Towards the Attainment of SDGs: The Contribution of Higher Education Institutions in Zimbabwe

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Abstract

The contribution of Higher Education Institutions (HEIs) in Zimbabwe to the attainment of the 17 Sustainable Development Goals (SDGs) has been debatable. Through a critical review of the literature, this paper sought to assess how HEI in Zimbabwe contribute to the attainment of the SDGs, ascertain the challenges affecting this contribution, and make recommendations on how the contribution of these institutions could be strengthened. The review established that HEIs play a fundamental role in contributing towards the attainment of the SDGs in Zimbabwe. The institutions contribute through Education 5.0 which is premised on the five pillars of teaching, research, community engagement, innovation, and industrialization. For example, concerning teaching, HEIs contribute to the SDGs through knowledge creation, skills sharing, and empowerment of students and communities that helps in career development, job creation, entrepreneurial development, innovation, and economic growth. Regarding research, HEIs contribute by identifying research gaps and problems relating to sustainable development, researching these, and making recommendations that can inform policy development and practice concerning the achievement of the SDGs. Even though there are notable contributions informed by the five pillars, there are also several challenges hindering the effective contribution of HEIs to the attainment of the SDGs These include limited resources, bureaucratic constraints, and a lack of coordination among HEIs and other stakeholders. The paper calls for a concerted effort from HEIs themselves, and from the government and other stakeholders to enhance the contribution of HEIs to the attainment of SDGs and building a more sustainable and prosperous future for Zimbabwe.

Keywords: *Higher Education; Institutions; SDGs; Attainment; Zimbabwe*

1. Introduction

Educational institutions play a critical role in knowledge creation and dissemination, research and innovation, entrepreneurial development, industrialization, and commercialization. Education is described as an effective tool for sustainable development and the realization of sustainable development goals (SDGs). A meeting of the United Nations culminated in the adoption of 17 sustainable development goals, that focused on three pivotal issues to be addressed to ensure sustainable development is achieved. These three issues are poverty, protection of the planet, and enabling prosperity of people. The member states agreed to work toward alleviating poverty, ensuring protection of the planet, and facilitating prosperity for their countries and citizens. The agreement was to achieve the 17 goals by 2030. The SDGs are interconnected or intertwined (Mpofu, 2022; Nhamo & Mjimba, 2019; Pasara & Mhlanga, 2022). The SDGs are summarized in Figure 1.

Figure 1: Sustainable Development Goals

SDGs
- 1-No hunger
- 2-Reduction of poverty
- 3-Quality healthc care
- 4-Quality education
- 5-Addresing gender equality
- 6-Acces to cleane water and sanitation

SDGs
- 7-Acess to clean and affordable energy
- 8-Provision of decent work and enabling economic growth
- 9- Industrialisation, innovation and infrastructural development
- 10-Reduction in inequality
- 11-Building sustainable cities and communities
- 12-Responsible consumption and production

SDGs
- 13-Climate change action
- 14- Preserving life below water
- 15-Protecting life on the land
- 16- Ensuring, peace justic and building strong institutions
- 17-Building partnerships to achieve the goals

Source: Authors' Compilation

Quality education (SDG4) is linked to all the other SDGs. The realization of SDG4 leads to the fruition of other several SDGs. In the attainment of the key objective of all the goals which are sustainable development and welfare improvement, it is critical to recognize the interlink or the causal impacts that the SDGs have on one another. SDG4 focuses on the need to promote equitable and inclusive education that avails lifelong learning opportunities for all. Education is an essential tool for the empowerment of people and the growth of economies. Education is linked to all the other SDGs. Quality education can lead to better skills development, entrepreneurial development, and economic growth. It can also lead to poverty reduction, alleviation of inequalities and access to healthcare (consequently to the attainment of good health and wellbeing (Pasara, 2021; Pasara & Mhlanga, 2022). Furthermore, when education leads to better job opportunities or improved management of entrepreneurship businesses and financial decisions, resources are better accessed, managed, and used. This enhances access to other basic needs that are connected to SDGs, for example, access to clean water, sanitation, and energy (SDGs 6 and 7). People also have access to decent jobs, thus contributing to economic growth (SDG8) and reducing inequalities including gender inequality (SDG 10 and 5). The empowerment of communities through

quality education could lead to the building of sustainable communities and cities (SDG11) as well as better consumption decisions (SDG12). Additionally, quality education can contribute to building strong institutions to foster peace and justice as well as to avail resources for infrastructural development (SDGs 16 and 9). These are just but limited illustrations to show how quality education is connected with the realization of other SDGs. Too and Bajracharya (2015), Achieng (2023), Kirvaa (2021) and Kestin et al. (2017) adduce that universities are viewed as institutions of higher learning that can generate cutting-edge knowledge and research that can contribute to the generation of innovative, inclusive and sustainable solutions to economic and societal challenges. In addition to the 2030 SDGs, the African Agenda 2063 focuses on sustainable development in Africa. The objective is to promote human rights, gender equality, democracy, prosperity, peace, safety and security as well as inclusion. The role of education in attaining the 2030 UN and the 2063 Africa Agenda cannot be overlooked.

It is against this background that this research seeks to assess the contribution of Higher Education Institutions (HEIs) in Zimbabwe to the attainment of SDGs. While acknowledging the positive role that HEIs could play in the attainment of SDGs, Schreiber and Torabian (2023) call for a balanced assessment of the institutions' contribution, both positive and negative. HEIs have an essential role in sustainability. The researchers portend that while the debate and research on how HEIs can contribute to the SDGs is ongoing with studies such as Ferguson and Roofe (2020), Mbithi et al. (2021), Owens (2017), Schendel and McCowan (2016) and Zhou et al. (2020), literature that analyzes the discourse of quality education (SDG 4) in the context of HE is scarce, especially how it can be a hindrance towards the incorporation of sustainable development in HEIs curricula, institutional policies and pedagogies and practices (Schreiber & Torabian, 2023). Affirming, the debate surrounding the matter of SDGs and HEIs, Caputo et al. (2020) argue that research on this area is a contemporary topic that has raised a variety of issues. Kestin et al. (2017) assert that it is important to understand how universities could contribute to the SDGs through teaching, operations, external leadership, and research.

SDGs are a topic of interest for academics, researchers, research institutions, and governments globally, especially in developing countries, where most of the challenges to be addressed by the SDGs are more pronounced. This paper assesses how HEIs can contribute to the attainment of SDGs. This paper contributes to the theoretical body of knowledge on SDGs from two perspectives. First, it explains the contribution that HEIs make in catalyzing the attainment of the SDGs. Second, the paper highlights the challenges that impede the effective contribution of HEIs in Zimbabwe to the attainment of SDGs. The paper's unique **contribution.**

2. Review of Related Literature

Target 4.7 outlines that member countries that agreed on the SDGs should ensure that by 2030, "all learners acquire the knowledge and skills needed to promote sustainable development, including among others through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violent, global citizenship and appreciation of cultural diversity and culture's contribution to sustainable development" (Shava et al., 2023). To affirm the importance of HEIs in the achievement of SDGs, Zhou et al. (2019) posit "Higher education (HE) plays an important, multi-faceted role in the new global development agenda, which strives to eradicate poverty while addressing social needs such as education, health, social protection, job opportunities, climate change, food security, and environmental protection". In concurrence, Franco et al. (2019) adduce that most HEIs contribute to the realization of the SDGs by equipping the future generation with the requisite skills and knowledge to build future leaders. This is done through the incorporation of sustainable development in policy, practice, and curriculum in HE. The authors point out that these efforts lack strategic leadership by those in governance and in some cases the initiatives lack coordination to enable them to effectively address environmental and social sustainability issues. Franco et al. (2019)

further state "These predicaments not only widen the gap between HEfSD policy, curriculum and practice but also exacerbate the complexities between human and environmental interactions compromising overall sustainability". It is therefore essential to understand the role of HE in sustainable development. Carroll (2021) argues that sustainable development is pivotal in economic, sustainability, and social debates.

2.1 Definition of terms

This sections defines key terms that are essential in understanding the context of the review. These terms include the Higher Education(HE) context and the sustainable development goals.

2.1.1 Higher Education Context

Higher education context refers to the external factors and influences that shape and impact on higher and tertiary education, inclusive of economic, demographic, societal and governmental policies. The principal driver in enabling the HEIs to meet their objectives in addressing the needs of their target groups and providing relevant training curricula hinge on the ability to understand and interpret correctly the external influencers to the HEIs. Funding factors including fees structures, government policies and funding opportunities, availability of research support funding and grants influence HEIs thus form the contextual base for the institutions. Similarly, social factors inclusive of the demography, gender, races, ages, and employment status and income levels, feeder systems such as catchment area schools additionally present context to HEI in their planning. Competitive forces from similar or substitute institutions coupled with political philosophies and perspectives and motives and the national legal frameworks broaden the influential voices applicable to HEI planning and operational contexts.

2.1.2 Sustainable Development Goals

The United Nations (UN) Sustainable Development Goals (SDGs) are described as a group of 17 goals that were agreed on and adopted by all member states of the UN in 2015. These goals aim to deal with critical challenges that are faced by nations globally and these problems include hunger, poverty, lack of decent work, inequality, poor economic growth, climate change, gender inequality, and environmental degradation among other challenges. HEIs play an important part in accelerating the attainment of the SDGs through teaching, advocacy, research, innovation, and community engagement. Utama et al., 2018 assert "Sustainable Development Goals are international agreements of many countries under UN initiation that have certain goals and targets. Achieving these goals and targets of the SDG requires a broad and focused effort from various sectors including higher education. Some of the goals associated with higher education are education, sanitation, innovation, and global partnership". Pasara and Mhlanga (2022) describe SDGs as follow-up goals to the Millennium Development goals. Therefore, SDGs can be referred to asas

2.2 Higher Education Context in Zimbabwe

HEIs in Zimbabwe fall under the jurisdiction of the Ministry of Higher and Tertiary Education, Science and Technology. This Ministry governs how these institutions function and the curriculum they offer. For example, it is through the guidance of this ministry that HEIs have adopted Education 5.0 which is founded on five pillars of teaching, research, community engagement, innovation, and industrialization. This a transition from Education 3.0 which focused only on teaching, research, and community engagement. The transition to education 5.0 was founded on the recognition that the world is digitally transforming in response to the Fourth Industrial Revolution(4IR). The revolution is associated with the use of technologies such as artificial intelligence (AI), blockchain, robotic process automation (RPA), and big data among other technologies (Mpofu & Mpofu, 2023). The 4IR has transformed how businesses operate, how people relate, and how countries do business, thus affecting all sectors of the economy such as education, health, transport, security, and mining, in addition to many other sectors.

Accordingly, education 5.0 advocates for HEIs to realize the need to come up with teaching and research that uplifts the community, and contributes to problem solving and value creation through innovation and industrialization. HEIs are expected to turn their research into intellectual property or contribute to the manufacturing of goods and services, thus promoting industrialization, commercialization, and entrepreneurial development. HEIs are expected to produce graduates who are fit for purpose and who will contribute to being employers, employment generation, and entrepreneurs. Garwe and Thodndlhana (2018) point out that there are 24 registered universities in Zimbabwe, 10 of them being private institutions and 14 public universities. The Zimbabwe Council for Higher Education (ZIMCHE) is responsible for overseeing the HEIs providing guidelines on issues to do with promotion, quality, curriculum development, review, and standardization as well as accreditation requirements (Phuthi, 2022).

Albareda-Tiana et al. (2020) and Leal Filho et al. (2018), as well as Bhowmik et al. (2017), portend that HEIs play a critical role in disseminating and creating knowledge, providing evidence-driven solutions and promoting innovation to stimulate the attainment of the SDGs attainment through broad research initiatives and strengthening research capabilities. Trencher et al. (2014) assert that in sharing responsibility, engaging in joint activities, forming partnerships, and collaborating, HEIs can work together towards promoting sustainable development. These institutions can work together towards education (SDG 4), climate change impact mitigation and disaster risk management (SDG13), and entrepreneurial development thus contributing to SDG 8. Having given the context of HE in Zimbabwe, it is important to unpack their role in facilitating the attainment of the SDGs in the country. This will be done through culture, structure, and Agency theory propounded by Archer (1996, 2005) and Bhasker (1979, 2011) as articulated under the theoretical framework.
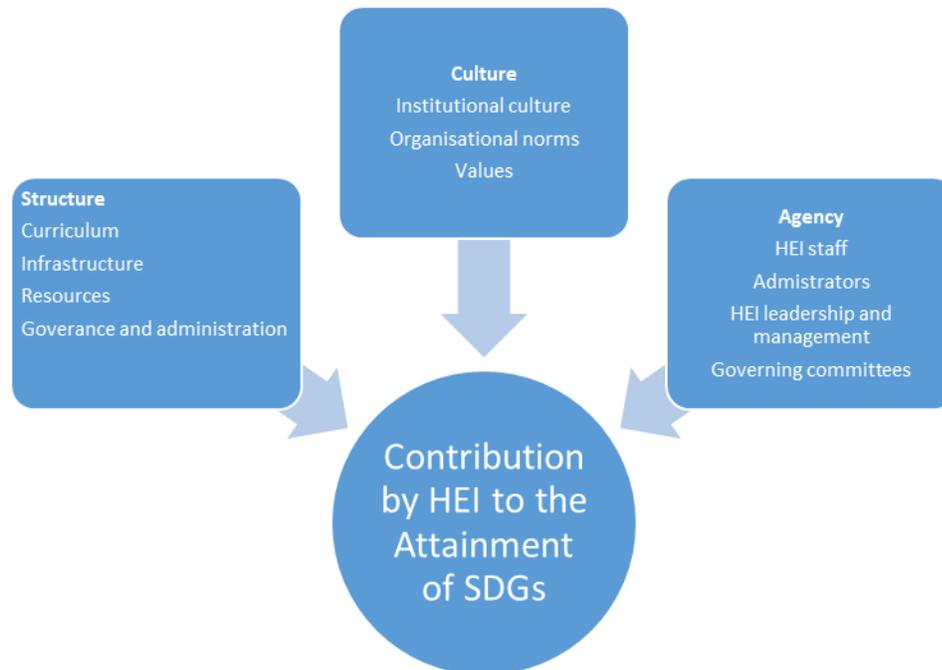
2.3 Theoretical framework

Emphasizing the importance of having a theoretical framework to guide one's research, Archer (2005:99) adduces "All theory makes assumptions about the nature of reality (either implicitly or explicitly) and such ontological assumptions necessarily regulate how one studies the things and events under investigation". This research is guided by the Culture, Structure, and Agency theory expostulated by Archer (1996, 2005) and Bhaskar (1979, 1994, 2011). Archer's realist theory hinges on the stratification of an ontology for structure, culture, and agency (Archer, 1995, 1996, 2000a, b, 2003). Herepath (2014) alludes to the conceptual and ontological entanglement between structure and agency hence the need to accommodate the cultural, structural, and relational dimensions of theory in assessing strategy implementation. Khan et al. (2012) used the theory to reflect on academic practice, whereas Shava (2020) applied the theory to assess the role of HE in Zimbabwe in delivering SDG 4 which focuses on quality education. This paper employs the theory to ascertain the contribution or role of HEIs in Zimbabwe in promoting the attainment of the 17SDG and to examine the challenges affecting the productiveness of HEIs concerning the realization of the SDGs in Zimbabwe. According to Archer (2005) while citing Riley (1983), structures refer to outcomes and medium of interaction, because it is upon these that rules and resources are drawn, acknowledged, and applied for meaningful interaction. In academic institutions, these refer to the governance, academic, and administrative structures that define the complex interactions in the institutions. Khan et al., (2012) posit that the critical social realist theory discusses how agents apply their powers to determine their actions in a given situation. In the context of HEIs and the achievement of the SDGs, as agents of transformation, the HEIs can greatly influence students and society's habits, views, culture, and contribution to the SDGs.

Archer (2003) contends that structures also encompass material conditions that drive actions. Structures are the confines of social institutions within which people interact, act, and live. Culture concerns the values and norms of an organization built from the interaction of agents and structure over the years. The interaction between structure, culture, and agents is interdependent and analytically

inseparable and needs to be interpreted based on this interplay, According to Herepath (2014:858) the realist social theory can be applied in assessing strategy or course of action as the nature of the strategies and the actions of the strategists' actions are shaped by "deep structures and the 'power to' and 'power over' that emanates from the hierarchical and bureaucratic array within which they are embedded". This theory helps to explain the role of the agency and social-cultural factors and their interaction in the HE context. Agents are described as human actors and in the case of the adoption of Higher Education for Sustainable Development (HEfSD), these include the university council and management, academic staff, administration staff, support staff as well as students that is human deliberators and those who navigate their life plans in an environment of constraints. Based on the fact that agents and structures are ontologically related, this results in several challenges to be addressed to achieve certain objectives in HEIs. This paper builds on the structure, culture, and agency theory and its application in the HE context by Khan et al. (2012) and Shava (2020) to explore the contribution of HEIs in Zimbabwe to the attainment of the SDGs. According to Shava et al. (2023), while citing Giddens (1984) states that the social realist theory "comprises three milieus of structure, culture, and agency which are superimposed on each other to either constrain or enable the actions of the agent. Structures comprise roles, institutional structures, organizations, committees, substructures, positional levels, systems, and policies within an organization" For example, Zaleniene and Pereira (2021) state "Political environment and stakeholders' interest affect sustainability implementation". Therefore, how HEIs contributes to the attainment of SDGs is dependent on the culture, structures, and agency interactions in these organizations and these explain the enablers and constraints of this contribution. Figure 2 gives a conceptual framework to schematically depict the influence of the realist theory on the attainment of SDGs in the HE context.

Figure 2: Conceptual Framework

Source: Author's Compilation

2.4 The Contribution of Higher Education Institutions to the Attainment of the SDGs

Fleaca et al. (2018) argue that education affects how nations and communities cope with sustainable development challenges. HEIs are fundamental agents in educating and molding future leaders that will drive the quest towards the attainment of (SDGs) and implementation of agendas towards

sustainable development. The context in which initiatives towards the achievement of SDGs are implemented and heterogeneous, enabled and constrained by various factors such as resources, digital inclusion, economic and social environment, government support, community involvement, and environmental factors among other issues (Zaleniene & Pereira, 2021).

Stafford-Smith et al. (2017) advocate for the interlinkages in three dimensions affected by the SDGs and these include the social, economic, and environmental perspectives. These include sectors (covering education, finance, transport, energy, and agriculture among other sectors), actors in society (which covers civic society, private organizations, non-governmental organizations (NGOs), and government institutions) as well as between countries (developed and developing countries). The SDGs cover different perspectives that include social, economic, and environmental perspectives (Mhlanga, 2022; Mpofu, 2022), accordingly the contribution of HEIs could be discussed taking cognizance of the various angles from which these institutions could contribute to the attainment of the 17 SDGs. Ferguson and Roofe (2020) emphasize the importance of SDG 4.

According to Shava et al. (2023), "Education for Sustainable Development is a transformative approach to teaching and learning based on the ideals and principles that underlie sustainability, human rights, poverty reduction, sustainable livelihood, peace, environmental protection, ecological sustainability, democracy, health, biological and landscape diversity, climate change, gender equality, and protection of indigenous cultures". Shava (2020) states "ESD allows every human being to acquire the knowledge to shape a sustainable future including key sustainable development issues into teaching and learning. The vision of Agenda 2030 is to transform lives through quality education, recognizing the important role of education as a main driver for development and achieving proposed Sustainable Development Goals (SDGs) and their vision which is fully captured by the proposed SDG4 "Ensuring inclusive equitable quality education and promote lifelong learning opportunities for all." Aarts et al. (2020) suggest that HEIs plays a vital role in sustainable development, especially SDG4. This role is important, especially in Africa and accordingly, these institutions should comprehensively respond to all the 17 SDGs. Affirming the importance of education, Chankseliani and McCowan (2021) assert that universities drive the achievement of the SDGs through knowledge production, human formation, and innovation. Additionally, the researchers adduce that universities are increasingly paying attention to SDGs. Therefore, education affects the achievement of all the SDGs, as with education citizens can better understand the implications of their actions and decisions.

Zhou et al. (2019) explain the importance of curricula that target the creation of sustainability-focused knowledge and skills to equip students to deal with environmental sustainability and socio-economic problems. The researchers emphasize the role played by institutional arrangements in creating an academic environment for SDG-related initiatives. While analyzing the impact of higher education on sustainability issues as well as the associated barriers and challenges, Zaleniene and Pereira (2021) posit that HEIs contribute significantly "to the SDGs implementation, but especially to Goal 1 (end poverty in all its forms everywhere), Goal 3 (ensure healthy lives and promote well-being for all at all ages), Goal 5 (gender equality), Goal 8 (decent work and economic growth), Goal 12 (responsible consumption and production), Goal 13 (climate change) and Goal 16 (peace, justice and strong institutions)". The researchers further argue that the incorporation of sustainability principles in HEIs strategies such as curricula, operations, and organizational culture are crucial in enhancing the role of HEIs in promoting sustainable development. Citing the Italian Universit Network for Sustainable Development, Caputo et al. (2021) posit that HEIs contribute from two dimensions. Firstly, through externalities associated with including corporate social responsibility in their curriculum. Secondly, HEIs could encourage or promote the change of behavior and transition to sustainability practices directly or indirectly. The researchers underscore the need for the involvement of stakeholders in SDG-related strategy formulation.

Utama et al. (2018) posit that being the main propeller of progress and development in a country, through education, universities have great opportunities to contribute to sustainable development. The

researcher further explains that in today's dynamic environment that is characterized by rapid changes and development, universities need to appropriately and speedily respond to the requirements associated with the changes to remain relevant, and integrating sustainable development principles and goals is one such step. Utama et al. (2018) suggest five ways in which universities can facilitate the quicker achievement of the SDGs. These encompass the enhancement of the quality of HE, promoting equity in HE, improving research and innovation in HE, ameliorating the environment and sanitarian as well, and building global partnerships. (Utama et al., 2018).

2.4.1   Human Capital Development

According to Caputo et al. (2021), the contribution of HEI to the attainment of the SDGs is from two strands. Firstly, they contribute through teaching, learning, and research. Secondly, through their initiatives and strategies that sensitize others in terms of economic, environmental, and social sustainability. Pizzi et al. (2020) state that SDGs–orientation is critical in the context of HEIs for the development of sustainability strategies in both operations as well as teaching and learning. HEIs contribute to human capital development through education and training. By training students on the various degree programs, diplomas, and certificates, universities equip students with skills and knowledge to start their careers or for continuous professional development or entrepreneurial development. These graduates can take employment with better skills and knowledge. This contributes to improved productivity, economic growth, and development (SDG8). In some instances, HEIs can develop or review curriculum in line with the SDGs or sustainable development in general and students get a chance to learn about the SDGs and how to work towards their attainment. Students can contribute towards sustainable development in work environments as well as in communities they live in. To effectively transform the mindset of students to embrace sustainability principles and education on sustainable development, Zaleniene and Pereira (2021) adduce that sustainability-oriented curricula together with a change in culture towards sustainable development are critical. According to Pasara and Mhlanga (2022), citizens are more productive and contribute to economic and decent work when they are educated, thus contributing to SDGs 6, 7, 8, 10, 11 and 12. The researchers further state that the contribution of HEI in Africa is constrained by weak political and economic institutions. The impacts of the COVID- 19 pandemic cannot be ignored also as they continue to unfavourably affect most sectors of the economy as well as the education sector.

2.4.2   Research and Innovation

HEIs normally conduct cutting-edge research on many issues, these include economic challenges, social and societal problems, environmental and climate change issues as well as issues to do with the SDGs (Pasara & Mhlanga, 2022). Through applied research, these institutions and their academic staff can help recommend solutions to the problems they research and these could be suggestions for policy and practice, implications for stakeholders and society in general. Concerning innovation, HEIs can develop new technologies, advance existing ones, and help embrace and apply new technologies such as the 4IR technologies such as big data, data analytics, AI, RPA, and blockchain. These technologies could improve the efficiency, productivity, and effectiveness of teaching and learning, university operations, business operations, and some activities in the community such as agriculture, sustainable land management, environment protection, and sustainability. For example, blockchain could be used in offering digital financial services, increasing the security of transactions, or in auditing to improve audit quality. The skills to apply these technologies could be taught to students and this would benefit not only the students but economies as a whole through increased digital financial inclusion, better security of transactions, stability of financial markets, and enhanced audit quality, all this contributes to the fruition of the SDGs (Mpofu, 2023a). Yingi et al. (2022) affirm the importance of harnessing 4IR technologies in Zimbabwe's educational sector.   Sinha and Lutchman (2021) argue that the 4IR technologies are important in achieving sustainability and delivering on the SDGs in the African continent. AI can be used

in various sectors of the economy such as finance, education, transport, mining, manufacturing, and many others, and even in the areas of digital entrepreneurship and domestic revenue mobilization through AI-supported tax administration (Mhlanga, 2023; Mpofu, 2023b). This would touch on the attainment of the SDGs through a variety of ways such as improved agricultural productivity, increased revenue mobilization (Mpofu, 2022a,b), and funding for government expenditure, ultimately contributing to economic growth, reduction of inequalities, poverty alleviation, improved infrastructural development and climate change mitigation. These HEIs can also assist organizations, businesses, and governments with knowledge transfer and the adoption and application of certain technologies. Within the education sector, HEIs could transfer knowledge to primary and secondary education institutions through training programs such as computer science, information, and communication technologies courses as well as through teacher training on these technologies. Government institutions can also benefit from training, technological skills, and knowledge transfer from HEIs.

In terms of community engagement, HEIs contribute to the SDGs by working with communities in dealing with sustainable development challenges such as poverty, hunger, health issues, climate change impact, and access to clean water problems among other challenges. HEIs provide training and the development and implementation of sustainable development solutions and projects in communities.

2.4.3   Public Awareness and Advocacy for the SDGs

By teaching and incorporating the SDGs in their curriculum. HEIs can disseminate knowledge about the SDGs, raise awareness, and advocate for efforts towards their attainment. Platforms to raise awareness and advocate for the efforts towards the achievement of the SDGs include journals, conferences, public lectures, policy briefs, and the use of social media to share findings, ideas, and recommendations. Supporting the point on the lack of awareness, Caputo et al. (2021) argue that even though sustainability reports are important in HEIs, disclosure of SDGs and SDGs-related projects in the context of HEIs is fragmented. This fragmentation could present an opportunity to proactive HEIs to train others on sustainability reporting.

2.4.4   Collaborations and Partnerships

Caputo et al. (2021) portend that HEIs and countries could collaborate on the three dimensions of sustainability which are environmental, governance, and economic sustainability. Other researchers group them into four including social (Mpofu, 2022b). HEIs can build partnerships amongst themselves and share knowledge for skills in various areas such as engineering, manufacturing, entrepreneurship, and endeavors toward sustainability. Researchers from the same or different disciplines in the same institutions or different institutions can collaborate or work together in research or sourcing research grants. This allows them to maximize their diversity, their different skills, expertise, and knowledge. In concurrence, Zaleniene and Pereira (2021) observe that interdisciplinary research was the foundation of transformation towards sustainable development. They can also form partnerships with government organizations, non-governmental organizations (NGOs), and the private sector to pool resources, knowledge, skills, and expertise together and work towards the attainment of the SDGs

2.4.5   Focusing on the SDGs

Poverty Reduction (SDG1) and Zero Hunger (SDG2)

HEIs can offer education towards improving agricultural productivity and contribute to the eradication of hunger. These institutions can also train marginalized groups such as the poor, women, and girls to equip them with skills to improve their lives better manage their small businesses, and help them to gain entrepreneurship skills that help them to start their small businesses. This could help them get jobs, gain financial management skills or manufacturing skills that are necessary to run their small

businesses or start some of them such as detergents and soap manufacturing, tissue manufacturing, buying, and selling as well as goats and poultry projects. This contributes to poverty reduction, elimination of hunger, reduction of gender inequalities and other inequalities, provision of decent work, stimulation of economic growth, and building strong communities (SDGs 1,2, 5,10, 8, and 11) in addition to the realization of the several SDGs. Nicolo (2020) adduces that HEIs play a key role in the development of entrepreneurial ecosystems and the creation of unified strategies that promote synergies, hence these institutions are effective enablers of the transition to sustainability and sustainable development.

By empowering communities and helping reduce poverty HEIs can help in the attainment of the Zero hunger goal. Additionally, by researching climate change and climate change impact mitigation avenues, sustainable land management practices such as sustainable food production and agriculture, forestry and wildlife management, and carbon credit projects in other related areas, HEIs can discover better, innovative, and sustainable methods. These can be shared with farmers and communities through training programs and partnerships. This could contribute to achieving food security. Some HEIs institutions have their farms they run for both farming and keeping livestock. These initiatives contribute to knowledge creation, sharing, employment creation, food production as well and income generation. Therefore, all this could contribute to more SDGs such as SDGs 1 to 15.

Promoting Good Health and Wellbeing (SDG3)

Through education and training in various programs for various health and health-related areas such as medicine, nursing, environmental health, food nutrition, biology, and biochemistry among other programs, HEIs contribute towards good health and wellbeing. Furthermore, by researching various diseases, their causes, and how these may be mitigated or the efficacy of certain medicines in curing certain diseases, HEIs can raise awareness, share knowledge, and even develop new treatments, thereby contributing to SDG 3, among other SDGs. Through innovations such as digital health, and harnessing technologies such as AI, HEIs can contribute towards reducing health inequality and mortality rates, especially in developing countries. In some cases, HEI run their own medical centers for training purposes and for offering medical treatment as well as research, thus contributing to both SDG4 and SDG3.

Addressing Gender Inequality (SDG5)

By increasing access to HEI for women and girls, HEI contribute to the reduction of gender inequality. In some cases, HEI have come up with programs to increase the number of women and girls taking up Science, Technology, Engineering, and Maths (STEM) related programs and those that work in STEM-related fields. Through education and training, HEI share knowledge on gender equality, gender-based violence, and gender equality-related subjects and initiatives. This could help students be gender sensitive and also be agents of gender equality in their workplaces and communities. HEI could also support and offer training to women entrepreneurs on start-ups, business management, financial management, and other entrepreneurial skill development modules such as digital entrepreneurship, thus empowering them with skills to gain financial autonomy (Mpofu, 2023). Highlighting how universities have collaborated with stakeholders such as companies in addressing gender inequality and inequalities in general, Shava et al (2023) posit that recognizing that education is key in driving sustainability in economic, environmental, and social transformations companies such as Econonet has offered scholarships such as the Joshua Nkomo and Capernaum scholarships for the excelling and underprivileged students respectively. Some organizations have also offered scholarships to women who want to focus on STEM disciplines. The government has also offered presidential scholarships, targeting students around all the provinces in the country.

Climate Change Action (SDG 13)

Shava et al. (2020, 2021a, b) argue that education brings all the SDGs together. Therefore education also affects SDG 13. Climate change action is a contemporary topic in both research and climate change mitigation discussions. HEI could educate students on the matter of climate change and its impact on the environment, economy, and the lives of ordinary citizens and ultimately on the importance of climate change impact mitigation efforts. This touches on SDGs 6, 7, 13, 14, and 15 among others. Climate change mitigation measures such as carbon credits, forestry management, agroforestry projects, and sustainable land management as well and waste management efforts all contribute not only to the environmentally related SDGs but socially and economically related ones such as SDGs 1 to 5, 10, 11. 12, 16 and 17). In addition, HEI can conduct research on climate change and develop new technologies to mitigate the impacts. Furthermore, HEI can collaborate and partner with each other to make significant contributions to the attainment and acceleration of the achievement of the SDGs. In South Africa, Moyo and Cele (2021) emphasize the contribution that HEI could make to environmental conservation activities in the country and communities. These institutions could contribute through applied research, on sustainable development and offering training programs on SDGs advocating for the attainment of the SDGs, sharing knowledge on the SDGs, building partnerships for the SDGs, and educating students, communities, and other stakeholders on the SDGs. To affirm the role of HEI in the fight against climate change, Shava (2023) gives an example of Bindura University of Science Education (BUSE) situated in the Mashonaland Central Province of Zimbabwe, which signed a collaboration with the Ministry of Environment and Tourism (Zimbabwe) in 2021. The main objective was to support the university in conducting climate change-related research, recognizing that climate change was a problem that needed to be urgently addressed and research was one way of dealing with the challenge. Dzvimbo et al. (2022) while focusing on the role of HEI in climate change adaptation in Zimbabwe established that HEI in the country were engaged in finding solutions related to climate change and disaster risk management. These areas relate to SDG13. Zimbabwe has been affected by extreme weather events such as cyclones, droughts, and floods in some parts of the country. The researchers point specifically to contributions by two universities. These are the National University of Science and Technology situated in Bulawayo which contributed to sustainability and climate change mitigation impact through knowledge sharing and training of communities on issues of disaster prevention, mitigation and management of the impacts as well as on preparedness and strategies for disaster risk management. The Bindura University of technology was identified for training communities in the Muzarabani areas on disaster preparedness and resilience strategies. Kupika et al. (2020) affirm the positive role played by Chinhoyi University in climate change and environmental conservation in Zimbabwe and beyond. Hence, the conclusion is that HEI are springboards for knowledge generation and dissemination.

2.4.6   Sustainability Practices

As posited by Lopez et al. (2019) HEI play a fundamental role in the promotion of sustainability both internally and externally. The former relates to research, curriculum review and development, teaching and learning, while the latter focuses on external stakeholders such as NGOs, businesses, professional associations, and communities. Zaleniene and Pereira (2021) assert that HEI are pivotal to the development and implementation of sustainability practices and principles. HEI can lead by example by adopting sustainable practices in their businesses and operations. This could be around issues of environmental management, energy consumption, renewable energy production, waste management, and reduction of pollution. By being exemplary HEI can indirectly exert external influence and pressure in society towards the implementation of some of SDGs such as gender quality, energy consumption, environmental conservation and management as well as delivering quality education. To achieve this possible reality, various communication methods and ways of engaging with students and communities have to be adopted, taking into cognizance the varying student academic levels and community needs and priorities (Zaleniene & Pereira, 2021). This could show their commitment to sustainable development,

environmental sustainability, and management, thus motivating businesses and communities. This could stimulate a culture of sustainability in university operations, surrounding communities, and other stakeholders. HEI could be advocates for environmental, economic, and social justice through their various faculties such as environmental sciences, commerce, and law. Lastly, HEI could incorporate SDGs into their curriculum.

2.5 Challenges Affecting the Contribution of Higher Education Institutions to the Attainment of the SDGs

According to Owens (2017), while the Dakar framework of 2000 highlighted the importance of HE, SDG4 accentuates the importance of education including HE to inclusive, quality, and equitable education for everyone, yet university agendas are multilateral and fragmented. Franco et al. (2018) point out that there is a paucity in the institutional environment and operations that can enhance the contribution of HEI to the achievement of the SDGs. The researchers also acknowledge that SDGs are not without problems and cannot be easily implemented. Zaleniene and Pereira (2021) posit that while HEI institutions could contribute consequentially towards the achievement of the SDGs, several challenges need to be surmounted both within and outside the institutional environment. These challenges involve addressing the political environment and stakeholders' interests and aligning those with HEfSD as well as integrating sustainability principles within the governance structures and the actions of the agents. HEI face challenges in contribution to the realization of the SDGs, these challenges vary in terms of context such as HEI in developed and developing countries. Even in developing countries the challenges could differ due to different levels of development, priorities, funding for research, and prioritization of certain aspects of the SDGs. Shava et al. (2023) point to the problems limiting the effective contribution of HEI to the attainment of SDGs including lack of preparedness on matters of sustainable development as well as limited or lack of stakeholder collaboration and engagement concerning the SDGs. Shava et al. (2023) further allude to the increase in students (massification of HE), lack of financial resources, rigidity of administration structures, and failure to embrace innovation as some of the challenges faced by universities. Shava (2020) concludes that there is a disintegration in the approach towards education for sustainable development especially how to incorporate the SDGs in HE. The challenges are many and diverse, some of the challenges emerging from literature are summarised in the subsections that follow and it is important to acknowledge that the discussion of these is not exhaustive.

2.5.1 Resource Constraints or limitations

Resource constraints encompass a shortage of financial, human capital, technical, and technological resources. The costs related to the implementation of the SDGs-supporting programs and activities can be significant. These can be unaffordable for HEI in developing countries where universities operate under very limited funding with very little support from the government towards infrastructural development, research, and innovation. According to Pasara and Mhlanga (2022), African governments are not devoting enough budgets to fund investments infrastructure, educational activities and efforts towards the SDGs in HEI. inequalities and poverty in most African countries such as Zimbabwe, Malawi, Nigeria, South Africa and Malawi compounded the challenge of resource constraints especially on the part of lecturers and students Therefore, HEI may be constrained due to the high capital investments needed to support the SDGs as well as the lack of adequate financial resources. In South Africa, the government is supportive to HEI and compensating them for research efforts. This has contributed significantly to widening and strengthening research activities in the country. Pasara and Mhlanga (2022) point to evident efforts of increased research outputs and SDG-related research universities such as the Northwest University, University of Kwazulu Natal and the University of Johannesburg.

HEI in developing countries also suffer from a lack of expertise and skills. Pasara and Mhlanga (2022) affirm this challenge, explaining that HEI in developing countries generally lack the expertise

needed to support SDG-related research or implement SDG achievement-supporting initiatives. The institutions also lack the necessary technical and human capital to develop novel technologies and provide solutions to the challenges that impede efforts toward the attainment of the SDGs. This is compounded by the brain drain due to poor remuneration linked to poor economic conditions, unstable political situation, and rampant corruption in developing countries, for example, in Zimbabwe. Abad-Seguru (2021) contends that even though universities have limited resources and they must focus on economic competitiveness, they must do so without compromising sustainable development.

2.5.2   Capacity challenges

Fleaca et al. (2018) contend that lack of capacity, and failure to integrate sustainable development practices and principles in aspects of HE learning and teaching, thus impeding their capacity to contribute to the SDGs. The authors further portend that it is critical to plan, design, customize, and implement SDGs-related initiatives that align with the priorities of HEI. Most HEI in developing countries are underdeveloped, their laboratories ill-equipped, or have outdated infrastructure and technologies. This makes it difficult to implement the SDGs-connected initiatives or programs. Capacity constraints also relate to training, knowledge, and expertise. Capacity constraints are further compounded by the competition for resources by HEI. Competition for resources makes it difficult to prioritize SDG-connected initiatives. This is especially so when there is presumed conflict or divergence between the focus on SDGs and other priorities which include human capital development and teaching.

2.5.3   Lack of clear strategy or vision for sustainability or implementing SDGs in HEI

Sustainable development is influenced by moral, political, leadership, and assumptions that vary among people, institutions, and countries (Franco et al., 2018). In some cases, HEI lack the required vision and strategy for sustainability and sustainable development programs aligning with the SDGs. The leadership void concerning SDGs in HEI leads to commitment challenges that cripple the integration of SDGs in teaching, research, innovation, and community engagement as well as in general university governance and administration as well as in other university operations. This also leads to poor coordination or lack of it between HEI themselves and/or HEI and other stakeholders that include NGOs, businesses, and governments in building partnerships towards the fruition of the SDGs or innovative solutions to SDGs-related problems. Underscoring the need for a clear vision and strategy that promotes collaboration Additionally, even in cases where there is a clear vision and leadership for the implementation of SDG-related curriculum, research, and other initiatives, this can be impeded by resistance from agents who must complement or implement the sustainability strategy. This according to the social realist strategy is the outcome of the interconnected interaction between culture, structures, and agents (Archer, 2003; Shava, 2020).

2.5.4   Resistance to the Adoption of Sustainability Practices

Change is generally difficult to accept as outlined in the theory. Some staff members in HEI institutions or their faculties might be resistant to change or the incorporation of sustainable development in their curriculum, thus they may be unwilling to relinquish their traditional methods in favor of the new approaches that contribute towards sustainable development practices, research, and operations. In some instances, due to lack of motivation, consequent on the poor remuneration agents or staff in HEI could see the integration of sustainable practices as an additional burden that is not compensated for. Some staff members may be against the implementation of SDG-related activities for fear of their jobs being made redundant or replaced by technology, thus impeding their implementation. Policies in HEI institutions could also drive this resistance if they do not adequately compensate or give a share of the income generated from sustainable operations such as power generation, farming, and other activities such as agroforestry.

2.5.5 Political and Economic Challenges

Political and economic environments in most developing countries are not enabling HEI to exercise their full potential in research, teaching, innovation, and sustainable development matters. In most African countries HEI lack institutional autonomy, their operations are marred by political interference that affects their operations and brings in corruption that affects both staffing and leadership appointments in these institutions. Pasara and Mhlanga (2022) acknowledge that most African HEIs are affected by political interference and lack of freedom to exercise their institutional independence. The researchers further argue that South African HEI have a certain degree of institutional autonomy with limited political interference. Zimbabwe is one such country where there is a lack of separation between politics and the operations of HEI, with President being the Chancellor of all state universities. There is also a lack of political will to support HEI in some African countries. African leaders devote very little resources towards education and cutting edge research. The lack of political will is also evident in national budgets allocations where most African governments allocate the largest share to the security and defence. Further to the even allocations, there budget and actual disbursements are marred with significant disparities (Daniel & Sama, 2020; Pasara & Mhlanga, 2022). The issue of lack of political will to support education was also clear during the COVID-19 pandemic, when Zimbabwe and South Africa are compared. South African Universities were supported by the government in their efforts to ensure online learning occurred and they in turn supported their students, availing laptops and internet data, something that was lacking in Zimbabwe totally crippling education (Mpofu & Mpofu, 2023; Pasara & Mhlanga, 2022). The contextual environment prevailing in developing countries may negatively affect the implementation of SDG-related initiatives.

2.5.6 Time constraints

HEI are expected to concentrate on their core business and attain goals relating to those priorities such as teaching research and innovation hence they dedicate less time to the implementation of SDGs-associated initiatives.

2.5.7 Lack of awareness of the SDGs

There may be a lack of awareness, for example, where some students and staff are not conversant or aware of the SDGs, their importance of initiatives towards realizing them makes coordination and cooperation toward a common goal of accelerating or contributing to their achievement difficult. Shava (2020) calls for HEI to update their curriculum as some of its contents are outdated and do not meet the needs of the next generation or those of teaching and learning in the modern and dynamic educational and economic environments. To emphasize the lack of awareness studies conducted by Molina et. al. (2023), on integrating the United Nations sustainable development goals into higher education globally found that there are pronounced gaps on the import of SDGs among both academic staff and students initially, and further on how to integrate these into learning, research and day to day conduct. Yuan et. al. (2021) concurred on lack of knowledge of SDG's with their results pointing to a 30% awareness rate among their target student population. There is evidence that there of limited awareness of the SDGs in higher education, highlighting the need to equip students on the importance of understanding and seeking to work toward the SDGs which hinges upon the informed focus of HE processes.

3. Methodology

This paper employed a critical literature review approach through which literature was gathered from the Google Scholar database as well as from Reasearchgate based on the search terms that encompass "the role of HEI in achievement or attainment of the SDGs", How do HEI contribute to the

SDGs", "the role of HEI towards the attainment of SDGs in Zimbabwe", and "what role do HEI in Zimbabwe contribute towards the attainment of SDGs in Zimbabwe. The paper was guided by the social realist theory by Archer (1996, 2005) and Bhaskar (2012). The literature review was presented in line with themes and subthemes that emerged from the review.

4. Discussion of Review Findings

The review found that there are many ways in which HEI in Zimbabwe could contribute to the attainment of the SDGs. The first way to improve the quality and accessibility of education to all is by taking into consideration the inequities, inequalities, and poverty levels that exist in society such as gender inequality, the rural and urban divide as well as other vulnerabilities such as disability. The institutions can reach out to disadvantaged communities, and promote access to higher education by the underprivileged through work for fees initiatives, sourcing scholarships, and other financial support for the girl child and students affected by other vulnerabilities. Through human capital development, HEI contribute to different SDGs. The other contributions were found to be in the specific SDGs and it is important to note that normally their achievement of these SDGs is causally linked, such that as one is attained the other is addressed directly or indirectly, as such HEI in Zimbabwe tend to contribute to all SDGs through education 5.0. For example, teaching and learning, research, industrialization, innovation, and community engagement which are pillars of HE in Zimbabwe all are addressed either or indirectly in the 17 SDGs presented in Figure 1. The contribution of these HEI was found to be negatively affected by challenges that restrict the activities of HEI in Zimbabwe. For example, while online learning makes access to education easy and more flexible, data cost problems and digital infrastructure challenges perpetuate inequalities and access challenges for students from poor and low-income families affecting SDGs 4, 5, 8, and 1 all in different and converging ways. This is supported by (Mpofu & Mpofu, 2022; Dzingirai et al., 2022; Kaliisa & Michelle, 2019; Sibanda, 2023) These challenges relate to culture (traditional methods of doing things, cultural values and norms that affect the change or embracing of SDGs-oriented ways and methods), structural problems (lack of resources, funding, leadership void, unclear strategies, poor remuneration, lack of motivation) and agents (HEI employees, management and council) among other problems. Addressing the challenges established from the literature review could help alleviate the limiting impact of the challenges. Conclusively, the role of HEI in the attainment of SDGs is mixed and complex and requires a thorough and balanced assessment.

5. Conclusions, Limitations, Areas of Further Research, and Recommendations

This paper assessed the role of HEI in the attainment of the SDGs in Zimbabwe, through the lens of the social realist theory of culture, structure, and agency. Through a critical review, the paper established through teaching, research, industrialization, innovation, community engagement, and institutional operations, sustainable practices, operations, HEI can contribute to the acceleration of the attainment of all 17 SDGs. From the review of literature, the paper identified several areas where HEI in Zimbabwe can make significant contributions towards the achievement of the SDGs. Firstly, through human capital development (through producing knowledgeable, skilled, and fit-for-purpose graduates that can contribute to sustainable development. Secondly, by researching sustainable development issues, thereby generating new ideas and knowledge that can form the basis of policy and practice on sustainable development. Thirdly, by working with both local and international communities to address local and regional sustainable development challenges, such as inequalities, poverty, climate change, gender-based violence, food security, and environmental degradation. Lastly by adopting sustainable practices in their institutional operations, thus leading by example in mitigating their environmental impact and promoting sustainable environmental practices and lifestyle within the HEI and communities around them. Even though there are many opportunities through which HEI in Zimbabwe, can contribute to the SDGs, these

opportunities are constrained by structural (governance, remuneration, curriculum, strategy, and vision), cultural (traditional ways of doing things, change acceptance), and agency (HEI staff for example academic, non-academic, university council, and committees) issues that need to be addressed to enhance the contribution of HEI. The paper concludes by suggesting recommendations on HEI can strengthen their ability and capacity to contribute to the attainment of the SDGs in Zimbabwe. These suggestions include:

Development of SDG-related programs and initiatives

HEI can integrate the SDGs into research, teaching, and learning as well as innovation. By incorporating SDGs into their curriculum HEI could avail opportunities for students to learn about the SDGs and enhance the learner's contribution to their achievement. The programs created could focus on SDGS. These could be related to education, teaching, research or advocacy for SDGs.

Clear Leadership, Vision, and Strategy for Sustainable Development in HEI

HEI need to have a strong leadership that comprehends and values the issues of sustainability, sustainable development, and the SDGs. Strong leadership that is SDGs- realization-oriented can develop a clear and informed vision toward an institution's contribution to the attainment of the SDGs. This leadership could provide direction towards integrating SDGs into the operations of HEI, their curriculum, teaching and learning, research and capacity development as well as building partnerships with stakeholders. The commitment and efforts towards the SDGs need to be documented and communicated to staff, students, and other stakeholders to build acceptance, support, and a sense of ownership for the SDGs- related programs and initiatives

Capacity Development

To enhance the capacity of HEI in Zimbabwe to effectively contribute to the SDGs there is a need for investment in financial, technical, and human capital development. This involves investing in technology, research, and relevant modern infrastructure to support activities related to the attainment of the SDGs. There is also a need for training, continuous professional development, and reskilling of staff. As part of capacity development, government and higher institutions themselves need to invest in capacitation and funding for research on sustainable development matters.

Collaborating with various stakeholders: HEI in Zimbabwe must collaborate or form partnerships with stakeholders such as civil society, NGOs, government, private sector, and other stakeholders to create, support, and implement initiatives, solutions, and programs toward accelerating sustainable development. This partnership could allow for synergistic advantages such as pooling of resources, shared knowledge, diversity, and multidisciplinary skills and experience to be exploited among other benefits. It is important to highlight that to be effective, collaboration needs understanding, cooperation, compromise, clear communication, and willingness to work together.

Measuring and Reporting on issues of Sustainable development by HEI

Measuring and reporting issues to do with the SDGs, especially progress is essential. This is not only critical for tracking and monitoring the progress of the initiatives, but it can also help inform stakeholders on the commitment and the impacts of the HEI's contribution to the SDGs. It can further serve as a learning curve in identifying areas of strength to maximize as well as the areas of weakness that need improvement.

Political will and commitment.

Political will and commitment are needed to support HEI in Zimbabwe with adequate funding, remuneration, and better work conditions for staff working in these institutions.

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