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Accelerate Universities' Role for the Implementation of the UN SDGs 2030: Synergizing AI and Human Intelligence

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Abstract

The fusion of Artificial Intelligence (AI) with Human Intelligence (HI), through the advancement of Generative AI technologies like Large Language Models (LLMs) and the recognition of human intelligence traits such as creativity, emotional insight, and adaptability to new situations, represents a crucial step forward in tackling global challenges within the framework of the Sustainable Development Goals (SDGs). The synergy of open AI technologies and HI characteristics holds the potential to transform education by offering intelligent tutoring systems, automated assessments, AI-driven educational platforms, and human values, scalable and personalized learning experiences, enhancing access to quality education, optimizing resource allocation, curriculum development, and incorporating empathy and ethics. By lowering barriers to educational equity and fostering lifelong learning, AI not only improves educational outcomes but also supports the broader pillars of sustainability—social, economic, and environmental—while HI ensures equity, inclusion, inclusive development, and ethical considerations in its application. Despite these promising applications, current literature points out significant gaps in understanding the full potential of AI and HI in achieving SDGs. This study conducts a thorough analysis to quantify existing research on the contributions of HI and AI to sustainable development, with a particular emphasis on sustainability. We contend that a deeper understanding of HI and AI capabilities can inform more effective policies and strategic initiatives, promoting equitable and sustainable educational systems. Future research should

further investigate ethical considerations and the long-term societal impacts of AI and HI integration into the education sector. This study offers a comprehensive overview of the current research landscape, identifies critical areas for future investigation, and lays the groundwork for continued academic exploration into AI, HI, and sustainability.

Keywords: Artificial Intelligence, Human Intelligence, Sustainable Development Goals, Sustainable Innovations, Digital Sustainability, Human-AI Collaboration.

Introduction

The Sustainable Development Goals in Education emerged from a global recognition that education is fundamental to human progress and sustainable development. These goals build upon earlier international efforts, such as the Millennium Development Goals, to address persistent challenges in education worldwide. The SDGs related to education aim to ensure inclusive and equitable quality education for all, promoting lifelong learning opportunities. They acknowledge that education is not only a basic human right but also a powerful tool for reducing poverty, improving health outcomes, and fostering economic growth. The education-focused SDGs were developed through extensive consultations with governments, civil society organizations, and education experts from around the world. They reflect a holistic approach to education, encompassing early childhood development, primary and secondary schooling, vocational training, and higher education. These goals also emphasize the importance of addressing disparities in education access and quality, particularly for marginalized groups such as girls, children with disabilities, and those living in conflict-affected areas. By setting ambitious targets for education, the SDGs seek to transform learning opportunities and outcomes globally, recognizing education's pivotal role in creating more peaceful, prosperous, and sustainable societies.

Overview of the United Nations' SDGs

The United Nations' seventeen Sustainable Development Goals (SDGs) represent a comprehensive global framework aimed at addressing pressing social, economic, and environmental challenges. Adopted by all UN member states in 2015, these goals serve as a blueprint for achieving a more sustainable and equitable future by 2030. The SDGs encompass a wide range of interconnected issues, including poverty eradication, quality education, gender equality, clean energy, climate action, and sustainable cities. By setting specific targets and indicators, the SDGs provide a roadmap for governments, organizations, and individuals to work collaboratively towards creating a more prosperous, inclusive, and environmentally conscious world. The implementation of these goals requires concerted efforts across sectors and nations, emphasizing the importance of partnerships and innovative solutions to tackle complex global problems.

Education and Sustainable Development Goals

Education plays a pivotal role in achieving the Sustainable Development Goals (SDGs) set forth by the United Nations. It serves as a fundamental catalyst for social, economic, and environmental progress, empowering individuals and communities to address global challenges. Quality education equips people with the knowledge, skills, and values necessary to make informed decisions, participate actively in society, and contribute to sustainable development. By promoting literacy, numeracy, and critical thinking, education enables individuals to understand complex issues, innovate solutions, and adapt to changing circumstances. Furthermore, education fosters awareness of environmental sustainability, social justice, and responsible citizenship, which are essential for realizing the SDGs. It also contributes to poverty reduction, gender equality, and improved health outcomes, as educated individuals are more likely to secure decent employment, make informed health choices, and challenge discriminatory practices. Additionally, education cultivates a global perspective, encouraging cross-cultural understanding and cooperation, which are crucial for addressing interconnected global challenges. As a powerful tool for social transformation, education has the potential to break cycles of poverty, reduce inequalities, and promote sustainable practices across generations. Therefore, investing in inclusive, quality education is not only a goal in itself but also a means to accelerate progress across all SDGs, creating a more equitable, prosperous, and sustainable world for all.

Current Challenges in Implementing SDGs in Education

The implementation of Sustainable Development Goals (SDGs) in education faces numerous challenges in today's complex global landscape. Educational systems worldwide are grappling with the task of integrating SDG principles into curricula, teaching methodologies, and institutional practices. One significant hurdle is the lack of awareness and understanding of SDGs among educators, administrators, and policymakers, which hinders effective integration into educational frameworks. Additionally, resource constraints, particularly in developing countries, pose a substantial barrier to implementing SDG-focused educational initiatives. Many institutions struggle with inadequate funding, insufficient infrastructure, and a shortage of trained personnel to support sustainable education programs. The digital divide further exacerbates these challenges, as access to technology and digital resources remains uneven across different regions and socioeconomic groups. Moreover, the rapidly changing nature of global issues addressed by SDGs requires constant updating of educational content and approaches, creating a continuous need for professional development and curriculum revision. The COVID-19 pandemic has also introduced new obstacles, disrupting traditional educational models and highlighting the urgency of addressing issues like educational equity and resilience in crisis situations.

Furthermore, measuring the impact and progress of SDG implementation in education remains a complex task, with a lack of standardized assessment tools and metrics across different educational contexts. Balancing local educational priorities with global SDG objectives presents another challenge, as educators must navigate between addressing immediate community needs and broader sustainability goals.

Lastly, the interconnected nature of SDGs demands a holistic and interdisciplinary approach to education, which often conflicts with traditional subject-based curricula and assessment methods. Overcoming these multifaceted challenges requires concerted efforts from governments, educational institutions, and international organizations to develop innovative strategies, allocate resources effectively, and foster a culture of sustainability in education systems worldwide.

The Role of Artificial Intelligence (AI) and Human Intelligence (HI) in Education

The rapid advancement of technology has led to significant changes in various sectors, including education. Artificial Intelligence (AI) has emerged as a powerful tool with the potential to revolutionize teaching and learning processes. While AI offers numerous benefits, such as personalized learning experiences and automated administrative tasks, it is essential to recognize the irreplaceable role of Human Intelligence (HI) in education. This paper explores the interplay between AI and HI in the educational landscape, examining their respective strengths and limitations.

The integration of AI in education has opened up new possibilities for enhancing the learning experience. AI-powered systems can analyze vast amounts of data to provide tailored content and adaptive learning paths for individual students. These systems can identify knowledge gaps, suggest appropriate resources, and offer real-time feedback, thereby supporting personalized learning at scale. Additionally, AI can automate routine administrative tasks, allowing educators to focus more on student interaction and higher-order teaching activities. Human Intelligence, on the other hand, brings unique qualities to the educational process that cannot be replicated by AI.

Educators possess emotional intelligence, creativity, and the ability to form meaningful connections with students. They can provide nuanced explanations, adapt teaching methods on the fly, and offer empathy and support that are crucial for holistic student development. Moreover, human teachers play a vital role in fostering critical thinking, ethical reasoning, and social skills that are essential for students' future success. The potential for synergy between AI and HI in education is significant. By leveraging the strengths of both, we can create a more effective and efficient educational ecosystem. AI can handle data-driven tasks and provide personalized learning experiences, while human educators can focus on higher-level cognitive processes, emotional support, and fostering creativity. This collaboration can lead to improved learning outcomes, increased engagement, and a more inclusive educational environment that caters to diverse learning needs.

Objectives of the Study

The relevant aims of this study are given below:

- To explore the synergistic potential of artificial intelligence and human intelligence in accelerating universities' contributions to the UN Sustainable Development Goals (SDGs) 2030.
- To develop a framework for integrating AI technologies with human expertise to enhance universities' impact on SDG implementation.
- To identify key areas where the combination of AI and human intelligence can expedite progress towards the UN SDGs within university settings.

- To assess the effectiveness of AI-human collaboration in addressing specific SDG targets within higher education institutions
- To investigate the challenges and opportunities in harmonizing AI and human intelligence for accelerating SDG implementation in academic environments.

Literature Analysis

This research explores the fusion of Artificial Intelligence (AI) and Human Intelligence (HI) in tackling global challenges, with a particular emphasis on Sustainable Development Goal 4, which focuses on Quality Education. By merging AI technologies, such as Large Language Models, with human traits like creativity and emotional insight, there is a potential to transform education through intelligent tutoring systems, tailored learning experiences, and enhanced access to quality education. While AI contributes to better educational outcomes and supports sustainability pillars, HI plays a crucial role in ensuring ethical practices and inclusive growth. The study seeks to measure the current research on the roles of AI and HI in sustainable development, highlighting the importance of further investigating ethical considerations and the long-term societal effects within the education sector.

- **Artificial Intelligence and SDGs in Education**

AI technologies like generative AI, including large language models, offer scalable solutions for personalized learning experiences. They help overcome traditional educational barriers by providing educational content tailored to individual needs, thus supporting lifelong learning and educational equity (Alsagri & Sohail, 2024). In South Africa's higher education system, the adoption of AI has improved personalized learning experiences and increased student engagement, fostering a more inclusive learning environment (Opesemowo & Adekomaya, 2024).Additionally, AI supports the optimization of educational resources and can enhance digital literacy, promoting innovation and equality in education. However, challenges such as data protection, equal access, and the ethical implications of AI use must be addressed to ensure equitable benefits (Savec & Jedrinović, 2024).

Collaborative efforts between AI experts, educators, and policymakers are essential to harness AI’s potential while mitigating risks. These collaborations can lead to the development of comprehensive policies and guidelines for ethical AI deployment in education, as advocated by studies focusing on sustainable educational systems (Savec & Jedrinović, 2024; Hara, 2025).While the integration of AI in education presents immense opportunities, achieving the SDGs requires a balanced approach that incorporates ethical considerations and prioritizes inclusive education. Governments and educational institutions must work together with technology providers to establish a supportive ecosystem for AI in education (Hara, 2025; Opesemowo & Adekomaya, 2024).A study emphasizes AI's transformative potential in achieving SDGs, particularly in education, by enhancing efficiency and decision-making. It discusses the need for addressing ethical concerns to deploy AI responsibly for sustainable and inclusive growth (Farahani & Ghasemi, 2024).

In addition to improving access to quality education, AI also plays a role in enhancing education quality through innovative approaches to learning and assessment. By enabling new educational methods and processes, AI helps

educational institutions meet the growing demand for educational sustainability and quality improvement (Alshamsi et al., 2024). However, challenges such as data privacy, algorithmic bias, and ethical considerations must be addressed to ensure responsible AI deployment in education (Lainjo, 2024).Overall, the integration of AI in education offers a powerful toolset for accelerating and enhancing the implementation of the UN SDGs. By providing new insights and optimizing educational processes, AI can address complex sustainability challenges and promote a more inclusive, equitable, and sustainable future (Filho et al., 2024).

Artificial intelligence has significant implications for achieving the United Nations Sustainable Development Goals (SDGs) in education. The role of AI in education is highlighted in various studies which demonstrate how intelligent technologies can enhance educational quality and accessibility. For example, one study discusses using AI to improve pedagogical approaches and support teachers, focusing on the potential for AI to address the global shortage of educators, thus directly impacting SDG 4, which emphasizes quality education and lifelong learning opportunities for all (Arruda & Arruda, 2024).AI can also personalize educational experiences, a factor critical in supporting inclusivity and reducing inequalities, which are also core aspects of the SDGs. By tailoring learning processes and providing intelligent tutoring, AI tools contribute to more equitable educational outcomes (Artyukhov et al., 2024). These tools have been deployed to streamline teaching workloads, enable individualized student assessments, and facilitate personalized learning trajectories.

The integration of AI with Emotional Intelligence (EQ) principles emerges as a strategic approach to advance education while focusing on sustainability and ethical considerations. Incorporating EQ ensures AI's role in fostering more relatable and human-centered educational interactions, aligning technological advancements with goals such as reducing inequalities and supporting holistic development (Cinar & Bilodeau, 2024).Moreover, discussions around AI and the 4th Industrial Revolution emphasize the transformative potential of AI in reshaping educational practices within the developmental frameworks advocated by international bodies like UNESCO and the United Nations (Iazzolino& Stremlau, 2024). These discussions underline the importance of embedding AI responsibly in education systems to maximize benefits while safeguarding ethical standards and minimizing bias or inequality risks.

In connecting AI to the SDGs, several papers advocate for comprehensive frameworks that integrate AI technologies into educational systems while upholding ethical and inclusive practices. This focus ensures that AI's deployment in education contributes positively towards achieving sustainability goals without compromising academic integrity or social equity (Farahani & Ghasemi, 2024; Bergman et al., 2018).The transformative power of generative artificial intelligence (GAI) in achieving the Sustainable Development Goal of Quality Education (SDG4) is significant and multifaceted. GAI technologies have the potential to enhance educational equity, quality, and lifelong learning opportunities (Nedungadi et al., 2024). These technologies, such as large language models (LLMs) and interactive learning environments, enable personalized and adaptive education, supporting students and educators alike (Wu et al., 2024; Alsagri& Sohail, 2024).

Generative artificial Intelligence (GAI) contributes to educational quality by offering personalized learning experiences and improving resource allocation, which can help bridge educational gaps and foster social, economic, and environmental sustainability (Alsagri& Sohail, 2024). For example, GAI-enhanced Intelligent Tutoring Systems (ITS) provide automated question generation and customized feedback, adapting to individual learner needs and thus promoting more effective and engaging educational experiences (Maity & Deroy, 2024).Despite the promising capabilities of GAI, challenges such as ethical concerns, data privacy issues, and the digital divide need to be addressed. It is essential to ensure that technological advancements align with the overarching goals of SDG4 through policy reforms and innovative practices (Nedungadi et al., 2024).

The application of GAI in education is further illustrated in its role in higher education, where it assists in personalized learning, content creation, and assessment, while also raising concerns about intellectual integrity and academic justice (Sultana, 2024). To harness GAI's potential effectively, institutions must address these challenges while focusing on equity and the promotion of global citizenship to enhance educational outcomes meaningfully (Nedungadi et al., 2024).

Human Intelligence and SDGs in Education

Human intelligence plays a crucial role in achieving SDGs in education, particularly in facilitating innovative approaches that integrate sustainability into educational practices. The incorporation of artificial intelligence technologies into education highlights a synergy between human intelligence and artificial intelligence in promoting sustainability. For example, AI technologies such as machine learning and natural language processing have been instrumental in enhancing educational outcomes by supporting scalable, personalized learning experiences and improving access to quality education (Singh et al., 2023; Farahani & Ghasemi, 2024).Moreover, AI's application extends to promoting inclusivity and fostering sustainable practices through adaptive learning platforms, virtual laboratories, and immersive technologies like augmented and virtual reality. These tools engage students more deeply, facilitating improved understanding and critical thinking skills and enabling educational communities to develop their visions around the SDGs (Prayogi & Verawati, 2024; Owens, 2017).Education for Sustainable Development (ESD) plays a pivotal role in achieving the SDGs. A systemic framework has been proposed that allows education stakeholders to work collaboratively towards constructing a shared vision of sustainability. This framework supports the development of competencies necessary for sustainability, emphasizing pedagogies and learning strategies that align educational outcomes with sustainable goals (Kioupi & Voulvoulis, 2019).

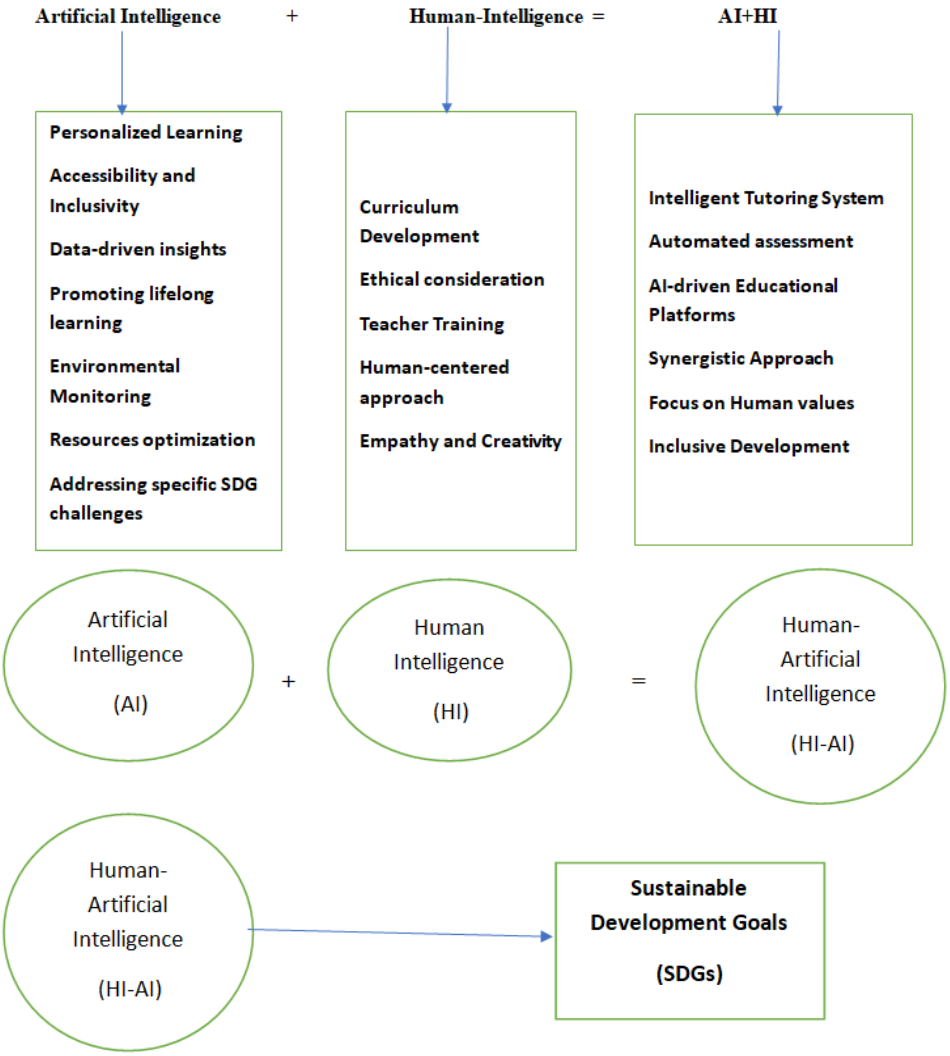
However, several challenges remain. AI applications must address ethical considerations, such as data privacy and bias, to ensure responsible deployment. Collaborative efforts between government, industry, and civil society are crucial to harness AI's full potential in achieving the SDGs. Furthermore, the perception and literacy regarding AI and the SDGs among the public and educational systems must be improved to build trust and awareness (Yeh et al., 2021).Overall, the intersection of human intelligence—augmented by AIand sustainable development in education offers profound opportunities to achieve the SDGs. It requires ongoing research,

ethical oversight, and collaborative strategies to ensure these technologies are used to foster a more inclusive and sustainable future.

- **Theoretical Framework**

This study explores the integrated role of artificial intelligence and human intelligence in achieving sustainable development goals in the education sector. A strong theoretical framework has been developed based on the fusion of Human-AI characteristics to transform the education sector and aligned with united nation's sustainable development goals 2030.The potential role of artificial intelligence and human intelligence in education along with their integrated role has been discussed here in detail:

Figure 1: Theoretical Framework based on Human-AI Collaboration



Source: Self-developed by the author

- **Personalized Learning**: An exploration of AI-driven personalized learning systems, discussing how artificial intelligence can tailor instruction to meet individual learning needs, which enhances educational effectiveness and engagement (Katiyar et al., 2024). A literature review that discusses the role of learning technology in supporting personalized learning within higher education settings, emphasizing technological models that promote learner-centric environments (Alamri et al., 2020). A research paper that delves into AI-driven personalized learning, focusing on how these systems can enhance student engagement by providing tailored learning experiences and promoting deeper student interaction with learning content (Zaharuddin et al., 2024). A systematic review on harnessing AI for personalized learning, which addresses various AI methods for enhancing personalized educational content, identifying impacts, challenges, and future research directions (Rasheed et al., 2023).
- **Data-Driven Insights:** Artificial intelligence plays a pivotal role in enhancing data-driven insights across various fields, leveraging its capabilities to handle large datasets and extract meaningful patterns. In business intelligence and data analysis, AI techniques such as machine learning, natural language processing, and deep learning are employed to mine complex datasets, revealing patterns and predicting trends that inform decision-making while optimizing operations (Kumar, 2023). AI methodologies are transforming research methodologies in engineering and physical sciences by facilitating the processing and analysis of vast datasets at unprecedented speeds and precision, which leads to groundbreaking discoveries (Tariq, 2025). Moreover, AI tools have been integrated into biomedical signal analysis, resulting in improved diagnostics and expanded accessibility to healthcare insights. These tools enable the efficient processing of complex physiological data, making high-level diagnostic insights more accessible, especially in regions with limited resources (Lee et al., 2024). In remote sensing, AI, particularly machine learning algorithms, is pivotal in processing and understanding large volumes of data, contributing to significant advancements in data analysis and knowledge discovery in the field (Zhang & Zhang, 2022).
- **Addressing Specific SDG Challenges**: Artificial Intelligence plays a crucial role in addressing SDGs by offering transformative solutions across diverse sectors. Research highlights its significant contributions to education, financial inclusion, healthcare, agriculture, and environmental sustainability. AI is extensively applied in promoting quality education by personalizing learning experiences and enhancing access (Alsagri& Sohail, 2024; Hara, 2025). Spatially aware AI technologies are effectively employed in monitoring and achieving particular SDGs, facilitating inclusive growth and resilience against environmental challenges (Ahmad, 2023). The AI for Social Good (AI4SG) movement emphasizes interdisciplinary partnerships to leverage AI for positive social impacts, in alignment with the 17 SDGs (Tomašev et al., 2020). Despite these benefits, AI deployment faces challenges such as technological readiness, policy gaps, ethical concerns, and the need for regulatory frameworks to ensure responsible usage (Farahani & Ghasemi, 2024; Regona

et al., 2024). Therefore, addressing these challenges is crucial to fully harness AI's potential in meeting the SDGs.

- **Ethical Consideration**: Human intelligence plays a pivotal role in integrating ethical principles into AI development and decision-making processes. This integration is essential to prevent negative outcomes and ensure AI systems act in alignment with societal values (Pflanzer et al., 2022). Studies have shown that personal perspectives and decision-making modes heavily influence human ethical decisions, underscoring the complexity of translating these judgments into AI systems (Frank et al., 2019). In pursuit of responsible AI development, collaboration between interdisciplinary stakeholders is vital. Efforts must focus on creating frameworks that prioritize ethical principles, transparency, and the alignment of AI with human values to harness AI's transformative potential while managing associated risks (Sonko et al., 2024).
- **AI-driven educational platforms and synergistic approach:** Artificial and human intelligence both play crucial roles in AI-driven educational platforms, contributing to the enhancement of learning processes, teaching methods, and educational management. Artificial intelligence (AI) in education includes technologies such as intelligent tutoring systems, learning analytics, and adaptive learning technologies. These tools can mimic human cognition to facilitate a personalized learning experience. They allow educators to extend their capabilities, improving the efficiency and effectiveness of educational delivery (Nazaretsky et al., 2022; Erol & Erol, 2024).

AI can offer several opportunities, such as broadening access to education, tailoring learning experiences to individual needs, and freeing up valuable teaching time from routine tasks, allowing educators to focus on student welfare. It also involves metacognitive tools that help students reflect on their thinking and learning processes (Ojeda-Ramirez et al., 2023; Vu, 2024). However, AI can only partially substitute the human aspect of teaching, underscoring the continued importance of human intelligence in education. Teachers bring cognitive and socio-emotional contributions to educational environments, which AI tools are still unable to replicate fully (Erol and Erol, 2024). Human factors, particularly trust in AI, are also essential for the successful integration of AI technologies in education. Educators' attitudes towards AI, as well as societal acceptance, play a significant role in the adoption and efficiency of AI-based educational tools. Misunderstandings, myths, and fears about AI also need to be addressed to enhance the relationship between AI and education (Nazaretsky et al., 2022; Linderoth et al., 2024).

The collaboration and synergy between artificial and human intelligence in educational contexts are vital for creating an environment that promotes learning, innovation, and inclusivity. It involves combining human judgment with AI's data-driven insights, facilitating strategic decision-making, and ensuring educational quality and preparedness for future needs. Policymakers and educators should acknowledge AI's potential while tackling challenges such as ethical concerns and data privacy to realize the transformative power of AI in education (Vu, 2024; Chaturvedi et al., 2025).

- **Focus on Human Values:** The concept of hybrid human-AI systems has been proposed to extend human cognition while maintaining human intelligence as

a fundamental component, suggesting that AI should not replace learning opportunities but rather enhance them (Cukurova, 2024). AI applications are also reshaping higher education by supporting tasks like literature reviews, which increase efficiency while embedding human values through oversight and ethical checkpoints. This human-centered approach helps build trust in AI-generated insights and mitigates potential biases (Dinh et al., 2025).

The ethical dimension of AI is a critical area of exploration, highlighting the balance between technological advancement and human values. Ethical AI frameworks advocate for principles like privacy, accountability, fairness, and human control, all aimed at ensuring AI aligns with societal values and human rights. The development of ethically sound AI requires clear guidelines, transparency, and continuous ethical evaluation to safeguard individual and societal values (Ayinla et al., 2024; Fjeld et al., 2020).In the realm of personality development, AI-powered tools such as virtual emotional coaches and affective computing systems are facilitating the enhancement of emotional intelligence and social skills. These tools leverage machine learning to provide personalized feedback and training, which, in turn, supports the development of self-awareness and interpersonal efficacy. The ethical considerations in this domain involve data privacy and the risk of overreliance on AI, which need to be addressed to maintain a balance between technological utility and human values (Panse, 2025).

Moreover, the interplay between human and artificial intelligence is evolving into a mutual engagement where AI is not only a tool but a partner in social learning environments. This emerging dynamic encourages a relational understanding of intelligence, facilitated by socio-technological apparatuses that involve new forms of social interaction and control (Díaz and Delgado, 2024; Mühlhoff, 2019).

Conclusion

Based onliterature analysis of previous datain the case of artificial intelligence and human intelligence with respect to achieving sustainable development goals in the education sector, it is concluded that the integration of artificial intelligence and human intelligence presents a powerful opportunity for universities to accelerate progress towards the UN Sustainable Development Goals by 2030. By leveraging AI analytical capabilities alongside human creativity, critical thinking, and ethical judgment, universities can enhance research, education, and community engagement efforts aligned with the SDGs. However, realizing this potential requires thoughtful implementation, addressing challenges such as data privacy, algorithmic bias, and the digital divide. As centers of innovation and learning, universities are uniquely positioned to lead in developing responsible AI applications that amplify human potential rather than replace it. By fostering interdisciplinary collaboration and partnerships with diverse stakeholders, universities can maximize their impact in advancing sustainable development through the synergistic combination of AI and human intelligence. Ultimately, this approach can help create more effective, equitable solutions to global challenges and accelerate progress towards achieving the ambitious vision of the UN SDGs by 2030.

Practical Implications

The integration of artificial intelligence with human expertise in university settings has the potential to significantly expedite progress towards achieving the UN SDGs by 2030. This synergy may lead to more efficient research, innovative solutions, and enhanced educational approaches that directly address global challenges outlined in the SDGs. Universities, by leveraging this combined power of AI and human intelligence, could become more effective catalysts for sustainable development, potentially accelerating the timeline for reaching these crucial global objectives.

Future Research

The major research gap in this study is the need to assess the effectiveness of AI-powered tools in supporting human educators to deliver quality education in resource-constrained environments. Studying the impact of AI-enhanced distance learning solutions on expanding access to education in underserved areas. There is a strict need to investigate how AI can assist human researchers in measuring and evaluating progress towards education-related SDGs more accurately. Examining the role of AI in supporting human efforts to develop critical thinking and problem-solving skills essential for addressing sustainability challenges.

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