Pinter, 2017; Zein & Butler, 2022), while adult-learner teachers (adolescents or adults) utilize explicit teaching, metacognitive awareness, and life experiences (Nikolov & Djigunović, 2019).

Incorporating ICT and AI into these unique instructional contexts has produced different implications for assessment and reflection. For YLs, AI-supported games, digital storytelling tools, and visual dashboards can foster informal, formative, and engaging assessment that supports children's emotional and cognitive characteristics (Butler & Lee, 2010; Taghizadeh

& Yourdshahi, 2020). For adults, ICT and AI tools can improve autonomous, feedback-driven assessment, integrating analytics to support metacognitive reflection and self-regulation (Gillespie & Grishaeva, 2022). However, comparative research investigating how ICT and AI-mediated reflective practices impact LAL across these two groups remains scarce, a gap this study aims to address.

Theoretical Framework: A Sociocultural Perspective on LAL

This study adopts a sociocultural theoretical framework (Vygotsky, 1978; Lantolf & Thorne, 2006) to examine how ICT and AI-supported reflective practices shape teachers' LAL. From this lens, teacher cognition and assessment literacy are socially mediated instead of individually gained (Scarino, 2013; Xu & Brown, 2016). Teachers' LAL develops through interaction with contextual mediators, including institutional norms, technological tools, and professional communities, which define how assessment knowledge is constructed and enacted.

ICT and AI technologies work as mediational tools within this framework. They not only offer material resources (e.g., digital platforms, automated scoring systems) but also function as conceptual artifacts that restructure how teachers think about and perform assessment. Institutional policies (regulation), access to technology (tools), and collaborative teacher communities (community) interact to influence teachers' agency and reflective practice (Priestley et al., 2015).

Applying this lens comparatively, young- and adult-learner teachers can exploit diverse sociocultural and technological ecologies. The "social situations of development" (Vygotsky, 1998) for YLs highlight playful, emotionally responsive, and multimodal assessment, while adult contexts prioritize analytical, goal-oriented, and data-driven approaches. ICT and AI incorporation thus mediate teachers' LAL inversely across these environments, showing how sociocultural and institutional affordances can either allow or constrain reflective assessment practices.

The present study

As discussed earlier, the field of teaching YLs has been shown to be distinct from that of teaching adults, although it shares certain instructional foundations (Copland et al., 2014; Garton & Copland, 2019; Nikolov & Djigunović, 2019). This developing body of research underlines the significance of probing areas where teaching young learners deviates most noticeably from adult teaching. One such area is teachers' LAL, their understanding, beliefs, and practices concerning assessment, which play a crucial role in determining teacher professionalism (Coombe et al., 2020).

Nevertheless, in spite of significant research on LAL, restricted attention has been paid to how digital technologies and AI-driven reflective practices can affect teachers' assessment literacy across learner groups. As ICT and AI tools become progressively incorporated into language classrooms, teachers' professional development is no longer exclusively mediated by traditional training or experience but also by their engagement with technology-supported reflection, automated feedback systems, and data-informed assessment decisions. How such

digital mediation interconnects with the LAL of teachers working with diverse age groups remains an open question.

Against this backdrop, the current study explores how incorporating ICT and AI-driven reflective practice can improve the language assessment literacy of EFL teachers in young- and adult-learner settings in Iran. Instead of assuming essential distinctions between these two groups, the study aims to investigate the similarities and differences in how young- and adult-learner teachers perceive, develop, and enact their LAL through the use of digital and AI-supported reflective tools. This comparative approach allows for a more transparent and contextually grounded understanding of how age group and technological mediation interact to nurture teachers' assessment knowledge and practices.

Findings from this research are expected to contribute to both LAL theory and teacher professional development by demonstrating how ICT and AI integration can be leveraged to support reflective assessment practices in different instructional contexts. They will also offer practical implications for teacher educators seeking to design technology-enhanced LAL training models tailored to the needs of different learner groups. Therefore, this study seeks to answer the following research question:

How are Iranian young- and adult-learner EFL teachers similar and/or different in their LAL when combining ICT and AI-driven reflective practices?

Method

Research Design

This study selected a qualitative multiple case-study design to probe how ICT and AI-driven reflective practices influence the LAL of Iranian young- and adult-learner EFL teachers. A qualitative approach was specifically suitable as it allows for a detailed and context-sensitive exploration of teachers' lived assessment experiences and technology-mediated reflections (Mackey & Gass, 2015). The case-study framework empowered a holistic understanding of how teachers working in distinct age-group settings, young versus adult learners, developed and applied their LAL through both traditional and digitally supported reflective processes (Larrotta & Ture, 2025).

The selected institution provided both young- and adult-learner programs but lacked structured professional development in assessment or digital pedagogy. This offered a natural setting to examine how teachers' assessment literacy developed when they were encouraged to incorporate ICT tools, such as digital portfolios and online feedback systems, and AI-assisted reflective mechanisms, like automated scoring analytics and AI-produced performance insights, into their teaching and evaluative routines.

Participants and Setting

Twelve EFL teachers participated in the study, selected through convenience sampling. Six of them were young-learner teachers (T1–T6), and another six were adult-learner teachers (T7–T12). All were part-time instructors at a private language institute in an Iranian city. Their ages ranged from 20 to 35, with their instructional experience fluctuating between one and 11 years.

Ten participants were female and two were male, holding degrees in English language teaching, English literature, or translation studies.

The institute included two sections: one for young learners aged 5 to 12 and another for learners aged 13 and above. Teaching assessment in both programs involved formative and summative approaches, and learners developed based on teachers' constant evaluation and final exam results. None of the teachers had obtained formal training in assessment literacy or in incorporating ICT and AI into their practice. Young-learner teachers, specifically, stated challenges because of restricted access to digital resources including online platforms, visual materials, and interactive tools, while adult-learner teachers had relatively greater exposure to and comfort with digital feedback systems. This disparity made the context suitable for investigating how ICT and AI tools mediated teachers' reflective assessment practices and how these experiences formed their LAL across the two groups.

Data Collection

Data collection happened in four complementary stages that captured teachers' reflective engagement, assessment practices, and experiences with ICT and AI tools. First, classroom observations were applied to examine how teachers enacted assessment in real environments and whether technology-mediated practices were integrated. Each of the 12 teachers was observed once throughout a 90-minute class session. Observations concentrated on how teachers employed assessment tasks, used digital tools for feedback or monitoring, and engaged learners in assessment-related reflection. Detailed field notes were collected during each observation, highlighting assessment moments and any explicit or implicit implementation of ICT and AI technologies.

Following each observation, short post-observation reflective discussions were conducted to elicit teachers' reasoning about their assessment decisions and their application of digital or AI-supported tools. These conversations lasted for about 15 minutes and were implemented in both Persian and English. Teachers were invited to comment on selected observation notes and to elaborate on how they reflected on assessment processes, whether technology played a role, and what challenges or benefits they experienced when incorporating digital feedback or automated assessment analytics.

Semi-structured interviews were then applied to probe teachers' conceptual and procedural understanding of assessment, with specific attention to how ICT and AI tools contributed to their reflective practice. The interviews, implemented in Persian and lasting for about 30 minutes each, were planned around the Standards for Teacher Competence in Educational Assessment of Students (1990) and main constructs from the LAL literature (e.g., Giraldo, 2018). Questions targeted areas including assessment design and implementation, the use of assessment tools, scoring and interpretation, ethics and fairness, and the sharing of results. Teachers were also encouraged to describe how AI-based or digital reflective tools, for example online feedback systems or self-assessment platforms, supported their professional development in assessment literacy.

To complement the observational and interview data, narrative frames were used to capture teachers' personal reflections on their experiences with assessment and technology-mediated

reflection. The narrative frames helped teachers to recount one positive and one negative assessment experience, mainly moments where ICT or AI tools influenced their practice. Teachers were asked to discuss how these experiences influenced their professional identity, assessment principles, and continuous reflective habits. All the participants completed the narratives in Persian.

Data Analysis

All collected data—classroom observations, post-observation discussions, interviews, and narrative frames—were analyzed by means of conventional qualitative content analysis. This inductive process included transcribing all data, reading them repeatedly for immersion, and recognizing recurrent concepts and meanings. Codes were developed for each teacher group to capture developing patterns related to assessment literacy and technology-mediated reflection. Codes such as “AI-assisted feedback interpretation,” “ICT-based formative assessment,” and “digital reflection challenges” developed during initial coding.

Once initial codes were established, they were grouped into broader categories. Comparative analysis was, then, conducted to recognize mutual and divergent patterns between young- and adult-learner teachers. This continuous comparative process permitted us to trace how each group experienced ICT and AI incorporation in reflective assessment practices and how these experiences shaped their LAL.

To improve the trustworthiness of the findings, the teachers reviewed and confirmed the observational field notes (member checking), and an external researcher examined the coding and category development to guarantee analytic consistency. While statistical measures of inter-coder reliability were not applied, interpretive consensus was reached through collaborative discussion. The resulting analysis offered a comprehensive understanding of how ICT and AI-driven reflective practices mediated the LAL of the EFL teachers across diverse learner settings.

Findings

The analysis of the data revealed both similarities and differences between young- and adult-learner teachers in their LAL, particularly in relation to how institutional contexts and the integration of ICT and AI-driven reflective tools shaped their assessment beliefs and practices. The most salient area of similarity across both groups was the influence of institutional policies, including student placement, large class sizes, and extensive textbook requirements. The major areas of difference, however, related to the types of affordances required for assessment, the assessment techniques employed, and the extent to which ICT and AI-supported reflection were integrated into assessment and instruction.

Similarities in Young- and Adult-Learner Teachers' LAL

Both young- and adult-learner teachers used comparable assessment practices, including concentrating on oral skills, integrating comprehension-check questions, and offering corrective feedback. More significantly, they shared similar perceptions concerning the limiting influence of institutional policies on their assessment literacy, mainly how these

policies limited their ability to apply reflective and technology-supported assessment strategies.

One recurring concern was the issue of *inappropriate student placement*. Teachers explained that mixed proficiency levels hindered fair and effective assessment. As T1 stated, “There are many students in all of the classes and this makes it difficult to assess all of them as well as I want” (post-class discussion). Similarly, T9 noted how placement inconsistencies disrupted teacher–student relationships: “When I ask a student a question and her proficiency level is not appropriate for this class, she feels discouraged and may dislike assessment altogether, but this is not my fault” (Interview). T11 explicitly connected this problem to *institutional policy*, emphasizing that “when there are no clear screening criteria, teachers are the ones who suffer because we must constantly modify our assessment questions, which takes extra time” (Interview).

Another common challenge related to large *class sizes*, which the teachers described as a persistent barrier to individualized assessment and reflective practice. For example, T3 mentioned, “I always have problems assessing students’ speaking because there are more than 15 students in the class, and I can’t find the time to ask them detailed questions” (Interview). T5 expressed frustration at how this issue was repeatedly *ignored by the administration*, which, in her words, made her “wonder if assessment is important to them or if we and the students are simply not priorities” (Narrative frame). This *lack of institutional support* also *limited opportunities* to implement digital or AI-supported assessment tools that could have helped manage workload and provide individualized feedback.

A further area of similarity involved the challenge posed by *excessive textbook requirements*. The teachers in both groups stated that the large number of coursebooks prevented them from effectively integrating ICT-based activities or reflective digital assessment practices. As T10 explained, “I really feel guilty when I should assess students on all of the textbook’s [four], but I can’t do it. If I do, I will lose instructional time, and if I skip some, I will feel irresponsible” (Interview). T4 shared a similar sentiment, noting that skipping certain books had become a shared practice among colleagues: “I think that’s what everybody does, because it’s impossible to cover all of them, although we feel bad about it” (post-class discussion). These institutional constraints, collectively, shaped teachers’ limited engagement with reflective assessment practices, whether traditional or technology-enhanced.

Differences in Young- and Adult-Learner Teachers’ LAL

Despite these shared challenges, several clear differences emerged between the two groups concerning the affordances needed for assessment, the assessment techniques employed, and the extent of ICT and AI integration in reflective practice. Regarding affordances, young-learner teachers expressed a greater need for *technological and material resources* to effectively assess and engage their students. For instance, T2 highlighted how limited access to digital tools limited her ability to assess writing skills: “When I want to check the students’ alphabet through writing on the board, I just have a marker and a whiteboard. In other countries, teachers use smart boards, which are more engaging and make assessment easier” (Interview). Conversely, adult-learner teachers were less concerned about physical affordances and more

about the absence of *professional development opportunities*, especially in assessment and digital reflection. T8, for instance, remarked that, “Teachers need courses to become better in everything, including assessment. This way we refine our skills, become more knowledgeable, and learn from each other, but I have not had any so far” (Interview). Young-learner teachers shared this sentiment but emphasized that such training should also cover *creative and ICT-supported strategies* to compensate for the lack of amenities, as T5 explained: “Professional developments or workshops are needed to develop our skills in how to use new alternative strategies to compensate for lack of amenities” (post-class discussion).

Differences also appeared in the assessment techniques used by the two groups. Young-learner teachers tended to employ *multimodal and interactive assessment techniques*, often incorporating movement, sound, and visuals, techniques that could naturally align with ICT-based formative assessment tools. For example, when checking students’ understanding of the letter “B,” T4 first played an audio clip, then asked the learner to repeat it, and finally wrote it on the board. She justified her approach by stating, “When students move and get engaged, they learn better because they are children” (post-class discussion). In contrast, adult-learner teachers preferred *task-based assessments* focusing on specific skills, often supported by AI-enabled or online feedback systems when available. For example, T8 assessed speaking through narrative recounts, focusing on global comprehension and fluency: “When the student narrates his story, I can focus on the global points” (post-class discussion).

The final area of divergence related to the *integration of assessment and instruction*. Adult-learner teachers showed stronger tendencies to *use assessment outcomes*, sometimes supported by AI-generated performance analytics, as tools for instructional reflection and adjustment. For instance, T9 connected assessment outcomes to instruction during reading activities, using observed errors to highlight grammatical points. T12 similarly described how she used recurring student errors identified through digital quizzes as opportunities for instructional reinforcement: “Whenever I ask students to talk about their experiences, they struggle with the present perfect, so I repeat it constantly to amend it” (post-class discussion). In contrast, young-learner teachers *kept distinguishing clearly between assessment and instruction*, avoiding revisiting previous topics due to learners’ limited cognitive flexibility. As T1 explained, “I think students may get confused about why I am repeating previous contents. They just want to focus on the present lessons” (post-class discussion).

Overall, the findings suggest that while both groups of teachers operate under similar institutional constraints, adult-learner teachers demonstrate a greater capacity to integrate ICT and AI-supported reflection into their assessment literacy practices, whereas young-learner teachers show higher creativity in multimodal assessment but face significant challenges due to limited technological affordances and age-related pedagogical constraints.

Discussion

This study explored the similarities and differences in young- and adult-learner teachers’ LAL, with particular attention to how their practices were shaped by institutional regulation and mediated by available (or lack thereof) technological and reflective tools. Data analyses revealed that the most significant similarities across the two teacher groups were entrenched in

the aspect of social regulation. From a sociocultural perspective, the top-down institutional policies regarding student placement, class size, and the volume of materials functioned as powerful mediating forces. Such factors limited teachers' assessment practices and their capacity to engage in ICT- and AI-supported reflective learning, regardless of the learner group they taught.

Previous research on LAL has underscored how institutional decision makers and policy frameworks can either support or limit teachers' development of assessment literacy (Inbar-Lourie, 2013; Scarino, 2013; Vogt et al., 2024). The findings of this study confirm that such regulation continues to exert a largely negative influence, impeding teachers' autonomy in both assessment design and reflective adaptation through digital means. The absence of systemic support for ICT integration or AI-based feedback tools limited the teachers' opportunities to critically analyze their own assessment behaviors, a process essential for data-informed professional growth.

Importantly, this regulation did not simply manifest as logistical challenges, but it produced deep emotional and interpersonal tensions. This extends the sociocultural interpretation of regulation by showing that restrictions on teacher agency, an important construct in sociocultural theory (Priestley et al., 2015), have affective and cognitive implications. The teachers' frustration and sense of ineffectiveness illustrate how macro-level policies mediate cognition, emotion, and practice in ways that undermine sustained reflective engagement. Although the teachers noted that such policies did not always hinder their instruction directly, they significantly restricted their assessment-related reflection and innovation, both of which are essential to developing LAL. This finding resonates with Taylor's (2013) and Scarino's (2013) conceptualizations of institutional mediation and supports Garton and Copland's (2019) and Zein and Butler's (2022) observations that policy constraints disproportionately affect young-learner teachers. The novel insight emerging here is that emotional dissonance operates as both a mediator and a product of such institutional limitations, discouraging teachers from engaging in reflective or technology-enhanced assessment practices.

Despite these shared constraints, the findings revealed notable differences in the teachers' LAL, particularly in the mediation of tools. Young-learner teachers' assessment literacy was deeply shaped by the absence of appropriate physical and digital affordances, such as interactive whiteboards, digital formative assessment tools, and AI-assisted platforms, which could enable more engaging, multimodal assessment practices suited to children's developmental needs. In contrast, adult-learner teachers, whose practice was mediated by conventional tools such as textbooks, paper-based quizzes, and summative tests, emphasized their need for conceptual tools, especially professional development opportunities focused on integrating ICT and AI-driven reflection into assessment design. This pattern highlights that the nature of required mediation is context-dependent: Young-learner teachers require material and technological tools to support basic assessment acts, whereas adult-learner teachers use advanced conceptual and digital-reflective tools to enhance their analytic and diagnostic use of assessment.

This finding aligns with prior research on young-learner pedagogy (Butler, 2017; Copland et al., 2014) while extending it by showing that insufficient technological affordances

themselves can become negative mediators of assessment practice. As Giraldo (2018) notes, barriers in one dimension of assessment practice can influence the broader architecture of teachers' knowledge and skills. The current findings illustrate that when teachers must struggle with logistical and material preliminaries, they are less likely to engage in reflective, technology-supported, or AI-informed professional growth initiatives (Rieker & Doran, 2025). This reinforces the argument that access to digital and reflective tools is not merely a matter of convenience but a key component of equitable teacher professionalism.

Differences in the integration of assessment and instruction can also be interpreted through the sociocultural concepts of mediation and the "social situations of development" of learners. Young-learner teachers' multimodal and play-oriented assessment practices reflected instruction mediated by sensory engagement, movement, and implicit learning, tools appropriate for the zone of proximal development (Vygotsky, 1978) of children. Their practices integrated assessment *into* teaching, often informally and experientially. In contrast, adult-learner teachers' tendency to use assessment outcomes, sometimes supported by AI-generated analytics or digital feedback reports, as stimuli for targeted instruction reflects a pedagogy mediated by metacognition and analytical awareness. Their practice integrates teaching *from* assessment, demonstrating a more explicit form of reflective practice facilitated by digital tools and self-evaluation.

These patterns suggest that each group adapts its assessment literacy to the specific mediational demands of its learner community. The difference lies in the availability and use of ICT and AI as mediating tools for reflection. While young-learner teachers are constrained by insufficient affordances, adult-learner teachers, though more reflective in their approach, still lack structured opportunities for AI-supported feedback and collaboration. Taken together, these findings indicate that the development of teachers' LAL in both groups could be significantly enhanced through the strategic integration of ICT-based assessment platforms and AI-driven reflective systems that not only streamline assessment but also empower the teachers to analyze, adapt, and grow from their own practice in contextually meaningful ways.

Conclusion

The findings of the study indicated that the similarities in the LAL of young- and adult-learner teachers were predominantly rooted in the institutional policies that constrained their effective development of assessment literacy. These policies, including those related to student placement, class size, and curriculum design, limited teachers' agency and reduced opportunities for reflection and innovation. The differences between the two teacher groups, were mostly evident in the affordances accessible to them and in the ways, they incorporated assessment and instruction within their instructional practices. Young-learner teachers encountered material and technological limitations that limited multimodal assessment, while adult-learner teachers expressed a need for professional and conceptual development to reinforce their capacity for reflective and data-informed assessment.

These findings carry significant implications for teacher educators and policymakers. Incorporating ICT tools and AI-driven reflective systems into teacher education programs can offer teachers new avenues for professional development and deeper engagement with their

own assessment practices. Digital portfolios, AI-based feedback systems, and reflective analytics can function as mediational tools that enable teachers to monitor, analyze, and refine their assessment strategies in real time. Such tools can also help alleviate the emotional and institutional barriers identified in this study by offering the teachers evidence-based insights and collaborative platforms for peer reflection. In this regard, teacher education courses could meaningfully integrate structured discussions around institutional policies, assessment, and pedagogical incorporation. Facilitating peer group initiatives that use ICT- and AI-supported reflection, including online mentoring or collaborative analysis of assessment data, could make assessment-oriented teacher education more responsive to teachers' contextual realities. Such practices may not only enhance teachers' LAL but also contribute to institutional accountability and the overall quality of language education services.

While this study has unpacked important dimensions of teachers' LAL, several limitations should be acknowledged. First, classroom observations were limited to one session per teacher, which may not fully capture the dynamic nature of assessment practices. Future research should employ extended observation protocols and digital ethnographic tools, such as classroom analytics or AI-assisted reflection platforms, to more deeply explore how teachers practice assessment and develop their LAL over time. Additionally, only six teachers per group participated, which limits the generalizability of the findings. Expanding future studies to include a larger and more diverse sample would offer broader insights into how ICT and AI-driven reflective mechanisms influence teachers' assessment development across contexts.

These limitations notwithstanding, the study contributes to an emerging understanding of how sociocultural, institutional, and technological mediations jointly shape teachers' LAL. By integrating ICT and AI-driven reflective practice into teacher education and professional learning ecosystems, stakeholders can help teachers move beyond policy-induced constraints and towards a more balanced, reflective, and empowered engagement with assessment.

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