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AI IN ELT: NAVIGATING ETHICAL QUANDARIES AND FOSTERING EQUITABLE LEARNING ENVIRONMENTS

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Abstract

The rapid integration of artificial intelligence (AI) into English Language Teaching (ELT) has unlocked unprecedented opportunities for personalised instruction yet simultaneously introduced ethical challenges that warrant scholarly attention. This research delves into the ethical implications of AI-driven personalisation, addressing algorithmic bias, privacy concerns, and the digital divide. Central to the inquiry is how educators can balance efficiency gains and ethical considerations in AI-driven ELT. Prior research has illuminated the potential of AI in ELT, while ethical concerns surrounding AI applications in education remain relatively unexplored. The current study aims to bridge this gap, providing insight into the responsible deployment of AI in ELT to create equitable learning environments. Investigating this pressing issue is crucial for educators, as it can shape future pedagogical practices, inform policy decisions, and ensure that all learners have equal access to quality education. Employing a theoretical analysis approach, this study integrates the Technological Pedagogical Content Knowledge (TPACK) framework, the Ethics of Educational Technology (EET), and the Fairness, Accountability, and Transparency in Machine Learning (FAT-ML) principles. These lenses enable a comprehensive examination of the ethical landscape surrounding AI-driven personalisation in ELT. Findings reveal practical strategies for mitigating algorithmic bias, addressing privacy concerns, and tackling the digital divide, emphasising the need to harmonise technological advancements with ethical responsibilities. The study underscores the significance of cultivating an inclusive, ethically responsible ELT ecosystem in the age of artificial intelligence, contributing to the ongoing discourse on AI's role in higher education.

Keywords: Algorithmic bias, Artificial intelligence, Digital divide, English language teaching, Ethics

INTRODUCTION

Commencing this intricate conversation around artificial intelligence (AI) and English Language Teaching (ELT), it is apparent that AI's influence has acted as a catalyst, igniting significant shifts in pedagogical methods and strategies (Alam, 2021; Cooper, 2023; Lameras & Arnab, 2021). This technological surge, deeply interwoven within the fabric of modern ELT, has moved beyond a phase of conceptual possibility, affirming its presence as a reality that guides learners and educators alike. Distinguished from past teaching tools, AI offers an innovative approach to language instruction that is inherently individualised, conforming to unique learner-specific needs and abilities (Baidoo-Anu & Owusu Ansah , 2023; Chen et al., 2021; Kem, 2022).

Advancing further into the depths of AI's impact on ELT, machine learning and natural language processing, two robust pillars supporting AI, have grown pivotal in cultivating adaptive and engaging learning environments (Asthana & Hazela, 2020; Huang, 2021). These technological marvels, leveraging the power of data-driven insights, can enhance language proficiency, enrich learning experiences, and augment classroom interaction, thereby marking an epochal shift in ELT.

Echoing the significance of this transformation, it is crucial to realise that this paradigm shift, though laden with many possibilities, warrants careful navigation. As we move deeper into an era defined by AI's imprint on ELT, exploring, understanding, and aligning with this change remains at the heart of effective language education.

Manifested with AI's emergence in ELT is a host of crucial ethical issues. Among them, algorithmic bias stands out as a significant concern (Akgun & Greenhow, 2021; Baker & Hawn, 2021; Kizilcec, 2020). Despite being cloaked under a veneer of objectivity, algorithms may harbour unintentional biases, favouring specific learner profiles and fostering inequality in learning opportunities. The question arises: How might educators and technologists mitigate these biases to ensure a balanced pedagogical ecosystem, mainly when algorithms are intrinsically opaque, learning and evolving in complex and unpredictable ways? As educators and researchers, we must navigate these complexities, thereby preserving the principle of equity at the heart of education.

Parallel to the challenge of algorithmic bias, privacy concerns loom large. AI platforms, by their very nature, necessitate collecting and analysing extensive personal data to function efficiently (Pedro et al., 2019). This raises crucial questions about protecting learner data, which remains a subject of ongoing debate in ELT (Hockly, 2023). How might educational institutions ensure data security while harnessing the benefits of AI-driven instruction? Identifying and implementing privacy protection strategies is indispensable for responsible AI integration into ELT.

Another layer of ethical considerations revolves around the digital divide — the gap between those with access to digital technology and those without (Cullen, 2001; Hargittai, 2003; Rogers, 2001). There is a concern that implementing AI in ELT might exacerbate this divide, potentially deepening societal inequalities. While AI presents tremendous opportunities for personalised learning, it also highlights issues of accessibility and inclusion,

requiring our constant vigilance to ensure no learner is left behind in this digital transformation.

The pursuit of this investigation is born out of a pressing need to illuminate the elusive balance between AI's efficiency and its ethical considerations in ELT. Regrettably, this balance has often been sidelined or overlooked, warranting a thorough exploration to steer the trajectory of AI's influence in ELT. Anchored in believing that technological proficiency should not eclipse ethical stewardship, this inquiry grapples with the challenges and opportunities inherent in marrying efficiency and ethics in ELT. As AI expands its reach, we, as educators, researchers, and stakeholders, must anticipate potential pitfalls and promote practices that embody efficiency and ethical responsibility.

Propelling this understanding to the forefront is critical for sculpting equitable ELT practices and policies. As technology continues to reshape the contours of our world, discussions around AI in ELT need to move beyond technological potentialities and examine the ethical dimensions that shape its application. This requires fostering an environment of critical inquiry that interrogates the ethical implications of AI-based personalisation, questioning the structures and systems that govern its use, and advocating for practices that reinforce a commitment to fairness, transparency, and accountability.

Focusing on this balance transcends academic discourse; it is a pragmatic necessity for ensuring equal access to quality education amidst swift technological evolution. As AI transforms the education landscape, it is incumbent on us to ensure that this transformation does not exacerbate inequalities or compromise the integrity of the learning process. By engaging with these concerns, this investigation hopes to contribute to a broader dialogue on the ethical deployment of AI in ELT and inspire action towards a more inclusive and equitable educational future.

METHOD

This scholarly pursuit appropriates the argumentative review approach, meticulously exploring AI's ethical connotations within ELT. This methodology has an inherent capacity for critical interrogation and thoughtful synthesis of germane literature, carving out space for nuanced, evidence-based argumentation. It provides the intellectual scaffolding needed to connect disparate lines of thought, scrutinise established assumptions, and chart fresh

insights into the intricate tapestry of AI ethics within the ELT landscape (Cooper, 1988; Hart, 1998; Onwuegbuzie et al., 2012).

The methodology's unique strength rests in its analytical rigour and its potential to illuminate multifaceted issues from a kaleidoscope of perspectives. Fostering an environment where multiple viewpoints can be examined and contrasted encourages a more comprehensive understanding of the subject at hand. Rather than simplifying the complexities of ethical AI in ELT, it embraces them, providing an avenue for the rigorous examination of contentious issues and seemingly contradictory viewpoints (Hart, 1998; Onwuegbuzie et al., 2012).

Within the contours of this methodology, the argumentative review approach asserts its value by reframing our understanding of how AI's ethical implications in ELT can be explored. The vast expanse of academic literature seeks to trace patterns, identify gaps, and build compelling narratives that challenge and inspire. Through this lens, the inquiry offers not just a review of what we know but a critical appraisal of where we stand and a reflection on where we should be headed in the ethical deployment of AI in ELT (Cooper, 1988; Hart, 1998).

In dissecting the intricate dimensions of AI's ethical implications within the ELT ecosystem, it is imperative to construct a robust analytical scaffold. As such, this examination situates its inquiry within the shared boundaries of three synergistic frameworks: Technological Pedagogical Content Knowledge (TPACK), the Ethics of Educational Technology (EET), and Fairness, Accountability, and Transparency in Machine Learning (FAT-ML).

TPACK, as a guiding framework, weaves together technology, pedagogy, and content knowledge into a unified whole. It delineates the interplay between these three domains, highlighting how each informs and shapes the others within the context of ELT. This comprehensive model helps understand the pedagogical applications of AI in language instruction and the potential ramifications of its integration at the intersection of content and pedagogical knowledge (Koehler & Mishra, 2009; Mishra & Koehler, 2006).

Meanwhile, the EET framework directs the inquiry towards exploring the ethical undercurrents that guide the deployment of educational technology. It instigates a deep, nuanced comprehension of ethical quandaries rooted in technological innovations in

education, opening up pathways for dialogues on equity, privacy, and autonomy (Buckingham Shum et al., 2019; Selwyn & Facer, 2013). Lastly, FAT-ML shines a spotlight on the ethical aspects of machine learning applications. Specifically, in an AI-dominated ELT milieu, FAT-ML aids in grappling with issues related to fairness, transparency, and accountability that inevitably arise (Dignum et al., 2018; Sandvig et al., 2014).

This research underscores a distinctive perspective on ELT ethics by emphasising the convergence of TPACK, EET, and FAT-ML frameworks. This integrated approach paints a holistic tableau of the ethical milieu in ELT, complementing the more established pedagogical and technological discourses. Infusing these three theoretical structures into a singular analytic lens facilitates an exploration of the multifarious aspects of the ethical concerns in AI-imbued ELT, ensuring a richer, more thorough examination of this complex and multifaceted issue.

Positioned at this juncture, the analysis acquires a refined vantage point that allows a deep dive into the ethical implications of AI in ELT. This depth of understanding is derived from the individual and collective strengths of the TPACK, EET, and FAT-ML frameworks. Each framework brings its unique strengths to the fore, revealing various facets of the ethical landscape and creating a more robust bedrock for interpreting AI's ethical connotations within the ELT environment.

Significantly, this methodological novelty contributes to bridging an identified lacuna in ELT literature and aids in extending the dialogues surrounding ethical ELT practices. By employing this triadic approach, this inquiry broadens the discursive space. It encourages a critical reconsideration of our understanding of ELT ethics in the era of AI, thereby enriching the collective intellectual capital of the field.

FINDINGS AND DISCUSSION

An insidious form of inequity, algorithmic bias, raise pressing concerns in AI-enhanced ELT. Numerous instances abound where AI, far from being an impartial facilitator, inadvertently tilts towards specific learner demographics. While seemingly innocuous, this unintentional favouritism imperils the principle of equal opportunity in learning (Baker & Hawn, 2022).

The crux of this issue lies within the very architecture of machine learning models, the engines driving personalisation in ELT. Encoded biases can stem from training data or the model's structure, making outcomes subtly yet effectively skewed towards certain groups ((Belenguer, 2022). Such biases, often under the radar due to their inherent technical nature, need unmasking through rigorous and meticulous scrutiny (Akter et al., 2021).

Addressing this calls for a two-pronged approach: enhancing the transparency of AI algorithms and adopting fair machine learning practices. Transparency in AI implies understanding the decision-making process of AI systems (Kerry, 2020). Fair machine learning, meanwhile, aims at minimising the adverse impact on specific groups while optimising overall performance (Baker & Hawn, 2022). Together, these strategies offer potential pathways to navigate the quagmire of algorithmic bias in AI-assisted ELT.

Thus, unearthing and acknowledging this bias does not merely uncover an ethical pitfall but implores a nuanced understanding of AI systems and their potential implications. It underscores the importance of continually questioning and probing these systems to ensure their promise of individualised learning does not compromise on the principles of fairness and equality.

A contentious issue, privacy, garners significant attention concerning deploying AI platforms in ELT. To craft tailored learning experiences, these platforms necessitate collecting and analysing extensive personal data sets. Though beneficial for individualised learning, this data-rich approach concurrently ignites discussions surrounding data security, the sanctity of consent, and the inviolability of privacy rights.

The essence of this concern rests upon the dichotomy of personalised learning and personal privacy. While data-driven AI technologies can offer unprecedented levels of personalised instruction, such advancements should not eclipse the fundamental right to privacy (Kerry, 2020). The fulcrum of this debate then hinges upon finding an equilibrium where personal data can be used to enhance learning without infringing on individual privacy.

Addressing this requires a multifaceted approach encompassing legislative measures, technological safeguards, and ethical considerations. Legislation must evolve to safeguard personal data in the era of AI (Kerry, 2020). Simultaneously, advancements in privacy-

preserving technologies, such as differential privacy and federated learning (Thaine et al., 2020), can offer viable solutions to mitigate these concerns.

In this unfolding debate, one thing remains unequivocal: the need for relentless vigilance and comprehensive solutions. As we journey into an increasingly AI-driven educational landscape, the question of privacy stands as a sentinel, reminding us of the ethical boundaries that must remain inviolate amidst technological progress (Kerry, 2020).

AI's integration into ELT uncovers implications for an insidious societal divide known as the digital divide, referring to the chasm that separates those with access to digital technology from those bereft of such access. This ever-present rift poses substantial challenges to educational equity, an issue that garners growing concern amidst an accelerating digital transformation in education (UNESCO, 2019). Notably, discrepancies in access to AI-enhanced learning resources might inadvertently exacerbate this divide, culminating in divergent educational outcomes (McKinsey & Company, 2021).

Indeed, the potential for AI in education holds immense promise, yet that promise is only as potent as its reach. Where access to these transformative technologies remains unequal, education's cornerstone principle of equality is put at risk. A widening digital divide promotes unequal opportunities and threatens to create a bifurcated educational system where privileged learners reap the benefits of AI's personalised learning while less privileged ones languish.

Therefore, confronting the hidden rift of the digital divide necessitates deeper examination. It requires innovative strategies and concerted efforts from multiple stakeholders - educators, policymakers, technologists, and society. The goal must be the creation of a technologically inclusive educational landscape where AI-enhanced education benefits all, not just a privileged few (UNESCO, 2023).

In conclusion, the quest for digital equity in the context of AI-infused ELT is more than a logistical challenge. It is a matter of social justice, a testament to our commitment to ensuring that every learner, regardless of their socioeconomic status, has the opportunity to thrive in a technologically advanced educational landscape. Therefore, the responsibility for bridging the digital divide falls upon all of us, reaffirming our collective commitment to a more equitable educational future.

Algorithmic bias, a formidable hurdle in AI-driven ELT, is not insurmountable. Researchers, educators, and technologists can employ strategic interventions to moderate its effects. Initiating bias detection measures and fairness interventions in the AI model development process offers a significant starting point (Lee et al., 2019). This proactive strategy can uncover hidden biases and facilitate rectification, fostering a more equitable learning landscape.

Additionally, concerted efforts must cultivate comprehensive and diverse data sets that reflect the global learner demographic better. A reliance on limited or homogenous data can reinforce prevailing biases, thereby perpetuating inequity in ELT outcomes (Richardson & Gilbert, 2021). Hence, it becomes imperative to incorporate many linguistic and cultural backgrounds in data sets, thereby ensuring that AI models encapsulate a broad spectrum of learner identities.

Extending this perspective, advocating for a departure from a predominantly Eurocentric or Anglocentric focus in ELT resources is vital. A shift towards materials that reflect the linguistic and cultural diversity inherent in our globalised world could significantly enrich the AI-enhanced ELT experience (Baker & Hawn, 2022). This reorientation acknowledges the multiplicity of learners' backgrounds and champions inclusivity in AI-driven ELT.

An equitable algorithm is not an elusive ideal but a tangible reality that we can strive towards. These outlined strategies – bias detection, fairness interventions, data diversification, and cultural inclusivity in resources – could significantly reduce algorithmic bias, making strides towards a more equitable, inclusive, and just ELT landscape.

In AI-driven ELT, safeguarding learner data emerges as a compelling narrative, necessitating an enhanced emphasis on privacy protection. A robust approach to data security can significantly enhance this protection. By adopting strict data security measures and framing comprehensive data use policies, educational institutions and technology developers can prevent unauthorised access and misuse of personal information. This precautionary step could significantly fortify the safeguards around learner data, fostering a secure digital environment conducive to confident, unrestricted learning.

Transparency regarding data collection and usage is another critical component in upholding privacy. Maintaining an open dialogue about the nature, purpose, and extent of

data collection can foster trust between learners and learning platforms (Kerry, 2020). By ensuring that learners are fully cognizant of how their data contributes to their personalised learning experiences, institutions and platforms can alleviate possible apprehensions surrounding data security, fostering a more conducive learning environment.

Furthermore, initiating learner engagement in discussions around data privacy assumes paramount importance. As the primary stakeholders, learners should understand their digital footprints' implications and potential ramifications. Therefore, educators should encourage critical reflection on their digital presence and data trails (UNESCO, 2019), fostering a more informed, conscious, and ethical digital citizenry.

In essence, rigorous security measures, transparent data policies, and active learner engagement collectively contribute to safeguarding learner data in AI-enhanced ELT. By prioritising these aspects, stakeholders can help foster a more secure, trusting, and informed ELT ecosystem, thereby advancing the ethical deployment of AI in education (Kerry, 2020).

Acknowledging the digital divide within the sphere of AI-enhanced ELT requires embracing practices deeply rooted in inclusivity. To effectively bridge this gap, widening access to advanced ELT resources is crucial, enabling learners from various socioeconomic backgrounds to benefit from these advanced tools. Efforts towards equity in education call for comprehensive measures that encompass diverse learners. Such approaches necessitate the development of AI-enhanced ELT resources tailored to learners hailing from a range of economic and social environments (UNESCO, 2019).

Collaborative initiatives between policymakers, educators, and technology developers become instrumental in this endeavour. Joint efforts can focus on devising affordable, resource-efficient solutions that extend their reach to disadvantaged learners (McKinsey & Company, 2021). Engaging in the development of such solutions not only democratises access to advanced learning tools but also underlines the commitment to inclusion and equity in education.

Furthermore, educational institutions carry the mantle of advocacy for digital inclusion policies. Their role in shaping these policies can substantially influence whether AI-enhanced ELT exacerbates existing educational disparities or contributes to their reduction (UNESCO, 2023). As the digital divide remains a pressing concern, persistent lobbying for

inclusive policies emerges as a pivotal aspect of ensuring that advancements in ELT serve to bridge this divide rather than widen it.

CONCLUSION

Situated on the precipice of an era of exceptional efficiency, English Language Teaching (ELT) — facilitated by AI — necessitates a relentless pursuit of pedagogical brilliance and an equal dedication to ethical considerations and responsible practices. Remarkable technological advances promise substantial gains in ELT; however, the ride on this fast-paced technological bandwagon demands a steadfast commitment to maintaining an ethical compass.

This study's findings underscore an imperative for striking a delicate balance. This intricate equilibrium does not merely seek to harness the power of technology but also ensures that its deployment aligns with enduring principles of fairness, respect for privacy, and inclusivity. Such an alignment ensures that as ELT progresses to new heights, it does so without compromising the principles that form the cornerstone of equitable education. This balance underlines the quintessential challenge faced by educators and policymakers in the AI era: melding cutting-edge innovations with steadfast ethical norms.

Gleaned insights from this investigation assist in delineating a nascent model for ethical ELT, outlining a future trajectory characterised by an amalgamation of technological sophistication and steadfast ethical considerations. Essential takeaways from this study accentuate the instrumental roles played by various stakeholders – educators, software developers, and policymakers alike. These crucial players contribute to creating an ELT ecosystem that not only encourages linguistic proficiency but also safeguards the underpinnings of ethical norms.

This active role played by various stakeholders takes the ELT environment a step closer to an innovative landscape where technology serves as a dual-purpose tool. On the one hand, it catalyses educational advancements, and on the other, it underlines societal welfare. By utilising technology as a conduit for academic innovation and societal benefit, we pave the way for an ELT that can bridge gaps instead of widening them. By doing so, we inch towards realising a future where technology and ethical practices harmoniously coexist to shape the course of English language teaching and learning.

In our journey through the intricate maze of AI-enhanced ELT, the guiding compass, unwaveringly, ought to be ethical responsibility. Our path ahead necessitates a focus on continued exploration and analysis of the ethical conundrums intertwined with AI in ELT. In our endeavours, it becomes paramount to centre around the deconstruction of these ethical complexities linked with artificial intelligence in ELT and towards designing viable, long-lasting solutions to these predicaments.

We should strive toward manifesting an ELT ecosystem wherein AI functions not as a precursor to ethical challenges but as a powerful instrument that assists in propagating and safeguarding ethical standards we dearly uphold. This ethical framework of ELT should be shaped by our collective commitment to harness the transformative power of AI while concurrently addressing its potential perils (Holmes et al., 2021). Only then can we truly realise the promise of an ethically responsible ELT ecosystem that leverages AI's capabilities to further pedagogical innovation without compromising the principles of fairness, respect, and inclusivity (Nguyen et al., 2023)?

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