




Equity in Teacher Education through AI-Mediated Work-Integrated Learning

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Abstract: Equity in teacher education is a critical global issue, especially as digital transformation alters professional learning environments. This chapter explores the integration of artificial intelligence (AI) within work-integrated learning (WIL) as a strategy to enhance inclusive, practice-based teacher preparation. Drawing on connectivist and transformative learning theories, it introduces an AI-Mediated WIL Equity Framework that places teacher candidates at the heart of AI-mediated networks, which offer virtual simulations, adaptive feedback, learning analytics, and collaborative support. While AI-mediated WIL creates opportunities for equitable access, personalised learning, and reflective professional growth, several practical challenges must be addressed for effective implementation. These include disparities in digital infrastructure, algorithmic bias, limited digital literacy, and institutional readiness. The chapter concludes with recommendations for the ethical, context-responsive, and sustainable adoption of AI-mediated WIL, providing a scalable model for promoting fairness, inclusivity, and transformative learning in modern teacher education.

Keywords: Artificial intelligence, equity, work-integrated learning, teacher education, connectivism, transformative learning.

1. Introduction

Equity in teacher education has long been recognised as a cornerstone of quality and inclusive education systems (Ainscow, 2020; Sunthonkanokpong & Murphy, 2019). However, disparities in access to learning opportunities, resources, mentoring, and assessment continue to shape the experiences of pre-service and in-service teachers across many regions of the world. Structural inequalities—ranging from socio-economic differences (Drescher et al., 2022) and geographic isolation (Ahiaku et al., 2025) to gender disparities and technological divides (El-Hamamsy et al., 2023)—create uneven conditions for teacher preparation and professional growth. These

inequities ultimately influence not only who becomes a teacher but also the quality of instruction that learners receive in diverse classrooms. Therefore, ensuring fairness and inclusivity in how teachers are trained, supported, and assessed remains a global imperative.

The digital transformation of education is opening new possibilities for addressing inequities in teacher preparation, even amidst ongoing challenges (Matsieli & Mutula, 2024). Emerging technologies, such as Artificial Intelligence (AI), are redefining how teachers learn, teach, and engage with practice (Kusmawan, 2023; Lameris & Arnab, 2021), moving away from traditional methods. Through adaptive feedback systems, intelligent tutoring, virtual simulations, and analytics-driven mentoring, AI can create personalised and context-responsive learning experiences that meet the unique needs of individual teacher candidates (Cinganotto & Montanucci, 2025; Neupane et al., 2025; Yildiz Durak & Onan, 2025). Likewise, Work-Integrated Learning (WIL), a pedagogical model that integrates academic learning with real-world practice, offers a powerful avenue for bridging theory and classroom application (Jeong & McMillan, 2015). When AI is embedded within WIL environments, it can enhance access to practice-based experiences, enable remote supervision and feedback, and provide scalable mentoring opportunities across diverse educational contexts (Barbieri & Nguyen, 2025; Sharma & Sharma, 2025).

It is crucial to recognise that the combination of AI and WIL presents transformative potential for promoting equity in teacher education (Barbieri & Nguyen, 2025; Bura & Myakala, 2024; Kayal, 2024). AI-mediated WIL environments can offer authentic teaching experiences, particularly for candidates in underserved or remote areas (Jacoby et al., 2024). They can also support differentiated learning paths, responsive assessment, and continuous professional reflection. However, realising this potential requires a thorough understanding of how AI functions as a mediating tool within teacher preparation systems, and how it can be designed and implemented to uphold principles of fairness, inclusivity, and contextual relevance. This chapter explores the intersection of AI, work-integrated learning, and equity in teacher education, aiming to develop a conceptual framework that articulates how AI-mediated environments can foster more equitable and transformative learning experiences for the teaching workforce.

1.1 Conceptual background

Teacher preparation programmes are redefining how future educators acquire, practise, and reflect on professional competencies (McMahon et al., 2015; Voinea, 2019; Ward et al., 2013). This transformation is increasingly supported by artificial intelligence (AI) technologies, which encompass intelligent tutoring systems and generative assistants, providing personalised feedback, adaptive mentoring, and simulated teaching experiences (Cinganotto & Montanucci, 2025; Lameris & Arnab, 2021). These tools extend opportunities for professional growth beyond traditional classroom settings, which have been in operation for an extended period,

enabling more data-driven and individualised support for both pre-service and in-service teachers (Kusmawan, 2023; Yildiz Durak & Onan, 2025).

Despite AI's transformative potential, it is inextricably linked to questions of equity (Judijanto et al., 2025). Ongoing disparities in digital infrastructure, access, and readiness continue to limit the beneficiaries of AI-enhanced teacher education (Ahiaku et al., 2025). In rural and under-resourced regions, inadequate connectivity and limited digital literacy exclude many teachers from digital training opportunities, exacerbating existing inequalities. As Ainscow (2020) posited, achieving educational inclusion necessitates systemic change that dismantles structural barriers rather than reinforces them; this principle must guide AI-mediated reform. Within this evolving landscape, Work-Integrated Learning (WIL) serves as a pivotal bridge between theory and practice, traditionally delivered through classroom placements and teaching practice. However, recent innovations have reimagined WIL via digital platforms, simulation technologies, and AI-mediated environments that extend experiential learning beyond conventional school placements. These innovations allow teacher trainees to engage in authentic practice, reflection, and collaboration, even in virtual or blended contexts. For instance, generative AI can act as a "placement buddy," providing real-time guidance and emotional support during virtual teaching practice (Barbieri & Nguyen, 2025), while adaptive systems facilitate self-management and reflective learning in simulated environments (Sharma & Sharma, 2025). These developments suggest that AI has the potential to democratise WIL.

Nevertheless, the integration of AI into WIL is not inherently equitable. If access, algorithmic bias, or language limitations are left unaddressed, AI-mediated learning can replicate exclusionary practices (Bura & Myakala, 2024). Therefore, promoting equity necessitates the intentional design of AI-supported teacher preparation at every level. This aligns with the transformative learning perspective that professional growth emerges from critical reflection and the re-examination of existing assumptions (Kayal, 2024). Considering these insights highlights the necessity for a conceptual model that positions AI as a mediator rather than merely a tool within work-integrated learning processes, ensuring that technology serves as an enabler of equity rather than a divider. The next section builds on connectivist and transformative learning theories to elucidate how such an equitable AI-mediated WIL framework can be conceptualised and operationalised in teacher education.

1.2 Theoretical foundations

This chapter is grounded in Connectivist Learning Theory and Transformative Learning Theory, which together offer a robust framework for examining equity within AI-mediated Work-Integrated Learning (WIL) in teacher education. These theories provide complementary insights into learning in digitally mediated environments and the reflective processes essential for inclusive professional development.

Connectivist Learning Theory, proposed by Siemens (2005), conceptualises learning as a process of creating, navigating, and sustaining networks that connect individuals, digital resources, and information systems. In contrast to traditional theories such as behaviourism or constructivism, which focus on internal cognitive processes (Menary, 2007), connectivism views knowledge as distributed, dynamic, and embedded within a broader digital ecosystem (Alam, 2023; Banihashem & Aliabadi, 2017; Corbett & Spinello, 2020). Consequently, learning is understood as the ability to access and engage with relevant nodes of information and expertise within an ever-evolving network.

This perspective is particularly pertinent to AI-mediated teacher education, where artificial intelligence serves as a critical node within learning networks (Lee et al., 2022). Through adaptive learning systems, intelligent feedback mechanisms, and recommendation algorithms, AI facilitates access to knowledge (Arya et al., 2025; Sundaresan & Zhang, 2022; Zeb et al., 2025), professional communities (Basit et al., 2024), and mentorship opportunities (Choudhary et al., 2025; Sanfilippo, 2025). In WIL contexts, such connectivity enables pre-service teachers to engage with virtual classrooms, supervisors, and peers beyond geographical and institutional boundaries. By expanding access to professional learning networks, connectivism provides a theoretical basis for understanding how AI can promote equity through enhanced participation, collaboration, and resource availability in teacher preparation (Correia et al., 2024).

Complementing this network-oriented view, Transformative Learning Theory, introduced by Mezirow (1978), focuses on the internal processes through which adult learners critically examine and revise their assumptions, beliefs, and perspectives. The theory posits that meaningful learning occurs when individuals encounter disorienting experiences that challenge their existing worldviews, prompting critical reflection, dialogue, and perspective transformation. Such transformation leads to deeper self-awareness and the development of more reflective professional identities. Within AI-mediated work-integrated learning (WIL) environments, transformative learning is supported through tools that facilitate reflective practice, such as personalised feedback, learning analytics, and self-assessment prompts. Exposure to diverse teaching scenarios and data-driven insights can disrupt entrenched misconceptions and biases, encouraging pre-service teachers to reconsider their pedagogical assumptions. From this perspective, equity extends beyond mere access to technology; it involves fostering reflective capacities that enable teachers to recognise diversity, challenge inequities, and adopt inclusive teaching practices.

Connectivist Learning Theory and Transformative Learning Theory provide an integrated framework for understanding equity in AI-mediated WIL. While connectivism emphasises the structural and technological conditions that democratise access to learning networks (Ravenscroft, 2011), transformative learning highlights the reflective and attitudinal changes necessary for inclusive practice to emerge (Cappiali, 2023). This dual-theoretical lens positions AI not merely as a tool for content delivery, but as a catalyst for both connection and

transformation. Hence, equity in teacher education is achieved not through technology alone, but through a synergistic process in which connective access is coupled with transformative reflection. This integration allows pre-service teachers to engage meaningfully in professional learning networks while reconstructing their pedagogical worldviews towards more inclusive, equitable, and socially responsive practices. The two theories underpin the AI-mediated WIL framework presented in the next section: connectivism provides the structural logic of networked learning and access to distributed resources, while transformative learning guides the framework's emphasis on critical reflection, perspective transformation, and inclusive professional growth.

2. AI-Mediated Work-Integrated Learning Framework

The AI-mediated work-integrated learning (WIL) framework outlines how artificial intelligence can be intentionally integrated into teacher education to promote equity, inclusivity, and transformative professional learning (see Figure 1). Grounded in connectivist learning theory (Siemens, 2005) and influenced by transformative learning perspectives (Mezirow, 1978), the framework views AI as a mediating tool that enhances, rather than replaces, human pedagogical relationships, professional judgement, and context-specific teaching practices. From this standpoint, learning is perceived as distributed across networks of individuals, digital technologies, and professional contexts (Siemens, 2005), while teacher development arises through critical reflection, dialogue, and adaptive change (Luke & Rogers, 2015). This theoretical foundation helps to elucidate how AI-mediated environments can broaden access to high-quality, practice-based learning opportunities for both pre-service and in-service teachers in diverse and often unequal educational settings.

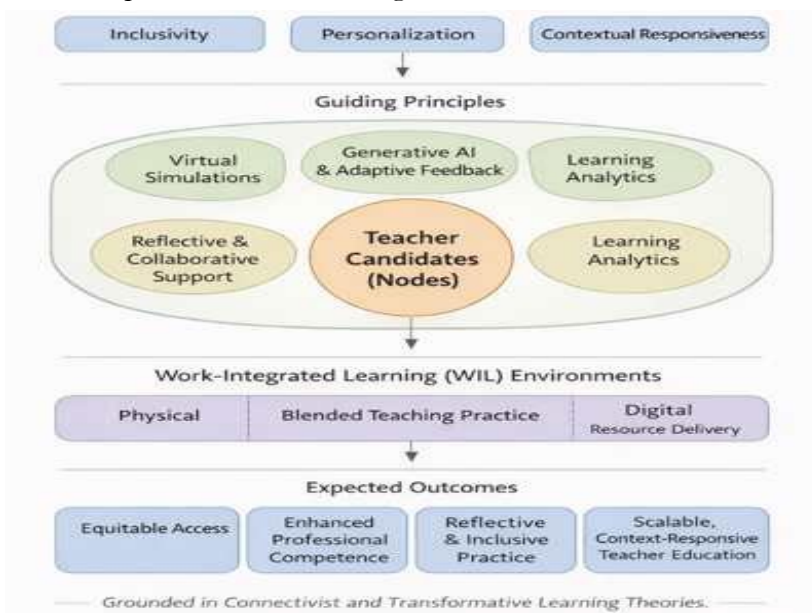


Figure 1. AI-mediated wil equity framework

The figure illustrates the role of artificial intelligence as a mediating layer within work-integrated learning environments, underpinned by principles of inclusivity, personalisation, and contextual responsiveness. Teacher candidates are positioned as central nodes within a networked learning ecology, supported by AI-enabled tools, including virtual simulations, generative AI, adaptive feedback, learning analytics, and reflective collaborative supports. These interactions transpire across physical, blended, and digital WIL environments and are grounded in connectivist and transformative learning theories, leading to equitable access, enhanced professional competence, and reflective, inclusive teaching practices.

In practice, the components of the framework function as an interconnected system. Teacher candidates engage with AI-mediated tools such as virtual simulations and generative platforms to rehearse instructional strategies within authentic, practice-based contexts. These interactions generate real-time adaptive feedback and learning analytics, which highlight performance patterns and prompt reflective activities. The resulting insights are shared with human mentors and peers, who provide contextualised guidance and facilitate collaborative reflection. Through this continuous cycle of practice, feedback, reflection, and social interaction, AI serves as a mediating layer that connects individual learning with broader professional networks, thereby operationalising both the connectivist emphasis on networked learning and the transformative focus on critical reflection and inclusive professional growth.

2.1 Guiding principles of the framework

The framework is guided by three interrelated principles, inclusivity, personalisation, and contextual responsiveness, which inform the design and implementation of AI within work-integrated learning. Inclusivity prioritises equitable access to meaningful teaching experiences, particularly for educators in under-resourced, remote, or non-traditional contexts, where opportunities for sustained mentoring and supervision are frequently constrained (Zeichner, 2010). Personalisation denotes the capability of AI-enabled systems to tailor learning pathways, feedback, and instructional resources to meet individual needs, professional aspirations, and developmental trajectories (Holmes et al., 2019). Contextual responsiveness underscores the importance of being attuned to local teaching realities, cultural norms, curricular expectations, and institutional conditions, ensuring that the application of AI aligns with ethical, pedagogical, and sociocultural considerations in teacher education.

2.2 Teacher candidates as central nodes

At the core of the framework are teacher candidates, conceptualised as active nodes within a networked learning ecology. In alignment with connectivist principles, teacher learning is not limited to individual cognition but is shaped through interactions with peers, mentors, technologies, and professional practice environments (Siemens, 2005). These interactions facilitate the construction and reorganisation of professional knowledge through exposure to diverse perspectives and authentic teaching challenges. AI-mediated supports envelop and

mediate these interactions, enhancing flexibility, responsiveness, and access to learning opportunities while preserving teacher agency and professional judgement (Selwyn, 2020).

2.3 AI-mediated supports for teacher learning

Surrounding teacher candidates within this framework are several AI-mediated supports that enable equitable and practice-oriented learning. Virtual simulations create safe, low-risk environments for rehearsing instructional strategies, classroom management, and pedagogical decision-making, especially when live classroom practice is limited (Dieker et al., 2014). Generative AI and adaptive feedback mechanisms provide timely, individualised guidance that fosters continuous professional growth, self-regulation, and reflective practice (Holmes et al., 2019). Learning analytics make learning processes and performance patterns visible, supporting evidence-informed reflection and professional decision-making (Ferguson, 2012). Additionally, reflective and collaborative supports encourage peer dialogue, mentoring relationships, and professional networking, thereby reinforcing the social and dialogic aspects of teacher learning that are highlighted in both connectivist and transformative learning traditions.

2.4 Work-integrated learning environments

Teacher learning within this framework is situated in work-integrated learning environments that encompass physical school placements, blended teaching practice contexts, and digitally mediated resource delivery. The integration of AI-mediated supports across these environments acknowledges the evolving nature of professional learning within digitally transformed education systems (Jackson, 2015). This comprehensive approach addresses longstanding challenges in work-integrated learning, such as uneven mentoring quality, limited supervisory capacity, and inequitable access to high-quality practice experiences, while maintaining authentic classroom engagement as the cornerstone of teacher preparation (Zeichner, 2010).

2.4 Expected outcomes of the framework

The anticipated outcomes of the AI-mediated WIL framework encompass equitable access to substantive teaching experiences, the enhancement of professional competence through continuous feedback and reflective practice, and the fostering of inclusive and reflective teaching methodologies. At a systemic level, the framework presents a scalable and context-responsive model for teacher education, with significant implications for curriculum design, assessment practices, institutional capacity building, and policy formulation. By aligning the integration of artificial intelligence with established learning theories and pedagogical principles, the framework offers a coherent conceptual lens for reimagining work-integrated learning in ways that promote equity, accessibility, and transformative professional development.

3. Implementation of the AI-Mediated WIL Framework

Implementing the AI-mediated WIL framework requires a thoughtful and equity-focused approach that aligns technological integration with pedagogical objectives and the contextual realities of teacher education. Rather than viewing artificial intelligence as a standalone innovation, it should be positioned as a mediating layer within existing teacher education programmes, professional partnerships, and institutional policies. Previous research on educational technology integration highlights that sustainable innovation occurs when digital tools are aligned with curriculum structures and professional practices, rather than being introduced as optional enhancements (Selwyn, 2020; Holmes et al., 2019). In this context, AI-mediated WIL should be integrated across coursework, teaching practice, supervision, and assessment processes to ensure equitable access to meaningful learning opportunities.

Teacher education institutions must ensure that AI-supported WIL initiatives align with programme objectives, accreditation requirements, and commitments to equity and inclusion. This includes investing in digital infrastructure, providing professional development for teacher educators, and establishing governance structures that address ethical concerns such as data privacy, transparency, and algorithmic bias. Research has shown that without sufficient institutional readiness and support for staff, digital innovations risk reinforcing existing inequalities rather than alleviating them (Ainscow, 2020; El-Hamamsy et al., 2023). Therefore, professional learning opportunities for teacher educators and mentors are essential to facilitate informed pedagogical use of AI-generated feedback, learning analytics, and virtual practice environments.

The implementation of this framework also encompasses multiple work-integrated learning environments, including physical school placements, blended teaching contexts, and digitally mediated practice spaces. In traditional school placements, AI can enhance supervision and mentoring through remote observation tools, automated lesson feedback, and analytics-informed reflective prompts, particularly in situations where access to experienced mentors is limited. Research on work-integrated learning indicates that technology-enhanced supervision can improve the consistency and quality of feedback while alleviating geographical and logistical constraints (Jackson, 2015). In blended contexts, AI-mediated supports can complement face-to-face engagement by facilitating asynchronous reflection, peer collaboration, and adaptive feedback, thereby strengthening the integration of theory and practice. Fully digital and virtual WIL environments further expand practice-based learning opportunities for teacher candidates who may be unable to participate in conventional placements due to geographical isolation, institutional limitations, or personal circumstances. Virtual simulations and AI-supported mentoring systems enable teacher candidates to rehearse instructional strategies, classroom management, and decision-making in low-risk environments while receiving timely feedback. Evidence from teacher education research suggests that simulation-based and virtual practice environments can effectively support professional skill development when designed to reflect

authentic teaching challenges (Dieker et al., 2014; Lamas & Arnab, 2021). When implemented with a focus on contextual relevance and inclusivity, digital WIL environments can help mitigate structural inequities in access to teaching practice.

Equity-focused implementation necessitates continuous attention to ethical and contextual considerations. Factors such as unequal access to digital infrastructure, linguistic and cultural bias in AI systems, and varying levels of digital literacy have the potential to undermine the equitable possibilities of AI-mediated WIL if they remain unaddressed. Critical scholarship on artificial intelligence in education warns that technology can perpetuate exclusionary practices unless inclusivity and contextual responsiveness are integrated into system design and implementation (Bura & Myakala, 2024; Selwyn, 2020). Participatory approaches that engage teacher candidates, educators, and local stakeholders in decision-making can promote more culturally responsive and ethically sound implementations. Furthermore, for the framework to achieve sustained impact, implementation strategies must take into account scalability and long-term sustainability. Modular AI tools, interoperable platforms, and open educational resources can facilitate adoption across institutions with varying capacities. Alignment with national teacher education standards and policy frameworks can further bolster institutionalisation and quality assurance. Research on educational innovation emphasises that sustainable reform requires policy coherence, ongoing evaluation, and adaptive refinement rather than one-off technological interventions (Ainscow, 2020; Holmes et al., 2019). Through deliberate design, ethical governance, and reflective practice, the AI-mediated WIL framework can be enacted as a transformative and equitable model for contemporary teacher education.

To ensure institutional relevance and quality assurance, the implementation of AI-mediated Work Integrated Learning (WIL) must be closely aligned with assessment frameworks and accreditation requirements in teacher education. Institutions must ensure that AI-supported activities, such as virtual simulations and digitally mediated teaching practice, are formally recognised within existing assessment structures. This may involve validating that AI-enabled simulations contribute to required teaching practice hours, and that data generated through learning analytics are used to complement, rather than replace, mentor-led evaluations (Holmes & Luckin, 2016). Assessment processes should integrate multiple sources of evidence, including AI-generated feedback, self-reflection, peer collaboration, and supervisor observations, to provide a holistic evaluation of teacher competence. Furthermore, alignment with national and institutional accreditation standards necessitates clear guidelines on how AI-mediated learning outcomes correspond to professional teaching standards and competencies (Selwyn, 2020). By embedding AI-supported WIL within formal assessment and accreditation systems, institutions can ensure that technological innovation enhances, rather than disrupts, the integrity, credibility, and comparability of teacher education programmes (Ainscow, 2020).

A phased approach to the adoption of AI-mediated WIL is recommended to address and ensure effective implementation. The implementation should commence with pilot programmes in

selected teacher education contexts, allowing institutions to test AI tools, identify contextual constraints, and refine pedagogical integration through iterative feedback. Insights from these pilot phases can inform gradual scaling, supported by modular and interoperable AI systems that enable incremental adoption across diverse institutional settings. Scaling efforts should be accompanied by sustained professional development and infrastructure investment to ensure readiness among educators and stakeholders. Furthermore, continuous evaluation, drawing on learning analytics, stakeholder feedback, and performance outcomes, is essential to guide adaptation and ensure that implementation remains aligned with equity, inclusivity, and quality assurance goals. Through a phased, reflective, and context-responsive approach, institutions can enhance the sustainability and transformative potential of AI-mediated WIL in teacher education.

4. Challenges of Implementation of the AI-Mediated WIL Framework

While AI-mediated WIL presents significant potential to enhance equity in teacher education, its implementation is accompanied by various challenges. A primary concern pertains to digital infrastructure and accessibility. Disparities in access to reliable internet, hardware, and software, particularly in rural or under-resourced regions, may exacerbate existing inequities rather than alleviate them (Ahiaku et al., 2025; El-Hamamsy et al., 2023). Furthermore, gaps in digital literacy among teacher candidates and educators could limit the effective utilisation of AI tools, with novice users potentially struggling to navigate adaptive learning systems or interpret analytics-generated feedback (Holmes et al., 2019).

Another significant challenge relates to algorithmic bias and cultural responsiveness. AI systems, if trained on biased or unrepresentative datasets, may inadvertently reinforce stereotypes, exclude minority languages, or prioritise dominant pedagogical norms, thereby undermining the equity objectives of teacher education programmes (Bura & Myakala, 2024; Selwyn, 2020). Additionally, ethical concerns surrounding data privacy, security, and consent present practical obstacles, necessitating robust institutional policies and governance frameworks to safeguard teacher candidates and school communities.

Institutional readiness and educator capacity also represent considerable barriers. The successful integration of AI into WIL requires not only technological resources but also adequately trained faculty, aligned curriculum structures, and support systems that embed AI within existing pedagogical practices rather than as a standalone innovation (Ainscow, 2020; Selwyn, 2020). Resistance to change among educators, insufficient professional development, and ambiguous policy guidance may further impede adoption and limit the transformative impact of AI-mediated WIL.

Sustainability and scalability constitute additional challenges. Ensuring that AI tools remain current, interoperable across platforms, and adaptable to diverse institutional contexts necessitates long-term investment and ongoing evaluation. In the absence of sustained support,

initial advancements in equitable access and professional learning may diminish over time (Holmes et al., 2019; Jackson, 2015).

5. Conclusion

This chapter has explored equity in teacher education by integrating artificial intelligence (AI) within work-integrated learning (WIL). It argues that AI can act as a mediating tool that enhances access to meaningful, practice-based professional learning instead of replacing human pedagogical relationships. Drawing on connectivist and transformative learning theories, the chapter proposes a conceptual framework that positions teacher candidates within a networked learning ecology supported by AI-enabled tools. It defines equity in terms of both access to professional opportunities and the development of reflective, inclusive teaching practices. However, the chapter is conceptual in nature and, as such, is subject to certain limitations. The proposed framework has not yet been empirically validated, and its effectiveness has yet to be tested across diverse educational contexts. Moreover, the analysis relies on existing literature, which may not fully capture the rapidly evolving nature of AI technologies in education. The lack of context-specific case studies further limits the ability to address localised implementation challenges and cultural variations. Despite these limitations, the framework offers a theoretically grounded foundation for understanding how AI-mediated WIL can foster more equitable teacher education. Future research should focus on empirical validation, context-sensitive applications, and the long-term implications of AI integration for equity and professional learning. Through such efforts, AI-mediated WIL holds promise as a pathway toward more inclusive and transformative teacher education systems.

5.1 Recommendation

Based on the insights presented in this chapter, we propose several recommendations to promote the equitable implementation of AI-mediated work-integrated learning (WIL) in teacher education:

- **Invest in Digital Infrastructure and Access:** Teacher education institutions and policymakers should prioritise reliable internet connectivity, hardware provision, and access to AI-enabled tools, particularly for under-resourced and geographically isolated regions. Equitable access is fundamental to the success of AI-mediated WIL.
- **Build Educator and Candidate Capacity:** Continuous professional development for teacher educators and targeted digital literacy programmes for teacher candidates are essential to ensure effective engagement with AI-mediated supports, including learning analytics, virtual simulations, and adaptive feedback mechanisms.
- **Promote Ethical and Inclusive AI Design:** AI tools should be designed and implemented with attention to algorithmic fairness, cultural and linguistic responsiveness, and data privacy. Participatory design approaches involving teacher candidates, mentors, and local stakeholders can enhance relevance and inclusivity.
- **Align AI Integration with Curriculum and Policy:** AI should be embedded within existing curriculum structures, accreditation requirements, and institutional policies

rather than introduced as a standalone innovation. This alignment ensures that technology supports learning objectives, professional standards, and equity goals.

- **Ensure Sustainability and Scalability:** Institutions should adopt interoperable platforms, modular AI tools, and open educational resources that can be maintained and scaled across different contexts. Continuous monitoring, evaluation, and adaptive refinement are critical for long-term impact.
- **Foster Reflective and Collaborative Practices:** AI-mediated WIL should support reflective learning, peer collaboration, and mentoring relationships, reinforcing the social and dialogic dimensions of professional development highlighted by connectivist and transformative learning theories.

By implementing these recommendations, teacher education programmes can maximise the transformative potential of AI-mediated WIL while mitigating challenges that threaten equitable access and outcomes.

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References

- Ahiaku, P. K. A., Uleanya, C., & Muyambi, G. C. (2025). Rural schools and tech use for sustainability: The challenge of disconnection. *Education and Information Technologies*, 30(9), 12557–12571. <https://doi.org/10.1007/s10639-024-13311-9>
- Ainscow, M. (2020). Promoting inclusion and equity in education: Lessons from international experiences. *Nordic Journal of Studies in Educational Policy*, 6(1), 7–16. <https://doi.org/10.1080/20020317.2020.1729587>
- Alam, D. A. (2023). Connectivism learning theory and connectivist approach in teaching and learning: A review of literature. *Bhartiyam International Journal of Education & Research*, 12(2), 1–15.
- Arya, V., Saraf, A., Chichkanov, N., Papa, A., & Romano, M. (2025). AI-enhanced competency transfer hubs: A conceptual framework for university-industry engagement and knowledge sharing. *The Journal of Technology Transfer*, 1-31. <https://doi.org/10.1007/s10961-025-10233-7>
- Banihashem, S. K., & Aliabadi, K. (2017). Connectivism: Implications for distance education. *Interdisciplinary Journal of Virtual Learning in Medical Sciences*, 8(3). <https://doi.org/10.5812/ijvlms.10030>

- Barbieri, W., & Nguyen, N. (2025). Generative AI as a "placement buddy": Supporting pre-service teachers in work-integrated learning, self-management and crisis resolution. *Australasian Journal of Educational Technology*, 41(2), 34-49. <https://doi.org/10.14742/ajet.10035>
- Basit, A., Khan, Z. A., Rehman, I., & Iqbal, A. (2024). Analyzing how social media platforms, driven by AI, can serve as spaces for teachers' professional development by facilitating networking, knowledge sharing, and real-time collaboration. *Review of Applied Management and Social Sciences*, 7(4), 849–863. <https://doi.org/10.47067/ramss.v7i4.418>
- Bura, C., & Myakala, P. K. (2024). Advancing transformative education: Generative AI as a catalyst for equity and innovation. *arXiv preprint arXiv:2411.15971*. <https://doi.org/10.48550/ARXIV.2411.15971>
- Cappiali, T. M. (2023). A paradigm shift for a more inclusive, equal, and just academia? Towards a transformative-emancipatory pedagogy. *Education Sciences*, 13(9), 876. <https://doi.org/10.3390/educsci13090876>
- Choudhary, P., Sharma, K., Sharma, K., Borasi, M., Bhargava, P., Ali, I., & Rehman, K. (2025). Enhancing mentorship through technology: A comprehensive review of current practices and future directions. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.5070036>
- Cinganotto, L., & Montanucci, G. (2025). Teacher training for the future: Insights from a needs analysis on digital technologies and artificial intelligence. *Journal of E-Learning and Knowledge Society*, 32-41. <https://doi.org/10.20368/1971-8829/1136172>
- Corbett, F., & Spinello, E. (2020). Connectivism and leadership: Harnessing a learning theory for the digital age to redefine leadership in the twenty-first century. *Heliyon*, 6(1), e03250. <https://doi.org/10.1016/j.heliyon.2020.e03250>
- Correia, A., Água, P., & Conceição, V. (2024). AI in education: A comparative study of rhizomatic and connectivism pedagogical theories. In *INTED2024 Proceedings LATED* (pp. 4548–4555). <https://doi.org/10.21125/inted.2024.1179>
- Dieker, L. A., Rodriguez, J. A., Lignugaris-Kraft, B., Hynes, M. C., & Hughes, C. E. (2014). The potential of simulated environments in teacher education: Current and future possibilities. *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children*, 37(1), 21–33. <https://doi.org/10.1177/0888406413512683>
- Drescher, J., Podolsky, A., Reardon, S. F., & Torrance, G. (2022). The geography of rural educational opportunity. *RSF: The Russell Sage Foundation Journal of the Social Sciences*, 8(3), 123–149. <https://doi.org/10.7758/RSF.2022.8.3.05>
- El-Hamamsy, L., Monnier, E.-C., Avry, S., Chessel-Lazzarotto, F., Liégeois, G., Bruno, B., Zufferey, J. D., & Mondada, F. (2023). An adapted cascade model to scale primary school digital education curricular reforms and teacher professional development programs. *Education and Information Technologies*, 29(9), 10391–10436.

- Ferguson, R. (2012). Learning analytics: Drivers, developments and challenges. *International Journal of Technology Enhanced Learning*, 4(5/6), 304. <https://doi.org/10.1504/IJTEL.2012.051816>
- Holmes, W., & Luckin, R. (2016). *Intelligence unleashed: An argument for AI in education*. Pearson: UCL Knowledge Lab.
- Jackson, D. (2015). Employability skill development in work-integrated learning: Barriers and best practice. *Studies in Higher Education*, 40(2), 350–367. <https://doi.org/10.1080/03075079.2013.842221>
- Jacoby, D., Savage, S., & Coady, Y. (2024). Remote possibilities: Where there is a WIL, is there a way? AI education for remote learners in a new era of work-integrated learning. *Proceedings of the AAAI Symposium Series*, 3(1), 478–485. <https://doi.org/10.1609/aaais.v3i1.31261>
- Jeong, S., & McMillan, M. (2015). Work integrated learning (WIL): Integrating frameworks for education and practice. *Journal of Problem-Based Learning*, 2(1), 1–10. <https://doi.org/10.24313/jpbl.2015.2.1.1>
- Judijanto, L., Mudinillah, A., & Joshi, N. (2025). AI and social equity: Challenges and opportunities in the age of automation. *Journal of Social Science Utilizing Technology*, 3(1), 42–51.
- Kayal, A. (2024). Transformative pedagogy: A comprehensive framework for AI integration in education. In T. Singh, S. Dutta, S. Vyas, & Á. Rocha (Eds.), *Explainable AI for education: Recent trends and challenges* (Vol. 19, pp. 247–270). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-72410-7_14
- Kusmawan, U. (2023). Redefining teacher training: The promise of AI-supported teaching practices. *Journal of Advances in Education and Philosophy*, 7(09), 332–335. <https://doi.org/10.36348/jaep.2023.v07i09.001>
- Lameras, P., & Arnab, S. (2021). Power to the teachers: An exploratory review on artificial intelligence in education. *Information*, 13(1), 14. <https://doi.org/10.3390/info13010014>
- Lee, H., Lee, S. H., & Quek, T. Q. S. (2022). Artificial intelligence meets autonomy in wireless networks: A distributed learning approach. *IEEE Network*, 36(6), 100–107. <https://doi.org/10.1109/MNET.105.2100450>
- Luke, N., & Rogers, C. (2015). Responding to uncertainty: Teacher educator professional development through co-teaching and collaborative reflection. *LEARNing Landscapes*, 8(2), 245–259. <https://doi.org/10.36510/learnland.v8i2.707>
- Matsieli, M., & Mutula, S. (2024). COVID-19 and digital transformation in higher education institutions: Towards inclusive and equitable access to quality education. *Education Sciences*, 14(8), 819. <https://doi.org/10.3390/educsci14080819>
- McMahon, M., Forde, C., & Dickson, B. (2015). Reshaping teacher education through the professional continuum. *Educational Review*, 67(2), 158–178. <https://doi.org/10.1080/00131911.2013.846298>
- Menary, R. (2007). Cognitivism and internalism. In R. Menary (Ed.), *Cognitive integration* (pp. 10–37). Palgrave Macmillan UK. https://doi.org/10.1057/9780230592889_2

- Mezirow, J. (1978). Perspective transformation. *Adult Education*, 28(2), 100–110. <https://doi.org/10.1177/074171367802800202>
- Neupane, B. P., Paudel, P., Dahal, N., Karki, S., Paudel, G. R., Ghimire, P., & Thapa, B. (2025). English language teaching in the age of artificial intelligence: Tools, techniques, and methodologies. *Advances in Mobile Learning Educational Research*, 5(1), 1356–1369. <https://doi.org/10.25082/AMLER.2025.01.011>
- Ravenscroft, A. (2011). Dialogue and connectivism: A new approach to understanding and promoting dialogue-rich networked learning. *The International Review of Research in Open and Distributed Learning*, 12(3), 139. <https://doi.org/10.19173/irrodl.v12i3.934>
- Sanfilippo, F. (2025). The importance of mentorship in career development. *The American Journal of Pathology*, 195(10), 1758–1765. <https://doi.org/10.1016/j.ajpath.2025.07.002>
- Selwyn, N. (2020). Re-imagining 'learning analytics' ... a case for starting again? *The Internet and Higher Education*, 46, 100745. <https://doi.org/10.1016/j.iheduc.2020.100745>
- Sharma, A., & Sharma, A. (2025). Enhancing work-integrated learning with generative AI: Opportunities, challenges, and frameworks. In K. Bindumadhavan & N. Lacey (Eds.), *Work integrated learning: Directions for the future* (Vol. 1206, pp. 555–569). Springer Nature Singapore. https://doi.org/10.1007/978-981-96-0201-8_35
- Sundaresan, S., & Zhang, Z. (2022). AI-enabled knowledge sharing and learning: Redesigning roles and processes. *International Journal of Organizational Analysis*, 30(4), 983–999. <https://doi.org/10.1108/IJOA-12-2020-2558>
- Sunthonkanokpong, W., & Murphy, E. (2019). Quality, equity, inclusion and lifelong learning in pre-service teacher education. *Journal of Teacher Education for Sustainability*, 21(2), 91–104. <https://doi.org/10.2478/jtes-2019-0019>
- Voinea, M. (2019). Rethinking teacher training according to 21st century competences. *European Journal of Multidisciplinary Studies*, 4(3), 20. <https://doi.org/10.26417/341umm27o>
- Ward, L., Grudnoff, L., Brooker, B., & Simpson, M. (2013). Teacher preparation to proficiency and beyond: Exploring the landscape. *Asia Pacific Journal of Education*, 33(1), 68–80. <https://doi.org/10.1080/02188791.2012.751896>
- Yildiz Durak, H., & Onan, A. (2025). A systematic review of AI-based feedback in educational settings. *Journal of Computational Social Science*, 8(4), 96. <https://doi.org/10.1007/s42001-025-00428-1>
- Zeb, A., Rehman, F. U., Bin Othayman, M., & Rabnawaz, M. (2025). Artificial intelligence and ChatGPT are fostering knowledge sharing, ethics, academia and libraries. *The International Journal of Information and Learning Technology*, 42(1), 67–83. <https://doi.org/10.1108/IJILT-03-2024-0046>
- Zeichner, K. (2010). Rethinking the connections between campus courses and field experiences in college- and university-based teacher education. *Journal of Teacher Education*, 61(1–2), 89–99. <https://doi.org/10.1177/0022487109347671>

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