



“Algorithmic Bias And Educational Fairness: Ethical Challenges Of AI Chatbots For Diverse Learners In India”

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Abstract

AI-powered chatbots are increasingly used in Indian classrooms to support personalized learning, instant feedback, and flexible tutoring. While these systems hold significant potential for advancing inclusion, they also raise serious ethical concerns related to algorithmic bias and educational fairness. This paper explores how biases embedded in training data, model design, and linguistic assumptions can disadvantage learners from marginalized language groups, rural backgrounds, and students with disabilities. In India’s multilingual and culturally diverse educational landscape, such biases risk reinforcing existing inequalities rather than reducing them. The paper examines fairness, accessibility, transparency, and teacher agency as key ethical dimensions of chatbot use in inclusive classrooms. Drawing upon NEP 2020 and UNESCO’s ethical guidelines, the analysis highlights the need for fairness-by-design, multilingual datasets, disability-compatible interfaces, and strong human oversight. It argues that teachers must remain central to ethical AI integration, ensuring contextual interpretation and value-based guidance. The discussion concludes that responsible AI deployment in India requires culturally responsive design, robust data governance, and ongoing bias audits. Only through ethically grounded and human-centered approaches can AI chatbots genuinely contribute to equitable learning and uphold the principles of inclusive education.

Keywords: Algorithmic Bias, Educational Fairness, AI Chatbots, Inclusive Education

1. Introduction

In the last decade, artificial intelligence (AI) has rapidly permeated the education sector, changing the ways learners access knowledge, interact with teachers, and engage with instructional content. Among the most visible and widely adopted applications are AI-powered chatbots—digital conversational agents capable of responding to learner queries, providing instant feedback, and facilitating self-paced study. These chatbots employ natural-language processing (NLP), machine learning, and large-language-model architectures to simulate human-like dialogue. When integrated effectively, they can assist teachers by managing repetitive tasks, offer 24-hour tutoring assistance, and adapt content to individual learner needs. For countries such as India, where the education system serves millions of students from diverse linguistic, socio-economic, and ability backgrounds, AI chatbots appear to offer a promising solution for achieving the long-standing goal of *education for all*.

However, this technological optimism is counterbalanced by increasing concern over algorithmic bias and its implications for educational fairness. Algorithmic bias refers to systematic and unfair

discrimination that arises when AI models—shaped by data, design decisions, and developer assumptions—produce results favoring some groups while disadvantaging others. In classroom contexts, such bias can manifest when a chatbot consistently misinterprets regional accents, fails to process code-mixed languages, or presents culturally irrelevant examples. For learners with disabilities, bias may appear through inaccessible interface design or failure to provide assistive-technology compatibility. These shortcomings undermine the ethical foundations of inclusive education by reproducing inequities that technology was meant to reduce.

The Indian educational landscape adds further complexity. Classrooms across the nation are multilingual, multicultural, and inclusive, accommodating children with varied cognitive, physical, and socio-economic profiles. The National Education Policy (NEP 2020) emphasizes inclusive and equitable education, calling for the use of technology to bridge learning gaps while maintaining the human and ethical dimensions of teaching. In this context, AI chatbots must not only be technically efficient but also ethically aligned with India's constitutional and cultural values of equity, dignity, and diversity. Without intentional fairness-oriented design, these systems risk reinforcing linguistic hierarchies, marginalizing under-represented communities, and deepening the digital divide between urban and rural learners.

Globally, agencies such as UNESCO have recognized the ethical dilemmas inherent in educational AI. The *Recommendation on the Ethics of Artificial Intelligence* (UNESCO, 2021) identifies fairness, transparency, accountability, and human oversight as non-negotiable principles. Yet, translating these broad ideals into context-specific frameworks for Indian classrooms remains a major challenge. Policymakers, educators, and technologists must collaborate to ensure that algorithmic systems respect cultural plurality, protect student data, and complement—not replace—the irreplaceable human relationships that define education.

Therefore, this paper undertakes a conceptual exploration of the ethical and cultural implications of algorithmic bias in AI chatbots operating in inclusive Indian classrooms. It analyses how fairness, accessibility, transparency, and teacher ethics intersect in this emerging technological domain. Drawing upon global ethical frameworks and national policy mandates, the discussion aims to formulate guiding principles for the responsible and culturally responsive deployment of AI chatbots in education. Ultimately, it argues that only through ethical governance and human-centered design can AI become a genuine force for inclusion and educational justice in India's diverse learning environments.

2. Conceptual Framework and Literature Review

2.1 AI Chatbots in Education

AI chatbots are intelligent conversational agents that use natural language processing (NLP) and machine learning to simulate dialogue with learners. They can assist in tutoring, assessment, and feedback through personalized and adaptive interactions. Labadze et al. (2023) found that chatbots enhance learner engagement, motivation, and independent study skills in digital classrooms. Their 24×7 availability and scalability make them especially valuable for resource-constrained Indian schools. However, the success of these systems depends on the quality and representativeness of the data on which they are trained. In India's multilingual environment, chatbots often underperform when learners use regional dialects or code-mixed language, exposing them to fairness and accessibility concerns.

2.2 Algorithmic Bias and Its Educational Manifestations

Algorithmic bias refers to systematic errors in AI outputs that lead to unfair outcomes for certain groups (Baker, 2022). In education, such bias appears in multiple forms:

- Data bias: arises when training data disproportionately represent dominant languages or socio-economic groups.
- Design bias: occurs when developers embed untested assumptions about “ideal” learners or standard learning paths.
- Labeling bias: stems from subjective human annotations that reflect social stereotypes.
- Interaction bias: evolves as systems adapt better to majority users, neglecting minority learners.

For example, a chatbot optimized for English fluency may misinterpret regional pronunciations, thereby reducing the confidence of second-language learners. Such bias contradicts the principle of educational fairness, which seeks equitable learning opportunities for all students irrespective of ability, language, or background.

2.3 Ethical Concerns in Educational AI

Although chatbots offer pedagogical benefits, their ethical implications are substantial. Privacy risks arise from collecting students' personal or behavioral data without informed consent. Transparency and explainability remain limited because AI systems rarely reveal how answers are generated. Teacher agency may decline if educators over-rely on automated suggestions rather than professional judgment. Debets et al. (2025) emphasized that few chatbot studies include fairness audits or accessibility evaluations, leaving ethical accountability largely unaddressed. Therefore, balancing automation with human oversight is essential to uphold trust and responsibility in learning environments.

2.4 Inclusive Education in the Indian Context

The National Education Policy (NEP 2020) envisions technology as a catalyst for inclusion and quality improvement. It highlights equitable access, localized content, and support for learners with disabilities (Ministry of Education, 2020). However, algorithmic systems often reflect Western data models and cultural assumptions, which may not align with India's linguistic diversity and socio-cultural plurality. Inclusive education in India therefore demands that AI tools be contextualized—respecting local languages, cultural narratives, and varying learning needs. When designed ethically, chatbots can complement teachers in addressing learning gaps; when poorly designed, they risk reinforcing social hierarchies and digital divides.

2.5 Theoretical Integration

The conceptual framework guiding this paper integrates three intersecting dimensions:

- Technological – addressing data quality, bias detection, and model transparency.
- Ethical – ensuring fairness, accountability, and human oversight in AI applications.
- Cultural – recognizing linguistic diversity, inclusivity, and contextual sensitivity.

Integrating these dimensions aligns with UNESCO's (2021, 2022) ethical principles and India's NEP 2020 vision, ensuring that AI chatbots evolve as instruments of inclusion rather than exclusion. Thus, the review establishes the need for a fairness-centered, culturally responsive, and ethically governed approach to AI chatbots in Indian classrooms.

3. Ethical Implications of AI Chatbots in Inclusive Indian Classrooms

AI chatbots hold significant potential to support inclusive education by offering adaptive learning, instant feedback, and individualized support. However, their integration into classrooms also raises critical ethical concerns. These concerns revolve around fairness, accessibility, transparency, privacy, and teacher professionalism — all of which are fundamental to achieving educational equity in India's diverse and inclusive system.

3.1 Equity and Fairness

The foremost ethical challenge of AI chatbots in education is ensuring fairness across linguistic, cultural, and ability-based diversities. Chatbots trained primarily on English or Hindi datasets may fail to interpret regional dialects or mixed-language usage common in Indian classrooms. Such linguistic bias can alienate students from marginalized language groups and perpetuate academic disparities. Baker (2022) asserts that algorithmic bias often mirrors societal inequalities embedded in the training data. In the Indian context, this could manifest as underrepresentation of rural learners or students with disabilities. Ensuring *algorithmic fairness* thus requires datasets that reflect India's demographic and linguistic heterogeneity.

3.2 Accessibility and Disability Inclusion

For inclusive education to be meaningful, AI chatbots must support accessibility features such as screen readers, voice commands, and simplified text modes. Many existing chatbots lack compatibility with assistive technologies, excluding learners with visual, auditory, or cognitive disabilities. UNESCO's *AI and Education Guidance for Policy-Makers* (2022) emphasizes that all AI tools must adhere to the principles of Universal Design for Learning (UDL). Failure to comply not only violates ethical norms but also undermines India's obligations under the Rights of Persons with Disabilities Act (2016). Ethical chatbot deployment must therefore guarantee multimodal interfaces and inclusive content for all learners.

3.3 Transparency and Explainability

Transparency is a cornerstone of ethical AI. In educational contexts, both teachers and learners deserve to understand how and why a chatbot produces specific responses. However, most chatbots function as "black boxes," providing answers without explainable reasoning. This opacity can lead to mistrust and hinder effective learning. As Debets et al. (2025) observe, explainable AI (XAI) frameworks help users identify errors, question outputs, and promote accountability. Educational institutions must thus prioritize explainability, ensuring that AI systems are open to human audit and interpretation.

3.4 Privacy and Data Protection

AI chatbots frequently collect sensitive personal data — including students' learning progress, behavioral patterns, and, at times, disability status. Without strict consent mechanisms and data governance, such information may be misused or exposed to third parties. In India, while the *Digital Personal Data Protection Act* (2023) lays a legal foundation, its application within school systems remains limited. Ethically, data collection should follow the principles of minimalism, informed consent, and child protection. Institutions must establish clear privacy policies and communicate them transparently to parents and guardians.

3.5 Teacher Ethics and Professional Agency

An often-overlooked ethical dimension concerns the role of teachers in AI-mediated classrooms. Chatbots can assist educators but should never replace them. Overdependence on AI may erode teacher autonomy, leading to deprofessionalization. Teachers are moral agents who contextualize knowledge, offer empathy, and uphold ethical boundaries in learning. Therefore, as NEP 2020 emphasizes, teachers must remain at the center of technology integration. Professional development programs should include AI ethics training, enabling educators to supervise, interpret, and critically evaluate chatbot interactions in classrooms.

In summary, ethical implementation of AI chatbots in inclusive Indian classrooms requires a balanced approach—where technological innovation aligns with human values of fairness, accessibility, and transparency. Policies and practices must safeguard privacy, empower teachers, and ensure that AI complements rather than compromises inclusivity. The next section examines the cultural and linguistic dimensions of algorithmic fairness, which are central to achieving ethically sound AI integration in India's education system.

4. Cultural and Linguistic Dimensions of Algorithmic Fairness

The ethical integration of AI chatbots in Indian classrooms cannot be fully realized without addressing their cultural and linguistic dimensions. India's education system is characterized by extraordinary diversity—23 official languages, hundreds of dialects, and rich cultural pluralism. This diversity creates both opportunities and challenges for algorithmic fairness. AI systems trained on limited or globalized datasets often fail to capture the nuanced sociolinguistic realities of Indian classrooms. As a result, cultural insensitivity and linguistic exclusion may hinder inclusive education rather than advance it.

4.1 Linguistic Diversity and Multilingualism

Language is central to learning and identity formation. India's multilingual classrooms often rely on *code-switching*—the fluid alternation between languages such as Hindi, English, and regional tongues. Chatbots trained predominantly in English or standard Hindi often struggle to interpret such hybrid expressions. According to Labadze et al. (2023), many educational chatbots lack linguistic adaptability, which limits their effectiveness in multilingual contexts. Consequently, students from rural or vernacular-medium backgrounds face reduced access to AI-mediated learning resources. Ethically, linguistic fairness

requires the inclusion of diverse language corpora, regional dialects, and culturally relevant examples in chatbot training data.

4.2 Cultural Representation and Contextual Relevance

Cultural bias in AI occurs when models reflect the norms and values of dominant or Westernized contexts. In India, this may appear in the form of examples, metaphors, or dialogues that fail to resonate with local realities. For instance, a chatbot might reference cultural festivals or idioms unfamiliar to certain regions, inadvertently alienating learners. UNESCO (2021) warns that culturally insensitive AI tools can perpetuate educational inequities by disregarding local identities and traditions. Therefore, chatbots must be developed through culturally localized design, integrating examples, stories, and moral frameworks that reflect India's social and regional diversity.

4.3 Pedagogical Traditions and Learning Ethos

India's pedagogical heritage emphasizes moral development, teacher–student bonding, and community-based learning, often encapsulated in the *guru–shishya* tradition. This relationship-centered ethos contrasts sharply with AI's transactional mode of communication. Baker (2022) notes that AI tools risk reducing education to an efficiency-driven process, neglecting its ethical and relational dimensions. For inclusive classrooms, chatbots should therefore be programmed to complement human teachers rather than replace interpersonal dialogue. Embedding empathy-driven language and culturally rooted examples can align AI interactions with Indian pedagogical values.

4.4 Socioeconomic and Digital Divides

Cultural and linguistic fairness also intersects with socioeconomic equity. Learners from rural or economically disadvantaged backgrounds may lack reliable internet connectivity, updated devices, or digital literacy skills to engage with AI tools effectively. The **digital divide** thus reinforces educational exclusion. NEP 2020 recognizes these disparities and calls for equitable access to digital infrastructure (Ministry of Education, 2020). Developers and policymakers must ensure that chatbots function efficiently on low-bandwidth networks, support regional languages, and remain freely accessible to government schools and special education centers.

4.5 Ethical Framework for Cultural-Linguistic Fairness

Ensuring cultural and linguistic fairness in AI requires an ethical design framework grounded in inclusion and representation. Such a framework must:

1. Integrate multilingual datasets that reflect India's linguistic diversity.
2. Encourage community participation in content development to maintain contextual relevance.
3. Apply bias audits that test performance across languages, regions, and learner categories.
4. Promote open-access localization tools to reduce dependency on Western datasets.

When AI systems are culturally aware, they empower learners to see their identities reflected in digital learning environments, strengthening engagement and belonging.

In sum, algorithmic fairness in India's inclusive education cannot be achieved without cultural and linguistic sensitivity. AI chatbots must move beyond universal design toward *contextual design*—where technology aligns with local languages, pedagogical traditions, and cultural diversity. Ethically and educationally, such localization transforms AI from a foreign imposition into a collaborative ally of inclusion. The next section discusses **policy and educational perspectives** that can institutionalize these principles through governance, training, and accountability mechanisms.

5. Policy and Educational Perspectives

The integration of AI chatbots into India's inclusive classrooms necessitates a strong policy framework and educational vision that aligns technological advancement with ethical responsibility. Policies must ensure that innovation does not compromise equity, privacy, or cultural sensitivity. In this context, both

global ethical guidelines and national education policies play critical roles in shaping how AI tools, including chatbots, can serve diverse learners effectively and ethically.

5.1 National Education Policy (NEP 2020) and Inclusive Vision

India's National Education Policy (NEP 2020) provides a comprehensive vision for equitable and inclusive education through the use of digital and assistive technologies. The policy emphasizes that technology should act as a *facilitator* of learning, not as a substitute for teachers. It highlights the need to integrate digital tools to support learners with disabilities, promote multilingualism, and enhance accessibility (Ministry of Education, 2020). NEP 2020 also advocates for the development of open educational resources (OERs) and digital platforms like DIKSHA, ensuring that learning materials are freely accessible and inclusive. However, the policy does not yet provide explicit ethical guidelines for AI chatbot deployment—creating a regulatory gap that must be addressed to protect diverse learners from algorithmic bias.

5.2 UNESCO's Ethical Framework for AI in Education

At the global level, UNESCO's Recommendation on the Ethics of Artificial Intelligence (2021) and AI and Education: Guidance for Policy-Makers (2022) offer a robust foundation for ethical governance. These frameworks identify fairness, transparency, accountability, human oversight, and cultural diversity as core principles of AI ethics. UNESCO emphasizes that AI should enhance human capabilities, uphold dignity, and promote sustainable development. Applying these principles to India means ensuring that chatbot design and implementation respect cultural pluralism, linguistic diversity, and equitable access. Educational institutions can use UNESCO's model to create localized ethical codes for AI in teaching and learning, adapted to India's socio-cultural realities.

5.3 Teacher Education and Capacity Building

For AI chatbots to function as ethical and inclusive tools, teachers must be adequately trained to integrate them responsibly. NEP 2020 emphasizes continuous professional development and digital literacy for teachers. However, AI literacy and AI ethics are rarely included in teacher education curricula. Training programs should therefore equip educators to:

1. Critically evaluate chatbot-generated content,
2. Recognize algorithmic bias and accessibility issues, and
3. Guide students in the responsible and ethical use of AI.

Teacher empowerment ensures that technology remains subordinate to pedagogy and that ethical oversight is maintained in every classroom interaction. When teachers act as mediators between AI and students, inclusivity and accountability are preserved.

5.4 Data Governance and Child Protection Policies

AI chatbots collect and process vast amounts of learner data. Therefore, data governance is a key policy concern. India's Digital Personal Data Protection Act (2023) provides the legal basis for protecting individuals' digital data, but specific educational safeguards remain underdeveloped. Schools and higher education institutions must create clear data protection policies detailing how student information is collected, stored, and shared. Moreover, explicit consent from parents or guardians should be mandatory for minors. Transparent data practices not only ensure compliance with national law but also strengthen public trust in educational technology.

5.5 Institutional and Monitoring Mechanisms

Effective implementation of AI ethics requires institutional mechanisms for monitoring, evaluation, and accountability. The Ministry of Education, along with NCERT and CIET, should develop standard guidelines for AI integration, including bias audits, accessibility checks, and regular impact assessments. Partnerships with technology developers, universities, and teacher training institutes can help establish ethical testing labs that evaluate AI systems before classroom deployment. This collaborative approach ensures that policies evolve with technological changes while maintaining ethical integrity.

Additionally, state governments and education boards should mandate third-party audits to review chatbot performance, especially regarding fairness, accessibility, and cultural localization. Public reporting of such evaluations would foster transparency and continuous improvement.

A comprehensive policy ecosystem—anchored in NEP 2020's inclusive vision, UNESCO's ethical frameworks, and India's emerging data protection laws—is crucial to ensuring that AI chatbots promote equity rather than exacerbate inequalities. Ethical governance, teacher capacity building, and robust data regulation together provide the foundation for responsible AI use in education. When these policies are operationalized, AI chatbots can function not merely as technological innovations but as instruments of educational justice, reinforcing India's constitutional commitment to equality, diversity, and inclusion.

6. Discussion and Recommendations

The preceding analysis demonstrates that while AI chatbots can advance inclusivity, personalization, and accessibility, they also raise complex ethical challenges related to bias, transparency, and fairness. In India's diverse educational ecosystem, where classrooms include multiple languages, socio-economic strata, and learners with disabilities, these issues acquire even greater significance. Addressing them requires a holistic ethical framework that combines technological design principles with human oversight and culturally responsive pedagogy.

6.1 Fairness-by-Design

Developers must embed fairness at the earliest stages of AI design. This involves curating diverse training datasets that reflect India's linguistic, regional, and ability-based diversity. Regular bias audits should assess chatbot performance across demographic groups to detect inequities in response accuracy or accessibility. Algorithms should be evaluated not only for technical efficiency but also for social impact. Ethical design thus transforms fairness from a reactive correction into a proactive design value (Baker, 2022).

6.2 Human-in-the-Loop and Teacher Empowerment

Teachers should remain central to AI-mediated learning. AI chatbots must function as assistive partners, not replacements. Human oversight ensures contextual judgment, empathy, and ethical responsibility—qualities that AI lacks. Integrating AI ethics and digital literacy into teacher education, as recommended by NEP 2020, can prepare educators to interpret AI-generated content critically and address potential bias or misinformation (Ministry of Education, 2020).

6.3 Transparency and Explainability

Chatbots must be transparent about how they generate responses. Explainable AI (XAI) models can make decision-making processes visible to users, enabling teachers and learners to question outputs. Transparency promotes accountability and trust, both of which are vital in inclusive classrooms. Institutions should adopt open reporting practices, publicly sharing evaluation data and bias-testing outcomes.

6.4 Accessibility and Cultural Localization

Ensuring universal accessibility and cultural contextualization are non-negotiable for ethical chatbot deployment. Systems must comply with accessibility standards such as WCAG and provide multimodal interfaces—text, voice, and simplified language options. Moreover, localization in regional languages and integration of culturally familiar examples can improve learner engagement and inclusion.

6.5 Policy and Collaborative Governance

Finally, ethical AI deployment demands collaboration among educators, technologists, and policymakers. Establishing AI ethics committees at institutional levels, guided by UNESCO's principles (2021), can ensure accountability. Regular monitoring, transparent evaluation, and participatory design involving local teachers and communities can transform AI chatbots into culturally responsive tools of inclusion.

To uphold educational fairness, India's AI strategy must align ethics, technology, and human agency. By adopting fairness-by-design, maintaining teacher oversight, ensuring transparency, and promoting cultural localization, AI chatbots can evolve from potential sources of bias into catalysts for inclusive and equitable learning.

7. Conclusion

Artificial Intelligence (AI) chatbots represent one of the most transformative innovations in contemporary education, capable of reshaping how learners access information and interact with instructional content. In India's inclusive classrooms—marked by linguistic plurality, cultural diversity, and varied learning needs—AI chatbots hold immense potential to bridge educational gaps and foster personalized, equitable learning. However, this potential can only be realized if their development and deployment adhere to strong ethical, cultural, and pedagogical foundations.

The analysis presented in this paper underscores that algorithmic bias, if left unaddressed, can reproduce and amplify pre-existing social and linguistic inequalities. Ethical concerns related to fairness, transparency, accessibility, and teacher agency are not peripheral but central to inclusive AI integration. Educational justice requires that chatbots be designed with fairness-by-design principles, accessible interfaces, and multilingual capabilities that reflect India's demographic and cultural realities. Furthermore, teachers must remain pivotal—serving as human mediators who interpret AI outputs, uphold ethical standards, and ensure that learning remains relational rather than purely technological.

Policy frameworks such as NEP 2020 and UNESCO's ethical guidelines provide a robust foundation for achieving this balance between innovation and responsibility. What remains essential is their effective translation into institutional practice—through data protection laws, teacher training, fairness audits, and community participation in AI design.

In conclusion, ethical AI integration in education is not merely a technical challenge but a moral imperative. When guided by fairness, human oversight, and cultural sensitivity, AI chatbots can become powerful allies in realizing India's vision of inclusive, equitable, and quality education for all. However, without ethical vigilance, the same technology risks entrenching the very disparities it seeks to eliminate. The path forward, therefore, lies in harmonizing technological advancement with human values, ensuring that inclusion remains at the heart of every innovation.

References

1. Baker, R. S. (2022). Algorithmic bias in education. *International Journal of Artificial Intelligence in Education*. <https://link.springer.com/article/10.1007/s40593-021-00285-9>
2. Debets, T., et al. (2025). Chatbots in education: A systematic review of objectives. *Computers & Education*. <https://www.sciencedirect.com/science/article/pii/S0360131525000910>
3. Labadze, L., et al. (2023). Role of AI chatbots in education: A systematic literature review. *International Journal of Educational Technology in Higher Education*, 20(1). <https://educationaltechnologyjournal.springeropen.com/articles/10.1186/s41239-023-00426-1>
4. Ministry of Education, Government of India. (2020). *National Education Policy 2020*. https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf
5. UNESCO. (2021). *Recommendation on the Ethics of Artificial Intelligence*. <https://www.unesco.org/en/artificial-intelligence/recommendation-ethics>
6. UNESCO. (2022). *AI and education: Guidance for policy-makers*. https://teachertaskforce.org/sites/default/files/2023-07/2021_UNESCO_AI-and-education-Guidande-for-policy-makers_EN.pdf
7. NCERT. (n.d.). *Initiatives for Inclusive and Accessible Education*. <https://www.ncert.nic.in/accessibility.php>
8. DIKSHA (CIET/NCERT). (n.d.). *DIKSHA – Digital Infrastructure for Knowledge Sharing*. <https://ciet.ncert.gov.in/initiative/diksha>
9. World Journal of Advanced Research and Reviews. (2025). Algorithmic bias in educational systems: Examining the impact. https://journalwjarr.com/sites/default/files/fulltext_pdf/WJARR-2025-0253.pdf