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PREPARED TO INCLUDE? PRE-SERVICE TEACHERS' PERCEPTIONS OF AI'S ROLE IN SUPPORTING DIVERSE LEARNERS WITHIN PUNJAB'S INITIAL TEACHER EDUCATION PROGRAMMES

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Abstract
Within Initial Teacher Education (ITE) in the province of Punjab, Pakistan, a gap separates national policy commitments to inclusion and the adoption of artificial intelligence (AI) in the classroom, and the lack of attention to these issues in pre-service teacher preparation. This study explored pre-service teachers' perceptions of how AI can be integrated to support inclusion in ITE in Punjab, Pakistan. Through Reflexive Thematic Analysis, we interviewed twenty pre-service teachers from four ITE departments in Punjab using semi-structured interviews. NVivo 15 software was used for data management. Four themes were identified: AI as an Imagined Equaliser, Competence Gap, Institutional Silence and Its Impact and Ethical Uncertainty at the Margins. Results suggest pre-service teachers have a hopeful but unstructured perception of the potential of AI for inclusion. The study provides local data to global discussions on AI literacy in teacher education, and highlights an urgency for inclusive AI pedagogies in ITE in Pakistan.

Keywords: Artificial Intelligence, Inclusive Education, Pre-Service Teachers, Initial Teacher Education, Punjab, Pakistan, Reflexive Thematic Analysis, Diverse Learners

1. Introduction

Inclusive education has become central in educational reform discourse worldwide since May 1994, with the Salamanca Statement declaring the right of all children, irrespective of ability or circumstance, to learn in general educational environments (UNESCO, 1994). This promise in Pakistan has been formalised through national education policies in a series of policies, the most recent being the National Education Policy 2017 and the Single National Curriculum framework, which both confirm inclusion as a principle of the Pakistani system of education (Gop, 2017). Inclusive education and the introduction of AI in government schools are explicit educational policy promises made by Punjab, the most populated province of Pakistan, which provides a policy-driven but resource-constrained context for teachers, educators, and pre-service teachers alike (PCTB, 2022).

The interplay between AI and inclusive education is attracting growing scholarly attention on an international scale. Intelligent tutoring systems, speech recognition systems, adaptive learning systems, and AI-assisted evaluation are among the AI tools that have been shown to support learners with varying needs through personalisation of instruction, reducing barriers to participation, and providing real-time feedback provision (Zawacki-Richter et al.,

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2019). AI has been heralded by researchers as a technological affordance that can transform the persistent inequity that exists in education for students with disabilities, English language learners, and low socioeconomic backgrounds, to name a few (Holmes & Tuomi, 2022). However, some argue that the dangers of techno-solutionism exist in which AI would entrench rather than eradicate inequality in settings of institutional inequality, resource depletion, and a lack of teacher preparedness (Selwyn, 2019).

ITE plays a decisive role in whether the next generation of teachers adopts inclusive values and facilitates technological competencies among them (Darling-Hammond, 2017). Studies consistently show that teacher beliefs, attitudes, and perceived competency developed in ITE on classroom practices in early career teaching (Pajares, 1992). ITE programmes at B.Ed. levels in the Pakistani context are seen as the primary site of professional formation of pre-service teachers, but research suggests that significant gaps persist between stated policy and curriculum content, both in terms of inclusive pedagogy and digital literacy (Kamran & Bano, 2025; Khushi, 2023).

The literature on AI in teacher education, though growing, leaves several substantive questions unaddressed. The existing literature predominantly focuses on general attitudes towards AI by pre-service teachers or the integration of AI in particular subjects like English as a Foreign Language. There is little literature that specifically focuses on how pre-service teachers construct perceptions of the role of AI to support diverse learners, a more specific and analytically demanding stance that requires simultaneous engagement with inclusive pedagogy, disability studies, and technology literacy. This gap is particularly acute in the Pakistani context. The literature about AI in ITE in Punjab has discussed policy-practice disconnects, and investigated the views of teacher educators on AI tools, but neither strand addresses the question of how pre-service teachers understand AI as a resource in the context of inclusion in particular.

AI research in teacher education is rapidly growing, but research explicitly and comprehensively focused on AI preparedness in ITE is still a work-in-progress and largely indirect. How pre-service teachers in policy-driven and resource-constrained settings develop the connection between AI and inclusion remains unclear; however, pre-service teachers' orientations towards AI and inclusion remain empirically unclear in their practice with vulnerable learners. These are substantive concerns with direct curriculum implications. The perspectives on pre-service teachers bring to the classroom as Punjab moves to the mandatory incorporation of AI in schools will affect how AI will be used as a tool of inclusion or will replicate existing disparities.

This study fills this gap. It aims to examine how B.Ed. pre-service teachers in Punjab construct perceptions of the role of AI in supporting diverse learners. The research questions that will guide this study are as follows:

1. How do pre-service teachers in Punjab's ITE programmes perceive AI as a tool for supporting diverse learners?
2. What factors shape pre-service teachers' sense of readiness to use AI for inclusive teaching?
3. How do institutional structures within ITE programmes mediate pre-service teachers' perceptions of AI for inclusion?

This study adds qualitative and context-based evidence to global discourses on AI literacy in teacher training and produces uniquely Punjab curriculum change implications. This

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paper is organised as follows: a thematic literature review to situate the study within the concerned conceptual territory, a complete description of methods, presentation and analysis of findings, discussion, and conclusion.

2. Literature Review

2.1 Inclusive Education: Policy, Practice, and the Teacher Preparation Problem

Inclusive education remains a contested and evolving concept. Researchers differentiate between narrow conceptions of inclusion that solely concentrate on the physical location of learners with disabilities in mainstream classrooms and broader conceptions that require systemic transformation in institutionally designed pedagogy, curriculum, and cultural practices (Ainscow, 2020). In Pakistan, inclusive discourse has remained at the narrow end of this continuum by a medicalised conceptualisation of disability, and the perception of inclusion is mostly restricted to students with physical impairments (Muhammad et al., 2024). Studies consistently identify inadequate pre-service training as a structural barrier (Bokhari et al., 2026; Muhammad et al., 2024). Often, pre-service teachers have noted that they are not well equipped to meet the needs of learner diversity, both with regard to pedagogies and readiness in terms of attitude (Bokhari et al., 2026).

An inclusive practice cannot exist without teacher beliefs; it is constitutive of teachers' beliefs in inclusive practice (Pajares, 1992). Studies have shown that when pre-service teachers form positive attitudes during ITE toward diversity, they are more likely to pursue inclusive practice in their early teaching careers (Forlin et al., 2020). The ITE curriculum has been challenged in the Pakistani context, though, as prioritising rote content knowledge instead of inclusive pedagogical skills, given that pre-service teachers lack conceptual and practical means to address the needs of diverse learners (Bokhari et al., 2026).

2.2 AI in Education: Affordances and Critiques

AI in education is a broad and conflicting field. Advocates document AI's capacity to customise learning routes, offer instant feedback, embrace formative assessment, and reduce teacher administrative burden (Zawacki-Richter et al., 2019). Adaptive learning platforms, speech-to-text apps, and AI-enhanced accessibility solutions have shown specific benefits for learners with learning differences, sensory disabilities, and communication challenges (Zawacki-Richter et al., 2019). These affordances make AI a possible structural resource to add to inclusion, especially in settings where the presence of specialist support services is scarce.

However, there has been a substantive attack by critical scholarship on uncritical excitement about AI in the education field. According to Selwyn (2019), AI tools already have assumptions about the learner that can replicate, but not disrupt educational inequality. However, the ability of AI to personalise instruction is limited by the quality of training data, which often fails to represent marginalised groups of learners. Lack of access to infrastructure (in rural Punjab, like in many other low-resource regions), digital disparities, and insufficient teacher education intensify these issues, making it questionable whether AI can ensure its inclusive vision without any structural investment.

2.3 AI Literacy and Teacher Education

Teacher education is becoming the key mediating institution between the possibilities of AI and its classroom reality (Darling-Hammond, 2017; Rasheed et al., 2026). Pre-service teachers do not just need to be technically familiar with AI tools, but also need the pedagogical

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competence to implement the tools effectively with various learners and the critical literacy to evaluate the tools' limitations (Darling-Hammond, 2017). Global studies show that pre-service teachers tend to view AI positively but superficially: they are more likely to appreciate its efficiency and personalisation capabilities, yet have little knowledge of how AI tools work and how they could be adapted to inclusive situations (Darling-Hammond, 2017).

Research focused on pre-service special education teachers presents a more differentiated picture. Digital literacy, teacher self-efficacy, and perceived usefulness predict intention to use AI among pre-service special education teachers, each of which significantly predicted AI adoption intention and warranted the specificity of training that would encompass attitudinal as well as technical aspects, namely, digital literacy levels and teacher self-efficacy, respectively, which is critical to address the research question (Lim, 2023). Research in AI literacy is still in its infancy in Pakistani ITE. The literature indicates that pre-service teachers' AI use is largely informal and disconnected from their professional preparation.

2.4 The Policy-Practice Gap in Punjab ITE

Punjab's education policy is routinely more ambitious than institutional capacity permits. AI-related content is taught in the Punjab Curriculum and Textbook Board curriculum at the school level, but ITE programmes have been slow to translate policy directives into coherent curriculum responses (PCTB, 2022; Rasheed et al., 2025). This creates a direct structural contradiction, with pre-service teachers being trained to teach at schools where AI is implicitly stipulated, but not receiving training in AI-enabled pedagogy, and certainly not AI to teach inclusion specifically.

This is not the case in Pakistan alone. International reviews of ITE curricula regularly report that the integration of technology is more of a peripheral rather than a central concern addressed through partial infusion rather than dedicated modules. The lack of AI literacy preparation, in particular, is a further disadvantage: entering the profession without structured preparation for inclusive AI pedagogy, pre-service educators are disadvantaged not only in terms of their preparedness for inclusion but also in terms of their preparedness to work in an environment where inclusion is now necessary (Forlin et al., 2020).

3. Methodology

3.1 Research Design

This study employed a qualitative design using Reflexive Thematic Analysis by to analyse the data (Braun & Clarke, 2021). The choice of Reflexive TA was due to its theoretical flexibility, its explicit positioning of the researcher as an active interpreter, and its consistency with the concern of the study, to understand perception-constructions by pre-service teachers, rather than quantifying attitudinal frequencies. The study prioritised rich, interpretive accounts of meaning-making, which is better achieved through Reflexive TA rather than more formal approaches to qualitative research, such as content analysis or framework analysis. The alignment of Reflexive TA with a Big Q qualitative approach, as illustrated by Braun and Clarke (2021), was most suitable considering the constructionist orientation of the study, as well as the interest in the social and institutional environment affecting the feelings of pre-service teachers.

3.2 Philosophical Paradigm

This research incorporates a constructionist ontological stance, assuming that professional identities and realities are produced through social interaction, institutional

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discourse, and meaning-making practices and not outside them (Crotty, 1998). In epistemological terms, the research falls into the social constructionist paradigm: knowledge is perceived as something constructed within a context and something co-constructed rather than an objective reflection of external reality (Willig, 2021). Language is also a matter of construction, not necessarily a matter of reflection; the description of participants is perceived as an active creation of meaning at work, and not as a transparent report of inner conditions. It is mainly an experiential orientation, which empathically follows the accounts of the participants while remaining critically attentive to the institutional and discursive conditions, which lead to the creation of these accounts (Braun & Clarke, 2021).

3.3 Analytic Approach

It was an inductive analytic approach based on data, in which themes were derived from accounts offered by participants as opposed to being imposed from a set theoretical model. The analysis was latent and semantic: It transcended the content of what the participants said, challenging the underlying assumptions, contradictions, and ideological investments that influenced the participants in their conversations about AI and inclusion Braun and Clarke (2006). This mix of inductive and latent analysis was suitable for the study's interest in building the perception and what it would reveal about the institutional and professional situation of ITE in Punjab.

3.4 Participants and Sampling

Participants were selected through purposive criterion sampling (Patton, 2015; Samuel & Merkebu, 2026). The inclusion criteria were that the participants had to be enrolled in a B.Ed. programme within a recognised higher education institution in Punjab, had completed not less than one cycle of teaching practice, and were willing to engage in an in-depth discussion of their perceptions of AI in education. The exclusion criteria were enrolment in programmes focusing on particular AI or educational technology specialisation to guarantee that the results were based on common ITE experience and not on a special orientation. Twenty pre-service teachers were selected from four institutions of ITE in Punjab, which are government institutions in three districts. The age of the participants varied between 21 and 28 years. Twelve were women, and eight were men. They were all in their practicum placement in a government school in the same district. Anonymity was maintained at both institutional and participant levels, and participants were labelled with unique codes (P1 to P20).

Instead, sample size was determined by information power rather than saturation (Malterud et al., 2016). Since both studies have a narrower focus, uniform characteristics of the sample, and a rich and interview-based data generation process, 20 participants were sufficient to generate the information power needed to conduct rigorous Reflexive TA (Malterud et al., 2016).

3.5 Data Collection

The data were generated through one-on-one semi-structured interviews with each participant over eight weeks. The interviews lasted between 45 and 75 minutes. informed the development of the interview guide (Kvale & Brinkmann, 2015). The guide contained open-ended questions that dealt with the participants' pre-existing experience with AI tools, their concept of inclusion and diverse learners, their perception of how AI would facilitate inclusive practice and how it could complicate inclusive practice, and their experiences with ITE

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programme content in both areas. The interview guide was piloted with two pre-service teachers, and the guide was subsequently refined (Flick, 2022).

The interviews were carried out either in a mix of Urdu and English at the discretion of the participant and on two occasions, conducted entirely in Punjabi, and translation and back-translation procedures were applied (Kvale & Brinkmann, 2015). Interviews were audio-recorded with participants' informed consent. Initial transcripts were generated using AI-assisted transcription software (TurboScribe) and reviewed and verified by the research team against audio recordings to ensure accuracy prior to quality verification.

3.6 Data Analysis Procedures

The data were examined through the six-phase Reflexive TA framework (Braun & Clarke, 2021).

Phase 1: Familiarisation with the study. All 20 transcripts were read and initially noted by the researcher on the patterns of meaning, recurrent concerns, and surprising reactions. No systematic coding in the data set was performed at the immersion phase.

Phase 2: Coding. All data were coded systematically, producing concise and analytically meaningful code labels in all transcripts. Codes were iteratively revised and reconfigured as the analysis developed, as interpretive understanding developed (Saldana, 2021). This process generated over 340 initial codes.

Phase 3: Generating Initial Themes. Candidate themes were constructed by grouping codes sharing a common conceptual focus. Thematic mapping was performed iteratively, with pre-themes reviewed on the entire coded data.

Phase 4: Theme Development and Review. Candidate themes were reviewed against coded extracts and full transcripts. Two themes were significantly revised during this stage; one of the theme candidates was dissolved into the adjoining themes. The researcher ensured that every theme cohered into a persuasive analytic narrative (Braun et al., 2019).

Phase 5: Refining, Defining, and Naming Themes. Each theme had a written definition summarising its main organising concept. Theme names were formulated to be concise and analytically evocative instead of being descriptive in nature (Braun & Clarke, 2021).

Phase 6: Writing Up. Findings were presented as an interpretive narrative, using participants' quotations in the analytical commentary. This method was a process of meaning-making rather than truth-reporting, and it is part of the epistemological commitments of Reflexive TA (Braun & Clarke, 2019).

3.7 Trustworthiness and Quality

This concept of quality is being applied with regard to Big Q qualitative research in line with notions of quality in this study's context and scope (Braun & Clarke, 2024; Tracy, 2010; Yadav, 2021). The constructionist paradigm of the study and Reflexive TA methodology, as well as data generation methods, were epistemologically and methodologically consistent throughout. The transparency of the analytic process was ensured by reporting its methodological procedures and reflexive interactions with interpretative decisions in great detail. Analytical credibility is supported by interpretive depth that is based on the extensive description of the participants. Transferability is not claimed in any generalising sense, but the study provides contextually grounded knowledge that can appeal to readers in similar contexts of ITE when using it (Yardley, 2000).

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3.8 Ethical Considerations

The study adhered to the ethical standands of educational research. Written informed consent was obtained from all participants before participation, and they were advised that they could withdraw at any point without penalty. Participant codes were used to guarantee confidentiality, and all identifying information was removed from the transcripts. Data were also saved on password-protected laptops and could be accessed by the research team. They were informed of any existing support services before the interview sessions because there was a possibility of discussing professional inadequacy or institutional frustration during the interviews.

4. Findings

The analysis developed four themes, divided into two or three subthemes. Themes are not summaries of topics; they represent the key organising concept that ran across the accounts of many participants.

4.1 Theme 1: AI as an Imagined Equaliser

The most prevalent pattern across the dataset was the way participants developed AI into a resource of great capabilities but relatively tentative, uncertain, and largely hypothetical to include it. Pre-service teachers talked about AI with enthusiasm and aspiration in their accounts, yet their explanations demonstrated that their understanding was shaped by informal exposure, media narratives, and digital consumption instead of being taught the theories of AI and having hands-on experience with it. AI occupied a promissory position in their accounts: Something that should meet the needs of heterogeneous learners, and not something they could operationalise in pedagogical practice.

4.1.1 Technological optimism without pedagogical grounding

Participants constantly expressed hope regarding the opportunities AI offers to help learners with disabilities, learning issues, and language barriers. Most of the time, however, this optimism was not related to pedagogical knowledge. Participants defined AI with generalised gestures, gesturing towards how AI might function in inclusive classroom contexts. One of the participants explained it in the following way, which reflects the pattern:

On YouTube, I have observed that AI can read to blind students, speak to students who cannot communicate well, and provide another form of lesson to every student. Inclusion is very exciting in my B.Ed. However, nobody informed me about the AI to be applied, how it should be applied, or even what inclusive education means in the classroom. Therefore, I understand that AI is strong, and I am not thinking about what to do with it. (P7)

This extract illustrates the cognitive dissonance between technological ambition and work training that defined most participants' histories. A further illustration is provided by: "I have just imagined this: AI can help resolve the issue related to one teacher with 50 students having different needs; I have not seen this with my eyes yet" (P14). The trend is not neglect but a structural absence: participants had developed expansive narratives about AI's potential as an inclusive opportunity due to informal sources, exactly because their ITE programmes had not offered the professional conceptual thought process and useful instruments to critically evaluate AI's potential for inclusion.

4.1.2 Diversity as deficit

The discussion amongst the participants about different learners also showed a tendency to frame diversity through a deficit model, locating the problem of inclusion within the learner,

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and not in the pedagogical or institutional systems. AI was thus envisioned as a remedial technology, an aid, or a means to correct or support the individual learner and not as a means of redesigning pedagogy. The implications of this construction for how AI is likely to be adopted in practice include the fact that tools implemented in a deficit model of diversity can also bolster marginalisation instead of challenging it(). Many participants described diverse learners as requiring specialist intervention who should be provided with additional assistance, which places AI as an additional resource, not a revolutionary one.

4.2 Theme 2: Competence gap

The second pattern throughout the dataset was how the participants perceived a great disparity between what they thought inclusive AI teaching entailed and what they believed they could do. This theme crystallised a shared sense of professional inadequacy, not as a personal deficit but as a structurally produced condition.

4.2.1 Knowing without doing

Participants described a form of knowledge that was declarative, as opposed to practical. They could articulate inclusive principles and had been exposed to AI resources in their own lives, but were unable to relate these two areas in pedagogically significant ways. One of the participants stated:

I know about UDL (Universal Design for Learning) and AI assistants. But, when I visualise a classroom of 50 students, a single textbook and a projector-less classroom, I am completely unsure of how to put together the two notions collectively. (P3)

In the entire dataset, participants referred to the same structural disconnection: Ideals applied in the ITE but unsustainable in the reliance on school situations in Pakistani government schools when dealing with materials.

4.2.2 Self-directed learning as structural response

The participants who did not receive any formal training in terms of their ability to identify with the competence gap, instead of indicating self-directed AI activity, highlighted it as their first response. They used YouTube tutorials, lesson plan software developed by AI, and peer networks to informally learn AI. As much as this self-directed learning was a demonstration of agency and professionalism, it also reproduced inequalities: More access to digitalisation, command of the English language, and financial benefit placed one in a better position to take part in it. One of the participants stated:

ChatGPT has taught me to plan differentiated lessons, yet this is not the case in my programme: all the students in the programme have good Internet connections and know enough English to use differentiated programmes. (P11)

This finding reflects wider concerns regarding how informal AI learning in ITE recreates the digital disparities it could otherwise help alleviate.

4.3 Theme 3: Institutional Silence and Its Impact

The third theme concerned the significance of institutional silence regarding AI inclusion in teaching. This theme did not merely reflect a curricular absence; it reflected the interpretive work participants undertook in response to that absence and the resulting professional identities.

4.3.1 Silence as signal

Students did not simply feel a curriculum gap due to the lack of AI in inclusive education content. Participants interpreted silence from organisations as being about

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professional message. A participant stated: “When these professors do not discuss AI in terms of inclusion, they think it is not relevant or is too advanced or not meant to be used by Pakistani teachers” (P9). The silence of institutions was interpreted as an act of institutional positioning, as a message regarding the frontiers of acceptable professional concern. Some participants reported constraining their interest in AI to align with institutional expectations, and that it was a personal, and not a work, obligation.

4.3.2 Practicum as part substitute

Practicum placement was a partial remedy for institutional silence for some participants. Participants observed informal instances of AI-supported inclusive practice of experienced teachers using mobile phones, voice assistants, and translation applications with various learners. However, the cues were non-structured, unconcerned in nature, and participants lacked the conceptual framework to make sense of what they were observing as AI-enabled inclusion. One of the participants stated:

I have heard of a teacher who used Google Translate with a student who did not comprehend Urdu. Could this be considered as AI? Was that inclusion? My programme never assisted me in thinking about this. (P16)

4.4 Theme 4: Ethical Uncertainty at the Margins

The fourth theme was ethical discomfort, which was articulated by participants in terms of the use of AI with vulnerable learners. This theme was less prevalent than the others, although at a constant level within a group of participants, and its content was analytically meaningful.

4.4.1 Data, privacy, and trust

Participants' concerns about data privacy were underdeveloped yet ethically significant. A number of participants explored discomfort with the idea of placing data about students with disabilities and/or learning difficulties into AI systems. One of the participants stated:

Where is the information stored about a student who has learning difficulties when I upload it to an AI programme? Who can see it? I would not want it to be in a place where I wouldn't want a child's problem to be known. (P5)

These concerns recognise prudent ethics rarely acknowledged in the AI-positive discussions of teacher education, while addressing the use of AI in developing priorities to advance inclusion.

4.4.2 Fairness and the limits of personalisation

The second subtheme related to participants’ uncertainty regarding whether the logic of personalisation offered by AI was applicable to thoroughly tackling the types of diversity they experienced in schools. This worry was pondered over by one of the participants:

AI is customised on the basis of data. However, the statistics of students in Pakistan are not good. What students really know and feel is not reflected in assessments. If AI is trained using these data-sets, it will adapt all misleading information. This may not enhance the situation but rather worsen it for already disadvantaged students. (P18)

This is a substantively correct worry. The participant without theoretical support has expressed the criticism of biases in AI training data of marginalised groups. That this issue was discussed on its own in an interview of pre-service teachers indicates how ethically vigilant pre-service teachers were, and how unstructured the ITE setting was in assisting to work out these issues into a principled professional position.

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5. Discussion

5.1 Interpretation of Findings

The four themes form a logical, analytic narrative of the ITE programmes for pre-service teachers in Punjab. These teachers do not lack interest in AI or inclusions. They are whose aspirations have been structurally unsupported by their institutions. The predominant tendency across the dataset is the pattern of informed desire to use AI coupled with institutional incapacity. This pattern was produced by curriculum and institutional conditions that failed to connect AI literacy with inclusive pedagogy between AI literacy and inclusive pedagogy.

Of particular note is the construction of AI as an envisioned equaliser. This indicates that pre-service educators did not occupy a position of ignorance regarding AI; they had ingested the cultural and media discourse on the revolutionary possibilities available through AI. Their deficit is the absence of professional conceptual language with which to interrogate such narratives, relate them to the theory of inclusive pedagogical design, and turn them into the practice of the classroom (Holmes & Tuomi, 2022). This is a curriculum issue rather than a learner issue.

5.2 Connection to Existing Literature

The findings are congruent with and relevant to published studies in various noteworthy ways. The policy-practice gap documented in prior Punjab ITE research is confirmed and deepened here. This study demonstrates that the gap is compounded in the domain of AI for inclusion, where its scope is the field of inclusion, compounding the already reported gap. The agency expressed through self-directed AI learning in the absence of formal provision parallels the findings of international ITE research but introduces a digital equity dimension not present in those studies: self-directed learning in conditions of resource scarcity in the digital world replicates the digital disparities that it ought to resolve (Gottschalk & Weise, 2023; Kohnke, 2025; Lai et al., 2026).

The ethical concerns raised by participants echo critical scholarship on AI and educational inequality, especially data privacy and the quality of AI training data to marginalised learners, as well as data privacy (Selwyn, 2019). Notably, these issues were raised without a theoretical framework. The pre-service teachers were engaging in ethical labour which their programmes had failed to prepare them to engage in, and found themselves arriving at a position which fits substantive scholarly criticism. Without conceptual language, ethical concerns are difficult to translate into principled professional action, with no conceptual language instructions provided by an individual worker to be followed (Darling-Hammond, 2017).

The deficit construction of diverse learners observed in theme 1 is validated in the Pakistani inclusive education studies literature, and its reproduction in AI-focused ITE, where sociological models of disability are not concurrently addressed, can be seen as potentially reinforcing the constructions of disability and inclusion rather than challenging them.

5.3 Implications

Theoretically, this research contributes to the knowledge of how the phenomenon of institutional silence is an active mechanism in the process of professional identity. Pre-service teachers do not simply fail to learn what is absent from the curriculum; rather, institutional absence can be construed by pre-service teachers as a professional message, and their sense of

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what is a legitimate teacher concern may be shifted accordingly. This affects how curriculum theorists and ITE designers consider omission as a type of curriculum content.

In practice, the results contend that AI literacy as a means of inclusive teaching, rather than an independent technology course, should be explicitly incorporated into B.Ed. programme content in Punjab, but not as a strand threaded through inclusive pedagogy, but as one thread among the inclusive education material, curriculum studies, and practicum preparations. To enable this integration, teacher educators must develop professionally.

The study demonstrates that Reflexive TA offers productive analytical approach in exploring the convergence between technology, policy, and professional identity in ITE. Its interpretive richness yields patterns of meaning which cannot be reached either by attitude surveys or quantitative measures.

5.4 Limitations

The data derive from four ITE institutions in Punjab do not reflect the entire range of ITE delivery in the province. This study offers a cross-sectional account of pre-service teachers' perceptions at one stage in the formation of professional perception; longitudinal research would illuminate how perceptions change within and beyond ITE within and outside ITE. The positionality of the researchers as a Pakistani educational researcher could have also affected the participants' willingness to express their dissatisfaction with the situation in institutions.

5.5 Future Research Directions

Three specific areas warrant further investigation. First, longitudinal studies of AI for inclusion perception change across ITE and early career teacher phase would provide crucial inputs for curriculum design. Second, a comparison of the public and private ITE institutions in Punjab would chart the levels to which institutional type mediates the patterns detected here. Third, a study that considers the perspectives of different learners and pre-service teachers would provide a more detailed description of the inclusive potential and constraints of AI in Pakistani classrooms.

6. Conclusion

This study examined the development of perceptions towards AI as a means of supporting diverse learners by pre-service teachers in ITE programmes in Punjab. Using Reflexive Thematic Analysis, four themes were constructed: AI as an imagined equaliser, competence gap between aspiration and classroom readiness, institutional silence and its impact on professional identity, and ethical uncertainty regarding AI use with vulnerable learners. Each theme illuminates a distinct dimension of the structural conditions within which pre-service teachers form their perceptions of the idea of AI in the context of inclusion in the ITE of Punjab.

These findings are important beyond merely describing a gap in the curriculum. They disclosed that pre-service teachers are engaged in a fair amount of professional work, ethical, aspirational, and self-directed work in areas that their institutions have not equipped them to work in. Yet this work is unevenly provisioned and theoretically unscaffolded. The ITE programmes in Punjab cannot insist on including values and AI integration in schools and still do and say nothing regarding their intersection in pre-service programmes. The cost of this silence is borne by pre-service teachers, but constrained by structural under-preparation in their training, and finally by the learners with varying needs who will eventually be the beneficiaries of such teachers.

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The longitudinal, comparative, and learner-centred extensions identified in this study need to be pursued in future studies. The most immediate needs are practical and institutional: ITE curriculum reform in Punjab that takes both inclusion and AI seriously to discuss their intersection in both direct and rigorous terms, with the professional preparation of pre-service teachers that they are currently absent from their programmes.

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