Application of Social Justice Principles and Artificial Intelligence in Southern African Higher Education

Gedala Mulliah Naidoo
Department of Communication Science, Faculty of Humanities and Social Science,
University of Zululand, South Africa.
Corresponding author: kevinaidoo@gmail.com

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Abstract: Inequalities remain common in multiple sectors, and higher education is one such sector. Inequalities and issues of social justice, fairness, inclusion, diversity, and sustainability are important aspects of higher education that need to be addressed. When these are correctly addressed, a more inclusive learning environment can be created and promote equitable possibilities. The selection processes of higher education institutions must ensure that they also include marginalised students; by ensuring this, the existing gaps can be reduced, and quality education is provided for all. Therefore, the paper underlines the importance of integrating social justice principles into higher education, encompassing teaching and learning policies, digital pedagogy, research methodologies, and student experiences. Artificial Intelligence provides customised learning and, at the same time, reduces gaps and can increase inclusivity. AI also allows for personalised lesson plans, allowing for a customised pace and a design that supports students from disadvantaged backgrounds. AI is an innovative technology that can easily remove barriers, such for example geographical barriers, and make access to quality education accessible, especially for students living in rural areas. Correctly implementing AI and social justice can mitigate challenges and create a more equitable and sustainable education system. A literature review was conducted, and the conceptualisation of the paper was based on Nancy Fraser's Theory of Social Justice and Connectivism by Siemens and Downes. Ultimately, incorporating these principles emphasises the critical role of establishing equitable systems in ensuring environmental sustainability, economic prosperity, and social well-being for future generations, fostering a sustainable and inclusive society.

Keywords: artificial intelligence (AI), equity and inclusion, higher education, social justice, sustainability

Introduction

Inequalities are global; some countries conceal this while in other countries it is visible (UNESCO, 2017). According to Atherton (2024), disparities are found in both developed and undeveloped nations. Montgomery (2024) mentions that "increasing inequalities in the global economy are made up of complex issues which are interconnected, for example, it is influenced by historical legacies, technical progress, globalisation, educational inequities, and health disparities." These are all contributing factors that are complex and impact diverse sectors and will require the participation of government, businesses, and civil society to establish a more equitable and inclusive global economy.

South Africa is regarded as a country that has high levels of inequities; much of this can be attributed to its historical challenges faced under colonialism and apartheid (Muyambi and Ahiaku, 2025). Moonasamy and Naidoo (2022) state that higher education in South Africa has been impacted by the digital divide over the years, and little has been adopted to close this gap. This contributed to the inequalities long before South Africa became free from apartheid.

South Africa was emancipated in 1994 when it held its first democratic elections. However, regardless of this milestone in the abolishment of apartheid, many South Africans continue to experience psychological constraints. Over thirty years into its democracy, South Africa remains perplexed by persistent disparities (Storen and Dannaoui-Johnson, 2024). According to the International Monetary Fund (2020), South Africa has the greatest levels of inequality globally, as indicated by the widely utilised Gini index.

Lepkowska (2024b) states that global academics and stakeholders from higher education institutions worldwide have established the World Access to Higher Education Network (WAHEN), with members from international higher education institutions, foundations, NGOs, and policymakers who collaborate to confront inequalities globally. WAHEN will bring together exemplary instances of innovative practices from around the globe, establish new international communities dedicated to critical aspects of the equity agenda, and advocate for more inclusive higher education systems (Atherton, 2024). Higher education is vulnerable due to inequality, even more so than other sectors, and unless this is addressed, it will continue to be unequal. A senior education specialist at the World Bank, Dr Roberta Malee Bassett, emphasised that sub-Saharan Africa (SSA) will undergo significant population growth, leading to a considerable number of underperforming, under-resourced children and youth who will require employment and skills development (Lepkowska, 2024a).

According to Muyambi and Ahiaku (2025), research on inequality and education in South Africa indicates that the legacy of apartheid still shapes racial, economic, and social differences. Furthermore, Walton and Engelbrecht (2024) argue that from the 19th century until 1994, South Africa was governed by a white minority who ruled with laws to disenfranchise and systematically oppress other racial groups. A notable disparity exists between governmental mandates and the pronounced levels of poverty and inequality that persist in South Africa. According to Plagerson (2023), it is observed that South Africa has commendable policies; however, implementation remains the issue. Abo-Khalil (2024) avers that various institutions are integrating sustainable practices into their operational and research activities and pedagogical approaches. Nonetheless, the rapid pace of societal transformation presents a significant challenge for businesses. Academia has an important function to promote sustainable decision-making that will contribute to changing societal behaviours and practices.

The advancements of AI have created an appetite within higher education. AI embracement revealed its ability to transform teaching, learning and research in higher education (Wang and Wang, 2024). AI allows researchers to conduct comprehensive literature reviews, identify previously concealed research gaps, analyse extensive datasets, and visually represent complex information, thereby tackling challenges that were once considered intractable. According to Reyes (2024), the COVID-19 pandemic accelerated the adoption of contemporary digital learning tools (DLTs). The shift during the lockdown from contact teaching to online teaching mode has significantly transformed higher education. This has transformed lecturers' and students' teaching and learning experiences globally. AI has transformed and disrupted higher education, which opens great possibilities such as self-paced learning, addressing shortcomings and leveraging wider access and inclusion for all students. It will also be interesting to see how this will address social justice in higher education. This paper looks at how Nancy Fraser's Theory of Social Justice and Connectivism by Siemens and Downes conceptualise social justice and AI advances in higher education in South Africa.

Literature Review

Social Justice Principles in Higher Education

Since the inception of innovative digital technology such as Web 2.0, which brought about massification in higher education, according to Kipchumba (2019), higher education has seen massification bring about opportunities and challenges. It positively opened access for more students to public and private institutions. However, this expansion also pressured institutions to improve quality and competitiveness. This is supported by Amaral (2022), who states that fairness and inclusion are not achieved, along with the limitations that massification also brings to education and the need for the implementation of policies. Moreover, Kipchumba (2019) mentioned that increased enrolments placed a strain on resources such as infrastructure, leading to funding shortfalls. While massification provides greater access to educational and socio-economic advancement, however, urgent reforms are needed to ensure that access does not erode quality.

Equity is the allocation of resources and opportunities to all individuals, irrespective of their origin or circumstances. According to United Way NCA (2021a), equity characteristics are about fairness and impartiality. Social equity denotes fairness, justice, and impartiality in social policy, addressing systemic inequities to provide equitable access to opportunities and outcomes for all community members. Access for all means that everyone can pursue higher education, and this is not dependent on one's financial limitations or discrimination (Amaral, 2022). Inclusion entails fostering a friendly environment for all students, lecturers, and support staff, regardless of their identities or backgrounds. Equity necessitates that decisions and policies are formulated clearly and consider the needs and viewpoints of all stakeholders involved (Amaral, 2022).

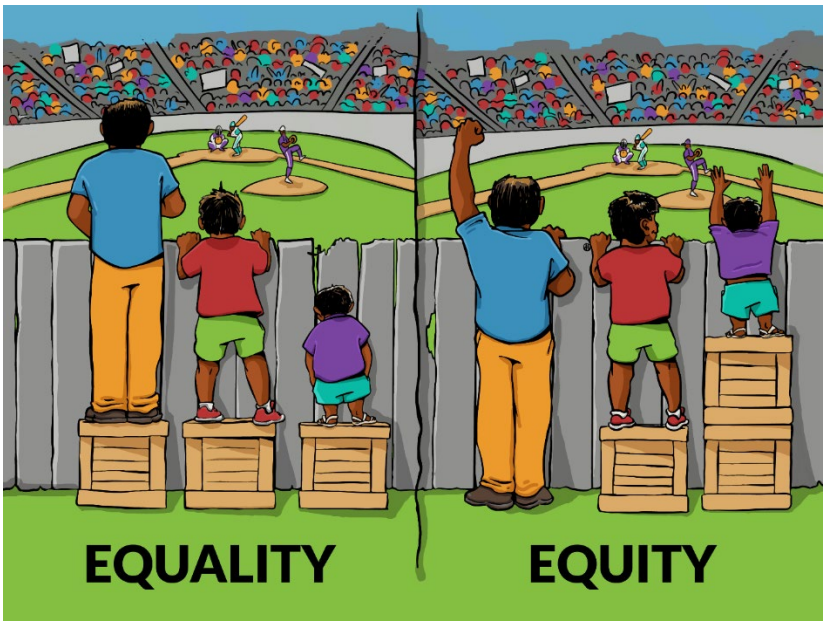
Baatjes (2024) avers that access to funding, as exemplified by the Canon Collins Trust, plays a crucial role in addressing social inequities and ensuring equal access to higher education. The organisation prioritises social justice, knowledge creation, academic engagement, and ethical leadership, promoting moral courage, transparency, responsibility, and integrity for superior performance in various corporate environments, including education (Xuezeng, 2023). Amaral (2022) states that a university that establishes a financial aid program for low-income students and allocates funds to support marginalised students on campus displays a dedication to fostering inclusion and equity in higher education. Feedback from varied groups, including their viewpoints, can be very beneficial for decision-making processes; the institution can strive to establish a more equal learning environment for everyone (Amaral, 2022).

Equality vs. Equity in Resource Distribution: Addressing Systemic Injustices

Moreover, Baatjes (2024) mentions that dealing with systemic injustices, ensuring social mobility, and advocacy are crucial for building inclusive leadership and promoting diverse human capabilities, which will ensure a fairer, more compassionate, and just society. The image of Figure 1 was originally conceptualised by Froehle (2016) and was adapted by Maguire (2016) in Levinson, Geron, and Brighouse (2022) to differentiate between equality and equity in resource distribution. The left side of the figure illustrates the equal distribution of crates (resources); however, this does not provide everyone with the same advantage and can easily remain unequal, especially for disadvantaged students. The right side of Figure 1 speaks about equity, which highlights the distribution of resources for all students to have the same starting point. The United Way NCA (2021b) mentions that equality and equity are seen as promoting fairness and justice, but they do not align. Both are necessary for social justice, providing equal resources across communities and providing people with the necessary resources for full, healthy lives. Equal opportunities for everyone will increase their chances to develop their potential and skills (Kakwata, 2024).

According to Levinson et al. (2022), equal resources for all students, regardless of their unique needs, is a concept often seen as fair, but it overlooks the unique challenges faced by students from underprivileged communities. These students have inadequate facilities and a lack of needed resources. Also, the figure, when the approach ensures equal opportunities for all students, ensures each is provided with different levels of support according to their specific needs, for example, such as getting additional funding to disadvantaged institutions (Levinson et al., 2022).

Figure 1: Equality versus Equity



Source: Adapted by Levinson et al. (2022)

The National Center for Education Statistics (2023) mentions that students without having internet access at home may face potential negative academic outcomes. Moreover, having an equality of outcomes approach could address rural students' internet access issues. This could be addressed by investing in ensuring better internet infrastructure and exploring offline learning solutions (Levinson et al., 2022). The equality of resources in education aims to address

systemic barriers and challenges, ensuring everyone has an equal opportunity to succeed. However, having the provision and equal opportunity does not guarantee how successful the student will be; the outcomes depend on the individual student. Communities have faced numerous disparities that affect their confidence and mental health, causing individuals to feel ill-equipped due to not having equal access and opportunities. When resources are made available, there is reluctance because of one's self-esteem. Mafumo (2011) states that while past inequalities are being addressed, South African higher education institutions still face significant challenges in promoting social justice.

A report by OECD (2018) indicates that equity in education promotes opportunities for all students, regardless of socioeconomic status, gender, or background. This results in similar academic performance and social well-being. Therefore, differences in educational equity are not due to background or economic circumstances. It also requires equal chances of obtaining desirable post-secondary education credentials, enabling students to succeed in the labour market and achieve their goals (OECD, 2018).

Addressing Historical Inequities and Embracing Digital Transformation in Higher Education

Muyambi and Ahiaku (2025) assert that the legacy of apartheid in South Africa continues to impact sociological, psychological, legal, educational, political, economic, and technological aspects, highlighting the need for social justice principles in higher education to be high on the agenda. Universities in South Africa promote social justice by ensuring the implementation of transformation policies, and mentorship programmes, and that students get equal opportunities (Baatjes, 2024). In addressing inequities, social justice principles are implemented, which are geared to create an inclusive, equitable learning environment for all students Küçüksüleymanoğlu (2025), regardless of background or identity. Moreover, diversity in universities can promote inclusion by incorporating social justice principles into the different levels of curricula and policies, while this may be a step in the right direction, this may not address the root causes of inequities, such as unequal access to resources (Ntombela and Setlhodi, 2020). Uleanya and Naidoo (2023) aver that such challenges are also coupled with digital ability, lack of funds, and access to quality education, among others.

Moonasamy and Naidoo (2022) state that many face difficulties due to the digital gap, particularly students. The lockdown compelled lecturers and students to engage in online learning without considering the difficulties that may arise digitally. According to Aithal, Prabhu, and Aithal (2024), the challenges that COVID-19 brought about thrust higher education into engaging the digital landscape in an attempt to keep abreast with rising trends. Naidoo and Naidoo (2021) mention that digital innovations have become a crucial solution for higher education during the COVID-19 lockdown, and in post-COVID, higher education online teaching has slowly become an option. However, AI disruption has reinforced digital innovation in higher education. Moreover, Aithal et al. (2024) state that institutions must adopt innovation, collaboration, and adaptation to succeed in this swiftly shifting environment. This innovation can promote cultivating a culture of continuous development and excellence to address the changing demands and expectations of students, businesses, and society at large (Aithal et al., 2024). Digital infrastructure advanced with increased internet speeds, such as fibre and 5G connectivity, brought about a conducive environment for AI advancement.

As AI continue to disrupt various sectors, it has already made positive contributions and at the same time some concerning issues, such as being biased and other ethical concerns. However, if AI is used correctly, it assists in promoting social justice. Friis and Riley (2023) state that AI is also known to display bias against marginalised communities. Wehrli et al. (2022) indicate that facial recognition software exhibits reduced accuracy in identifying individuals of colour, resulting in discrimination and erroneous arrests. As facial recognition becomes more prevalent for granting access to services and locations, as well as predicting behaviour, bias against specific socio-demographic groups might lead to their increased exclusion from these services and settings (Wehrli et al., 2022).

Artificial Intelligence Applications and Implications in Education

Aithal et al. (2024) postulate that each technological generation has significantly advanced higher education and broadened the opportunity for access, increasing efficiency and learning outcomes. As technology advances, higher education institutions must adopt this innovation, adjust to the latest trends, and use the transformative capabilities of technology to equip students for success in this dynamic digital world (Aithal et al., 2024). AI has challenged the traditional pedagogy that is used in higher education, and a digital response is required, with academics being trained to be digitally fluent. According to Suazo Galdames (2024), AI adopted in higher education teaching has the potential to raise the quality of education, create a more conducive and inclusive learning environment and at the same time improve students' performance.

According to Montgomery (2024), AI is not geographically bound and can impact inequality globally. Some developing countries may not possess the needed infrastructure and investment to fully adopt AI; therefore, if this is not addressed, global inequality will continue. This imbalance does place higher education institutions in these nations in line with higher education institutions in developed nations. Perhaps one way this shortcoming could be addressed is through mobile phones, where students could access AI applications. These applications have the potential to advance how students learn and access information. Other approaches, such as adaptive learning systems (ALS), can personalise students' educational needs according to their learning styles. Ezzaim et al. (2024), mentioned how the use of AI can design courses and implement them. These can be used through AI-driven solutions that are designed for educational purposes and take into account an individual's learning style (Liaison, 2024).

AI can analyse large amounts of data sets, and AI algorithms which use students' performance and study behaviour patterns, AI can customise students' learning plans to address specific needs. This has the potential to increase a student's academic performance. AI can also optimise and identify areas of curriculum strengthening, and assist academics with administrative tasks (Liaison, 2024). Such insights will make it easier to implement adaptive learning technologies (ALTs) to achieve the desired outcomes. Tariq (2024) postulates that ALTs are crucial for student-centred learning environments. According to Tekesbaeva et al. (2023), the digitalisation of higher education is seen as a very promising approach and relates to adaptive learning. "Adaptive learning can be understood as a learning methodology that changes the pedagogical approach to teaching based on learners' input resources. It represents a possibility of individualised learning experience that meets the individual's unique needs through timely feedback, due pathways and digital learning resources" (Tekesbaeva et al. 2023).

Higher education comprises diverse types of lecturers, and with the digital changes taking place, lecturers are required to use digital technology for teaching and learning. We have students who are digital natives or digital learners Prensky (2009), and lecturers who are regarded as digital aliens (the much older ones) or immigrants Prensky (2009). Those who have embraced and used digital technology. The research conducted by Rohatgi, Bundsgaard, and Hatlevik (2020) avers that collaboration in ICT usage leverages skills, builds confidence, and addresses resource gaps and various needs that students may have. Sharing expertise and resources can make it conducive to promoting equity in education, ensuring all students succeed regardless an individual or systemic barriers (Rohatgi et al., 2020).

According to Suazo Galdames (2024), with the advancement of technology, the focus transitioned to creating inclusive educational tools which can accommodate various learning needs of all students, including individuals with impairments.

The Intersection of Social Justice and AI

According to Farahani and Ghasemi 2024), the disparities that exist among developing nations often prevent them from fully accessing equal education, which exacerbates inequality. Within these nations, there are socio-economically disadvantaged communities that do not have proper access to resources, places of learning, qualified lecturers, and technological infrastructure, which can allow them to contribute and compete in the ever-growing AI-driven economy. Also, Min (2023) mentions that addressing AI bias is crucial for technological advancement, human rights, and a fair society. Future research and policies should consider bias implications for transparency, fairness, and accountability.

According to Learnomics Media (2024), AI can revolutionise higher education by bridging access gaps and advancing social justice. AI can personalise learning experiences, identify at-risk students, and streamline administrative processes, making education more accessible and affordable for all. Predictive analytics in education uses data such as student demographics, academic performance, attendance, behaviour patterns, and socio-economic background to analyse student progress and identify risk factors for underachievement (Learnomics Media, 2024). Furthermore, Marshall University (2023) indicates that predictive analytics is not just a tool; it's a pathway to a more resilient and successful future for both the university and its students.

Implementing AI with a Social Justice Lens

Moreover, inadequate infrastructure and digital inequity in Southern Africa provide substantial obstacles to the integration of AI within a social justice paradigm (The Cable, 2024). Communities that usually have marginalised populations in the regions lack access to fully take advantage of AI technologies. Digitalisation is essential for the economic growth of underdeveloped nations; moreover, insufficient ICT infrastructure in rural regions exacerbates digital inequalities, restricting access to digital technology (Jamil, 2021).

Africa faces many obstacles and encounters access problems when it comes to ICTs. Some of these obstacles are due to insufficient infrastructure, restricted electricity supply, and elevated connectivity costs, which adversely affect

competitiveness and the regulatory landscape (Ondiege, Moyo, and Verdier-Chouchane, 2013). Many remote rural areas are significantly underserved due to inadequate internet connectivity and restricted access to fundamental ICT resources. Dlamini and Naidoo (2022) assert that while the provision of free online learning platforms is beneficial, it is vital that students armed with digital devices have access to internet connectivity. Legal obstacles and political instability in certain areas exacerbate the challenges of enhancing technological access (The Cable, 2024). The convergence of digital diplomacy and the digital divide poses both challenges and opportunities for Africa (Malaki, n.d.). Digital diplomacy can tackle the fundamental issues of the digital divide by promoting international collaboration and mobilising resources for digital infrastructure and literacy. A primary problem in deploying AI with a social justice perspective is the incorporation of ethical and cultural considerations. It is essential to acknowledge that AI systems can sustain prejudices and discrimination if not meticulously built and supervised (Malaki, n.d.).

Raji et al. (2024) address that internet connectivity in Africa is crucial for Africans to compete in the digital revolution; rural areas face infrastructure gaps and excessive costs that hinder the seamless adoption of digital technologies. For Africa to fully advance in the digital space, addressing this disparity means both social fairness and strategic fair access to internet connectivity will enhance Africa's competitiveness and resilience in the digital era. Malaki (n.d.) postulates that the convergence of digital diplomacy and the digital divide poses both challenges and opportunities for Africa. Digital diplomacy can tackle the fundamental causes of the digital divide by promoting international collaboration and mobilising resources for digital infrastructure and literacy. Keeping abreast of global trends, benchmarking with other higher education institutions and adopting their best practices can become rewarding and mitigate current or future challenges.

Emerging Trends and Best Practices

The use of AI emphasises personalised learning, adaptive evaluation, and data-driven decision-making. Big data analytics allow lecturers to identify patterns in their students' behaviour, performance, and engagement, which then allows them to facilitate the development of tailored learning experiences (Papadopoulos and Hossain, n.d.). Alternatively, AI technologies like chatbots and virtual reality are revolutionising student engagement and collaboration, promoting independent learning and reducing reliance on lecturers since students receive personalised feedback (Chan and Lee, (2023). Furthermore, Chan and Lee (2023) admit that AI systems offer personalised feedback but may not provide emotional support or social engagement like human lecturers. They should enhance their functions in education. AI no doubt provides many opportunities, and therefore, to stay abreast of emerging trends and best practices in AI education, institutions in Southern Africa must become better equipped to prepare students for success in an increasingly digital world. Issues of prioritising diversity, inclusion, transparency, and accountability in AI development must be addressed to ensure fair and ethical use of AI technologies. Collaborating with social justice advocates can create more equitable AI systems that can assist higher education and students. According to Xia (2020), the development of AI technology is advanced to meet the actual needs of students from colleges and universities who need to be trained to enhance innovative talents. Moreover, AI is becoming a general feature in higher education (Xia, 2020).

Theoretical Framework

Social Justice in Higher Education

Social justice in higher education has been appropriated into a neo-liberal strategy for growing competitive economies (Singh, 2011). Musara, Grant, and Vorster (2021) aver that there is no single definition of inclusion, and they provide the following: inclusive education lacks a universally agreed-upon definition. Furthermore, discussions about inclusion are often limited when they solely address learners' individual needs (for example, disabilities) and without considering societal inequities such as poverty, gender bias, or cultural sidelining. Moreover, Musara et al. (2021) argue that inclusion is inseparable from social justice and advocate for systemic changes to address underlying socioeconomic imbalances that hinder fairness in access to equal education. Cesario Alvim Gomes (2018) Nancy Fraser's framework offers a multidimensional approach to social justice that focuses on redistribution, which addresses economic inequality that affects access to resources; recognition in promoting justice and fostering legal and political creativity in fighting unfairness depend on active involvement in decision-making and decision-making, which also helps to foster a feeling of ownership and control over one's activities (Cesario Alvim Gomes 2018).

Musara et al, (2021) claim that inclusive education is advanced when ideas of justice and equality are openly addressed. Furthermore, this can be achieved by removing underlying socioeconomic inequalities, which will build institutional structures which guarantee fair access to all students. Fraser's social justice approach focuses on social inclusion, decision-making ability, and people's agency while emphasising redistribution, acknowledgement, and

representation. This approach advocates for self-expression and self-improvement while including a range of groups in decision-making (Musara et al. 2021). However, Jardinez and Natividad (2024) mention that contemporary inclusive education encounters several challenges when it comes to the integration of students with disabilities into mainstream lecture halls. Ensuring inclusive education, marginalised voices are heard and are integrated into society and in doing so, it addresses systemic injustices in educational institutions. This allows students to belong, participate, and be represented, allowing them to fully engage in their educational experiences.

Connectivism in Education

Siemens and Downes are regarded as advocates of connectivism, Siemens focuses on the social dimensions and interactions, and Downes on learning facilitation and AI (Kurt, 2023). Siemens (2001) avers that learning theories highlight the processes of learning rather than what is learned. The study of gaining information in a networked environment is warranted. Assessing the value of learning is a meta-skill used before the learning process, essential when knowledge is scarce and critical when it is abundant. The rapid flow of information raises concerns, as actions often require relying on information beyond our core knowledge in today's world (Siemens, 2001). Dennis (2024) states that reevaluating connectivism's challenges in the digital age, despite most educators acknowledging its epistemological challenges and accepting it as a way of learning with computers and the internet, this position is supported.

According to Kurt (2023), connectivism is a learning theory that emphasises the integration of modern technology, group dynamics, and thoughts in education, highlighting the role of digital tools in shaping learning experiences. Moreover, He (2024) avers that the use of AI in education is becoming ubiquitous, bringing about an increasing number of intelligent teaching systems, virtual reality (VR) technologies, educational robots, and educational decision support systems. This association with the metaverse engenders a digital experience that has transformed education and pedagogy.

The connectivism model of learning promotes learning with several learners learning together. The education sector has been slow to recognise both the impact of new learning tools and the environmental changes in what it means to learn. Therefore, connectivism focuses on the learning skills and tasks that students need to flourish in a digital era (Siemens, 2001).

Artificial Intelligence in Education

Predictive analytics in higher education is being utilised to forecast enrolment trends, identify students at risk, make data-informed decisions, and assist in adapting to changing trends for success (Marshall University, 2023). In this digital era, there is an increasing number of students relying on AI-powered tools for information, which has caused a shift in learning methods. Connectivism, a theory that focuses on combining traditional methods with technology, has emerged as a plausible solution. Incorporating connectivism into teaching strategies promotes a modern learning environment and addresses gaps in traditional methods (Kurt, 2023). Naidoo, Rugbeer, and Rugbeer (2013) postulate that the appeal of innovative technology in teaching and learning has captivated the interests of students compared to traditional teaching methods. AI and automation are revolutionising higher education administration by providing real-time assistance through chatbots and virtual assistants, enhancing student engagement and the overall experience (Van Allen, 2023).

Connectivism, as outlined by Siemens (2001), emphasises learning through diverse perspectives and external knowledge sources, prioritising adaptability and continuous learning through sustained connections, emphasising the capacity to learn over current knowledge retention. Connectivism views knowledge in the form of a network, where learners use digital technologies to build mental connections between information sources during interaction (Dziubaniuk, Ivanova-Gongne, and Nyholm, 2023). Moreover, AI is transformative; it can personalise learning, remove geographical and systemic barriers, and support inclusive education, especially for disadvantaged learners, as demonstrated when AI-powered educational systems are used (Siemens, 2001).

Research Methodology

According to Teherani et al. (2015) scholars who engage in qualitative research using either a post-positivist or constructivist approach. Naeem et al. (2024) mention that systematic thematic analysis enables researchers to develop themes based on identified and group them into different categories, which consist of quotations and keywords, these are known as codes. Lim (2024) states that quantitative research deals with numerical data that is analysed through statistical software, which generates graphical illustrations, while qualitative research focuses on human experience and perspectives, capturing contexts and nuances lost in numerical translation. Moreover, qualitative research is not

just a methodological approach but goes further as one making is not just making a choice but a commitment to understanding social phenomena, and the following table provides reasons for this (Lim, 2024). With this understanding, this paper adopted a qualitative approach using secondary data, which explored the nexus of disparities in higher education, social justice ideals, and AI. The literature analysis aimed to identify gaps in higher education and how principles like fairness, inclusion, diversity, and sustainability are being addressed in the higher education sector.

Data analysis in line with Braun and Clarke (2014) is regarded as an analytic approach that depends number of factors, such as "what topic the research explores, what the research question is, who conducts the research, what their research experience is, who makes up the intended audience(s) of the research, the theoretical location(s) of the research, the research context, and many others. Some of these are somewhat fluid, some are more fixed." Moreover, they mention that the approach to qualitative research is deliberative, reflective, and thorough (Braun and Clarke, 2014). The theoretical framing of the literature was engaged through dual lenses of Nancy Fraser's Social Justice Theory and Siemens and Downes' Connectivism. These lenses provide a clearer understanding that AI can either support or hinder equity within the higher education landscape.

Findings and Discussion

The data from the literature review and the conjunction of the two theories used to conceptualise the paper provided insights into how AI could mitigate inequities in higher education. According to CHE (2024), AI usage in higher education promotes equitable access, and cultural inclusivity, and can reduce disparities. Siemens (2005) and Downes (2012) mention that digital learning is a networked process, and learning among students involves the sharing of knowledge. This knowledge is distributed across connections and technologies. Connectivism supports the usage of AI, which facilitates personalised and equitable learning using technologies that connect learners digitally, where resources can be shared between them.

Incorporation of Social Justice and Artificial Intelligence: To address the issues of inequitable access, personalisation, unethical utilisation, and unjust financing allocation in higher education, AI can facilitate social justice, redistribution, and representation. (Edeni, Adeleye, and Adeniyi 2024).

Redistribution of Resources.

The customisation using educational experiences via AI is crucial to address the resource inequalities in access. This customisation is easily achieved through adaptive learning systems (ALS), learning content is detailed for individual student needs, which greatly benefits disadvantaged learners to the knowledge gaps effectively. Edeni et al. (2024) mention that educational equity can be enhanced, and the interaction of AI technology with socioeconomic issues can ensure fair and ethical AI application.

Recognition of Cultural and Societal Challenges.

Tackling cultural and societal obstacles that marginalise populations. AI-driven adaptive technology can tailor educational experiences that honour multiple identities, languages, and cultural contexts, promoting inclusivity. Dwi and Nur Alif Hd (2024) state that AI's impacts on multicultural education are transformative, however, diversity gaps and potential biases must be addressed. AI mediates our experiences and influences our perspectives. Access to AI shapes cultural narratives and norms, making it a cultural concern (Cacal, 2024) and (Newzella, 2025).

Representation: Promoting the Active Involvement.

Promoting the active involvement of marginalised voices in decision-making processes. AI-supported digital platforms can enhance their voices, providing collaborative environments for marginalised students and instructors. The OECD (2023) indicates that AI can assist in making society more equitable by addressing the needs of communities that are marginalised and at the same time bridging any other gap.

Connectivism: A Theory of Learning in the Digital Age.

The advancement of digital technology was a major vehicle during COVID-19, which assisted in ensuring teaching and learning continued. The post-COVID-19 pandemic technology is still a dominant part of higher education. According to Dziubaniuk et al. (2023) has prompted a re-evaluation of higher education institution structures and the dynamics of teaching and interaction between students and lecturers, as well as among students themselves. Connectivism provides a theoretical foundation for understanding how technology shapes learning. The following concepts provide:

Knowledge Networks: Siemens and Downes suggest that links inside digital networks cause learning. AI-driven systems enable dynamic and cooperative learning spaces using these links. Because of the constant evolution of information and technology, connectivism holds that accurate and current knowledge is necessary. To be knowledgeable and relevant, students must actively seek the latest information (McNulty 2020).

Adaptivity: AI technologies, in line with Connectivism principles, enable adaptive learning in e-learning, enhancing learning experiences by dynamically adapting content to meet the individual needs of disadvantaged students (Gligorea et al. 2023).

Accessibility: Connectivism applied with the use of AI could reduce knowledge barriers when facilitating online teaching and learning for rural students. According to Kurt (2023), the practical implementation of this faces challenges when learners take more responsibility. Furthermore, McNulty (2020) asserts that connectivism is a modern perspective in the digital age that promotes better learning. Technology has widened networks and linkages, and individuals to acquire knowledge by themselves can now do so collaboratively, the discovery and continuous learning. Connectivism is an approach that transforms traditional teaching and learning methods through the power of networks and connections (Alam 2023) (Siemens, 2001).

The Function of AI in Social Justice and Connectivism

AI bridges social justice principles with Connectivism, addressing education inequalities through redistribution, recognition, and representation, offering transformative possibilities through collaborative and adaptive learning. The following aspects summarise how AI interacts with Social Justice and Connectivism:

Personalised Learning: AI provides a student opportunity for a tailored educational experience, addressing disparities in prior knowledge, and learning preferences (Liaison, 2024), and making access to resources, this supports Fraser's concept of redistribution and empowering disadvantaged students (Papadopoulos and Hossain, n.d.).

Inclusivity and Collaboration: Implementing AI-powered platforms promotes inclusivity and collaborative learning environments, enabling marginalised groups to actively participate in academic discussions and decision-making processes, and providing opportunities for underrepresented voices to be heard.

Conclusions

While extensive initiatives have been made to rectify inequality in higher education, discrepancies such as equal access to technology and education for all remain prevalent. The swift progress of digital technology, especially artificial intelligence (AI), warrants considerable attention. AI is advancing rapidly and can potentially and profoundly impact society (Rahman n.d.). Therefore, the successful development of digital technology requires the government to promote a conducive environment and have a balanced policy that removes obstacles (Naidoo, 2023).

Leveraging AI to promote principles of social justice has the potential to assist in mitigating the pervasive inequalities present in higher education, particularly within the SSA context. The social justice framework the paper adopted, Nancy Fraser's theory, provided three constructs: redistribution, recognition, and representation, and it also provided a good alignment with AI's potential to provide equitable access, culturally responsive tools, and enhance the inclusion of marginalised communities. According to UNESCO (2019), AI promotes personalised learning, resource redistribution, and inclusive decision-making, solutions that are transformative to remove educational disparities. It is important to note that while AI assists in rectifying current educational inequities, AI also enhances societal welfare, making sure that future generations continue to thrive in a fair, just and inclusive society. The future of students will depend heavily on technology and being digitally fluent for their professional success (Haleem et al., 2022).

Recommendations

Leverage AI to Address Systemic Barriers: AI implemented correctly can assist higher education in addressing structural inequalities. This can be achieved by AI analysing data, finding patterns and reducing biased profiling practices and unfair algorithms that affect students and academics. Decision-making can also be assisted by AI, assisting organisations to identify and address disparities, and promoting diversity and inclusion, which can potentially lead to a more equitable society. The success of this is reliant on ensuring AI-affluent personnel are in place to monitor these processes.

AI can easily enhance marginalised voices, it can remove bias, ensure that the playing field is levelled, and provide opportunities for advancement. As AI evolves, it has the potential to revolutionise social justice and create more inclusive opportunities.

Therefore, AI must be correctly used so that inclusivity can be realised, and discrimination and inequality can be minimised in higher education and the greater part of society. Moreover, AI can promote innovation and further develop both students and academics, and social justice and equality in higher education can be promoted and maintained. This has been achieved will foster equal opportunities and representation of all. The correct implementation of AI fosters equitable learning by tailoring education to individual student needs, thereby closing and improving all students' ability to achieve equal opportunities for success.

Develop Ethical and Policy Frameworks: It is recommended that the establishment of clear guidelines be established that will promote the fair and transparent usage of AI in higher education, addressing both bias and discrimination (Malaki, n.d.). The success of implementing a framework AI system monitoring must be ongoing, and evaluation can enhance learning opportunities, uphold ethical standards, and promote a more inclusive education system (Atherton, 2024).

Invest in Research and Infrastructure: There must be financial investment to ensure research continues to mitigate algorithmic bias and improve digital infrastructure with current technologies, and AI technologies must be adapted to include diverse cultural and social contexts. Ensuring this will create fair, unbiased AI tools that serve and promote a more inclusive digital future for all.

AI is dynamic and is continuously advancing dominating automation. Therefore, the application of social justice principles in South African higher education can separate itself from AI. The future of South African higher education must ensure lifelong learning and upskilling for its academics and students, which will be digitally relevant and compliant for this digital age.

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