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Post-humanist View of Inclusion: Rethinking Learner Identities and Agency with AI and Digital Tools

Dr. Fozia Roohi
Associate Professor,
Institute of Vocational Studies,
GGSIPU, Delhi

Dr. Arti Bhatnagar
Associate Professor,
Guru Ram Dass College of Education
GGSIPU, Delhi

ABSTRACT

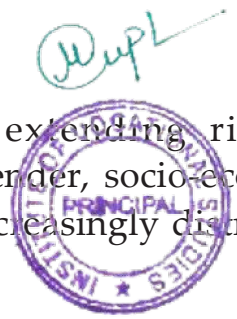
This paper reconceptualises inclusion in education through a post-humanist lens: learners are not only individual humans but hybrid, entangled actors whose identities and agency are co-produced with AI and digital tools. The paper reviews philosophical foundations of posthumanism, examines how learner identity and agency are transformed in the digital age, highlights opportunities and risks for inclusion, presents case examples, and offers concrete objectives, policy and practice recommendations for educators, institutions, EdTech developers and policymakers. Key ethical concerns (justice, autonomy, privacy, ontology) are discussed and actionable suggestions to design fair, transparent and empowering digitally-mediated learning environments are provided. (Rosi Braidotti, 2019)

Keywords: Posthumanism, Inclusion, Learner identity, Learner Agency, AI in Education, Digital Pedagogy, Teacher Training.

INTRODUCTION

Need for a Post-humanist Lens for Inclusion?

Traditional inclusion frameworks focus on extending rights, accessibility and accommodations to human learners (disability, gender, socio-economic status, language). However, contemporary learning environments increasingly distribute cognition, decision-



making and interaction across humans and algorithmic systems (personalized recommendation engines, assessment algorithms, conversational agents). From a post-humanist perspective, learners become *hybrids*: identities, preferences and choices are co-shaped by data infrastructures, sensors, interfaces and software. That shift requires rethinking what "including" a learner now means — it is no longer sufficient to include persons only; we must include the technologies and socio-technical relations that materially shape learning trajectories.

Philosophical Background: Humanism/Posthumanism

- **Classical humanism** treats learners as autonomous, rational individuals with stable identity and agency.
- **Posthumanism** problematizes the human/technology divide and emphasizes co-constitution: subjectivity and agency are distributed across entanglements of bodies, machines, data and environments. Key theorists include Donna Haraway (cyborgs and boundary breakdowns), N. Katherine Hayles (media-shaped subjectivities) and Rosi Braidotti (posthuman subjectivity and ethics). These works underpin the claim that educational inclusion must account for technological actors and assemblages, not only human attributes.

Learner Identity in the Digital Age

Digital identities and "data doubles"

Learners generate data traces - profile attributes, engagement logs, assessment histories and interactions with adaptive systems- which together form digital identities or "digital twins." These proxies often travel across platforms and influence what learning content is recommended, how assessments are interpreted, and which supports are triggered.

Fluid, relational identity

Digital affordances make identity more fluid: avatars, pseudonyms, and platform behaviors can differ from offline identities. Those shifts can enable new forms of participation (safer self-expression, multimodal demonstration of competence) but also produce misrecognitions when algorithms rely on incomplete or biased proxies.

Personalization-Does this bring automatic fairness?

Adaptive learning and personalization can increase engagement and access, especially for diverse learning needs; however, personalization depends on data quality and modelling assumptions that can encode bias and exclusion. Careful governance is therefore needed to ensure personalization serves equity rather than reproducing disadvantage. (SpringerLink)

Learner agency: Transformed, not Erased

- **Distributed agency:** Decisions (content sequencing, feedback timing, assessment flags) are increasingly co-produced by algorithmic systems and human actors (teachers, learners).

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- **Nudges and scaffolds:** AI can gently nudge learners toward goals or provide actionable feedback; when designed transparently, these can expand learners' capacities.
- **Risks to autonomy:** Opaque recommendation engines or overly directive systems may diminish reflective choice and critical engagement. Therefore agency must be actively supported - e.g., by explainable AI, user controls, and pedagogies that teach critical interaction with tools.

OBJECTIVES

1. Reframe inclusion to account for human–technology entanglements and explain why this reframing matters for policy and classroom practice.
2. Map how AI and digital systems reshape learner identity and agency (mechanisms, affordances, harms).
3. Identify ethical risks (bias, surveillance, digital divide) and concrete safeguards.
4. Offer practical, evidence-based recommendations for educators, institutions, EdTech developers, and policymakers to promote equitable, human-centred digital inclusion.
5. Suggest research priorities and evaluation metrics to monitor inclusive outcomes in post-humanist learning ecologies.

Inclusion through a Post-humanist Lens: Opportunities & Risks

Opportunities

- **Assistive technologies** (speech-to-text, image description, interactive robots) open access for learners with sensory, motor or cognitive disabilities. Example: Microsoft's *Seeing AI* app narrates the visual world for people with visual impairment — an example of AI creating concrete accessibility gains.
- **Adaptive learning** can tailor pacing and scaffolds to learners' needs, potentially reducing barriers to progression.
- **Scale & reach:** digital platforms can extend high-quality resources to remote or underserved communities when infrastructure is available.

Risks

- **Digital divide:** unequal access to devices, connectivity and digital literacies deepens existing inequities.
- **Algorithmic bias:** educational algorithms (admissions filters, diagnostic models, predictive analytics) can reproduce racial, gendered and socio-economic biases if trained on skewed data or applied without contextual checks. Examples in the literature

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document how algorithmic grading and predictive tools can disadvantage certain groups.

- **Surveillance & privacy harms:** online proctoring, continuous monitoring and biometric authentication raise profound privacy and human-rights concerns; critics argue these systems can feel like mass surveillance and disproportionately harm marginalized students.

Case Examples

1. **Mitra (India) — humanoid/assistive robots:** India's Mitra robots (from Invento and student projects) demonstrate how humanoid agents can support engagement, provide audio/visual assistance and assist special needs learners in classroom and hospital contexts; during COVID-era responses some Mitra units were adapted for patient support and remote mediation of care. These deployments show both the assistive potential and the need for context-sensitive evaluation of outcomes and equity.
2. **Microsoft Seeing AI:** A mobile app that converts visual information into narrated descriptions for blind and low-vision users — a concrete example of AI enabling inclusion through sensory substitution.
3. **"Zoom identities" in pandemic remote learning:** The sudden shift to video conferencing reconfigured students' visibility, participation norms, and privacy; studies document how remote affordances amplified inequalities (connectivity, home environment) and reshaped identity and belonging in classrooms.

Ethical Challenges — Four Focal Points

1. **Justice (equitable access and outcomes):** Ensure infrastructure, devices, and pedagogical supports reach marginalized communities. Algorithms must be audited for disparate impacts across demographic groups.
2. **Autonomy:** Avoid system designs that stealthily shape learner decisions; provide transparent explanations and user controls.
3. **Privacy & surveillance:** Limit intrusive monitoring (biometrics, keystrokes, continuous video) and adopt privacy-preserving assessment methods; require data minimization and informed consent. The surge in online proctoring during COVID-19 sparked critiques and research into harms and human- rights implications.
4. **Ontology — what counts as a learner?** Policymakers and educators must recognize that "the learner" now includes data portraits and human–machine interactions; interventions must avoid treating the data double as if it fully represents the person.

Global normative guidance: UNESCO's *Recommendation on the Ethics of Artificial Intelligence* and related UNESCO/ OECD guidance articulate human-centred principles and call for inclusive, rights-based governance of AI in education — a useful starting point for national policies.

Policy & Practice Implications- Principles to Adopt

1. **Human-centred design & governance:** Center human dignity, rights and educator professional judgment in any AI deployment. Use participatory design including learners with disabilities and community stakeholders.
2. **Transparency & explainability:** Require EdTech vendors to publish model descriptions, decision logics and the datasets used for training (where possible) and to provide student-facing explanations of automated decisions.
3. **Data governance & privacy safeguards:** Enforce data minimization, local data residency where needed, access rights for learners, and clear retention/ deletion policies; apply privacy-by-design.
4. **Teacher capacity & professional development:** Train teachers in AI literacy, critical pedagogy for digital tools, and in co-designing learning flows with technology. UNESCO's AI Competency Framework for Teachers is one practical resource for shaping curricula and in-service training.
5. **Algorithmic auditing & impact assessment:** Mandate independent fairness audits, socio-technical impact assessments and regular evaluation of outcomes disaggregated by key demographics.
6. **Alternative assessment models:** Reduce over-reliance on invasive proctoring by redesigning assessments (open-book, project-based, portfolio, oral assessments) that test higher-order skills and are less amenable to cheating.

RECOMMENDATIONS

For policymakers (national/state education authorities)

- Adopt an AI & Education charter that enshrines human rights, non-discrimination, and data protection as baseline requirements for procurement.
- Fund broadband, device provisioning and local hubs (digital learning centers) to reduce the digital divide.
- Require EdTech procurement to include explainability clauses, bias impact assessments, and teacher training budgets.
- Promote open educational resources (OERs) and public datasets for model training to reduce vendor lock-in and improve transparency.

For school leaders & institutions

- Implement teacher professional development aligned with UNESCO's AI Competency Framework (knowledge + ethics + pedagogy).
- Update assessment policies to prefer authentic, less-surveilled methods; only use proctoring after human rights impact assessment.

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- Create school-level data governance rules (consent forms, data access panels for students/parents, clear retention schedules).

For educators

- Teach AI literacy and critical digital literacies alongside subject content so learners understand how systems shape feedback and opportunities.
- Co-design classroom AI uses with learners (e.g., let students choose levels of personalization, review automated feedback).
- Use multimodal assessment to capture diverse competencies and reduce dependence on singular algorithmic judgments.

For EdTech developers

- Adopt inclusive data practices: diversify training data, document limitations, and conduct fairness testing across demographic slices.
- Provide users with understandable explanations of recommendations and a way to contest or override automated decisions.
- Build modular, interoperable tools that respect data portability and avoid lock-in.

For researchers & evaluators

- Prioritize mixed-methods evaluations that combine quantitative outcome measures with qualitative accounts of identity, agency and belonging.
- Investigate longitudinal impacts of AI personalization on learner trajectories, and evaluate for differential effects across socio-economic and disability groups.

HOW TO IMPLEMENT?

Year 1 (Foundation): policy framing (AI charter), pilot teacher training (UNESCO AI competencies), infrastructure mapping, and a small number of ethically-governed pilots with independent evaluation.

Year 2 (Scale & Audit): scale promising pilots, require vendor fairness audits, integrate AI literacy into curricula, establish student data rights.

Year 3 (Institutionalize): embed AI governance into procurement, assessments redesigned away from invasive proctoring, routine monitoring of equity outcomes and iterative refinement.

SUGGESTIONS FOR FUTURE RESEARCH

This paper provides conceptual framing and practical guidance but relies on rapidly evolving technologies, vendor ecosystems and policy environments. Future research should test interventions empirically across diverse contexts (low-resource schools, special education, multilingual settings) and develop standardized tools for algorithmic auditing specific to education.

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CONCLUSION

A post-humanist approach to inclusion recognizes that learners and technologies are co-constitutive: inclusion must therefore extend beyond human-centred accommodations to encompass the design, governance and socio-technical relations of AI and digital infrastructures. By centring justice, autonomy, privacy and ontological humility — and by equipping teachers, learners and policymakers with knowledge and governance tools — we can aim for educational systems where technology amplifies inclusion rather than undermining it.

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